



National FFA Career Development Events

*A Special Project of the
National FFA Foundation*

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General Information

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These are the official rules and regulations for National FFA Career Development Events for 2012-2016. Refer to the CDE webpage on ffa.org for the most up-to-date edition of the career development event handbook.

Prepared and published by the National FFA Organization. The National FFA Organization is a resource and support organization that does not select, control or supervise state association, local chapter or individual member activities except as expressly provided for in the National FFA Organization Constitution and Bylaws. The National FFA Organization affirms its belief in the value of all human beings and seeks diversity in its membership, leadership and staff.

FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education. National FFA Online, www.ffa.org, FFA's Internet web site, can provide information about the National FFA Organization.

Philosophy of National FFA Career Development Events

The National FFA Organization is dedicated to organizing experiences that will meet the future needs of students while accomplishing the current purposes of agricultural education. The primary goal of career development events is to develop individual responsibilities, foster teamwork and promote communication while recognizing the value of ethical competition and individual achievement.

The activities in each career development event:

- include problem solving, critical thinking and teamwork skills, where appropriate.
- encourage appreciation for diversity by reducing barriers to participation among members.
- develop general leadership and recognize individual and team achievement.
- promote concentrated focus on future needs of members and society.

The National FFA Organization assumes the leadership role in developing and continuously improving relevant FFA career development events. National career development events should reflect instruction that currently takes place in the entire agricultural education program, including classroom instruction, laboratory instruction, individualized instruction and/or supervised agricultural experience. Career development events and awards are intended to be an outgrowth of instruction. Also, it is appropriate for the national organization to develop career development events and awards that stimulate instruction in emerging areas that reflect both current and future community, national and global work force needs. National FFA Career Development Events should be developed with significant input from FFA members, teachers, partners, respective industry sponsors and others involved in agricultural education. The National FFA Organization continues to encourage accessibility and provide opportunities for achievement and recognition for students with diverse backgrounds.

Career development events that include team activities should be based on cooperation and teamwork while recognizing the value of competition and individual achievement. Where appropriate, team activities will be included that require two or more members from one chapter working cooperatively.

Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

Agriculture is a highly technical and ever-changing industry upon which everyone is dependent. In order to maintain agriculture as the nation's number one industry, it is crucial to understand the importance of agrisciences, marketing strategies, safe food production and continuous research. Strong, relevant agriscience programs are one way to can maintain the nation's agricultural edge.

The National AFNR Career Cluster Content Standards were developed as part of the National FFA 10 x 15 project to provide state agricultural education leaders and teachers with a forward-thinking guide for what students should know and be able to do through the study of agriculture. The National AFNR Career Cluster Content Standards should be used as a guide to develop well-planned curriculum in agriscience education to be delivered to students throughout the country. For a complete copy of the AFNR Career Cluster Content Standards please visit www.agedlearning.org.

National FFA Organization has adopted the AFNR Career Cluster Content Standards and integrated them into all national award and recognition programs for the benefit of the members, school administration and agriculture as a whole. Details outlining the incorporation of the standards in career development events can be found at the end of each event chapter in the CDE handbook.

Official CDE Rules and Policies – 2012-2016

General Rules

Violations of any of the following rules may be grounds for the event superintendent to disqualify the participants. National FFA staff and event superintendents will use the published rules and procedures to organize and implement the National FFA Career Development Events. Event activities may not be conducted due to lack of necessary materials, expertise or extreme impact to event budgets. Teams that are certified to compete will receive the current event format in a team orientation packet prior to the convention.

Official Dress Recommendations, Number of Participants and Number of Scores for Team Total

Event	Official Dress Appropriate	Number of Participants Allowed (per team)	Number of Scores Counted for Team Score
Agricultural Communications	Yes	3	3
Agricultural Issues Forum	Optional	3-7	Team Score Event
Agricultural Technology and Mechanical Systems	No	4	Top 3 Scores
Agricultural Sales	Yes	4	4
Agronomy	Yes	4	4
Creed Speaking	Yes	1	N/A
Dairy Cattle Management and Evaluation	Yes	4	4
Dairy Cattle Handlers	Yes	1	N/A
Environmental and Natural Resources	No	4	4
Extemporaneous Public Speaking	Yes	1	N/A
Farm Business Management	Yes	4	Top 3 Scores
Floriculture	Yes	4	4
Food Science and Technology	Yes	4	4
Forestry	No	4	4
Horse Evaluation	Yes	4	Top 3 Scores
Job Interview	Yes	1	N/A
Livestock Evaluation	Yes	4	4
Marketing Plan	Yes	3	Team Score Event
Meats Evaluation and Technology	No	4	Top 3 Scores
Milk Quality and Products	Yes	4	4
Nursery/Landscape	Yes	4	Top 3 Scores
Parliamentary Procedure	Yes	6	Team Score Event
Poultry Evaluation	Yes	4	Top 3 Scores
Prepared Public Speaking	Yes	1	N/A

Eligibility of Participants

- A. Each participant must be a current, bona fide, dues paying FFA member in good standing with the local chapter, state FFA association and the National FFA Organization during the school year which the participant qualified to participate at the national level.
 - 1. In the event a participant's name is not on the chapter's official roster for the years in which the dues were payable to the National FFA Organization, a past due membership processing fee, in addition to the dues, must be paid prior to the national event.
 - 2. National FFA membership staff will set the processing fee amount annually.
- B. The participant, at the national event, must:
 - 1. Be a high school FFA member; high school refers to grades 9-12. (A graduating senior is considered eligible to compete in state and national career development events up to and including his/her first national convention following graduation.)
 - 2. Have qualified as a 7th, 8th or 9th grade member to participate in the Creed speaking event.
 - 3. While in high school, be enrolled in at least one agricultural education course during the school year and/or follow a planned course of study; either course must include a supervised agricultural experience program, the objective of which is preparation for an agricultural career.
 - 4. If a student moves to a different chapter or a different state once a he/she has qualified as a state representative in a career development event, that student may be allowed to compete in the national event with the school he/she qualified with during the qualifying year.
- C. A student may not participate more than once in the same official National FFA Career Development Event.
- D. No student may participate in more than one National FFA Career Development Event each year.
- E. Each member participating in a National FFA Career Development Event must submit the proper *Waiver, Release of Liability and Consent to Medical Treatment Form* prior to start of event.

Selection and Certification of State Teams

- A. Each state will submit a team declaration form by **June 1** prior to the national FFA convention. An entry processing fee will be charged for participation in each declared event with the exception of the dairy cattle handlers activity.
- B. Each team will be composed of the number of members determined by the specific event rules and formats. The members of a state team must be from the same chapter. Members must qualify in the career development event in which they are to participate at the national level. Teams must be selected at a state or interstate career development event held between the immediate previous national FFA convention and prior to the national FFA convention in which they are participating. States that qualify more than one year out must request and submit a written waiver for approval by the certification deadline.
 - 1. Online certification deadline: **September 15**.
 - 2. Online add/delete deadline: **Tuesday before convention at noon (Eastern)**.
- C. With extenuating circumstances a teacher may substitute another student from the chapter who may not have participated at a state qualifying event, with the exception of Creed speaking, dairy handlers activity, extemporaneous public speaking, job interview and prepared public speaking, which must be submitted and approved by state staff.

- D. The state supervisor of agricultural education or the executive secretary must certify that participants are eligible. If an ineligible student participates in any career development event, the member will be disqualified and may result in the disqualification of the team as well.
- E. All students must be certified online by the designated deadline. Once original certification has been completed, no member may be added without first deleting a member.
- F. The national organization will certify National FFA Career Development Event winners for international competition when states request, with the understanding that the state team will provide their own travel expenses.

Emergency Conditions

Under emergency conditions a state team participating in a National FFA Career Development Event may be made up of less than the required members. States must still certify teams prior to the national FFA convention, but fewer than the required members could compete if an emergency condition such as illness, death in the family or an act of God would occur. Those individuals competing would still be eligible to qualify for individual awards, if applicable.

Disqualification

- A. Any communication, verbal or non-verbal, between participants during a career development event will be sufficient cause to eliminate the team member involved from the career development event. The only exception to this would be communications between team members during the team activity portion of a given career development event.
- B. Teams or participants arriving after the career development event has begun may be disqualified or penalized.
- C. Any assistance given to a team member from any source other than the career development event officials or assistants will be sufficient cause to eliminate the team from the career development event.
- D. Event superintendents may stop any participant if they deem their manner to be hazardous either to themselves or others. Such action shall deem the individuals disqualified for that section of the career development event.
- E. Participants who start an event and do not complete the event without notifying event officials at the time of departure will be disqualified. This can affect the overall team rank and position. In some events this will also disqualify the entire team.
- F. Participants will not be allowed to utilize personal electronic communication devices, other than those approved by the event officials, during the entire course of the event. Participants who access personal electronic communication devices without prior approval of the event officials will be disqualified.
- G. No participant shall gain access to real materials that will be utilized by the event committee during competition. Any team, participant, advisor or coach reported and proven to do so will be disqualified from the national event.

Additions/Deletions of National Events

- A. National FFA staff is expected to be proactive in developing new or initiating changes within existing career development events to ensure that they meet the needs of FFA members.
- B. If fifteen (15) state supervisors/executive secretaries develop a proposal for a new career development event, the national FFA staff will conduct a study for the validity of the career development event and make a recommendation to the chief executive officer. Representatives of these states must be from each of the FFA regions. The same process may be used to eliminate a national career development event.
- C. Three years following the initiation of a new career development event, at least fifteen (15) states should be participating. After the next three-year period, at least twenty-six (26) states should be participating in order to retain the event at the national level.

Rules Committee/Scoring Appeals Process

- A. If a written appeal is filed within the seven (7) calendar days after results announcement, national CDE staff will review the appeal. Upon receiving input from team leader and division director, national CDE staff will accept or deny the appeal. The national CDE staff's recommendation will be shared with appeals committee and National FFA Chief Executive Officer for further input, if necessary.
 1. The written appeal must be filed with the Education Division staff responsible for scoring career development events within seven (7) calendar days of the results announcement and accompanied by a \$50 filing fee. The fee will be returned if the appeal is justified.
- B. The appeals committee will be chaired by the National FFA Awards, Recognition and Career Development Events Advisory Committee chairperson who will in turn appoint a representative of each of the following organizations: National Association of Supervisors of Agricultural Education (NASAE), National Association of Agricultural Educators (NAAE) and the American Association for Agricultural Education (AAAE). The National FFA staff responsible for career development events will also serve on the committee.

Waiver of FFA Rules

Any local chapter seeking a waiver of a National FFA policy or procedure must submit in writing to the chapter's state FFA association office. If the request is approved at the state level, it must be forwarded, under the signature of the state advisor or executive secretary, to the career development events education specialist. After study by the appropriate FFA staff, a recommendation to grant or deny the appeal will be forward to the chief executive officer for his/her approval. The request must be submitted to the national FFA staff at least 30 days prior to the scheduled event or due date for which the waiver is requested. This policy does not supersede any current FFA policy for appeals already established for a particular FFA program.

Selection of CDE Superintendents and CDE Committee Members

- A. Nominations for CDE superintendents may come to National FFA staff from the following sources:
 - 1. standing CDE superintendent
 - 2. current CDE committee members
 - 3. state leadership
 - 4. Team Ag Ed partners
- B. CDE superintendents will be selected by national CDE staff and approved by the National FFA Chief Executive Officer.
- C. Each CDE superintendent will serve a three to five year term. At the end of the superintendent's term, a qualified replacement will assume the duties of superintendent.
- D. National FFA staff and CDE superintendents will select qualified individuals to serve on CDE committees. Selection of committee members will be based on:
 - 1. individual qualifications.
 - 2. recommendations from state leaders, current CDE committee members, CDE superintendents or National FFA staff.
 - 3. recommendations from Team Ag Ed partners.
 - 4. current rotational procedures developed by each CDE committee.
 - 5. provide diversity for the committee.
 - 6. commitment to serve a minimum of three years on the committee.
- E. Final approval of new committee members is the responsibility of the National FFA CDE staff with input and recommendations from CDE event superintendent and committee.

Sanctioning Events

Sanctioning of non-national FFA competitive events (those competitive events conducted by organizations other than the National FFA Organization) as National FFA Career Development Events should occur when:

- 1. The highest quality event possible is conducted.
- 2. Organization conducting event and National FFA Organization agree that event can and should be sanctioned.
- 3. Event is recommended by the National FFA Staff responsible for CDEs with input and agreement from the Award and Recognition Advisory Committee and approved by the National FFA Chief Executive Officer.
- 4. National FFA is represented by staff responsible for career development events on the planning and implementation committee for each event.
- 5. Winners of the national sanctioned event will be recognized in the same manner as national career development events winners are currently recognized.

Official Dress

Participants are expected to observe the National FFA Code of Ethics and the proper use of the FFA jacket during career development events. (Please reference the latest edition of the Official FFA Manual.) Official FFA dress is highly recommended for all participants where appropriate and is required for the awards presentation and recognition.

Accessibility for All Students

All special needs requests and appropriate documentation as outlined in the special needs request policy must be submitted at time of certification.

- 1. Special needs policy is posted on the CDE program page at www.ffa.org/cde
- 2. Special needs request due: **August 15**

Written Document Penalties

A penalty of 10% of the total points allotted will be assessed for the written documents received after the postmarked deadline. If the document is still not received seven days after the postmarked deadline, the team/individual may be subject to disqualification.

1. National staff will mark late entries as such.
2. Event officials will be notified of late entries at the time written documents are provided for judging.
3. Event superintendent will ensure that penalty is applied.

National FFA Agricultural Communications Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the agricultural communications career development event is to provide individuals with practical communications skills necessary to pursue career opportunities in agricultural communications. Public communications about agricultural products, practices and policies are essential to the future of agriculture. Students who are equipped with strong communication skills, have developed teamwork skills and who can use a variety of media to help the public understand issues related to the industry of agriculture have a bright future in the job market.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

1. Teams will consist of three members.
2. It is highly recommended that participants wear FFA Official Dress for this event.
3. Team members will work together to prepare a written media plan prior to national FFA convention. The team will also be responsible for presenting the plan at the national event and completing individual practicums and tests.
4. During the practicum portion of the event, one team member will be responsible for completing a written communication activity, one team member will be responsible for completing an electronic media activity and one team member will be responsible for completing a visual design activity.
5. Any participant in possession of an electronic device in the event area is subject to disqualification.

IV. Event Format

Each November following the national FFA convention, the agricultural communications CDE committee will release event specifications for the next year. The specifications will outline the scenario to be used for the media plan and presentation as well as the specific practicum activities and software.

A. Equipment

1. Needed: Students must provide pens and pencils.

2. Provided: Specialized equipment listed below
 - a. For team presentation: Easel, projector screen and table.

Note: Teams may bring additional equipment for the media plan presentation as long as they are able to set up and tear down equipment in the time allowed for the presentation.
 - b. For practicums: PC computer, printer, blank paper, recorder, digital photographs, dummy text, logos and any other necessary materials.

B. Team Activities

1. Agriculture-related Media Plan (200 points/team)

- a. Teams will play the role of communications consultants and will develop a media plan for an assigned scenario. The scenario will identify a client with a communications need and a budget. Please reference the current event specifications on the CDE webpage. At the national event, the team will make an oral presentation of the media plan.
- b. A media plan is a written document that describes the following:
 - i. **Objectives:** What the group wants to accomplish with the media plan.
 - ii. **Target Audience:** Description of who the client is trying to reach, including demographic data.
 - iii. **Strategic plan and tactics:** Ways in which the objectives can be accomplished.
 - iv. **Timeline:** When the objectives will be accomplished.
 - v. **Evaluation:** How the results will be measured.
 - vi. **Budget:** How much the plan will cost.
- c. Guidelines for media plan
 - i. The media plan should be:
 - A maximum of 15 typed pages not including cover page, table of contents, references or appendices.
 - Double-spaced with 1" margins.
 - Paginated (numbered pages not including cover page).
 - 12-point Times New Roman font (not including display text or headings).
 - Submitted electronically in PDF format to National FFA Organization.
 - Formatted and edited according to the Publication Manual of the American Psychological Association (APA) when citing sources.
 - ii. The media plan must include the following sections (points will be deducted for missing or incomplete sections):
 - **Cover page**
 - o Must include the title of the media plan, CDE name, state, chapter name, team member names and year.
 - o May include a creative design.
 - **Table of Contents**
 - **Executive Summary- 1 page maximum**
 - o Brief description of the contents of the media plan. The executive summary previews the main points of the complete plan. It allows the reader to get the main points without reading the whole document.
Helpful tip: complete this after the plan has been written.
 - **Introduction and Overview- 2 pages maximum**
 - o *Introduction-* a brief background of the issue/topic and a statement of the problem establishing the need for this media plan.
 - o *Overview-* a brief preview of what is contained in the plan and how it will benefit the client.

- **Audience- 2 pages maximum**
 - o Who the client is trying to reach with the media plan.
 - o The demographic characteristics of the intended audience.
 - **Strategic Plan- 6 pages maximum**
 - o The heart of the plan, including the objectives.
 - o Key messages or themes to communicate to the audience.
 - o Explanation of how the objectives will be met, including justification of chosen media tactics.
 - A minimum of three examples must be included in the appendices.
 - Examples of tactics include but are not limited to social media, broadcast advertising, print advertising, press releases, fliers, brochures, web site, blogging and displays.
 - o Description of how the plan will be executed.
 - **Timeline- 1 page maximum**
 - o Explanation of the duration of the plan and the timing of the media tactics.
 - **Evaluation- 1 pages maximum**
 - o Description of proposed methods to determine if the objectives were met.
 - **Budget - 1 page maximum**
 - o Table of all costs associated with implementing the media plan.
 - o Narratives typically will not be included with the budget table.
 - **Conclusion- 1 page maximum**
 - o A final summary of key points related to the strategic plan and a statement persuading the client that the plan is a good solution to the communication problem.
 - o Not a restatement of the introduction and overview.
 - **References**
 - o Formatted and edited according to the Publication Manual of the American Psychological Association (APA).
 - **Appendices/Examples**
- iii. **An electronic copy of the media plan in PDF format must be submitted by September 15.** A penalty of 10% will be assessed for documents received after the deadline. If the document is not received seven days after the deadline, the team may be subject to disqualification. States qualifying after the September 15 deadline will have ten days from state qualifying event date to submit their media plan.

2. Media Plan Presentation (125 points/team)

- a. The team should present the media plan as if pitching it to the client identified in the scenario.
- b. The presentation should follow the structure of the written media plan.
- c. Teams are encouraged to bring examples of materials that would be used in the execution of the plan (e.g. social media, broadcast advertising, print advertising, press releases, fliers, brochures, web site, blogging and displays).
- d. Each team member must participate in the presentation.
- e. Each team will be allowed 15 minutes to present its media plan to a panel of judges, who will play the role of the client. Five points will be deducted for each major fraction of a minute over the 15 minutes allowed for the presentation. Following the presentation, judges will be allowed five minutes to ask questions.
- f. Teams will have a total of 10 minutes for setting-up and tearing-down equipment (e.g. 5 minutes to set up and 5 minutes to tear down).
- g. Provided equipment includes an easel, projector screen and table.

Note: Teams may bring additional equipment for the presentation as long as they are able to set up and tear down equipment in the time allowed.

- h. In the case of equipment failure, the team may be asked to move forward with the presentation. A back-up plan is recommended.
- i. Presentation flights will be seeded by proposal scores. Flights are announced during the team orientation meeting at the start of the event.

C. Individual Activities

1. Tests

a. Editing exercise- 25 points/individual; 75 points/team

Because editing is a critical skill for all communicators, each team member will complete an editing exercise. They will be given a printed document that contains 25 mistakes. In correcting the mistakes, team members will be required to use correct proofreading marks (see Associated Press Stylebook). Style, grammar, punctuation and spelling mistakes will be included. Team members will NOT be able to use the style manual or a dictionary during this exercise.

b. Communications quiz- 25 points/individual; 75 points/team

Each team member will complete a quiz that covers the content of the current Associated Press Stylebook. Questions may come from any section excluding sports guidelines. Team members will NOT be able to use the style manual or a dictionary during this exercise.

2. Practicums- 100 points/individual; 300 points/team

The practicums will consist of three individual events. Each team must assign a member to one of the following areas **PRIOR** to arriving at the national event:

1. Design
2. Electronic Media
3. Writing

All teams will meet in a central location for an orientation and press conference. Teams will be seated by practicum group. All team members will be given an orientation at the beginning of the practicums to last no more than 10 minutes.

The press conference will be held following the orientation meeting. Each team member will receive a press packet with background information on the agricultural topic and expert to use during the event. An expert will speak on a current agricultural topic for 20 minutes. Students will be provided with paper to take notes if they wish. After the 20-minute presentation, the non-writers will be dismissed to a different area to complete their assigned practicums.

The writers will then be involved in a 10-minute question and answer period with the expert (speaker). Each writer will stand to be recognized before asking a question. Writers may ask more than one question; however, the expert will attempt to address questions from as many different participants as possible. No electronic devices of any kind, including tape recorders and cell phones, will be allowed during this portion of the event. Upon completion of the 10-minute question and answer session, remaining participants will be dismissed to complete their assigned practicums.

a. ***Designer***

Each designer will use the press packet and information that was gathered in the press conference to develop a graphic design layout. The specific type of layout and details will be announced each November for the next convention on the CDE webpage. The objective is effective communication or information sharing through visual tools. Each participant will have 60 minutes to complete the practicum.

The activity may be chosen from the following:

- Magazine page layout
- Web page layout
- Electronic publication layout
- Flier/poster

b. ***Electronic Media Specialist***

Each electronic media specialist will use the press packet and information that was gathered in the press conference to develop an electronic media message. The specific medium and details will be announced each November for the next convention on the CDE webpage. Participants will have 60 minutes to complete the practicum.

The activity may be chosen from the following:

- Digital news broadcast
- Blog
- Social media
- Video

c. ***Writers***

Writers are to write a journalistic piece based on the press packet and information that was gathered in the press conference. The specific activity and details will be announced each November for the next convention on the CDE webpage. It should be written for an appropriate audience, have a strong focus and lead (opening paragraph) and include a headline. The story will then be word processed by the student on a computer and turned in to be scored. Participants will have 60 minutes to complete the practicum.

The activity may be chosen from the following:

- Press release
- News story
- Feature story

IV. Scoring

Participants will be ranked in numerical order on the basis of the final score to be determined by each judge without consultation. The judge's ranking of each participant then shall be added, and the winner will be that participant whose total ranking is the lowest. Other placings will be determined in the same manner (low point method of selection). Weighted rank scoring will be implemented to maintain point value emphasis between individual and team events. The criteria and points can be found on the scorecards in Appendix B.

Event	Points	
Media Plan Proposal	200	
Media Plan Presentation	125	
<u>Tests- 150 points possible</u>		
Communications Quiz	75	(25 pts/member)
Editing Exercise	75	(25 pts/member)
<u>Practicums- 300 points possible</u>		
Writer Practicum	100	
Electronic Media Practicum	100	
Design Practicum	100	
Total individual score possible	250	
Total team score possible	775	

V. Tiebreakers

- A. Team tiebreakers will be settled in the following order:
1. Combined individual practicum rank score
 2. Proposal rank
 3. Presentation rank
- B. Individuals tiebreakers will be settled in the following order:
1. Practicum score
 2. Communications quiz score
 3. Editing exercise score

VI. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation. Specialty awards will be given to the high individual in each practicum area.

VII. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog—Past CDE Material (<http://shop.ffa.org/cde-qas-c1413.aspx>)

Associated Press Stylebook and Libel Manual

Microsoft ® Office computer program

Adobe ® Creative Suite (most current edition)

Bivins, T. *Public Relations Writings: The Essentials of Style and Format*, 4th edition. McGraw-Hill Higher Education, ISBN 0-844-20351-3

Harrower, T. *Newspaper Designer's Handbook*, 5th edition. McGraw-Hill Higher Education. ISBN 0-07-249291-0

Kalbfeld, B. *Associated Press Broadcast News Handbook*. McGraw-Hill Higher Education, ISBN 0-07-136388-2

Telg, R. and T. Irani. *Agricultural Communication in Action: A Hands-On Approach*, 1st edition. Cengage/Delmar Publishing, ISBN 1111317143 (Available in October 2011)

Agricultural Communications CDE Media Plan Proposal Scorecard

Name: _____

Chapter: _____

State: _____

Member #: _____

	Possible Score	Team Score
Plan Includes all Requirements Cover page, titles and names on cover page, table of contents, does not exceed page limit, double spaced, one inch margins, page numbers, required headings (-1 point per missing item)	10	
Proposal is Relevant to Scenario Entire narrative focuses on addressing client's specific public communication needs.	10	
Executive Summary Adequately explains the plan without reading the entire document	10	
Introduction Provides adequate background of the issue; clearly states the problem and need for plan; describes how the plan will benefit the client	15	
Description of Audience Clearly describes (including demographics) who is targeted with the media plan	15	
Detailed Strategic Plan Clearly states objectives; explains how objectives will be met; explains why chosen mediums are appropriate to meet objectives; describes how plan will be executed	30	
Timeline Explains duration of plan and timing of media tactics	10	
Method of Evaluation Proposes methods to determine if the objectives were met	15	
Budget Explains all costs associated with implementing the media plan	20	
Conclusion	10	
Appendices Quality of communications documents. Three required	30	
Quality of writing Grammar, spelling, punctuation, capitalization, sentence structure	25	
TOTAL POINTS	200	

Agricultural Communications CDE Presentation Rubric - 125 points

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Examples	<i>Examples are vivid, precise and clearly explained.</i> • Examples are original, logical and relevant.	<i>Examples are usually concrete, sometimes needs clarification.</i> • Examples are effective, but need more originality or thought.	<i>Examples are abstract or not clearly defined.</i> • Examples are sometimes confusing, leaving the listeners with questions.		X 3	
B. Speaking without hesitation	<i>Speaks very articulately without hesitation.</i> • Never has the need for unnecessary pauses or hesitation when speaking.	<i>Speaks articulately, but sometimes hesitates.</i> • Occasionally has the need for a long pause or moderate hesitation when speaking.	<i>Speaks articulately, but frequently hesitates.</i> • Frequently hesitates or has long, awkward pauses while speaking.		X 2	
C. Tone	<i>Appropriate tone is consistent.</i> • Speaks at the right pace to be clear. • Pronunciation of words is very clear and intent is apparent.	<i>Appropriate tone is usually consistent.</i> • Speaks at the right pace most of the time, but shows some nervousness. • Pronunciation of words is usually clear, sometimes vague.	<i>Has difficulty using an appropriate tone.</i> • Pace is too fast; nervous. • Pronunciation of words is difficult to understand; unclear.		X 1	
D. Being detail-oriented	<i>Is able to stay fully detail-oriented.</i> • Always provides details which support the issue; is well organized.	<i>Is mostly good at being detail-oriented.</i> • Usually provides details which are supportive of the issue; displays good organizational skills.	<i>Has difficulty being detail-oriented.</i> • Sometimes overlooks details that could be very beneficial to the issue; lacks organization.		X 2	
E. Speaking unrehearsed	<i>Speaks unrehearsed with comfort and ease.</i> • Is able to speak quickly with organized thoughts and concise answers.	<i>Speaks unrehearsed mostly with comfort and ease, but sometimes seems nervous or unsure.</i> • Is able to speak effectively, has to stop and think and sometimes gets off focus.	<i>Shows nervousness or seems unprepared when speaking unrehearsed.</i> • Seems to ramble or speaks before thinking.		X 2	
F. Connecting and articulating facts and issues	<i>Exemplary in connecting facts and issues and articulating how they impact the issue locally and globally.</i> • Possesses a strong knowledge base and is able to effectively articulate information regarding related facts and current issues.	<i>Sufficient in connecting facts and issues and articulating how they impact the issue locally and globally.</i> • Possesses a good knowledge base and is able to, for the most part, articulate information regarding related facts and current issues.	<i>Has difficulty with connecting facts and issues and articulating how they impact the issue locally and globally.</i> • Possesses some knowledge base but is unable to articulate information regarding related facts and current issues.		X 2	
G. All team members participated	• All team members took an active role in the presentation.	• Two team members took an active role in the presentation.	• One team member took an active role in the presentation.		X 2	
I. Use of Visual Aids	• Visual aids add clarity and support what is being said during the presentation.	• Visual aids add some clarity and support to what is being said during the presentation.	• Visual aids add little to no clarity and support to what is being said during the presentation.		X 2	
J. Media Plan	• Key elements of the media plan are clearly communicated. • Strong understanding of chosen media is present.	• Key elements of the media plan are vaguely communicated. • Vague understanding of chosen media is present.	• Key elements of the media plan are not communicated. • Little to no understanding of chosen media is present.		X 2	
H. Questions and Answers	• Is able to correctly respond to judges' questions. • Answers show familiarity with subject matter.	• Is somewhat able to correctly respond to judges' questions. • Answers show vague familiarity with subject matter.	• Is unable to correctly respond to judges' questions. • Answers do not reflect any familiarity with subject matter.		X 7	
Total Points						

**Agricultural Communications CDE Scorecard
Writer Practicum**

Name: _____

Chapter: _____

State: _____

Member #: _____

	Possible Score	Member Score
Lead/Focus	15	
Accuracy of information and quotes	15	
Clarity and conciseness	10	
Correct style (AP)	10	
Depth of coverage	10	
Header/Headline	10	
Grammar, spelling, punctuation and word choice	10	
Organization and format	10	
Accomplishment of purpose	10	
Total Possible:	100	

**Agricultural Communications CDE Scorecard
Electronic Media Practicum**

Name: _____

Chapter: _____

State: _____

Member #: _____

	Possible Score	Member Score
Effective use of medium	20	
Technical skills specific to activity • Outlined in event specifications	20	
Power of expression	15	
Creativity	15	
Clarity of communication (writing)	10	
Organization and format	10	
Accuracy of information	10	
Total Possible:	100	

**Agricultural Communications CDE Scorecard
Design Practicum**

Name: _____

Chapter: _____

State: _____

Member #: _____

	Possible Score	Member Score
Overall aesthetics of design	20	
Technical skills specific to activity • Outlined in event specifications	20	
Use of graphic design principles	15	
Neatness and creativity	15	
Choice and placement/cropping of photo(s) and graphic(s)	15	
Writing and editing (specific to activity)	15	
Total Possible:	100	

**Agricultural Communications CDE
Team Scorecard**

Name: _____

Chapter: _____

State: _____

Team #: _____

	Possible Score	Team Score
Practicum Scores	300	
Media Plan Proposal	200	
Media Plan Presentation	125	
Test Scores • Communications Quiz – 75 pts. (25pts/member) • Editing Exercise – 75 pts. (25pts/member)	150	
Total Possible:	775	

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.			Social Studies: 4d and 4h
	CS.01.01.01.c. Work independently and in group settings to accomplish a task.	All (media plan, presentation, practicums, quiz)	
	CS.01.01.03.c. Implement an effective project plan.	Media plan	
	CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	Media plan and practicums	
	CS.01.01.06.c. Develop strengths and talents of team members so that all can achieve success.	Media plan and presentation	
	CS.01.01.07.b. Use a variety of strategies to evaluate goals. (e.g., observe, apply and demonstrate).	All (media plan, presentation, practicums, quiz)	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.			Language Arts: 12 Social Studies: 4h
	CS.01.02.02.b. Utilize communication skills to collaborate in a group setting.	Media plan and presentation	
	CS.01.02.04.b. Establish team ground rules for expected individual behaviors on the team.	Presentation	
CS.01.03. Performance Indicator: Vision: Establish a clear image of what the future should look like.			Social Studies: 4a, 4d and 4h
	CS.01.03.01.b. Utilize visioning skills to develop a plan.	Media plan	
	CS.01.03.02.c. Create a plan of action to complete a task based on a conceptualized idea.	Media plan	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.			Language Arts: 1; Social Studies: 1e, 4e, 10b and 10j
	CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	Media plan, presentation, practicums	

CS.01.06. Performance Indicator: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.		Science: A4; Language Arts: 8; Social Studies: 4h
	CS.01.06.03.c. Use problem solving strategies to solve a professional or personal issue.	Media plan and presentation
	CS.01.06.04.b. Evaluate the effectiveness of current technologies.	Media plan and practicums
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12; Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	Presentation
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12; Social Studies: 4a
	CS.02.03.01.a. Explore various career interests/options.	Practicum
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C; Science: A4; Language Arts: 4, 8
	CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	Practicums
	CS.02.04.02.c. Implement effective problem solving strategies.	Media plan
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
	CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	Media plan and practicums
	CS.03.01.03.c. Make effective business presentations.	Presentation
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action		Science: A1 and A5; Social Studies: 1c and 4h
	CS.03.02.01.c. Make decisions for a given situation by applying the decision - making process.	Media plan
	CS.03.02.02.c. Use problem-solving skills.	All (media plan, presentation, practicums, quiz)

CS.09.02. Performance Indicator: Apply skills with computer software to accomplish a variety of business activities.		Math: 6C; Science: A3
	CS.09.02.01.b. Use basic software systems such as spreadsheet and word processing to complete a task.	Media plan and practicums
CS.09.03. Performance Indicator: Use technology to demonstrate the ability to network and interface with technology.		Science: A3 and E2
	CS.09.03.01.c. Demonstrate the use of technology in linking information from various sources.	Presentation and practicums

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

6. Standard and Expectations: Problem Solving

- 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

A. Content Standard: Science as an Inquiry

- A1. Identify questions and concepts that guide scientific investigation.
- A3. Use technology and mathematics to improve investigations and communications.
- A4. Formulate and revise scientific explanations and models using logic and evidence.
- A5. Recognize and analyze alternative explanations and models.

E. Content Standard: Science and Technology

- E2. Understanding about science and technology.

Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture

- 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
- 1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;

4. Thematic Strand: Individual Development and Identity

- 4a. articulate personal connections to time, place and social/cultural systems;
- 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior perception and personality;
- 4e. examine the interactions of ethnic, national or cultural influences in specific situations or events;
- 4h. work independently and cooperatively within groups and institutions to accomplish goals;

10. Thematic Strand: Civic Ideals and Practices

- 10b. identify, analyze, interpret and evaluate sources and examples of citizens' rights and responsibilities;
- 10j. participate in activities to strengthen the "common good," based upon careful evaluation of possible options for citizen action.

National FFA Agricultural Issues Forum Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Objectives

- A. Investigate a variety of local, state, national and international issues facing agriculture through classroom instruction.
- B. Engage students in the selection, research, planning and presentation of a local, state, national or international agricultural issue with relevance to the local community.
- C. Demonstrate through the portfolio, presentation and questioning an understanding of the principles and fundamentals of agricultural issue analysis.
- D. Connect agriculture students with professionals in the industry as they research and present their forum.
- E. Increase the awareness of an agricultural issue at the local, state or national level through presentations of the forum.
- F. Apply teamwork, leadership and communication skills for career success.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. The purpose of the agricultural issues forum is to present a current issue to a public audience; therefore, professional ethics and standards are to be considered. Ignoring truthful information, falsifying needed information, using unreliable sources and plagiarism are violation examples which could result in disqualification.
- B. A minimum of three and a maximum of seven students who are actively participating, orally presenting and available to answer the judges' questions. To be eligible for scholarships and awards, each student must take an active role in the presentation. This includes active participation in the presentation and making themselves available for questions from the judges in all rounds of competition. Only the certified team members can take an active role in the presentation of materials and use of technology during the presentation.
- C. Presentations may include official FFA dress, costumes, props, skits and other creative paraphernalia.
- D. If there is not a state qualifying event, the date on which the state appoints the team to be the representative to the National FFA Agricultural Issues Forum will be considered as the state qualifying date. This must be substantiated by the state FFA advisor or other authorized individual from the state FFA association.

- E. A minimum of three competent and unbiased judges will be provided. They will be instructed not to take sides on the issue(s). Professors and industry representatives are recommended. The superintendent of this CDE will adequately prepare the judges before the event.
- F. Seeding of teams in the preliminary rounds will be determined based on portfolio scores.

IV. Event Format

- A. **EQUIPMENT PROVIDED:** two easels and a front projection screen. Other equipment is allowed, but the presenting team must provide it.
- B. Each team will conduct a presentation on the issue developed and presented at the local level.
- C. The agricultural issue could come from one of the following eight agricultural issue topic areas as listed in the Focusing on Agricultural Issues Instructional Materials (<http://web.ics.purdue.edu/~peters/HTML/issue-analysis/teaching-materials.html>):
 - 1. Environmental Issues
 - 2. Agricultural Technology Issues
 - 3. Animal Issues
 - 4. Agricultural Career Issues
 - 5. Economy and Trade Issues
 - 6. Agricultural Policy Issues
 - 7. Food Safety Issues
 - 8. Biotechnology Issues
- D. The same agricultural issue topic will not be used in subsequent years by the same chapter and/or advisor.
- E. Research on the topic must be current, and students must be involved in all the research of the topic and development of the portfolio.
- F. The portfolio should include items described in H1-H5 and will be limited to ten single-sided pages or five double-sided pages maximum, not including cover page. Portfolios are to be printed on standard bond 8 1/2" x 11" paper, stapled in upper left hand corner or with spiral binding. Portfolios should not be sent in notebooks, page protectors or report covers.
- G. A maximum of ten points will be deducted for exceeding the maximum amount of pages and/or for not including the cover page containing required information.
- H. **Ten copies of the portfolio must be sent to the Career Development Event Program Manager at the National FFA Center postmarked by August 15 prior to the national FFA convention at which the issue is to be presented.** Please send to CDE Program Manager, 6060 FFA Drive, PO Box 68960, Indianapolis, IN 46268. A penalty of 10% (2.5 points) will be assessed for documents postmarked after the postmark deadline. If document is not received within seven days after postmark deadline, the team may be subject to disqualification. States qualifying after the August 15 deadline will have ten days from state qualifying event date to submit their portfolio.
 - 1. Required information on the cover to avoid score deductions:
 - a. Title of the issue stated as a question.
 - b. Date of the state qualifying event.
 - c. Name, address, state and phone number of the chapter.
 - 2. A maximum of two pages of the portfolio will include a summary of the issue. The purposes of the summary are to provide an overview of the issue and to demonstrate understanding of the principles and fundamentals of agricultural issue analysis. The summary needs to include the course(s) in which instruction occurred and the number of students involved in the instruction on agricultural issues. (See Objective 1.)

The summary may also include, but is not limited to, responses to the following questions:

- a. Why is this issue important now?
- b. What is the nature of the issue?
- c. Who is involved in the issue?
- d. How can the issue be defined?
- e. What is the historical background of the issue?
- f. What caused the issue?
- g. What are the risks?
- h. What are the benefits?

For additional background on these questions, refer to the resource "Focusing on Agricultural Issues Instructional Materials" and review the PowerPoint "Agricultural Issues Analysis" in the Teaching Materials section at: <http://web.ics.purdue.edu/~peters/HTML/issue-analysis/teaching-materials.html>

3. A bibliography of all resources and references cited which should include personal interviews, when appropriate, and any other supporting material.
4. In order for a forum to be awarded points, it must have occurred prior to the state qualifying event, and there must be independent verification of the forum presentation date. "Independent" means that verification needs to be provided by someone in the organization or the group to whom the presentation was made. The independent documentation needs to state when, where and to whom the forum was presented. Documentation can include:
 - a. Letters from organizations.
 - b. News articles, that also include the date of the presentation and/or the date the article is printed.
 - c. Photos showing attendance at forums, but also need independent documentation of the date of the forum presentation.
 - d. If more than one forum is held on the same day, the starting times of the multiple forums held on the same day also must be independently documented.
5. A chapter must have a minimum of five high quality public forums prior to their state qualifying event in order to receive the maximum of 15 points. In most cases, the date of the state competition is the date of the qualifying event. Forum presentations given after the state qualifying event are encouraged, but will not count toward the portfolio score.
 - a. Multiple organizations attending the same forum will count as one forum.
 - b. Portfolio judges may take into consideration the quality and quantity of presentations made to audiences outside of the school. No points will be awarded for school presentations to students or presentations to teachers. In addition, no points will be awarded for forums presented as any part of a local or state FFA competition.
 - c. ***High quality forums*** are those presentations made to community groups that would have an interest in the issue. Suggested procedures for setting up these presentations and examples of community groups have been provided in the *Agricultural Issues Forum Presenter's Guide*. High quality forums can also be with smaller numbers of individuals who hold elected, appointed or some other official position that will be making decisions on the issue.
 - d. ***Examples of low quality forums*** would be dropping in at a local business and giving a presentation to the workers or going to the home of one of the parents to make a presentation. Low quality forums will receive zero or minimal points.

- I. **Time Limits:** Five minutes will be allowed for set-up. The presentation will be a maximum of 15 minutes in length. The presenters will receive a signal at 10 minutes and 14 minutes. At 15 minutes the timekeeper will announce that time is up, and the presentation will end. Seven minutes for questions and answers will be allotted in both the preliminary and semifinal rounds. Ten minutes for questions and answers will be allotted in the final round. Questions and answers will terminate at the end of allotted time. Three (3) minutes will be allowed for take-down.
- J. The presentations will be designed to be viewed by the judges. The audience at-large will not be of concern to the presenters.
- K. The judges may ask questions of all individuals of the presenting team. Each individual is encouraged to respond to at least one question from the judges.

V. Scoring

- A. **Portfolio:** ten single-sided pages or five double-sided pages maximum
(Three parts, 25 points total)
 1. Summary of the issue, two pages maximum (5 points).
 2. Bibliography (5 points).
 3. Documentation of local forums (15 points).
 - a. All forums, require independent verification of when, where and to whom forums were presented, and independent verification of presentation times if more than one forum is held on the same day.
 4. Maximum of ten points will be deducted for exceeding the maximum number of pages and/or not including cover page containing required information.
 5. Prior to the event, the portfolios will be judged and scored by qualified individuals using the portfolio scorecard. Portfolio scores will be averaged and supplied to the presentation judges after they have scored the presentation. Portfolio comment cards will be completed by portfolio judges and presented to the teams at the awards function.
 6. Proper grammar, correct spelling and proper editing of text are important. The most current edition of The American Psychological Association (APA) style guide should be used for all research citations. Adherence to these editorial guidelines is expected to receive maximum points for the portfolio score.
- B. **Team Presentation**
 1. Introduction, Pro, Con and Summary of Pro and Con (20 points each, 80 points total)
 2. Questions (25 points) - Appropriate response and knowledge of the issue will be evaluated from team members' responses.
 3. Effectiveness of Presentation (20 points)
 - a. participation of each team member.
 - b. creative in how main points are made. (It makes no difference, for the "creativity" score, if team is in costume or official FFA dress.)
 - c. quality and power of the presentations.
 - d. speaks at the right pace to be clear.
 - e. pronunciation of words is clear and intent apparent.
 - f. no distracting mannerisms that affect effectiveness.
 - g. gestures are purposeful and effective.
 - h. well poised with good stage presence.
 4. There will be a five point deduction from the scorecard of any team that draws a conclusion supporting a pro or con viewpoint during the formal presentation. During the question period, students may draw a conclusion supporting a pro or con viewpoint if asked to do so by a judge.
 5. Presentation comment cards will be completed by presentation judges and presented to the teams at the awards function.

- C. Judges' ranking will be used to place teams. Teams will be ranked in numerical order on the basis of the final score to be determined by each judge without consultation. The judges' ranking of each team then shall be added, and the winner will be that team whose total ranking is the lowest. (Low rank method of selection where a rank of "1" is assigned to the highest place team, "2" to the second place team, etc.)

VI. Tiebreakers

Ties will be broken based on the greatest number of low ranks. Teams' low ranks will be counted and the team with the greatest number of low ranks will be declared the winner. If a tie still exists, then the event superintendent will rank the team's response to questions. The team with the greatest number of low ranks from the response to questions will be declared the winner. If a tie still exists then the team's raw scores will be totaled. The team with the greatest total of raw points will be declared the winner.

VII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

VIII. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog—Past CDE Material (<http://shop.ffa.org/cde-qas-c1413.aspx>)

National FFA Core Catalog—*Power of Demonstration* DVD (<http://shop.ffa.org/power-of-demonstration-p38845.aspx>)

Updated Focusing on Agricultural Issues Instructional Materials located at: <http://web.ics.purdue.edu/~peters/>

“Helpful hints to give your students the best opportunity to do well in the Agricultural Issues Forum Career Development Event at the State and National FFA Conventions” can be found on the Agricultural Issues Instructional Materials website listed above and the National FFA Website at the following link: http://www.ffa.org/documents/cde_agissues_resources.pdf

Agricultural Issues Forum CDE Portfolio Scorecard

Chapter Name: _____

State: _____

The portfolio should include items described in sections H1-H5 of the event format guidelines and is limited to ten single-sided pages or five double-sided pages maximum.

Ten copies of the portfolio must be sent to the Career Development Event Program Manager at the National FFA Center postmarked by August 15 prior to the National FFA Convention at which the issue is to be presented.

	Possible Points	15-11	10-6	5-1	Total Score
Summary of the issue (2 pages maximum)	5				
Bibliography	5				
Documentation of local forums	15				
Subtotal:					
Deductions					
• Late submission to National FFA				-2.5 points	()
• For exceeding maximum number of pages • Cover page not stating Title in form of a question, Date of state qualifying event, Chapter Name, Address, State and Phone Number				-10 points	()
Total Points					

Judge's Signature: _____

**Agricultural Issues Forum CDE
Team Presentation Scorecard**

Chapter Name: _____

State: _____

Circle One: Preliminaries Semifinals Finals

	Possible Points	25-21	20-15	14-10	9-5	4-0	Total Score
Introduction • Statement of the issue • Why issue is important	20						
Pro view point • Identification of positive points • Points addressed are relevant	20						
Con view point • Identification of negative points • Points addressed are relevant	20						
Summary of pro/con view points	20						
Effectiveness of presentation • Participation, creativity, quality and power, clear with right pace and word pronunciation, no distractions, appropriate gestures, poised	25						
Questions • Appropriate response • Knowledge of issue	20						
Subtotal							
Portfolio Score							
Deduction for presenting a conclusion during the 15 minute presentation (-5 points)							()
Total							

Judge's Signature: _____

APPENDIX A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Activity	Related Academic Standards
	CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
	CS.01.01.01.c. Work independently and in group settings to accomplish a task.	Presentation	
	CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	Portfolio	
	CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	Presentation	
	CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
	CS.01.02.02.c. Engage others in conversations to respond to an obstacle when completing a task.	Portfolio	
	CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtues.		Social Studies: 4c and 4f
	CS.01.04.03.b. Assess the alternative outcome of specific actions.	Portfolio	
	CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.		Language Arts: 1 Social Studies: 1e, 4e, 10b, 10j
	CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	Presentation; Portfolio	
	CS.01.06. Performance Indicator: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.		Science: A4 Language Arts: 8 Social Studies: 4h
	CS.01.06.03.c. Use problem solving strategies to solve a professional or personal issue.	Presentation	
	CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	Presentation; Portfolio	

CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.02.b. Analyze problems that were solved well and problems that were not solved well.	Presentation	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	Portfolio	
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1, A5 Social Studies: 1c, 4h
CS.03.02.02.c. Use problem-solving skills.	Presentation; Portfolio	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics**6. Standard and Expectations: Problem Solving**

6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science**A. Content Standard: Science as an Inquiry**

A1. Identify questions and concepts that guide scientific investigation.

A4. Formulate and revise scientific explanations and models using logic and evidence.

A5. Recognize and analyze alternative explanations and models.

English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies**1. Thematic Strand: Culture**

1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;

1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;

4. Thematic Strand: Individual Development and Identity

4c. describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status and other group and cultural influences contribute to the development of a sense of self;

4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;

4e. examine the interactions of ethnic, national or cultural influences in specific situations or events;

4f. analyze the role of perceptions, attitudes, values and beliefs in the development of personal identity;

4h. work independently and cooperatively within groups and institutions to accomplish goals;

10. Thematic Strand: Civic Ideals and Practices

10b. identify, analyze, interpret and evaluate sources and examples of citizens' rights and responsibilities;

10j. participate in activities to strengthen the "common good," based upon careful evaluation of possible options for citizen action.

National FFA Agricultural Sales Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the National FFA Agricultural Sales Career Development Event is to evaluate skills that are essential for an individual to be successful in the agricultural sales field. The process of selling agricultural products is essential for production and marketing of agricultural products.

II. Objectives

- A. Develop verbal, written and interactive communication skills.
- B. Discuss features and benefits of a product.
- C. Identify potential customer objections.
- D. Demonstrate knowledge of proper product use.
- E. Identify prospective customers through marketing data.
- F. Introduce the product to prospective customers.
- G. Develop a sales call that determines and addresses customers' needs and objections.
- H. Understand the basic business structure necessary to sell and deliver a product.
- I. Attempt to close the sale by asking for customer's buying decision.
- J. Establish and build customer confidence in the product.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. The team will be composed of four students, and all four individual scores will count toward the team total. A team may compete with less than four members, but is only eligible for individual awards.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Any participant in possession of an electronic device in the event area is subject to disqualification.

V. Event Format

The event will be composed of three parts. Individual scores will be comprised of the written exam and individual sales activity. The team score will be comprised of the team activity and all individual scores.

The product(s) utilized in the event and activity examples will be announced during the summer prior to convention in the team orientation packet and on the CDE webpage. Provided product information may include appropriate company information and price list.

A. Individual Written Exam - 100 points (400 points total)

The written exam is designed to evaluate an individual's knowledge of sales skills. The listed resources will be used as a basic resource but the questions will be generated based on basic sales concepts. The test will not exceed thirty (30) questions and forty-five (45) minutes. The questions will consist of multiple choice, fill in the blank, short answer and essay format. Point values will be assigned to each question based on the skill level of the question.

B. Team Activity - 150 points

1. Each participant will be allowed to bring a one-inch binder to the team activity containing the provided product information and any other information gathered by the participant.
2. Team members will work together to demonstrate teamwork, group dynamics, problem solving, data analysis, decision making and oral communications.
3. The following information will be provided to the team at the event as if they were a group of salespeople working together to develop the pre-call planning prior to conducting a sales call.
 - a. Product information (before event)
 - b. Profiles of different customers
4. The team will be provided with paper and writing utensils. No presentation equipment such as laptops, flipcharts or dry erase boards will be allowed.
5. The team will then develop the strategy (for the product(s) provided prior to the event) necessary to sell the product(s) in a face-to-face sales call. This strategy should include but not be limited to:
 - a. Determining potential customer needs and wants.
 - b. Identify features and benefits of the product(s) that address the customer's needs and wants.
 - c. Identify potential customer objections and prepare to address them.
 - d. Identify possible related/complimentary products and their suggestive selling strategies.
 - e. Develop information gathering questions to be utilized in clarifying the customer's needs and wants.
6. Teamwork and involvement of team members will be judged during this event. Students are expected to justify their decisions based on selling principles.
7. The team will be given twenty (20) minutes to analyze the information given and develop a presentation to provide the information listed above. During this twenty (20) minute period, the team will be judged using the team activity scorecard found in this chapter.
8. At the conclusion of the twenty (20) minutes, the team will present to the judges who are acting as the team's immediate supervisors. The presentation will be no longer than ten (10) minutes. At the conclusion of the presentation, the judges will have ten (10) minutes to ask questions of all team members. The questions will be taken from all aspects of the team event.

C. Individual Sales Activity - 150 points

Information and product(s) from team activity will be used in the individual sales activity. (Individual activity will be conducted after the team activity.) Participants will directly sell the product(s) to judge(s). The judge(s) will fit one of the customer profiles identified in the team pre-call planning activity. The judge(s) will act as a real customer which may include not buying the product. Participants will have to establish rapport with the customer and ask probing questions to ensure they meet the customer's needs. Participants will have twenty (20) minutes to interact with the judge(s). Participants are allowed to use their one-inch product information binder during individual activity.

VI. Scoring

	<u>Individual</u>	<u>Team</u>
Written Exam	100 points	400 points
Individual Sales Activity	150 points	600 points
Team Activity		<u>150 points</u>
Total Points		1,150 points

VII. Tiebreakers**Individual**

In the event of a tie in the individual scores, the highest individual sales activity score will break the tie. If the tie cannot be broken using the individual sales activity score, the highest written exam score will be used. If a tie still exists, the highest team activity score will be used to break the tie.

Team

In the event of a tie in the team scores, the highest team activity score will break the tie. If the tie cannot be broken using the team activity score, then the total individual sales activity scores will be used. If a tie still exists, the total written exam scores will be used to break the tie.

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

IX. References and Resources

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

1. CRISP Publications, 1200 Hamilton Court, Menlo Park, CA 94025-1427. 1-800-442-7477. FAX 650-323-5800.
 - *Professional Selling*, Rebecca L. Morgan, ISBN 0-931961-42-4
 - *Sales Training Basics*, Elwood N. Chapman, ISBN 1-56052-119-8
 - *Closing*, Virden J. Thorton, ISBN 1-56052-318-2
2. Ditzenberger and Kidney, *Selling-Helping Customers Buy*, South-Western Publishing Company, Cincinnati, Ohio, 1992, 1-800-543-7972, ISBN 0538605316.

Agricultural Sales CDE Team Event Scorecard

Chapter Name: _____

State: _____

Skills	Points Possible	Points Earned
How well did each team member participate by analyzing and providing input to the solution?	8	
How well did each team member communicate with the rest of the team members?	10	
How well did each team member demonstrate effective listening skills?	10	
How well did each team member respect the input of other team members?	9	
What level of knowledge did the team have of the products they are selling?	12	
Did the team accurately analyze all the information for each customer type?	12	
Did the team identify customer needs and wants, and prepare quality questions to help clarify the customer's needs and wants?	12	
Did the team identify products for each customer type based on their product's features and benefits and the customer's anticipated needs and wants?	15	
How well did the team identify potential objections for each customer type and how to address them?	12	
Were complimentary/related products also identified?	10	
Were the decisions made by the team based on sound sales principles using the information they were given?	12	
Was the presentation delivered professionally?	8	
Did all team members participate in the presentation?	8	
Were the questions answered correctly by all team members?	12	
TOTAL POINTS	150	

**Agricultural Sales CDE
Individual Sales Call Scorecard**

Student Name: _____ Chapter Name: _____

State: _____

Skills	Points Possible	Points Earned
Did the sales person identify themselves with a good first impression?	5	
Did the student ask questions/dialogue in an attempt to build personal rapport with you?	8	
Did the student actively listen to your personal comments when you answered?	8	
Did the student use the information from your answers to further establish personal rapport?	8	
Did the student ask questions to learn about your business?	10	
Did the student listen to the answers about your business you provided?	10	
Did the student confirm and discover your needs and wants?	12	
Did the student apply the features/benefits of their product to your needs/wants?	16	
Did the student allow you to participate in matching your needs/wants to their product features?	15	
Did the student effectively use trail close (gain acceptance on an point, identify customers willingness to buy or a closing opportunity?)	11	
Did the student listen to and clarify your objections?	14	
Did the student apply and discuss the features/benefits of their product to address your objections?	13	
Did the student clearly close or attempt to close the sale?	20	
TOTAL POINTS	150	

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.			Social Studies: 7b and 7g
	ABS.01.01.01.c. Execute supply-and-demand principles in AFNR businesses.	Individual Written Exam	
ABS.02.02. Performance Indicator: Read, interpret, evaluate and write a mission statement to guide business goals, objectives and resource allocation.			Language Arts: 3, 4, 5 and 6
	ABS.02.02.02.c. Evaluate AFNR business goals and objectives and make revisions based on observations.	Individual Written Exam; Individual Sales Activity	
ABS.04.01. Performance Indicator: Use accounting fundamentals to accomplish dependable bookkeeping and fiscal management.			Math: 1C, 5A and 5C Social Studies: 7h
	ABS.04.01.02.b. Use accounting information to estimate the cost of goods sold and margins on the goods.	Individual Written Exam; Individual Sales Activity	
	ABS.04.01.03.a. Explain the importance of return on investment for an agribusiness enterprise.	Individual Sales Activity	
ABS.06.01. Performance Indicator: Conduct appropriate market and marketing research.			Social Studies: 7b and 7h
	ABS.06.01.01.a. Investigate the meaning and methods of marketing in AFNR as related to agricultural commodities, products and services and to agricultural goods in domestic and international markets.	Individual Sales Activity; Team Activity	
ABS.06.02. Performance Indicator: Develop a marketing plan.			Language Arts: 3, 5, 7 and 8 Social Studies: 7b and 7d
	ABS.06.02.01.c. Establish marketing plan goals/objectives, including monitoring, measuring and analyzing goal achievement.	Team Activity	
ABS.06.03. Performance Indicator: Develop strategies for marketing plan implementation.			Social Studies: 7b and 7h
	ABS.06.03.01.b. Determine marketing strategies that are most likely to be effective in an AFNR business.	Team Activity	

ABS.06.05. Performance Indicator: Merchandise products and services to achieve specific marketing goals.		Language Arts: 4 Social Studies: 7b and 7d
ABS.06.05.01.b. Develop effective customer relationships using approaches that are consistent and comprehensive.	Individual Sales Activity	
ABS.06.05.02.c. Prepare and make sales presentations.	Individual Sales Activity	
ABS.06.05.03.c. Intercept, interpret and process customer complaints, needs and problems with products and services.	Individual Written Exam	
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	Team Activity	
CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	Team Activity	
CS.01.01.03.c. Implement an effective project plan.	Individual Sales Activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
CS.01.02.01.c. Demonstrate human relation skills including compassion, empathy, unselfishness, trustworthiness, reliability and being friendly to co-workers.	Team Activity	
CS.01.03. Performance Indicator: Vision: Establish a clear image of what the future should look like.		Social Studies: 4a, 4d and 4h
CS.01.03.04.b. Demonstrate consensus building. Team Activity		
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
CS.02.02.02.c. Present oneself appropriately in various settings.	Individual Sales Activity; Team Activity	
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12 Social Studies: 4a
CS.02.03.03.c. Demonstrate employability skills for a specific career.	Individual Sales Activity	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.02.c. Implement effective problem solving strategies.	Team Activity	

CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
CS.02.05.03.c. Exhibit self confidence while in the workplace.	Individual Sales Activity; Team Activity	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.03.c. Make effective business presentations.	Individual Sales Activity; Team Activity	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates
5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
 - 5C. Develop and evaluate inferences and predictions that are based on data.
6. Standard and Expectations: Problem Solving
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A2. Design and conduct scientific investigations.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
 - A5. Recognize and analyze alternative explanations and models.
 - A6. Communicate and defend a scientific argument.
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology

English Language Arts

3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
4. Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.
7. Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture

- 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
- 1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;

4. Thematic Strand: Individual Development and Identity

- 4a. articulate personal connections to time, place and social/cultural systems;
- 4c. describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status and other group and cultural influences contribute to the development of a sense of self;
- 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
- 4f. analyze the role of perceptions, attitudes, values and beliefs in the development of personal identity;
- 4h. work independently and cooperatively within groups and institutions to accomplish goals;

7. Thematic Strand: Production, Distribution and Consumption

- 7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;
- 7d. describe relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions and corporations;
- 7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;
- 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;

8. Thematic Strand: Science, Technology and Society

- 8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;

National FFA Agricultural Technology and Mechanical Systems Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

Technological advances in America continue to influence the way students must prepare for their futures. Students entering the workforce need a strong knowledge base and the ability to comprehend the interaction of complex systems. Employers want productive workers and managers that can access and use a broad range of information. The most sought after employees are those who communicate effectively, continue to stay current with modern technology and work successfully and effectively as individuals and as team members. Students with these skills and abilities are more competitive in the job market, receive financial rewards and are selected for advancement.

Agricultural technology and mechanical systems is comprised of strong technical content and complimented by the development of practical, hands-on skills. The subject matter areas and skill development practices have been grouped into five ‘systems’ areas, so named because of the complex interaction and synergistic processes common to agriculture. The term ‘system’ is used to emphasize the interactive relationship between each area of agricultural technology and mechanical systems. These five systems areas are described and examples appear on the pages that follow.

Each agricultural technology and mechanical systems activity is in response to a problem or need encountered in the workplace. The solving of such problems is dependent upon how each decision or solution, imposed on one component, will influence the other system components. Solving one component of a problem without using a ‘systems approach’ can, and often does, result in additional problems. An example of where this has occurred is observed in the many obstacles that agricultural producers currently face regarding environmental pollution, ground water contamination and stricter governmental regulations. Decisions and solutions made earlier in this century have impacted the environment negatively and resulted in a new set of problems.

The National FFA Agricultural Technology and Mechanical Systems Career Development Event recognizes students with agricultural technology and mechanical systems competencies important to the modern workplace. The technical content and required skills continue to include all traditional areas of agricultural technology and mechanical systems. Additionally, the operation of modern equipment, the application of new management strategies and the mastering of advanced technologies are increasingly emphasized. This career development event selects and awards those students and teams that demonstrate: (1) mastery of the subject matter and skills common to the systems areas; (2) effective communication skills; (3) superior problem solving techniques; (4) an understanding of modern technology; (5) the ability to function as individuals and as team members working together.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules and Format

A. Team Make-Up

Teams may consist of three or four members. Team ranking is determined by combining the scores of the top three students from each team. Teams having fewer than three members are not eligible for team awards, but students may receive individual awards.

B. Equipment

1. Needed- Safety Materials Students Must Provide.

Each event participant must adhere to the safe practices and work habits appropriate when performing required activities. Participants are responsible and must provide all personal safety equipment including:

- a. Industrial-quality eye protection: INDIVIDUALS MUST WEAR STYLE B (SEE BELOW) INDUSTRIAL-QUALITY EYE PROTECTION during the team activity and the skill/problem solving activities. Those with prescription eyewear that is not Style B must also wear safety glasses or goggles while participating in this event. Safety glasses do not have to be worn while completing the written exam. Acceptable spectacles or goggles must adhere to the American National Standard Practice for Occupational and Education Eye and Face Protection, Z87.1-1979 (or Z87.1-1968) and revisions approved by ANSI. Descriptions of style A, B, and C Industrial Quality Eye Protection are as follows:
 - i. Style A: NOT ACCEPTABLE for use in the event. These are safety spectacles without side shields. They are for limited-hazard use requiring only frontal protection. The addition of accessory side shields that are not firmly secured does not upgrade style A to a style B or C.
 - ii. Style B: ACCEPTABLE—Safety spectacles with wire mesh, perforated plastic or non-perforated side shields. The side shields shall be tapered, with an anatomical periphery extending at least half-way around the circumference of the lens frame. Industrial-quality eye protection for those not wearing prescription glasses shall be style B.
 - iii. Style C: NOT ACCEPTABLE for use in the event. Safety spectacles with semi- or flat-fold shield that must be firmly secured to the frame. Style C glasses do not provide maximum protection from the top and bottom angles.
- b. Clothing: Each individual shall furnish and wear appropriate clothing such as long pants and long sleeved cotton shirt, coveralls, etc. for this event. Clothing must be in good repair and fit properly. Oversized or loose fitting clothing is dangerous around agricultural equipment and is not allowed. Long-sleeves must be worn when welding or oxy-fuel cutting. No open-toed footwear shall be worn during the event.

- c. **Other Materials:** Each participant must have a clipboard, two sharpened No. 2 pencils and an electronic calculator. Calculators used in this event should be battery operated and silent.
- d. **Computers:** Each state team is required to provide a laptop computer, printer and printer paper for the team activity. Minimum computer specifications will be determined and posted on the event webpage and in the team orientation packet prior to the event. Computers must be Microsoft Office ® compatible.

2. **Provided- Specialized safety equipment**

- a. Necessary equipment such as helmets, shields, gloves, welding leathers, hearing protection devices, etc., will be provided by the National FFA Agricultural Technology and Mechanical Systems Career Development Event committee.
- b. Tools and equipment will be furnished for the event. Teams/individuals may choose to use their own equipment subject to approval by the event superintendent.
- c. If a team member needs modified equipment due to physical size and stature, the student must supply this equipment. The team member or coach must present the student-supplied equipment to the event superintendent prior to the start of the event for approval. Team members who need specialized or modified equipment due to disability as defined by the American Disabilities Act must submit the appropriate special needs request form and documentation at the time of the team's certification.

C. **Event Areas**

The National FFA Agricultural Technology and Mechanical Systems Career Development Event is divided into the following five systems areas. Each system includes a broad range of information and performance skills common to agricultural technology and mechanical systems.

1. **Machinery and Equipment Systems:** repair and maintenance, materials handling, processing, adjustments, metal fabrication
2. **Electrical Systems:** AC/DC power, electrical safety, electrical standards, sensing devices, electrical wiring, controls, electronics, motors and other electrical loads, operating instructions, and manufacturer's recommendations
3. **Energy Systems:** mechanical power, chemical power, wind power, solar power, hydraulic power, engine operation, maintenance, trouble-shooting, repair
4. **Structural Systems:** structures, storage, concrete, masonry, plumbing, electrical, fabrication, construction, building materials, ventilation, heating, air conditioning
5. **Environmental and Natural Resource Systems:** water quality, sustainable agricultural practices, soil and water conservation, biological waste handling

D. **Team Activities**

The individuals on each state team will work together and be evaluated as a team while solving multi-system agricultural problem(s) selected from the skills and problem solving of the five system competency areas. The specific problem scenario is presented to the team on the day of the event. Team members will utilize the materials and equipment provided to solve the problem(s) and prepare a computer generated report. Teams will organize themselves, assign duties and complete tasks together or separately depending on individual skills and abilities. Each team will receive a score, and each team member will receive one-third of the total team activity score.

E. Individual Activities

1. Individual problem solving and skill development activities

Each student is individually evaluated in each of the five systems areas. The specific activities occurring in each event are not publicized prior to the event. Each student is allowed 25 minutes to complete each of the five activities.

2. Written examination

Each student completes an examination that consists of 50 problem solving/multiple-choice questions. There are 10 questions from each of the five agricultural technology and mechanical systems areas. Students will have 60 minutes to complete this portion of the career development event.

F. Schedule of Theme Announcement

Agricultural technology and mechanical systems theme for the career development event is on a five year rotation and is published and distributed by the National FFA Organization and posted at the following web site: <http://web.missouri.edu/~schumacherl/natcon.html>

Specific information and event updates generally occur following each year's event during November, June, and August. The schedule for announcing event information and details on equipment selection is governed by equipment availability and late changes by equipment manufacturers, dealers and contributors. The theme examples listed below provides direction for students and their advisors. This short list should not stifle or limit the learning or instructional process as students and advisors prepare themselves to solve integrated system problems in the workplace of today and tomorrow.

THEMES

The schedule for Agricultural Technology and Mechanical Systems themes:

2012	Materials Handling Systems
2013	Processing Systems
2014	Plant Production Systems
2015	Integrated Pest Management
2016	Animal Production Systems

An example of the *integrated pest management* theme appears in Appendix C at the end of this chapter. This example illustrates the interaction between systems in a typical theme. An individual solving a pesticide application problem must consider numerous variables and make a variety of decisions. The following list includes some of the systems competencies needed during the planning, preparation and implementation of the problem solution. Many other competencies exist and identical competencies may be required in more than one system.

Machinery and Equipment Systems- application and equipment calibration, nozzle selection, equipment testing and maintenance

Electrical Systems- electronic sensing devices, multi meters, relays, switches, magnetic motor controllers, motor selection, electrical trouble shooting

Energy Systems- power requirements, variable rate applications, electronically controlled equipment, valves, pumps, pressure regulators

Structural Systems- storage, mixing and loading requirements, fire safety, temperature control, ventilation, construction requirements, fabrication

Environmental and Natural Resource Systems- pesticide and pesticide container disposal, pesticide handling, drift control, impact on non-target plants, animals and insects

Team Activity – members will collaborate on topics such as equipment selection, assembly, calibration and/or repair, and developing a computer generated final report

IV. Scoring

Event participants are evaluated as follows:

INDIVIDUAL SCORING

Written examination	50
Individual activities (5 at 30 points each)	150
Team activity (1/3 of total team score)	133.3
<i>Total Possible Individual Score</i>	<i>333.3</i>

TEAM SCORING

Top three written examinations	150
All individual activities for top three individuals	450
Team activity	400
<i>Total Possible Team Score (top three)</i>	<i>1000</i>

V. Tiebreakers

Team

The team activity scores will be used to break a tie associated with the team rankings. If a tie still exists, the combined written exam scores of the top three team members will be used to break the tie.

Individual

If a tie exists between individuals, the combined highest problem solving/skill scores will break the tie(s). If still tied, the highest written examination score will be used to break the tie.

VI. Awards

Awards will be presented at the awards ceremony. Awards are presented to teams as well as individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation. Special recognition awards to individuals or teams by a sponsor(s) will be at the sole discretion of the sponsor(s).

The high scoring individual in each of the five system skill/problem solving areas and the high scoring team in the team activity will be recognized with a certificate. The scores used to award this recognition include the exam questions and individual problem-solving/skill activity associated with each system area.

VII. References and resources

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

The goal of the National FFA Agricultural Technology and Mechanical Systems Career Development Event is to guide and promote quality instructional programs in agricultural technology and mechanical systems. The following list contains references that may prove helpful during event preparation. The multiple-choice test questions are written to be generic in nature and are selected from a variety of sources. It is the intent of the national event committee to reflect current technological practices common to the agricultural production industry. Refer to the CDE website for additional references and resources.

1. National FFA Core Catalog—Past CDE Material (<http://shop.ffa.org/cde-qas-c1413.aspx>)
2. Information specific to each annual event is available on the National FFA Agricultural Technology and Mechanical Systems Career Development Event web page at <http://web.missouri.edu/~schumacher1/natcon.html>. Specific information and event updates generally occur following each year's event during November, June and August.
3. *FOS*. John Deere.
4. *FMO*. John Deere.
5. *Agricultural Power and Machinery*. (CD format) CEV Multimedia. LTD.
6. *Agricultural Engineering Technology*. (ASABE) Springer Science + Business Media, LLC.
7. *Mechanics in Agriculture*. Prentice Hall.
8. *Agricultural Mechanics Fundamentals and Applications*. Delmar and Thompson
9. *Modern Agricultural Mechanics*, V3. Prentice Hall.
10. *Developing Shop Safety Skills*. American Association for Vocational Instructional Materials.
11. *Power Tool Safety and Operation*. Hobar Publications.
12. *Practical Farm Buildings*. Prentice Hall.
13. *National Electrical Code* (latest edition). NFPA.
14. *Ag Wiring Handbook*. Rural Electricity Resource Council.
15. *Mechanical Technology in Agriculture*. Prentice Hall.
16. Industry websites

VIII. Event Related Competencies

The following list of statements with specific understandings and performances are provided as examples for the systems areas identified. Examination questions are primarily developed from “problem solving” categories. The “skills” categories are the basis for performance activities. Problem solving activities are developed from both “problem solving” and “skills” categories. In each systems area, the requirements for effective communication, problem solving activities and the application of modern technology - specifically computers and computer software - are strongly emphasized. Industry has recently identified important skills, abilities and competencies needed by new employees. These important attributes are described following the list of system competencies.

A. Machinery/Equipment Systems Competencies

Problem Solving

1. Identify safe machinery operation practices for field and highway conditions.
2. Identify the recommended service and maintenance operations from the operator's manual.
3. Select lubricants for machinery and equipment.
4. Identify functions of machinery components.
5. Identify parts and functions of hydraulic systems.
6. Identify and compute harvest losses.
7. Prepare machinery for storage.
8. Identify and select reduced tillage and conservation tillage equipment.
9. Explain principles of machinery management.
10. Describe functions of chemical application, harvesting, materials handling, processing, planting, seeding and tillage equipment.
11. Identify appropriate shapes of tool and equipment cutting edges.
12. Select abrasives for grinding and sharpening.

13. Identify safe adjustment [level] on power equipment.
14. Identify pipe, valves and fittings by type.
15. Select pipe sizes to meet pressure and flow requirements.
16. Select valves and controllers for turf and drip irrigation systems.
17. Identify and select pipe sealants.
18. Identify characteristics and applications of fiberglass and plastic.
19. Identify repair procedures and techniques.
20. Select repair material needed for specific jobs.
21. Match tractors to implements.

Skills

1. Check and adjust driveline components.
2. Adjust equipment hitches and drives.
3. Install, adjust and service belt and chain drives.
4. Select and use test equipment including meters, tachometers and timing devices to determine proper machine operation.
5. Adjust and/or calibrate chemical application, seeding, fertilizing, harvesting, processing and materials handling machinery.
6. Install, operate, maintain, adjust and evaluate machine systems.
7. Inflate tires to proper air pressure.
8. Adjust equipment for field and crop conditions.
9. Prepare grinding and sharpening equipment.
10. Recondition chain saw, horticultural and turf cutting tools.
11. Recondition rotary lawn mower blades.
12. Adjust bed knife on reel mowers.
13. Join metals with appropriate fasteners.
14. Bend sheet and strap steel to angles or shapes.
15. Repair damaged threads.
16. Cut, thread and assemble steel pipe.
17. Connect flare, compression, flat-face or other types of specialized fittings.
18. Install and set programmable timers.
19. Select tools and materials for specific repair jobs.
20. Repair structural or cosmetic damage using proper materials.
21. Select and use appropriate safety equipment.
22. Identify safe machinery operation practices for field and highway conditions.
23. Identify the recommended service and maintenance operations from the operator's manual.
24. Describe how to repair a specific component or system.
25. Select fuels, lubricants, hydraulic fluids and coolants for proper operation.
26. Identify importance of oil analysis as a management tool.
27. Operation and interpretation of circuit diagrams and flowcharts for: electrical, hydraulic, fuel, oil, cooling, intake and exhaust systems.
28. Identify the function and operating principles of clutches, transmissions, control devices and brakes.
29. Explain and describe principles of power transmission.
30. Identify the parts and functions of electrical, hydraulic, lubrication, cooling, governor and fuel systems.
31. Select proper ballast for machinery weighting.
32. Use load/inflation table for tires (constant deflection table).

33. Evaluate engine performance under load and no-load operation using dynamometer data.
34. Conduct a pre-operation inspection of a tractor or implement.
35. Start, stop and operate machinery/engines.
36. Perform recommended periodic service jobs (as found in operator's manuals).
37. Test and service cooling systems.
38. Make hitch and PTO adjustments to the implement.
39. Adjust wheel tread spacing.
40. Adjust steering linkage.
41. Match tractors to implements.
42. Conduct on-board tractor monitor checks as identified in operator's manual.
43. Test and service air conditioning systems.
44. Select and use engine overhaul equipment, including valve, cylinder, piston, seal and bearing tools.
45. Service and maintain fuel, air intake and exhaust, cooling and lubrication systems.
46. Operate engine and adjust or check ignition timing, engine speed and carburetor adjustments.

B. Electrical Systems Competencies

Problem Solving

1. Interpret horsepower, torque and other performance criteria.
2. Use appropriate standards for agricultural applications, including the National Electrical Code (NEC), Electrical Testing Laboratory (ETL), Factory Mutual, Underwriters Laboratory (UL), Canadian Standard Association (CSA) and/or OSHA standards.
3. Plan safe electrical circuits.
4. Select conductor type and size for specific applications.
5. Calculate voltage drop.
6. Determine electrical power requirements.
7. Identify the characteristics of single and three-phase circuits.
8. Plan and evaluate proper grounding systems and ground-fault protection.
9. Determine volt, amp and ohm relationships (Ohm's and other application laws).
10. Select adequate and appropriate lighting fixtures.
11. Make connections in a computer-simulated wiring task.
12. Select motors based upon type of application.
13. Interpret electric motor nameplate data.
14. Identify electric motors and motor parts.
15. Identify methods of providing electric motor protection.
16. Interpret power (horsepower, kilowatt), power factor, torque and other motor selection criteria.
17. Select, size and isolate standby power generators.
18. Calculate heating and cooling loads.
19. Identify and describe basic principles of controls including thermostats; humidistat; photoelectric; magnetic relays; programmable controllers; proximity switches and sensors; ultrasonics; timers and other time-delay equipment and pressure, motion, limit, float and sail switches.
20. Select controls from supply catalogs, microforms, microfiche or computers.
21. Select controls for electrical applications.
22. Use low-voltage electrical control equipment.
23. Identify and select devices for automated systems.

Skills

1. Connect electrical motor drives.
2. Use electrical test instruments such as: VOA (volt-ohm-amp)-meter, DMM (digital multi-meter) and tachometer.
3. Test and troubleshoot electronic sensing devices.
4. Remove, service and replace electrical components.
5. Read schematics and sketch wiring circuits.
6. Attach conductors to terminals.
7. Install plugs and cord connector bodies.
8. Make proper splices and connections.
9. Troubleshoot electrical circuits using proper testing equipment and measuring devices.
10. Measure electrical circuits for voltage, amperage, resistance and wattage.
11. Install service entrance for single phase 120/240V service or three-phase power.
12. Wire 120/240V service outlets.
13. Install electrical circuits, switching devices and appliances.
14. Install ground-fault circuit interrupters.
15. Make connections in a computer-simulated wiring task.
16. Troubleshoot electric motor circuits using proper testing equipment.
17. Connect a dual voltage motor to power source.
18. Change the direction of electric or hydraulic motor rotation.
19. Disassemble and reassemble an electric motor.
20. Provide suitable motor over-current protection.
21. Service and lubricate electric motor.
22. Check the running amperage and voltage of a motor.
23. Select and mount an electric motor on a machine.
24. Connect electric motor controls.
25. Install timer circuits and automation devices.
26. Install thermal and solid-state delay/relay controls.
27. Install a low-voltage motor control system.
28. Install sensing devices including thermostats; humidistat; photoelectric; magnetic relays; programmable controllers; proximity switches and sensors; ultrasonic; timers and other time delay equipment and pressure, motion, limit, float and sail switches.
29. Wire devices that are capable of providing artificial heat.

C. Energy Systems Competencies**Problem Solving**

1. Interpret horsepower, torque and other power measurement criteria.
2. Identify and use OECD (Organization for Economic Cooperation and Development) and/or Nebraska Tractor Test results.
3. Interpret metric units in measurements.
4. Compare costs of alternative machine uses.
5. Understand interactive electronic components.
6. Describe operating principles of two-stroke and four-stroke spark or compression ignition engines.
7. Evaluate engine performance under load and no-load operation.
8. Determine hydraulic cylinder force and speed.
9. Interpret wiring diagrams.
10. Identify and select devices for automated systems.
11. Select aquaculture air delivery systems.
12. Select aquaculture water heating devices.

13. Determine water filtration needs.
14. Establish ballast and tire pressures.
15. Use safe wiring practices for specific applications.
16. Select standby power generators and isolation equipment for specific applications.
17. Match tractors to implements.
18. Select energy efficient equipment and materials.
19. Identify energy conservation measures to reduce costs and operation(s).
20. Determine energy consumption and cost savings of alternatives.

Skills

1. Connect hydraulic, electric or pneumatic motor drives.
2. Conduct a pre-operation inspection of a tractor.
3. Starting, stopping and operating machinery engines.
4. Perform recommended periodic service jobs (as found in operator's manuals).
5. Use measuring tools and test instruments such as: micrometer and telescoping gauges, dial indicator, compression tester, torque wrench, VOA (volt-ohm-amp)meter, DMM (digital multi-meter), timing devices, tachometer and dynamometer for determining test procedures.
6. Test and troubleshoot electronic sensing devices.
7. Remove, service and replace electrical components.
8. Test and service batteries, charging, lighting, warning and cranking systems.
9. Test and service air conditioning systems.
10. Select and use engine overhaul equipment, including valve, cylinder, piston, seal and bearing tools.
11. Service and maintain fuel, air intake and exhaust, cooling and lubrication systems.
12. Operate engine and adjust or check ignition timing, engine speed and carburetor adjustments.
13. Select and install aquaculture control and sensing systems.
14. Measure energy output from or consumption of devices and cost savings of alternatives.

D. Environmental and Natural Resources Systems Competencies

Problem Solving

1. Identify environmental problems in livestock and crop handling and processing buildings.
2. Read and interpret maps including conservation, land use, soils, topographic, aerial and remote sensing and geological surveys.
3. Describe principles involved in appropriate conservation and/or land use planning.
4. Read legal land descriptions.
5. Determine land areas.
6. Determine the difference in elevation of two or more points.
7. Determine cuts, fills, cut/fill ratios and volumes.
8. Describe the characteristics of a profile-leveling plot.
9. Identify water quality criteria for aquaculture.
10. Select terracing and water diversion options for soil conservation.
11. Selecting strip-cropping principles and practices.
12. Select water management techniques including grassed waterways, parallel terrace outlets, tile outlet systems and erosion control structures.
13. Determine types of vegetative cover and mulch for erosion stabilization.
14. Determine and select appropriate cultural tillage or mechanical practices of equipment for specific soil type and residue management.

15. Compare effects of traffic patterns on soil compaction.
16. Calculate soil loss using universal equations and determine effects of the components of the equations.
17. Determine practices to improve or maintain water quality and recharge.
18. Determine appropriate types, locations and uses of erosion and sedimentation control basins.
19. Determine appropriate types, locations and uses of water impoundment structures.
20. Describe surface and subsurface drainage and irrigation techniques.
21. Calculate subsurface drainage and irrigation requirements.
22. Select appropriate drainage including open drainage, closed gravity and pumping systems.
23. Determine land shaping and grading requirements.
24. Determine water needs.
25. Select irrigation systems for specific conditions.
26. Select irrigation equipment and techniques.
27. Determine soil moisture and temperature.
28. Select surface and subsurface irrigation systems for specific application.
29. Size and select system components.
30. Determine power requirements and pump size for specific applications.
31. Calculate irrigation system requirements.
32. Optimize water management system choices.
33. Understand water quality impacts on drainage and irrigation.
34. Apply water pressure, flow and head concepts.
35. Select pumps and power sources and compare efficiencies.
36. Interpret pump characteristics curves.
37. Determine appropriate biological waste disposal methods.

Skills

1. Utilize GPS system components.
2. Set up and level the surveying instrument.
3. Take rod readings.
4. Measure distance with tape and/or instruments.
5. Lay out corners using instruments.
6. Determine direction by use of a compass.
7. Record field notes for differential, profile and topographic leveling.
8. Lay out contour lines.
9. Lay out grade stakes for cut/fills.
10. Determine soil types and select appropriate structures or practices.
11. Use automatic leveling and laser equipment.
12. Use water-testing equipment.
13. Lay out and map contour lines.
14. Measure crop residue on the land.
15. Determine soil losses.
16. Measure cross-sectional areas of a grass waterway, drainage ditch and earthen embankment.
17. Determine field slope and length.
18. Identify soil limitations and determine the effects on land use.
19. Assemble turf irrigation equipment.
20. Determine soil moisture.
21. Estimate soil permeability and infiltration rates.

22. Determine and compare evaporation losses.
23. Install drainage systems or components.
24. Lay out contour ditches, basins, borders, contour levees, furrow and corrugation systems for irrigation.
25. Lay out and assemble solid-set, lateral move, center-pivot and traveling gun irrigation systems and components.
26. Lay out and assemble trickle and drip irrigation systems or components including main-lines, lateral lines, control devices, valves, pressure regulators, gauges and filters.
27. Install components of irrigation systems for specific applications.
28. Determine delivery rates of pumps.
29. Determine percent of slope or grade.

E. Structures Systems Competencies

Problem Solving

1. Select and evaluate building sites.
2. Determine the size, specifications and layout of building.
3. Select appropriate framing, siding, roofing, insulation and vapor barrier materials.
4. Develop a bill of materials.
5. Interpret plans and working drawings.
6. Select appropriate structural components of buildings.
7. Select preservatives for building materials.
8. Evaluate building construction techniques.
9. Select hand, electric and pneumatic tools.
10. Estimate handling materials, cost and construction time.
11. Plan footings, foundations and concrete finishing.
12. Select materials for concrete form construction.
13. Determine quantity and cost of materials for concrete and masonry jobs.
14. Determine the appropriate water-cement ratio and aggregate for concrete masonry construction.
15. Select materials for concrete and masonry construction.
16. Order “ready-mix” concrete.
17. Select procedures for mixing and placing concrete in cold or hot weather.
18. Select materials and techniques to reinforce concrete and masonry construction.
19. Select techniques for placing, finishing and curing concrete and masonry units.
20. Select concrete additives to increase strength and reduce cracking.
21. Select concrete additives to control hydration rate.
22. Select tools and equipment for concrete and masonry construction.
23. Interpret lumber and manufactured wood product grade stamps.
24. Determine ventilation air inlet size based on exhaust fan capacity.
25. Select alternative construction styles (stud frame, post frame, rigid arch and stressed skin).
26. Select structural components for each alternative construction style.
27. Select materials for the construction of wood foundation systems.
28. Calculate and compare the installation and maintenance costs of crushed rock and concrete materials in the construction of feedlot surfaces.
29. Determine size and quality of aggregates and materials.
30. Use traditional, electronic and laser tools in concrete and masonry construction.
31. Specify and plan windbreak structures for livestock protection and reduction of snow accumulation in feedlot and farmstead drive areas.
32. Select arc welding machines and accessories.

33. Read drawings and welding symbols.
34. Control distortion in arc welding.
35. Select appropriate electrodes and wires.
36. Select hard surfacing alloys.
37. Prepare materials and equipment for arc welding.
38. Test weld quality and strength.
39. Select shielding gases.
40. Select gas welding, plasma arc and cutting equipment and supplies.
41. Assemble gas welding, plasma arc and cutting equipment.
42. Check equipment for leaks.
43. Select welding rods and fluxes.
44. Start-up and shut down of welding equipment.
45. Describe cylinder sizes and gas flow extraction rates.
46. Calculate the volume of acetylene that can be delivered per cylinder per hour.
47. Explain the functions of flashback arresters and reverse flow check valves.
48. Prepare metals for soldering.
49. Select hand metal working tools by types and sizes.
50. Determine tap and drill sizes.
51. Select files and saw blades.
52. Read metal working plans and prints.
53. Select metal alloys and their strength.
54. Select power shears, benders, brakes and saws.
55. Calculate materials costs.
56. Select pipe threading and cutting tools.
57. Select types of pipe and tubing.
58. Calculate lengths of pipe.
59. Join dissimilar plumbing materials.
60. Select pipe, valves and fittings by type.
61. Select the appropriate tools to use when welding plastics.
62. Select the types and properties of plastics.

Skills

1. Lay out a building foundation.
2. Identify, select and apply construction fasteners.
3. Use and maintain hand, electric and pneumatic tools and measuring instruments for building construction.
4. Lay out, cut and construct structural components.
5. Install composition shingles, metal and fiberglass roofing materials.
6. Selection of paint and other finishing materials.
7. Prepare a site for concrete and masonry construction.
8. Construct forms.
9. Calculate concrete or mortar mix.
10. Determine moisture content in sand.
11. Mix concrete or mortar on the job site.
12. Conduct and evaluate a slump test.
13. Place concrete or masonry reinforcement.
14. Layout and make isolation, control and construction joints.
15. Place, consolidate and finish concrete.
16. Place and finish concrete masonry units.
17. Produce special finishes on concrete.

18. Use and maintain concrete and masonry tools and equipment.
19. Calculate types and amount of concrete or mortar mix for a job.
20. Adjust ventilation air inlet openings.
21. Fabricate and install reinforcing steel bar and welded wire mesh.
22. Specify and use admixtures for concrete.
23. Set up manufactured form systems for poured-in-place foundation walls.
24. Select and apply appropriate framing, siding, roofing, insulation and vapor barrier materials.
25. Identify different types of metals.
26. Layout and prepare metal for arc welding.
27. Recommend metals based on load bearing strength.
28. Weld basic joints in all positions.
29. Join pipe for welding.
30. Prepare for and apply hard surfacing alloys.
31. Adjust cutting machines for different metals, joints and thickness.
32. Start up and shut down for welding equipment.
33. Light and adjust the torch flame for specific welding or cutting operations.
34. Layout and prepare metal for welding or cutting.
35. Fuse and braze welding basic joints on mild steel and cast iron.
36. Cut mild steel, including pipe, all shapes.
37. Join steel pipe, tubing or shapes by welding.
38. Estimate and calculate welding materials costs.
39. Adjust machines for various types of thickness of metal.
40. Identify the type of metals used in agricultural instruction.
41. Cut metal with plasma cutting unit.
42. Solder copper joints and sheet metal.
43. Solder electrical connections.
44. Operate power tools such as nibblers, drills and saws.
45. Operate hand tools such as saws and files.
46. Select appropriate metals for projects (strength).
47. Shape hot and cold metals using power shears, benders, brakes and saws.
48. Cut and assemble plastic pipe.
49. Solder copper fittings and tubing.
50. Assemble dissimilar plumbing materials.

IX. General Cluster Skills

1. Strong interpersonal communication abilities.
2. Knowledge combined with leadership qualities and the ability to delegate responsibilities.
3. People skills to deal with customers, the public and large groups.
4. Identify and interpret the correct resources to make an educated decision.
5. Understand and apply principles of mathematics, economics, biology and physics.
6. Have a high level of common sense, logic and critical thinking skills.
7. Be an independent thinker with an analytical mind.
8. Ability to understand and follow detailed instruction - written and oral.
9. Motivated to learn from various methods of instruction.
10. Remain literate in current technologies - computers, electronics, mechanical systems, etc.
11. Know how to calculate cost per units, per hour, per bushel, per acre, etc.
12. Know how to estimate value of equipment and recommend future buying decisions.

13. Know how to use technology to eliminate waste of time and resources.
14. Know about computer hardware, software, Internet, etc.
15. Know how to be productive with time, money and people.
16. Be knowledgeable with global agriculture - encompassing planning, production, marketing and finance.
17. Understand how cash flow is critical for business planning and operation.
18. Know how to measure and estimate costs and develop plans for business/industry improvements.
19. Be able to write annual goals with specific objectives and measurement tools for review.
20. Have skills in business operations and management.
21. Have experience with general accounting and cash flow management.
22. Be able to effectively implement the use of technology in the workplace.
23. Understand how to use a systematic approach to diagnose equipment problems.
24. Know how to service and maintain equipment so that productivity can be maintained.
25. Understand on-board computerized systems that monitor, test, store and report equipment operation.
26. Be familiar with computerized recognition of crop productivity and quality, field conditions and pests.
27. Understand electrical circuits - amperage, watts, voltage, resistance and transistors.
28. Understand hydraulic system operation - flow, resistance and temperature.
29. Understand mechanical system operation - mechanical advantage, material specifications and gear design.
30. Have experience in reading schematics, replacing components – including control modules.
31. Know how to diagnosis electrical, computer, mechanical and hydraulic systems.
32. Have experience in analyzing mechanical system failures.
33. Have experience with CAD software and know how to produce mechanical drawings.

**National FFA Agricultural Mechanics Career Development Event
Team Activity Final Report Scoring Rubric**

Criteria	Very strong evidence skill is present (100-90%)	Moderate evidence skill is present (89-60%)	Strong evidence skill is not present (59-0%)	Points Earned	Weight	Total Score
<i>Cover page with title and state name</i>	<ul style="list-style-type: none"> Cover page contains both required items. 	<ul style="list-style-type: none"> Cover page is missing one required item. 	<ul style="list-style-type: none"> Cover page is missing both required items. 		x1	
<i>Description of activity</i>	<ul style="list-style-type: none"> Contains a complete description of the team activity. 	<ul style="list-style-type: none"> Missing one component of the team activity. 	<ul style="list-style-type: none"> Missing two or more components of the team activity. 		X3	
<i>Description of roles of team members to complete activity</i>	<ul style="list-style-type: none"> Contains a complete description of roles and safety measures used by all team members completing the activity. 	<ul style="list-style-type: none"> Contains a vague description of roles and safety measures used by team members completing the activity. 	<ul style="list-style-type: none"> Fails to describe the roles and safety measures used by team members completing the activity. 		X3	
<i>Section to include calculations, diagrams, tables, figures, etc. related to specific CDE activity theme and identified by instructions</i>	<ul style="list-style-type: none"> This section of the report includes all required items as specified in activity directions. 	<ul style="list-style-type: none"> This section of the report is missing one required item. 	<ul style="list-style-type: none"> This section of the report is missing two or more required items. 		X5	
<i>Grammar, punctuation, and spelling</i>	<ul style="list-style-type: none"> Spelling, grammar and punctuation are of extremely high quality with less than 2 errors throughout the report. 	<ul style="list-style-type: none"> Spelling, grammar and punctuation are adequate with 3-5 errors present throughout the report. 	<ul style="list-style-type: none"> Spelling, grammar and punctuation are less than adequate with 6 or more errors present throughout the report. 		X2	
<i>Professional format</i> <ul style="list-style-type: none"> Typed in a 12 point type font 1" margins Double spaced 	<ul style="list-style-type: none"> Report is extremely neat and professional looking with all three required formatting criteria being present. 	<ul style="list-style-type: none"> Report is reasonably neat and professional looking with two of the required formatting criteria being present. 	<ul style="list-style-type: none"> Report is very unprofessional in appearance with one or none of the required formatting criteria being present. 		X2	
Total Points						

National FFA Agricultural Mechanics Career Development Event Team Activity Process Rubric

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Managing team dynamics	<p><i>Completely committed to team dynamics, maturity and professionalism are always present.</i></p> <ul style="list-style-type: none"> In team conflicts, problem-solving and decision-making methods and skills are used to produce a positive compromise. 	<p><i>Somewhat committed to team dynamics, maturity and professionalism are seldom present.</i></p> <ul style="list-style-type: none"> In team conflicts, problem-solving and decision-making methods and skills are sometimes used to produce a compromise. Sometimes involvement in this process is limited. 	<p><i>Lacking team dynamics, maturity and professionalism.</i></p> <ul style="list-style-type: none"> When team conflict arises minimal or no attempt at a resolution is made by team members. 		X 4	
B. Awareness of personality styles of others	<p><i>Totally conscious and respectful of differing attitudes, personalities and behaviors.</i></p> <ul style="list-style-type: none"> Language is free of bias and completely shows an understanding and respect for others' differences in learning and personality. 	<p><i>Is, for the most part, respectful of others' differences in personality and behavior.</i></p> <ul style="list-style-type: none"> For the most part, language conveys an understanding of others' differences in learning and personality. 	<p><i>Shows little tolerance for differing personalities and behaviors.</i></p> <ul style="list-style-type: none"> Language used may be expressed as not understanding others' differences in personality and learning styles. 		X 4	
C. Uses positive and mature language and mannerisms	<p><i>Always uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> Never uses immature verbal and/or nonverbal communication. Always has positive communications. 	<p><i>Usually uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> Rarely uses immature verbal and/or nonverbal communication. Usually has positive communications. 	<p><i>Seldom or never uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> Frequently uses immature verbal and/or nonverbal communication. Seldom has positive communications. 		X 4	
D. Reacting to changes	<p><i>Has ability to react and transition effortlessly to change.</i></p> <ul style="list-style-type: none"> Shows excellent ability to adapt with unexpected change; thinks quickly; shows no sign of stress. 	<p><i>Typically reacts well to changes.</i></p> <ul style="list-style-type: none"> Seems able to adapt to unexpected change most of the time; occasionally stresses. 	<p><i>Has difficulty reacting well to changes.</i></p> <ul style="list-style-type: none"> Seems stressed by change. 		X 4	
E. Handling tasks	<p><i>Handles tasks with ease, including task assignment.</i></p> <ul style="list-style-type: none"> Efficient in planning, managing and completing all tasks in a timely and organized fashion. All project parts are assigned equally. 	<p><i>Does a good job handling tasks with some ease, including task assignment.</i></p> <ul style="list-style-type: none"> Is thoughtful about the planning and sequencing of tasks, but occasional priority mistakes are made. Some project parts are assigned equally. 	<p><i>Has difficulty handling tasks, including task assignment.</i></p> <ul style="list-style-type: none"> Seems to have trouble deciding the order to do several tasks and struggles with completion in a timely manner. No project parts are assigned equally. 		X 4	
Total Points						

Appendix A: AFNR Career Content Cluster Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
ABS.01.02. Performance Indicator: Apply principles of entrepreneurship in businesses.			Social Studies: 7d
	ABS.01.02.01.c. Demonstrate entrepreneurship, including idea generation, opportunity analysis and risk assessment.	Team activity	
ABS.03.02. Performance Indicator: Implement appropriate inventory management practices.			Language Arts: 8
	ABS.03.02.01.b. Use computer technology in inventory management and reporting, including spreadsheets, databases, word processing, networked systems and the Internet.	Team activity	
AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.			Science: C6 and F6
	AS.07.01.01.b. Critique designs for an animal facility and prescribe alternative layouts and adjustments for the safe and efficient use of the facility.	Structural system; team activity	
	AS.07.01.02.c. Select equipment and implement animal handling procedures and improvements to enhance production efficiency.	Structural system; environmental and natural resources system; machinery and equipment system; team activity	
AS.07.02. Performance Indicator: Comply with government regulations and safety standards for facilities used in animal production.			Science: F5
	AS.07.02.01.c. Design a facility that meets standards for the legal, safe, ethical and efficient production of animals.	Environmental and natural resources system; structural system; team activity	
ESS.01.01. Performance Indicator: Analyze and interpret samples.			Math: 1A, 1B, 4A and 5B Science: A2
	ESS.01.01.01.c. Analyze and interpret results of sample measurements.	All activities	
	ESS.01.01.02.c. Calibrate and use laboratory and field equipment and instruments according to standard operating procedures.	All activities	

ESS.03.02. Performance Indicator: Apply soil science principles to environmental service systems.		Science: B2 and D2 Social Studies: 3k
	ESS.03.02.03.b. Identify the physical qualities of the soil that determine its use for environmental service systems.	Environmental and natural resources system; structural system; machinery and equipment system; team activity
ESS.03.03. Performance Indicator: Apply hydrology principles to environmental service systems.		Science: D2
	ESS.03.03.04.c. Test and document the quality of groundwater supplies.	Environmental and natural resources system
	ESS.03.03.06.c. Install and maintain pumps and associated delivery systems.	Environmental and natural resources system
ESS.04.02. Performance Indicator: Manage safe disposal of all categories of solid waste.		Science: F1, F4 and F5
	ESS.04.02.01.c. Analyze environmental hazards associated with the identification and acceptance of solid waste disposal sites.	Environmental and natural resources system
ESS.04.05. Performance Indicator: Manage hazardous materials to assure a safe facility and to comply with applicable regulations.		Science: F4 and F5
	ESS.04.05.01.c. Describe the procedures for the treatment and disposal of hazardous materials and hazardous waste.	Environmental and natural resources system
ESS.06.01. Performance Indicator: Use technological and mathematical tools to map land, facilities and infrastructure.		Science: A3 Social Studies: 3c and 3e
	ESS.06.01.01.c. Demonstrate surveying and cartographic skills to make site measurements and map facility accesses and infrastructure.	Environmental and natural resources system; machinery and equipment system; team activity
ESS.06.02. Performance Indicator: Maintain tools, equipment and machinery in safe working order for tasks in environmental service systems.		N/A
	ESS.06.02.01.c. Demonstrate proper preventive maintenance techniques and set up a mock preventive maintenance schedule.	All activities
FPP.02.01. Performance Indicator: Manage operational procedures and create equipment and facility maintenance plans.		Language Arts: 12
	FPP.02.01.03.c. Perform basic equipment and facility maintenance in a food products and processing operation.	All activities

NRS.02.02. Performance Indicator: Demonstrate cartographic skills to aid in developing, implementing and evaluating natural resource management plans.		Math: 4B Science: A3 and F2 Social Studies: 3b and 3c
	NRS.02.02.01.c. Employ Global Positioning System and Geographic Information Systems technologies to inventory features in natural resource management.	Environmental and natural resources system; machinery and equipment system; team activity
PS.02.03. Performance Indicator: Develop and implement a fertilization plan for specific plants or crops.		Math: 4B Science: A2
	PS.02.03.04.c. Use variable-rate technology to apply fertilizers to meet crop nutrient needs.	Environmental and natural resources system, machinery and equipment system, team activity
PS.03.03. Performance Indicator: Develop and implement a plan for integrated pest management.		Science: C4 and C6 Language Arts: 7
	PS.03.03.04.c. Evaluate environmental and consumer concerns regarding pest management strategies.	Environmental and natural resources system, machinery and equipment system, team activity
PS.03.04. Performance Indicator: Apply principles and practices of sustainable agriculture to plant production.		Science: F3, F4 and F6
	PS.03.04.01.c. Prepare and implement a plan for an agricultural enterprise that involves practices in support of sustainable agriculture.	All activities
PS.03.05. Performance Indicator: Harvest, handle and store crops.		Science: F5
	PS.03.05.01.a. Identify harvesting methods and harvesting equipment.	Machinery and equipment system
PST.01.01. Performance Indicator: Select energy sources in power generation appropriate to the situation.		Science: B5, D1 and F3
	PST.01.01.01.c. Compare the efficiency of energy production from various sources.	All activities
PST.01.02. Performance Indicator: Apply physical science laws and principles to identify, classify and use lubricants.		Science: B4
	PST.01.02.01.c. Select, use and dispose of lubricants.	Machinery and equipment system, environmental and natural resources system

PST.01.03. Performance Indicator: Identify and use hand and power tools and equipment for service, construction and fabrication.		Science: E2
PST.01.03.01.c. Assess the performance of employees in use of hand and power tools to safely and efficiently service, construct and fabricate quality products.	All activities	
PST.02.01. Performance Indicator: Perform service routines to maintain power units and equipment.		Science: E2
PST.02.01.01.c. Test and service electrical systems.	Electrical system, energy system, machinery system, team activity	
PST.02.01.02.c. Troubleshoot malfunctions and failures in equipment using computer and on-board diagnostics.	Machinery and equipment system, electrical system, energy system, team activity	
PST.02.01.03.c. Maintain and calibrate metering, monitoring and sensing devices on equipment.	Machinery and equipment system, electrical system, energy system, team activity	
PST.02.02. Performance Indicator: Operate, service and diagnose the condition of power units and equipment.		Science: E2
PST.02.02.01.c. Select power units and equipment for operational efficiencies.	Machinery and equipment system, electrical system, structural system, energy system, team activity	
PST.02.02.02.c. Adjust equipment for safe and efficient operation.	All activities	
PST.03.01. Performance Indicator: Troubleshoot and repair internal combustion engines.		Science: A1 and A4 Language Arts: 3
PST.03.01.01.c. Performance test internal combustion engines to determine service and repair needs.	Machinery and equipment system, energy system, team activity	
PST.03.01.02.c. Overhaul spark-and-compression internal combustion engines.	Machinery and equipment system, energy system, team activity	
PST.03.02. Performance Indicator: Utilize manufacturers' guidelines to service and repair the power transmission systems of equipment.		Math: 1C and 6B Science: B4 and E1
PST.03.02.02.b. Describe features, benefits and applications of mechanical transmission components, including belts, chains, gears, bearings, seals, universals and drive shafts.	Machinery and equipment system, energy system, team activity	
PST.03.02.03.a. Identify power transfer principles, including those using friction, gears and fluids.	Machinery and equipment system, energy system, team activity	

PST.03.03. Performance Indicator: Service and repair hydraulic and pneumatic systems.		Science: B4 and E1
	PST.03.03.02.c. Inspect, analyze and repair hydraulic and pneumatic system components, including fluid and compressed-air conveyance components.	Machinery and equipment system, energy system, team activity
PST.03.04. Performance Indicator: Troubleshoot and service electrical systems.		Math: 6B Science: E1
	PST.03.04.01.c. Evaluate power unit and equipment electrical systems, including ignition, lighting, auxiliary and electronic braking.	Machinery and equipment system, energy system, electrical system, team activity
	PST.03.04.02.c. Assess and repair malfunctioning electrical systems and components, such as battery, lighting, instrumentation and accessories.	Machinery and equipment system, energy system, electrical system, team activity
PST.03.05. Performance Indicator: Service vehicle heating and air-conditioning systems.		Math: 4A and 6C
	PST.03.05.01.b. Describe physical principles of operation of vehicle heating and air-conditioning systems and interpret symbols and diagrams used with such systems.	Machinery and equipment system, energy system, team activity
PST.03.06. Performance Indicator: Service and repair steering, suspension, traction and vehicle performance systems.		Math: 4A and 6C
	PST.03.06.01.c. Evaluate vehicle stability, power-hop, creep-crawl, wheel slip and tractive performance and service as needed.	Machinery and equipment system, team activity
	PST.03.06.02.c. Evaluate vehicle suspension and steering systems and service as needed.	Machinery and equipment system, energy system, team activity
PST.04.01. Performance Indicator: Create sketches and plans of agricultural structures.		Math: 4A Science: A3 and E1
	PST.04.01.01.c. Apply principles of design, fabrication and installation of agricultural structures.	Structural system, team activity
	PST.04.01.02.c. Design functional and efficient facilities for agricultural use.	All activities
PST.04.02. Performance Indicator: Apply structural plans, specifications and building codes.		Language Arts: 12
	PST.04.02.02.c. Follow local construction and safety codes and specifications in agricultural construction.	Structural system, electrical system, energy system, team activity
PST.04.03. Performance Indicator: Examine structural requirements for materials and procedures and estimate construction cost.		Math: 1C and 6B
	PST.04.03.01.c. Prepare a project cost estimate, including materials, labor and management.	All activities

PST.04.04. Performance Indicator: Follow architectural and mechanical plans to construct and/or repair equipment, buildings and facilities.		Math: 1C, 4A and 4B Science: E2
PST.04.04.01.c. Evaluate work products or samples for quality and efficiency of workmanship following architectural and mechanical plans.	Structural system, environmental and natural resources system, electrical system, team activity	
PST.04.04.02.c. Install and/or repair electrical wiring components and fixtures following appropriate codes and standards.	Structural system, electrical system, energy system, team activity	
PST.04.04.04.c. Insulate a structure.	Structural system, energy system, team activity	
PST.04.04.05.b. Construct and/or repair with concrete, brick, stone or masonry units.	Structural system, team activity	
PST.04.04.07.c. Construct and/or repair metal structures and equipment using welding fabrication procedures, including those associated with SMAW, GMAW, GTAW, fuel-oxygen and plasma arc torch methods.	Structural system, team activity	
PST.05.01. Performance Indicator: Use instruments and meters to test and monitor electrical and electronic processes.		Math: 4B Science: A3
PST.05.01.01.c. Locate and use electrical codes and regulations.	Structural system, energy system, team activity	
PST.05.02. Performance Indicator: Prepare and/or use electrical drawings to design, install and troubleshoot control systems.		Science: E1
PST.05.02.01.c. Identify and use electrical control system components, including transistors, relays, HVAC and logic controllers.	Electrical system, energy system, team activity	
PST.05.02.02.c. Troubleshoot electrical control system performance problems.	Electrical system, energy system, team activity	
PST.05.02.03.c. Plan and install electrical control circuits to assure proper operation.	Electrical system, energy system, team activity	
PST.05.03. Performance Indicator: Use geospatial technologies in agricultural applications.		Science: A3, E2 and F6 Social Studies: 3c
PST.05.03.02.c. Output and apply maps using GIS/GPS systems.	Environmental and natural resources system, machinery and equipment system, team activity	
PST.05.03.03.c. Demonstrate geospatial applications, including calibration, volumetric controlling and electrical design.	Environmental and natural resources system, machinery and equipment system, team activity	

CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	Team activity	
CS.01.01.03.c. Implement an effective project plan.	Team activity	
CS.01.01.06.c. Develop strengths and talents of team members so that all can achieve success.	Team activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
CS.01.02.02.b. Utilize communication skills to collaborate in a group setting.	Team activity	
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respect the difference of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
CS.02.02.03.b. Exhibit the behaviors needed for developing and maintaining a professional relationship.	Team activity	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	Team activity	
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
CS.03.02.01.c. Make decisions for a given situation by applying the decision- making process.	Team activity	
CS.03.02.02.c. Use problem-solving skills.	Team activity	
CS.03.03.02.c. Performance Indicator: Flexibility: Adaptability: Describe traits that enable one to be capable and willing to accept change.		Science: A2, A6 and E2 Language Arts: 7 Social Studies: 8a
CS.03.03.02.c. Evaluate strategies that can be used to manage change within the workplace.	Team activity	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics:

1. Standard and Expectations: Number and Operations
 - 1A. Understand numbers, ways of representing numbers, relationships among numbers and number systems.
 - 1B. Understand meanings of operations and how they relate to one another.
 - 1C. Compute fluently and make reasonable estimates.
4. Standard and Expectations: Measurement
 - 4A. Understand measurable attributes of objects and the units, systems and processes of measurement.
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
5. Standard and Expectations: Data Analysis and Probability
 - 5B. Select and use appropriate statistical methods to analyze data.
6. Standard and Expectations: Problem Solving
 - 6B. Solve problems that arise in mathematics in other contexts.
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science:

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A2. Design and conduct scientific investigations.
 - A3. Use technology and mathematics to improve investigations and communications.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
 - A5. Recognize and analyze alternative explanations and models.
- B. Content Standard: Physical Science
 - B2. Structure and properties of matter.
 - B4. Motions and forces.
 - B5. Conservation of energy and increase in disorder.
- C. Content Standard: Life Science
 - C4. Interdependence of organisms.
 - C6. Behavior of organisms.
- D. Content Standard: Earth and Space Science
 - D1. Energy in the earth system.
 - D2. Geochemical cycles.
- E. Content Standard: Science and Technology
 - E1. Abilities of technological design.
 - E2. Understanding about science and technology.

F. Content Standard: Science in Personal and Social Perspectives

- F1. Personal and community health.
- F2. Population growth.s
- F3. Natural resources.
- F4. Environmental quality.
- F5. Natural and human-induced hazards.
- F6. Science and technology in local, national and global challenges.

Language Arts:

- 3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
- 4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 7. Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- 8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- 12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies:

- 1. Thematic Strand: Culture
 - 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
- 3. Thematic Strand: People, Places, and Environments
 - 3b. create, interpret, use and synthesize information from various representations of the earth, such as maps, globes and photographs;
 - 3c. use appropriate resources, data sources and geographic tools such as aerial photographs, satellite images, geographic information systems (GIS), map projects and cartography to generate, manipulate, and interpret information such as atlases, data bases, grid systems, charts, graphs and maps.
 - 3e. describe, differentiate and explain the relationships among various regional and global patterns of geographic phenomena such as land forms, soils, climate, vegetation, natural resources and population;
 - 3k. propose, compare and evaluate alternative policies for the use of land and other resources in communities, regions, nations and the world.

4. Thematic Strand: Individual Development and Identity

- 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
- 4h. work independently and cooperatively within groups and institutions to accomplish goals;

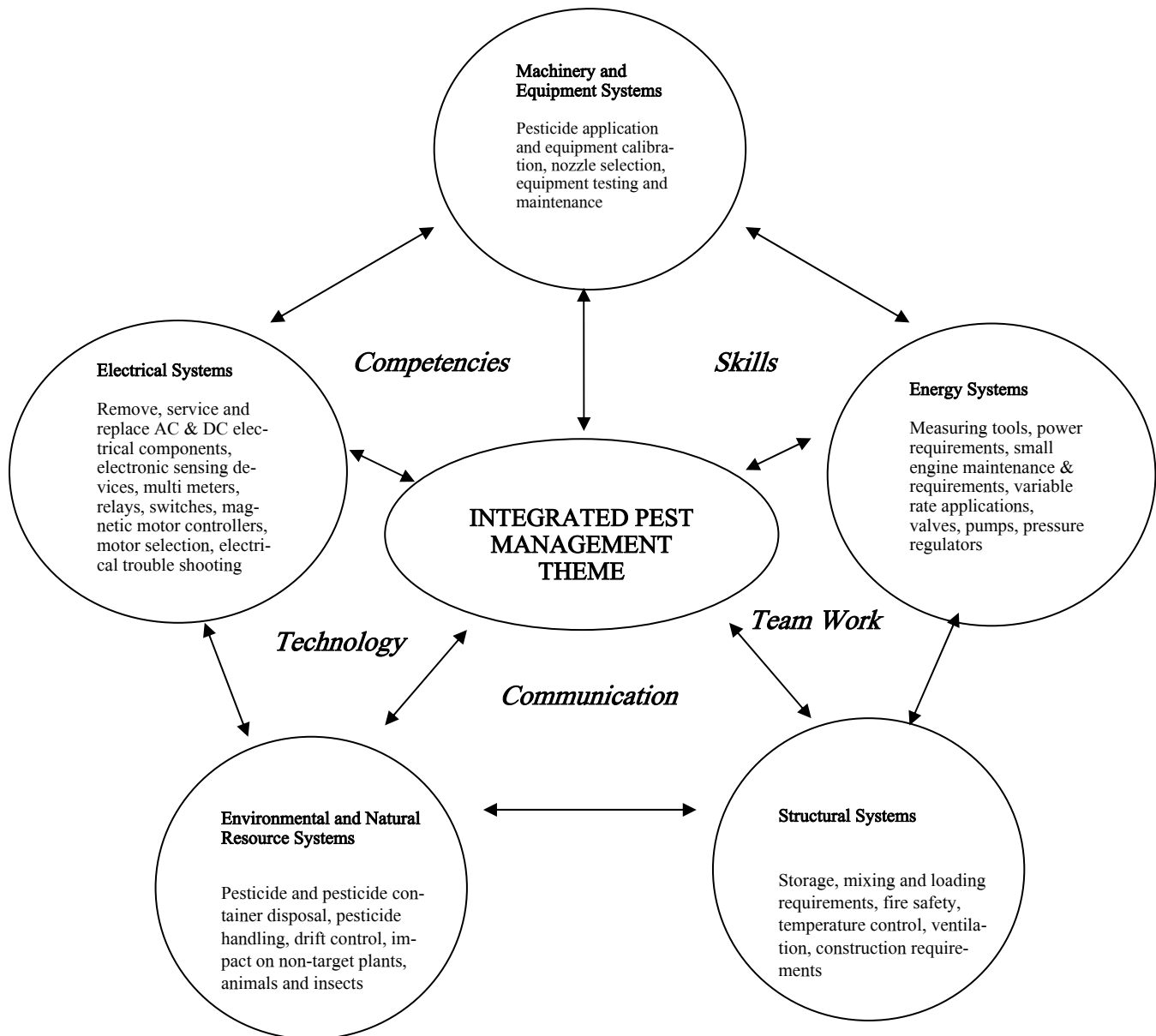
7. Thematic Strand: Production, Distribution and Consumption

- 7d. describe relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions and corporations;

9. Thematic Strand: Global Connections

- 9d. analyze the causes, consequences and possible solutions to persistent, contemporary and emerging global issues, such as health, security, resource allocation, economic development and environmental quality;

APPENDIX C: National FFA Agricultural Technology and Mechanical Systems Career Development Event Sample Theme



This chart illustrates an integrated pest management problem (one of five major themes) that depicts interaction between the agricultural technology and mechanical systems areas. Annual rotating themes will emphasize related competencies. Individuals and teams must possess knowledge and skills in all systems areas to determine acceptable problem solutions.

A number of other issues also influence the systems associated with integrated pest management. Such things as: turf versus agriculture applications, non-restricted versus restricted use pesticides and recent changes in governmental regulations are just a few of the additional concerns that affect the planning, preparation and completion of this activity. The complexity of this theme is further compounded by the number of competencies and skills involved in the solving of such intricate problems. Given the complexity of such problems, individuals are better prepared when they have information/knowledge, experience and expertise within several of the systems areas.

National FFA Agronomy Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the National FFA Agronomy Career Development Event is to create interest and promote understanding in agronomy by providing opportunities for recognition through the demonstration of skills and proficiencies.

II. Objectives

- A. To demonstrate basic knowledge of agronomic sciences.
- B. To explore career opportunities, skills and proficiencies in the agronomy industry.
- C. To determine the ability to identify agronomic:
 1. Crops
 2. Weeds
 3. Seeds
 4. Insects
 5. Diseases
 6. Plant nutrient deficiencies
 7. Plant disorders
 8. Crop grading and pricing
 9. Equipment
- D. To evaluate a scenario and develop a crop management plan including crop selection, production and marketing.
- E. To demonstrate understanding of sustainable agriculture and environmental stewardship through the use of integrated pest management and best management practices.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Team Make-up: Four members will be on each team. All four members will be scored, and all four scores will count toward the team total.
- B. It is highly recommended that participants wear official FFA dress for this event.
- C. All participants will be given an identification number by which they will be designated throughout the event.
- D. Under no circumstances will a participant be allowed to destroy any of the items in the identification portion of the practicums. Any infractions of this rule will be sufficient to eliminate a team from the event.

- E. Participants will be assigned to group leaders who will escort them to various event-staging sites. Each participant is to stay with his or her assigned group leader throughout the event or until told to change leaders by the event superintendent.
- F. **Written Material:** All written material will be furnished for the event. No written materials such as tests, problems and worksheets should be removed from the site.
- G. Any participant in possession of an electronic device in the event area is subject to disqualification.

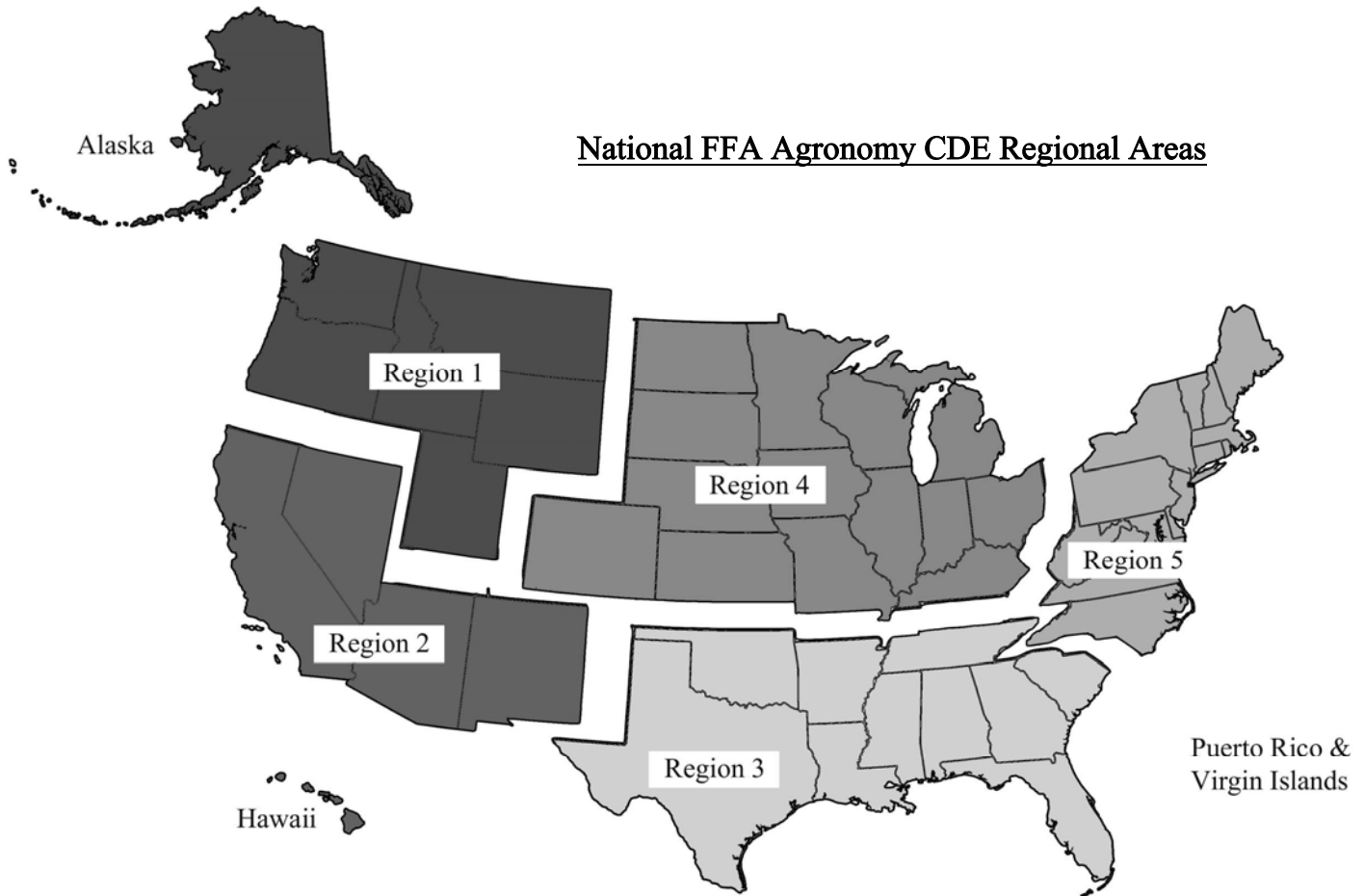
V. Event Format

- A. Materials students must provide:
 - 1. Clean, free of notes clipboard.
 - 2. Two sharpened No. 2 pencils.
 - 3. **Non-programmable electronic calculator:** The calculators used during the event are to be battery operated, non-programmable, silent with large keys and large displays. The calculators should only have these functions: addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. No other calculators are allowed to be used during the event.
 - 4. One laptop computer per team. Laptops must have USB port, be flash drive compatible and have Microsoft® Word and Excel. The laptop will be used for budgets and final reporting for the team activity only.
- B. **Team Activity - 1000 Points**
 - 1. **Written Plan:** The team will be provided with a scenario of an agronomic situation and will be asked to develop a management plan in 70 minutes. Teamwork will be assessed during the management plan development time. The team will be required to develop both an oral presentation and a written plan that addresses the question in the scenario.
 - 2. **Presentation:** After preparation the team will be required to give an oral presentation justifying decisions made by the team (eight minutes maximum in length). All team members are expected to participate in the presentation. The team will then be required to answer questions from judges in regards to the decisions reached by their team (five minutes maximum). The team will submit their written plan at the end of their oral presentation.

Each year the team event scenario will be chosen from a cropping region of the country. (The rotation and crops list follows.) Cost information may be utilized for various practices such as irrigation, machinery, harvesting, seedbed preparation, storage and loan interest rates, as well as fertilizers and chemicals (This list is not all-inclusive.) The students may be asked to figure profit or loss based on this information.

Resources provided for the team activity may include cost sheets, seed tag information, tillage practices, pesticide labels, extension bulletins, fertility reports, tissue analysis, contract information, water management, seeding rates, variety information, trial data and application information including nozzle selection, chemigation, fertigation and aerial application. An example of the team activity can be found in Section X of this chapter.

National FFA Agronomy CDE Regional Areas



Region 1 Team Event Crop List 2016	Region 2 Team Event Crop List 2012	Region 3 Team Event Crop List 2013	Region 4 Team Event Crop List 2014	Region 5 Team Event Crop List 2015
<ul style="list-style-type: none"> • Potatoes • Wheat, HRW • Barley • Hops • Dry edible beans • Peas • Alfalfa • Corn, sweet • Ryegrass • Peppers • Fescue • Sugarbeet 	<ul style="list-style-type: none"> • Cotton • Bermudagrass • Melons • Lettuce • Tomato • Onion • Pepper • Brassica • Strawberry • Sudangrass • Alfalfa • Rice 	<ul style="list-style-type: none"> • Peanuts • Wheat, HRW • Sugarcane • Cotton • Sorghum • Rice • Melon • Corn, dent • Alfalfa • Bermudagrass • Soybean • Fescue 	<ul style="list-style-type: none"> • Wheat, durum • Wheat, red • Corn, dent • Soybeans • Canola • Flax • Sunflower • Barley • Sorghum • Sugarbeet • Alfalfa • Corn, pop 	<ul style="list-style-type: none"> • Potatoes • Cranberries • Squash • Melon • Fescue • Orchardgrass • Alfalfa • Corn • Strawberry • White clover • Soybeans • Tomato

C. Individual Practicums

1. General Knowledge Examination - 100 points

Fifty objective multiple choice questions will be given to each participant. Questions may include, but are not limited to, the following areas: cost sheets, seed tag information, tillage practices, pesticide labels, extension bulletins, fertility reports, tissue analysis, contract information, water management, seeding rates, variety information, trial data and application/calibration information for nozzle selection, chemigation, fertigation and aerial application.

2. Identification – 150 points

Students will identify fifty (50) weed and/or crop plants and/or seeds. Plants may be presented in any stage of growth following emergence. The list of possible specimens is in Section XI in this chapter of the handbook.

3. Soils – 100 points

Each participant will be responsible for the following activities related to soils:

- a. Identify various soil structures.
- b. Analyze soil monoliths and answer questions.
 - relative age (e.g., young, mature, old)
 - relative drainage (e.g., poor, moderate, well)
 - relative topographic position (e.g., summit, slope, depression)
 - source of dominate soil color (e.g., organic matter, iron, mineral)
- c. Identify the USDA land capability classes and answer problem solving questions related to various classes.
- d. Use soil survey to locate specific sites, use of suggested soil spots and questions related to the soil survey map.

4. Commodity Evaluation – 250 points

Participants will evaluate the quality of four different crops. These evaluations will be broken down into three different categories representing different aspects of quality: purity, marketability and usability.

a. Purity (Seed Analysis) – 50 points

- i. Participants will complete a seed tag based on provided sample using the following criteria:
 - Name and address of company responsible for label information.
 - Kind and variety.
 - Date tested, month and year of lab test.
 - Purity and germination percentage.
 - Percentage by weight of all weed seeds.
 - Name and approximate number per ounce of each kind of secondary, noxious weed seeds.
 - Percent weed seed.
 - Percentage by weight of other agricultural seeds.
 - Percentage by weight of inert matter.
 - Net weight (pounds) of seed in the bag.
 - State where seed was grown.

Weeds marked with * in the event weeds list are considered noxious weeds for the purpose of this event. See Ohio State extension agronomy bulletin in references.

- ii. Variety selection
Participant will be given multiple seed tags and they must select most appropriate and economical choice for the given scenario. A written reason must be given for the selection. Necessary information will be provided, including soil type, maturity information, germination rate, percent of weed seeds and cost of seed.
 - b. Marketability (Grain Grading) – 100 points
Participants will determine factors and conditions that will determine the grade of various crops. Grain grading will be done in accordance with the Official U.S. Standards for Grain. Information on grain grading can be found in the laws and regulations section of www.gipsa.usda.gov.
 - i. Two samples will be graded in 30 minutes. Each sample is worth 50 points.
 - ii. Participants will be given two base samples to determine the class and/or subclass of grain. The rotation for the given seed samples are as follows:
 - 2012: Corn and canola
 - 2013: Red wheat and barley
 - 2014: White wheat and edible beans
 - 2015: Durum wheat and grain sorghum
 - 2016: Rice and soybeans
 - iii. Participants will be provided information about grain samples (e.g. test weight, moisture and special conditions).
 - iv. Participants will be given representative samples in a sealed package of defected seed. Raw weights of each defect will be given, and participants calculate the percentage of each based on the flow chart provided.
 - v. Participants will complete the Grain Grading Answer Sheet.
 - vi. Participants will determine market price based on provided discount schedule.
 - c. Usability (Crop Quality) – 100 points
Two classes of crop samples, one of a forage, fiber or grain crop and one from another crop (see plant list) will be evaluated in 30 minutes (15 minutes per sample). Each class will consist of four samples of the same crop. Participants will rank each class with a Hormel card (25 points per sample) and provide written justification (25 points per sample).
5. Diagnostic Clinic - 100 points
Each participant will be given two samples. Each sample will come with a field report describing the situation from the sample location. They will prepare a written recommendation to respond to the report using their agronomic knowledge. Samples will be chosen from the crop list, and the problems to be diagnosed are from the identification, pest management or soils section. One sample will require the use of a soil test report. Participants must use the report to provide a diagnosis and a corrective recommendation for soil additives (based on a soil test and recommendation tables provided).
6. Pest management – 100 points
- a. Disorders
Ten samples will be identified according to category, causal agent and damage location. Refer to the Agronomic Disorders Practicum Scorecard for the category, agent and damage location lists.
 - b. Insect Identification – 100 points
Ten samples will be identified according to insect name, life cycle, economic impact and mouth part. Refer to the Insect Identification Practicum Scorecard for additional details.

7. Equipment and Machinery Identification - 100 points

Participants will be required to identify 20 specimens from the list in section XI in this chapter of the handbook. Samples may appear as actual equipment, scale models, toys or pictures. Major component that are unique to a certain piece of equipment can also be used.

VI. Scoring

Participant scores are the sum of the individual phases of the event, and team scores are the sum of the four participant scores plus the team activity.

Phase	Possible Points	
	Individual	Team
1. Examination	100	400
2. Identification	150	600
3. Soils	100	400
4. Commodity	250	1000
5. Diagnostic	100	400
6. Pest Management	100	400
7. Insect Identification	100	400
8. Equipment & Machinery Identification	100	400
9. Team Activity		1000
TOTAL	1000	5000

VII. Tiebreakers

If ties occur for team awards, the following events will be used to determine the placings:

1. Team Activity
2. Total Written Exam

If ties occur for individual awards, the following events will be used to determine the placings:

1. Written Exam
2. Plant and Seed Identification
3. Soils

VIII. Awards

Awards will be presented at the awards ceremony. Awards are presented to teams as well as individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

IX. References

This list of references is not intended to be all-inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog

National FFA Career Development Events Questions and Answers (NCQ)

<http://shop.ffa.org/cde-qas-c1413.aspx>

Ohio Curriculum Materials

Ohio Agronomy Guide

Plant Mounts

Seed Sets

Plant Mounts (not entire list)

University of Arizona, College of Agriculture*Plant Growth and Development**Plant Production Management**Weeds**Insects***Purdue Extension 888-EXT-INFO***Corn and Soybean Field Guide**Forage Field Guide**Pest Management Manual #IPM-1***NASCO References****Grain Grading Resources**www.gipsa.usda.govcontact Neil at neiji@eawifi.com, 260-639-6786**Oklahoma State University, Cooperative Extension Service***L-216 Corn Kernel damage**L- 215 Soybean Kernel damage**L- 213 Wheat Kernel damage***Kansas State University, Agronomy Department***Grain Grading Manual for wheat, corn and soybean***University of Illinois– 217-333-2007***Crop Plant Booklet**Weed Plant Booklet**Field Scouting Manual**Soybean Diseases I&II Color Plate Sheets**Corn Diseases I&II Color Plate Sheets**Wheat Diseases I&II Color Plate Sheets***USDA web site for the National Organic Program**<http://www.ams.usda.gov/nop/indexIE.htm>**Iowa State University 515-294-5247***How a Corn Plant Develops #48**How a Soybean Plant Develops #53***University of Minnesota 612-625-8173***Herbicide Mode of Action and Injury Symptoms #377***Weed Science Society of America**www.wssa.net*CD Available to assist with plant identification.*

X. Examples

Team Activity Possible Scenario

Your field measures 1500 ft. x 1750 ft. The field is a silt-loam soil type with a three (3) percent slope and no previous drainage problems. You have all necessary equipment. Your current crop is a forage legume (i.e., alfalfa, red clover and white clover). You have decided to follow with a corn crop. The target plant population is 24,000 plants per acre. The growing season is 120 days. You will rotate to a broadleaf crop following the harvest of the corn. This field has the following weed problems: yellow foxtail, pigweed, johnsongrass and field bindweed.

Utilizing the above information and additional provided material, develop a management plan that includes but is not restricted to the following: the variety of corn, the amount of seed, projected yield, tillage system, pest control program and fertilization plan. With the provided resources and your knowledge, develop a management plan and budget including profit or loss for this field.

XI. Additional Information

The following lists are provided as a reference to clarify common names that differ by region.

WEEDS LIST

Weeds marked with * are considered noxious weeds in at least eleven states as listed by the USDA.

ID #	Weed Name	Form	Botanical Name
100	barnyardgrass	plant and seed	<i>Echinochloa crus-galli</i>
101	black nightshade	plant and seed	<i>Solanum nigrum</i> or <i>Solanum ptycanthum</i>
102	broadleaf plantain	plant and seed	<i>Plantago major</i>
103	buckhorn plantain	plant and seed	<i>Plantago lanceolata</i>
104	bull thistle*	plant and seed	<i>Cirsium vulgare</i>
105	Canada thistle*	plant and seed	<i>Cirsium arvense</i>
106	cheat	plant and seed	<i>Bromus secalinus</i>
107	cogongrass	plant only	<i>Imperata cylindrica</i>
108	common chickweed	plant and seed	<i>Stellaria media</i>
109	common cocklebur	plant and seed as bur	<i>Xanthium strumarium</i>
110	common lambsquarters	plant and seed	<i>Chenopodium album</i>
111	common mallow	plant and seed	<i>Malva neglecta</i>
112	common milkweed	plant and seed	<i>Asclepias syriaca</i>
113	common mullein	plant and seed	<i>Verbascum thapsus</i>
114	common purslane	plant and seed	<i>Portulaca oleracea</i>
115	common ragweed	plant and seed	<i>Ambrosia artemisiifolia</i>
116	common sunflower	plant and seed	<i>Helianthus annuus</i>
117	crabgrass	plant and seed	<i>Digitaria spp.</i>
118	crown vetch	plant and seed	<i>Coronilla varia</i>
119	curly dock	plant and seed	<i>Rumex crispus</i>
120	dandelion	plant and seed	<i>Taraxacum officinale</i>
121	field bindweed*	plant and seed	<i>Convolvulus arvensis</i>
122	field dodder*	plant and seed	<i>Cuscuta spp.</i>
123	field pennycress	plant and seed	<i>Thlaspi arvense</i>
124	field sandbur	plant and seed	<i>Cenchrus incertus</i>
125	foxtail, giant	plant and seed	<i>Setaria faberi</i>
126	foxtail, green	plant and seed	<i>Setaria viridis</i>
127	foxtail, yellow	plant and seed	<i>Setaria glauca</i>
128	giant ragweed	plant and seed	<i>Ambrosia trifida</i>
129	ground cherry	plant and seed	<i>Physalis spp.</i>
130	horsenettle*	plant and seed	<i>Solanum carolinense</i>
131	horseweed* (Marestail)	plant only	<i>Conyza canadensis</i>
132	jimsonweed	plant and seed	<i>Datura stramonium</i>
133	johnsongrass*	plant and seed	<i>Sorghum halpense</i>
134	kochia	plant and seed	<i>Kochia scoparia</i>
135	leafy spurge*	plant and seed	<i>Euphorbia esula</i>
136	morningglory	plant and seed	<i>Ipomoea spp.</i>
137	nightshade, silver	plant and seed	<i>Solanum elaeagnifolium</i>
138	nutsedge*	plant and seed as Nutlet	<i>Cyperus spp.</i>
139	prickly lettuce	plant and seed	<i>Lactuca serriola</i>
140	prostrate knotweed	plant and seed	<i>Polygonum aviculare</i>

ID #	Weed Name	Form	Botanical Name
141	prostrate spurge	plant only	<i>Euphorbia supina</i>
142	puncturevine*	plant and seed	<i>Tribulus terrestris</i>
143	quackgrass*	plant and seed	<i>Agropyron repens</i>
144	redroot pigweed	plant and seed	<i>Amaranthus retroflexus</i>
145	Russian thistle	plant and seed	<i>Salsola pestifer</i>
146	shepardspurse	plant and seed	<i>Capsella bursa-pastoris</i>
147	smartweed	plant and seed	<i>Polygonum spp.</i>
148	sowthistle*	plant and seed	<i>Sonchus spp.</i>
149	tansy mustard	plant and seed	<i>Descurainia pinnata</i>
150	velvetleaf	plant and seed	<i>Abutilon theophrasti</i>
151	wild carrot	plant and seed	<i>Daucus carota</i>
152	wild mustard	plant and seed	<i>Brassica kaber</i>
153	wild oats	plant only	<i>Avena sativa</i>
154	wild onion/garlic	plant and seed	<i>Allium spp.</i>
155	wooly cupgrass	plant and seed	<i>Eriochloa gracilis</i>

CROPS LIST			
ID #	Crop Name	Form	Botanical Name
200	Alfalfa	plant or seed	<i>Medicago sativa</i>
201	Barley	plant or seed	<i>Hordeum vulgare</i>
202	Bean (dry)	plant only	<i>Phaseolus vulgaris</i>
203	Bermuda grass	plant or seed	<i>Cynodon dactylon</i>
204	Black beans	seed only	<i>Phaseolus vulgaris</i>
205	Broccoli	plant only	<i>Brassica oleracea var. italica</i>
206	Cabbage	plant only	<i>Brassica oleracea capitata</i>
207	Canola	plant or seed	<i>Brassica napus</i>
208	Cantaloupe	plant or seed	<i>Cucumis melo var. cantalupensis</i>
209	Carrot	root provided	<i>Daucus carota</i>
210	Cauliflower	plant only	<i>Brassica oleracea var. botrytis</i>
211	Chili pepper	plant or seed	<i>Capsicum annuum</i>
212	Corn	plant only	<i>Zea mays</i>
213	Cotton	plant or seed	<i>Gossypium hirsutum</i>
214	Cranberry	plant only	<i>Vaccinium macrocarpon</i>
215	Cucumber	plant or seed	<i>Cucumis sativus var. sativus</i>
216	Dent corn	seed only	<i>Zea mays</i>
217	Durum wheat	seed only	<i>Triticum turgidum</i>
218	Flax	plant or seed	<i>Linum usitatissimum</i>
219	Hops	plant only	<i>Humulus lupulus</i>
220	Kentucky bluegrass	plant or seed	<i>Poa pratensis</i>
221	Lettuce	plant or seed	<i>Lactuca sativa</i>
222	Lima beans	seed only	<i>Phaseolus lunatus</i>
223	Oats	plant or seed	<i>Avena sativa</i>
224	Onion	plant or seed	<i>Allium cepa</i>
225	Orchardgrass	plant or seed	<i>Dactylis glomerata</i>
226	Peanuts	plant or seed	<i>Arachis hypogaea</i>
227	Peas	plant or seed	<i>Pisum Sativum</i>
228	Pinto beans	seed only	<i>Phaseolus vulgaris</i>
229	Popcorn	seed only	<i>Zea mays</i>
230	Potato	plant only	<i>Solanum tuberosum</i>
231	Red bean	seed only	<i>Phaseolus vulgaris</i>
232	Red clover	plant or seed	<i>Trifolium pratense</i>
233	Red wheat	seed only	<i>Triticum aestivum</i>
234	Rice	plant or seed	<i>Oryza sativa</i>
235	Rye	plant or seed	<i>Secale cereale</i>
236	Safflower	plant or seed	<i>Carthamus tinctorius</i>
237	Sorghum	plant or seed	<i>Sorghum bicolor</i>
238	Soybeans	plant or seed	<i>Glycine max</i>
239	Spinach	plant only	<i>Spinacia oleracea</i>
240	Squash	plant or seed	<i>Curcurbita pepo</i>
241	Strawberry	plant only	<i>Fragaria virginiana</i>
242	Sudangrass	plant or seed	<i>Sorghum bicolor</i>
243	Sugar beets	plant or seed	<i>Beta vulgaris</i>
244	Sugarcane	plant only	<i>Saccharum sp.</i>
245	Sunflower	plant or seed	<i>Helianthus annuus</i>
246	Sweet corn	plant only	<i>Zea mays</i>

ID #	Crop Name	Form	Botanical Name
247	Sweet potato	plant only	<i>Ipomoea batatas</i>
248	Sweetclover	plant or seed	<i>Melilotus albus</i>
249	Tall fescue	plant or seed	<i>Festuca arundinacea</i>
250	Timothy	plant or seed	<i>Phleum pratense</i>
251	Tobacco	plant or seed	<i>Nicotiana tabacum</i>
252	Tomato	plant or seed	<i>Lycopersicon esculentum</i>
253	Watermelon	plant or seed	<i>Citrullus lanatus</i>
254	Wheat	plant only	<i>Triticum aestivum</i>
255	White beans	seed only	<i>Phaseolus vulgaris</i>
256	White clover	plant or seed	<i>Trifolium repens</i>
257	White wheat	seed only	<i>Triticum aestivum</i>

MACHINERY LIST

600	Air compressor/hose	630	Hitch pin
601	Anemometer	631	Hoe
602	Backpack sprayer	632	Hydraulic hose
603	Bale wagon	633	In-line ripper
604	Baler	634	Liquid manure/fertilizer spreader
605	Bean harvester head (for combine)	635	Manure spreader (dry)
606	Bed mulcher	636	Module builder
607	Bed shaper	637	Moldboard plow
608	Center pivot	638	Nozzle bodies (flood vs. flat fan)
609	Chemigation unit	639	Pea harvester
610	Combine	640	Peanut digger
611	Conveyor/elevator	641	Plow (soil chisel)
612	Corn harvester head (for combine)	642	Potato harvester
613	Cotton picker/stripper	643	PPE (all equipment)
614	Crop cultivator	644	Press wheel
615	Crop disc cultivator	645	Pressure gauge
616	Crop planter	646	Pressure regulator
617	Disc mower	647	PTO shaft
618	Drill planter	648	Rotary hoe
619	Fertilizer broadcaster	649	Seed plate
620	Field shovel	650	Soil probe
621	Forage harvester	651	Soil thermometer
622	Gauge wheel	652	Sprayer
623	GPS receiver & light bar	653	Sugar beet harvester
624	Grain auger	654	Swather
625	Grain moisture meter	655	Sweep net
626	Grain storage bin/dryer	656	Tensiometer
627	Gravity wagon	657	Tractor
628	Hay rake	658	Vegetable transplanter
629	Hearing protection	659	Yield monitor

**AGRONOMY PLANT IDENTIFICATION SCORECARD
(Weeds and Crops) Page 1**

Participant Name _____ Participant Number _____ State _____

Directions: Study each specimen provided. Determine the correct name for each specimen and the place an X in the box to the left of the code number that represents the correct name for the specimen.

ID #	Weed Name	Botanical Name
100	barnyardgrass	<i>Echinochloa crus-galli</i>
101	black nightshade	<i>Solanum nigrum</i> or <i>Solanum ptycanthum</i>
102	broadleaf plantain	<i>Plantago major</i>
103	buckhorn plantain	<i>Plantago lanceolata</i>
104	bull thistle*	<i>Cirsium vulgare</i>
105	Canada thistle*	<i>Cirsium arvense</i>
106	cheat	<i>Bromus sSecalinus</i>
107	cogongrass	<i>Imperata cylindrica</i>
108	common chickweed	<i>Stellaria media</i>
109	common cocklebur	<i>Xanthium strumarium</i>
110	common lambsquarters	<i>Chenopodium album</i>
111	common mallow	<i>Malva neglecta</i>
112	common milkweed	<i>Asclepias syriaca</i>
113	common mullein	<i>Verbascum thapsus</i>
114	common purslane	<i>Portulaca oleracea</i>
115	common ragweed	<i>Ambrosia artemisiifolia</i>
116	common sunflower	<i>Helianthus annuus</i>
117	crabgrass	<i>Digitaria spp.</i>
118	crown vetch	<i>Coronilla varia</i>
119	curly dock	<i>Rumex crispus</i>
120	dandelion	<i>Taraxacum officinale</i>
121	field bindweed*	<i>Convolvulus arvensis</i>
122	field dodder*	<i>Cuscuta spp.</i>
123	field pennycress	<i>Thlaspi arvense</i>
124	field sandbur	<i>Cenchrus incertus</i>
125	foxtail, giant	<i>Setaria faberi</i>
126	foxtail, green	<i>Setaria viridis</i>
127	foxtail, yellow	<i>Setaria glauca</i>

ID #	Weed Name	Botanical Name
128	giant ragweed	<i>Ambrosia trifida</i>
129	ground cherry	<i>Physalis spp.</i>
130	horsenettle*	<i>Solanum carolinense</i>
131	horseweed* (Marestail)	<i>Conyza canadensis</i>
132	jimsonweed	<i>Datura stramonium</i>
133	johnsongrass*	<i>Sorghum halpense</i>
134	kochia	<i>Kochia scoparia</i>
135	leafy spurge*	<i>Euphorbia esula</i>
136	morningglory	<i>Ipomoea spp.</i>
137	nightshade, silver	<i>Solanum elaeagnifolium</i>
138	nutsedge*	<i>Cyperus spp.</i>
139	prickly lettuce	<i>Lactuca serriola</i>
140	prostrate knotweed	<i>Polygonum aviculare</i>
141	prostrate spurge	<i>Euphorbia supina</i>
142	puncturevine*	<i>Tribulus terrestris</i>
143	quackgrass*	<i>Agropyron repens</i>
144	redroot pigweed	<i>Amaranthus retroflexus</i>
145	Russian thistle	<i>Salsola pestifer</i>
146	shepardspurge	<i>Capsella bursa-pastoris</i>
147	smartweed	<i>Polygonum spp.</i>
148	sowthistle*	<i>Sonchus spp.</i>
149	tansy mustard	<i>Descurainia pinnata</i>
150	velvetleaf	<i>Abutilon theophrasti</i>
151	wild carrot	<i>Daucus carota</i>
152	wild mustard	<i>Brassica kaber</i>
153	wild oats	<i>Avena sativa</i>
154	wild onion/garlic	<i>Allium spp.</i>
155	wooly cupgrass	<i>Eriochloa gracilis</i>

AGRONOMY PLANT IDENTIFICATION SCORECARD (Weeds and Crops) Page2

ID #	Crop Name	Botanical Name
200	Alfalfa	<i>Medicago sativa</i>
201	Barley	<i>Hordeum vulgare</i>
202	Bean (dry)	<i>Phaseolus vulgaris</i>
203	Bermuda grass	<i>Cynodon dactylon</i>
204	Black beans	<i>Phaseolus vulgaris</i>
205	Broccoli	<i>Brassica oleracea var. italica</i>
206	Cabbage	<i>Brassica oleracea capitata</i>
207	Canola	<i>Brassica napus</i>
208	Cantaloupe	<i>Cucumis melo var. Cantalupensis</i>
209	Carrot	<i>Daucus carota</i>
210	Cauliflower	<i>Brassica oleracea var. botrytis</i>
211	Chili pepper	<i>Capsicum annuum</i>
212	Corn	<i>Zea mays</i>
213	Cotton	<i>Gossypium hirsutum</i>
214	Cranberry	<i>Vaccinium macrocarpon</i>
215	Cucumber	<i>Cucumis sativus var. sativus</i>
216	Dent corn	<i>Zea mays</i>
217	Durum wheat	<i>Triticum turgidum</i>
218	Flax	<i>Linum usitatissimum</i>
219	Hops	<i>Humulus lupulus</i>
220	Kentucky bluegrass	<i>Poa pratensis</i>
221	Lettuce	<i>Lactuca sativa</i>
222	Lima beans	<i>Phaseolus lunatus</i>
223	Oats	<i>Avena sativa</i>
224	Onion	<i>Allium cepa</i>
225	Orchardgrass	<i>Dactylis glomerata</i>
226	Peanuts	<i>Arachis hypogaea</i>
227	Peas	<i>Pisum Sativum</i>
228	Pinto beans	<i>Phaseolus vulgaris</i>
229	Popcorn	<i>Zea mays</i>

ID #	Crop Name	Botanical Name
230	Potato	<i>Solanum tuberosum</i>
231	Red bean	<i>Phaseolus vulgaris</i>
232	Red clover	<i>Trifolium pratense</i>
233	Red wheat	<i>Triticum aestivum</i>
234	Rice	<i>Oryza sativa</i>
235	Rye	<i>Secale cereale</i>
236	Safflower	<i>Carthamus tinctorius</i>
237	Sorghum	<i>Sorghum bicolor</i>
238	Soybeans	<i>Glycine max</i>
239	Spinach	<i>Spinacia oleracea</i>
240	Squash	<i>Curcubita pepo</i>
241	Strawberry	<i>Fragaria virginiana</i>
242	Sudangrass	<i>Sorghum bicolor</i>
243	Sugar beets	<i>Beta vulgaris</i>
244	Sugarcane	<i>Saccharum sp.</i>
245	Sunflower	<i>Helianthus annuus</i>
246	Sweet corn	<i>Zea mays</i>
247	Sweet potato	<i>Ipomoea batatas</i>
248	Sweetclover	<i>Melilotus albus</i>
249	Tall fescue	<i>Festuca arundinacea</i>
250	Timothy	<i>Phleum pratense</i>
251	Tobacco	<i>Nicotiana tabacum</i>
252	Tomato	<i>Lycopersicon esculentum</i>
253	Watermelon	<i>Citrullus lanatus</i>
254	Wheat	<i>Triticum aestivum</i>
255	White beans	<i>Phaseolus vulgaris</i>
256	White clover	<i>Trifolium repens</i>
257	White wheat	<i>Triticum aestivum</i>
Possible Score		Points Earned
150		

Judge's Name

Judge's Signature and Date

**Agronomy
Agronomic Disorders Practicum Scorecard**

Name: _____ **Team No.:** _____
State: _____ **Member No.:** _____

	Member Answer	Possible Points	Member Score	Possible Answers
1. Causal Category #: Agent #: Part of Plant Damaged #:		3		Causal Category 100 Cultural 101 Biological 102 Environmental Agents 700. nutritional 701. chemical 702. mechanical 703. compaction 704. nematodes 705. virus 706. bacteria 707. insect 708. nutritional 709. frost damage 710. wind damage 711. drought 712. hail 713. lightning 714. pollution 715. flood 716. heat Parts of Plant Damaged 060 No Damage 061 Fruit or Flower 062 Vegetative Parts 063 Vascular Bundles 064 More than one area
		4		
		3		
2. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
3. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
4. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
5. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
6. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
7. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
8. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
9. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
10. Causal Category #: Agent #: Part of Plant Damaged #:		3		
		4		
		3		
Total Score:		100		

Agronomy Insect Identification Practicum Scorecard

Name: _____ State: _____ Team #: _____ Participant #: _____

		Member Answer	Possible Points	Member Score	Possible Answers
1.	Identification #:		4		<i>ID Specimens</i> 300 alfalfa weevil 301 aphides 302 armyworm larva 303 assassin bug 304 bean leaf beetle (501&502) 305 blister beetle (500&502) 306 boll weevil 307 chinch bug 308 Colorado potato beetle 309 corn ear worm larva 310 corn rootworm larva 311 cricket 312 cutworm larva 313 European corn borer larva 314 flea beetle 315 grain weevil 316 grasshopper 317 green lacewing 318 honeybee 319 Japanese beetle 320 lady beetle larva 321 leaf skeletonizer 322 leafhopper 323 lygus 324 Mexican bean beetle (501&502) 325 pink bollworm larva 326 salt marsh caterpillar/wooly worm 327 scale 328 spider mite 329 spittlebug 330 spotted cucumber beetle/Southern corn rootworm beetle 331 stinkbug 332 tobacco/tomato hornworm larva 333 Western corn rootworm beetle 334 western flower thrip 335 white grub 336 whitefly 337 wireworm <i>Economic Impact</i> 050 None or predatory 051 Fruit/Flower destruction 052 Vegetative Part destruction 053 Removal of plant fluids <i>Life Cycle</i> 001 Complete 002 Incomplete 003 None <i>Mouth Parts</i> 070 Chewing 071 Chewing-lapping 072 Rasping-sucking 073 Piercing-sucking 074 Sponging 075 Siphoning
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
2.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
3.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
4.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
5.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
6.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
7.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
8.	Identification #:		4		
	Agent #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
9.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
10.	Identification #:		4		
	Economic Impact #:		2		
	Life Cycle #:		2		
	Mouth-Part #:		2		
Total Score:			100		

**Agronomy
Plant and Pest Diagnostic Clinic Scorecard**

Name: _____ Team #: _____ Participant #: _____	Sample Type: _____ Inquirer Wants: _____ _____ _____
--	---

Describe Problem and Symptoms:

Insect and Pest Identification

Plant Identification	
Crop	
Weed ID	

Recommendations:	
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Agronomy Grain Grading Scorecard

FFA GRAIN INSPECTION SERVICE

Name	State	Student Number	Date

IDENTIFICATION AND LOT

GRADE AND KIND

Base Price

	Amounts	Discounts
TEST WEIGHT BY BUSHEL		
MOISTURE %		
DOCKAGE %		
BCFM %		
HEAT DAMAGED KERNELS %		
DAMAGED KERNELS TOTAL %		
TOTAL DEFECTS %		
TOTAL DAMAGE %		
FOREIGN MATERIAL %		
SHRUNKEN OR BROKEN %		
DEFECTS %		
CLASSES THAT BLEND %		
CONTRASTING CLASSES %		
WHEAT OF OTHER CLASSES %		
SPLITS %		
SAMPLE GRADE FACTORS		
SPECIAL GRADES		
OTHER		
MYCOTOXINS		

Final Price

This tag is an example. Each scorecard will resemble this and be crop specific.
They will be included in the coach's packet each year.

Agronomy Team Activity Scorecard

Name: _____ Team No.: _____

	Category	Excellent	Good	Fair	Possible	Score
I	<i>Teamwork Evaluation</i>	100 to 90	89 to 60	59 to 0	100	
	<ul style="list-style-type: none"> * Leadership roles perceived * Participation by all members * Members responsibilities outlined and defined * Demonstrated listening skills * Demonstrated use of time 					
II	<i>Written Proposal</i>	200 to 180	179 to 120	119 to 0	200	
	1. Analysis of Information <ul style="list-style-type: none"> * Clearly identify the problem * Data analyzed and utilized * Possible solutions analyzed * Each solution discussed * Short term and long-term approach discussed 					
III	<i>Quality of Written Plan</i>	300 to 270	269 to 180	180 to 0	300	
	<ul style="list-style-type: none"> * Introduction * Statement of problem * Analysis of scenario * Possible solutions identified * Recommendations <ul style="list-style-type: none"> - short-term goals - long-term goals * Correct solution chosen * Summary 					
IV	<i>Oral Presentation</i>	200 to 180	179 to 120	119 to 0	200	
	<ul style="list-style-type: none"> * Follows management plan * Delivery professional and well thought out * Presentation clear and effective 					
V	<i>Questions</i>	200 to 180	179 to 120	119 to 0	200	
	<ul style="list-style-type: none"> * Each member of the team responds to at least one question * Answers follow management plan * Confidence shown 					
Grand Total:					1000	

Judge's Name: _____ Signature/Date: _____

**Agronomy
Crop Placing Written Reasons Scorecard**

Class: _____
Name: _____

Participant Number: _____
State: _____

Placing		

Written Reasons Possible Score: **25**

Score Earned _____

Judge's Name (Printed)

Judge's Signature

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
ABS.01.02. Performance Indicator: Apply principles of entrepreneurship in businesses.			Social Studies: 7b & 7g
	ABS.01.02.01.c. Demonstrate entrepreneurship, including idea generation, opportunity analysis and risk assessment.	Team activity	
ABS.02.01. Performance Indicator: Compose and analyze a business plan for an enterprise.			Language Arts: 3, 4, 5, 7 & 8; Social Studies: 7h
	ABS.02.01.01.a. Recognize quality AFNR business plan components that have been developed using the SMART (specific, measurable, attainable, realistic and timely) format.	Team activity	
ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.			Language Arts: 12; Social Studies: 7f
	ABS.02.03.01.c. Implement management approaches to assure efficiency and profitability.	Team activity	
	ABS.02.03.02.b. Prepare and deliver AFNR business presentations that include customers served, sources of inputs and how a business produces goods and services.	Team activity	
ABS.03.01. Performance Indicator: Prepare and maintain all files needed to accomplish effective record keeping.			Math: 5A & 6B; Language Arts: 8
	ABS.03.01.01.b. Analyze records to improve efficiency and profitability of an AFNR business.	Team activity	
ABS.04.01. Performance Indicator: Use accounting fundamentals to accomplish dependable bookkeeping and fiscal management.			Math: 1C, 5A & 5C; Social Studies: 7h
	ABS.04.01.01.c. Manage resources to minimize liabilities and maximize profit.	Team activity/ diagnostic clinic/ grain grading/soils	
	ABS.04.01.02.b. Use accounting information to estimate the cost of goods sold and margins on the goods.	Team activity/ grain grading	
	ABS.04.01.03.a. Explain the importance of return on investment for an agribusiness enterprise.	Team activity/ grain grading	
ABS.05.01. Performance Indicator: Maintain and interpret financial information (income statements, balance sheets, inventory, purchase orders, accounts receivable and cash-flow analyses) for businesses.			Math: 1C, 5A & 5C; Language Arts: 8
	ABS.05.01.02.a. Name and explain the impact of external economic factors on an AFNR business.	Grain grading	
	ABS.05.01.03.c. Conduct a breakeven analysis for an AFNR business.	Team activity	

ABS.07.01. Performance Indicator: Prepare a step-by-step production plan that identifies needed resources.		Language Arts: 4, 5 & 8	
	ABS.07.01.01.c. Adapt production processes based on changing product characteristics.	Team activity	
ABS.07.02. Performance Indicator: Develop a production and operational plan.		Language Arts: 4, 5, 6 & 12	
	ABS.07.02.01.b. Evaluate the components of a production and operational plan and then revise an existing plan.	Team activity	
ABS.07.03. Performance Indicator: Utilize appropriate techniques to determine the most likely strengths, weaknesses and inconsistencies in a business plan and relate these to risk management strategies.		Language Arts: 12	
	ABS.07.03.01.b. Describe approaches to use in revising a business plan for improved consistency and realism.	Team activity	
ABS.07.04. Performance Indicator: Manage risk and uncertainty.		Language Arts: 12	
	ABS.07.04.01.b. Describe alternative approaches to reducing risk, including the use of insurance for product liability, property, production or income loss and for personnel life and health.	Team activity	
AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.		Science: C4 & F4	
	AS.08.01.01.b. Outline methods of reducing the effects of animal agriculture on the environment.	Team activity/ grain grading	
BS.01.01. Performance Indicator: Distinguish major innovators, historical developments and potential applications of biotechnology in agriculture.		Science: E2, F6 & G3; Language Arts: 8; Social Studies: 2b, 8a, 8c & 8e	
	BS.01.01.02.a. Investigate current applications of biotechnology in agriculture.	All but soils	
ESS.01.01. Performance Indicator: Analyze and interpret samples.		Math: 1A, 1B, 4A & 5B; Science: A2	
	ESS.01.01.01.c. Analyze and interpret results of sample measurements.	Grain grading/ soils/diagnostic clinic	
	ESS.01.01.02.a. Identify basic laboratory equipment and environmental monitoring instruments and explain their uses.	Machine ID	
ESS.03.02. Performance Indicator: Apply soil science principles to environmental service systems.		Science: B2 & D2; Social Studies: 3k	
	ESS.03.02.01.a. Explain the process of soil formation through weathering.	Soils	
	ESS.03.02.03.c. Conduct tests of soil to determine its use for environmental service systems.	Soils/team activity	
	ESS.03.02.04.b. Use a soil survey to determine the land capability classes for different parcels of land in an area.	Soils	

ESS.03.04. Performance Indicator: Apply best management techniques associated with the properties, classifications and functions of wetlands.		Science: C4 & F3; Social Studies: 3c
ESS.03.04.02.b. Identify the predominant species in a local wetland.	Team activity	
ESS.03.05. Performance Indicator: Apply chemistry principles to environmental service systems.		Science: B2, B3 & F4
ESS.03.05.01.b. Distinguish the characteristics of inorganic and organic compounds as they relate to environmental service systems.	Diagnostic/soils/ team activity/exam	
ESS.04.03. Performance Indicator: Apply the principles of public drinking water treatment operations to ensure safe water at a facility.		Science: F3 & F5
ESS.04.03.02.a. Define source water quality.	Team activity/ exam	
FPP.04.01. Performance Indicator: Utilize harvesting, selection and inspection techniques to obtain quality food products for processing.		Science: F1; Language Arts: 12
FPP.04.01.01.c. Assign quality and yield grades to food products according to industry standards.	Grain grading/ team activity/exam	
FPP.04.01.02.b. Perform quality-control inspections of raw food products for processing.	Crop evaluation	
FPP.04.02. Performance Indicator: Evaluate, grade and classify processed food products.		Science: F1; Language Arts: 8
FPP.04.02.02.c. Evaluate, grade and classify processed products from fruits and vegetables.	Diagnostic/grain grading	
FPP.04.02.03.c. Evaluate, grade and classify finished products derived from grains, legumes and oilseeds.	Grain grading/crop evaluation	
NRS.01.01. Performance Indicator: Apply knowledge of natural resource components to the management of natural resource systems.		Math: 5a; Science: C4 & F3; Social Studies: 3h & 3k
NRS.01.01.01.a. Identify natural resources.	Soils/plant ID/ team activity	
NRS.01.02. Performance Indicator: Classify natural resources.		Science: F3
NRS.01.02.02.b. Identify herbaceous plants.	Plant ID	
NRS.01.02.05.b. Identify rock, mineral and soil types.	Soils	
NRS.02.02. Performance Indicator: Demonstrate cartographic skills to aid in developing, implementing and evaluating natural resource management plans.		Math: 4B; Science: A3 & F2; Social Studies: 3b & 3c
NRS.02.02.01.b. Locate natural resources using a land survey and geographic coordinate system.	Soils	
NRS.02.04. Performance Indicator: Demonstrate natural resource enhancement techniques.		Science: F3; Social Studies: 3g & 3k
NRS.02.04.04.c. Evaluate a rangeland and develop a management plan for improvement.	Team activity	
NRS.02.04.05.a. Identify natural resource characteristics desirable for recreational purposes.	Team activity/ exam/plant ID	

NRS.04.03. Performance Indicator: Manage insect infestations of natural resources.		Science: C4 & F3
	NRS.04.03.01.c. Describe techniques used to manage pests of natural resources.	Exam/team activity/grain grading
PS.01.01. Performance Indicator: Classify agricultural plants according to taxonomy systems.		Science: C3
	PS.01.01.01.c. Classify agricultural plants according to the hierarchical classification system, life cycles, plant use and as monocotyledons or dicotyledons.	Exam
	PS.01.01.02.b. Identify agriculturally important plants by common names.	Plant & seed ID
PS.01.02. Performance Indicator: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.		Science: B6, C3 & C5
	PS.01.02.02.a. Identify the components, the types and the functions of plant roots.	Exam
	PS.01.02.03.b. Describe the processes of translocation.	Exam
	PS.01.02.04.c. Explain the relationships between leaf structure and functions and plant management practices.	Exam
	PS.01.02.05.b. Identify the different types of flowers and flower forms.	Exam
	PS.01.02.06.c. Apply the knowledge of seed and fruit structures to plant culture and use.	Team activity/ exam/plant & seed ID
PS.01.03. Performance Indicator: Apply knowledge of plant physiology and energy conversion to plant systems.		Science: B6 & C5
	PS.01.03.01.a. Explain the basic process of photosynthesis and its importance to life on Earth.	Exam
	PS.01.03.02.a. Explain cellular respiration and its importance to plant life.	Exam
	PS.01.03.03.c. Relate the principles of primary and secondary growth to plant systems.	Exam
	PS.01.03.04.a. Identify the five groups of naturally occurring plant hormones and synthetic plant growth regulators.	Exam/team activity
PS.02.01. Performance Indicator: Determine the influence of environmental factors on plant growth.		Science: C6
	PS.02.01.01.a. Describe the qualities of light that affect plant growth.	Exam/team activity
	PS.02.01.02.a. Describe the effects air, temperature and water have on plant metabolism and growth.	Exam/disease disorder

PS.02.02. Performance Indicator: Prepare growing media for use in plant systems.		Science: B2
PS.02.02.01.b. Describe the physical characteristics of growing media and explain the influence they have on plant growth.	Exam/diagnostic clinic/soils	
PS.02.02.02.c. Determine the hydraulic conductivity for soil and how the results influence irrigation practices.	Team activity/exam	
PS.02.03. Performance Indicator: Develop and implement a fertilization plan for specific plants or crops.		Math: 4B; Science: A2
PS.02.03.01.c. Monitor plants for signs of nutrient deficiencies and prepare a scouting report.	Disease disorder/diagnostic clinic	
PS.02.03.02.c. Adjust the pH of growing media.	Exam/team activity/diagnostic clinic	
PS.02.03.04.c. Use variable-rate technology to apply fertilizers to meet crop nutrient needs.	Team activity	
PS.03.01. Performance Indicator: Demonstrate plant propagation techniques.		Science: C2
PS.03.01.01.a. Explain pollination, cross-pollination and self-pollination of flowering plants.	Exam	
PS.03.01.02.c. Conduct tests associated with seed germination rates, viability and vigor.	Seed analysis	
PS.03.01.05.c. Evaluate the performance of genetically modified crops.	Seed analysis/team activity	
PS.03.02. Performance Indicator: Develop and implement a plant management plan for crop production.		Science: C5 & C6; Language Arts: 7
PS.03.02.01.c. Produce pest and disease-free propagation material.	Crop evaluation	
PS.03.02.02.a. Explain the reasons for preparing growing media before planting.	Soils/team activity/exam	
PS.03.02.04.c. Prepare and implement a plant production schedule based on predicted environmental conditions.	Team activity	
PS.03.02.05.c. Create and implement a plan to control and manage plant growth.	Team activity	
PS.03.03. Performance Indicator: Develop and implement a plan for integrated pest management.		Science: C4 & C6; Language Arts: 7
PS.03.03.01.b. Identify major local weeds, insect pests and infectious and noninfectious plant diseases.	Plant & insect ID/disease disorder/seed analysis/diagnostic clinic	
PS.03.03.02.c. Predict pest and disease problems based on environmental conditions and life cycles.	Insect ID/diagnostic clinic/exam	
PS.03.03.03.b. Describe types of pesticide controls and formulations.	Exam/team activity/diagnostic clinic	
PS.03.03.04.b. Explain procedures for the safe handling, use and storage of pesticides.	Exam	

PS.03.04. Performance Indicator: Apply principles and practices of sustainable agriculture to plant production.		Science: F3, F4 & F6
PS.03.04.01.b. Describe sustainable agriculture practices and compare the ecological effects of traditional agricultural practices with those of sustainable agriculture.	Team activity	
PS.03.05. Performance Indicator: Harvest, handle and store crops.		Science: F5
PS.03.05.01.a. Identify harvesting methods and harvesting equipment.	Machine ID/team activity	
PS.03.05.02.c. Implement plans to reduce crop loss.	All but soils	
PS.03.05.03.a. Identify storage methods for plants and plant products.	Diagnostic clinic/team activity	
PS.03.05.04.b. Demonstrate techniques for grading, handling and packaging plants and plant products for distribution.	Grain grading	
PST.05.03. Performance Indicator: Use geospatial technologies in agricultural applications.		Science: A3, E2 & F6; Social Studies: 3c
PST.05.03.01.a. Identify geospatial technologies, including global positioning, geographical information and remote sensing.	Machinery ID/soil	
PST.05.03.02.c. Output and apply maps using GIS/GPS systems.	Soils/team activity/equipment ID	
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d & 4h
CS.01.01.03.c. Implement an effective project plan.	Team activity	
CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	Team activity	
CS.01.01.05.b. Create a plan for performing a job that will minimize physical, financial and professional risks.	Team activity	
CS.01.01.06.a. Identify the strengths/talents of team members needed to achieve a desired task.	Team activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12; Social Studies: 4h
CS.01.02.02.c. Engage others in conversations to respond to an obstacle when completing a task.	Team activity	
CS.01.02.04.c. Evaluate the effectiveness of team members.	Team activity	
CS.01.03. Performance Indicator: Vision: Establish a clear image of what the future should look like.		Social Studies: 4a, 4d & 4h
CS.01.03.02.c. Create a plan of action to complete a task based on a conceptualized idea.	Team activity	
CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtues.		Social Studies: 4c & 4f
CS.01.04.04.c. Demonstrate respect for others.	Team activity	

CS.01.06. Performance Indicator: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.		Science: A4; Language Arts: 8; Social Studies: 4h
CS.01.06.04.c. Make recommendations to adopt new emerging technologies.	Team activity	
CS.01.06.05.c. Implement a plan to develop new knowledge and skills related to professional and personal aspirations.	Team activity	
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12; Social Studies: 4a
CS.02.03.03.b. Develop skills required for a specific career.	All activities	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C; Science: A4; Lan- guage Arts: 4 & 8
CS.02.04.02.c. Implement effective problem solving strategies.	Team activity/ exam/diagnostic clinic/grain grading	
CS.02.04.03.a. Discuss the skills and techniques needed to negotiate effectively.	Grain grading/ team activity	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 & 12
CS.03.01.01.a. Use basic technical and business writing skills.	Team activity	
CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	Team activity	
CS.03.01.03.b. Deliver a business presentation for a peer group (e.g., class presentation).	Team activity	
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1 & A5; Social Studies: 1c & 4h
CS.03.02.01.b. Utilize the process used to reach a conclusion for a decision.	Team activity/ reasons/diagnostic clinic	
CS.03.02.02.c. Use problem-solving skills.	All activities	
CS.03.03. Performance Indicator: Flexibility / Adaptability: Describe traits that enable one to be capable and willing to accept change.		Science: A1 and A5 Social Studies: 1c and 4h
CS.03.03.03.c. Respond to feedback to improve a situation, skill or performance.	Team activity questions	

CS.05.03. Performance Indicator: Research geographical data related to AFNR Systems.		Math: 5C Language Arts: 4 Social Studies: 3c and 3e
CS.05.03.01.a. Present resource data in graphic format.	Diagnostic clinic/ team activity/soil test report	
CS.05.03.02.b. Explore how AFNR systems differ across geographical areas.	Team activity/all ID's	
CS.06.02. Performance Indicator: Develop a plan to maintain and improve health, safety and environmental compliance and performance.		Science: F1, F4 and F5 Social Studies: 9d
CS.06.02.01.b. Develop plans to improve health, safety and environmental performance.	Exam/team activity/diagnostic clinic	
CS.08.01. Performance Indicator: Evaluate and select the appropriate tool to perform a given task.		N/A
CS.08.01.01.a. Identify standard tools, equipment and safety procedures related to a specific task.	Machine ID/team activity	
CS.09.02. Performance Indicator: Apply skills with computer software to accomplish a variety of business activities.		Math: 6C Science: A3
CS.09.02.01.b. Use basic software systems such as spreadsheet and word processing to complete a task.	Team activity	
CS.09.03. Performance Indicator: Use technology to demonstrate the ability to network and interface with technology.		Science: A3 and E2
CS.09.03.01.a. Use the technological systems to acquire information related to AFNR.	Soils/team activity	
CS.10.01. Performance Indicator: Examine new technologies to project their impact in the global market of AFNR.		Science: F6
CS.10.01.01.a. Apply the use of various scientific measurement and conversions to AFNR systems.	Team activity/ exam/diagnostic clinic/grain grading	
CS.11.01. Performance Indicator: Recognize the questions and theory needed to guide scientific investigations.		Math: 6C Science: A1 and A2
CS.11.01.01.c. Demonstrate procedures and a conceptual understanding of scientific investigation.	Diagnostic clinic/ exam	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1A. Understand numbers, ways of representing numbers, relationships among numbers and number systems.
 - 1B. Understand meanings of operations and how they relate to one another.
 - 1C. Compute fluently and make reasonable estimates.
6. Standard and Expectations: Problem Solving
 - 6B. Solve problems that arise in mathematics in other contexts.
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.
4. Standard and Expectations: Measurement
 - 4A. Understand measurable attributes of objects and the units, systems and processes of measurement.
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
 - 5B. Select and use appropriate statistical methods to analyze data.
 - 5C. Develop and evaluate inferences and predictions that are based on data.

Science

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A2. Design and conduct scientific investigations.
 - A3. Use technology and mathematics to improve investigations and communications.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
 - A5. Recognize and analyze alternative explanations and models.
- B. Content Standard: Physical Science
 - B2. Structure and properties of matter.
 - B3. Chemical reactions.
 - B4. Motions and forces.
 - B6. Interactions of energy and matter.

- C. Content Standard: Life Science
 - C2. Molecular basis of heredity.
 - C3. Biological evolution.
 - C4. Interdependence of organisms.
 - C5. Matter, energy and organization in living systems.
 - C6. Behavior of organisms.
- D. Content Standard: Earth and Space Science
 - D2. Geochemical cycles.
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology.
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F2. Population growth.
 - F3. Natural resources.
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.
 - F6. Science and technology in local, national and global challenges.
- G. Content Standard: History and Nature of Science
 - G3. Historical perspectives.

English Language Arts

- 3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
- 4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.
- 7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- 8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- 12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture
 - 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
2. Thematic Strand: Time, Continuity and Change
 - 2b. apply key concepts such as time, chronology, causality, change, conflict and complexity to explain, analyze and show connections among patterns of historical change and continuity;
3. Thematic Strand: People, Places and Environments
 - 3b. create, interpret, use and synthesize information from various representations of the earth, such as maps, globes and photographs;
 - 3c. use appropriate resources, data sources and geographic tools such as aerial photographs, satellite images, geographic information systems (GIS), map projects and cartography to generate, manipulate and interpret information such as atlases, data bases, grid systems, charts, graphs and maps.
 - 3e. describe, differentiate and explain the relationships among various regional and global patterns of geographic phenomena such as land forms, soils, climate, vegetation, natural resources and population;
 - 3f. use knowledge of physical system changes such as seasons, climate and weather and the water cycle to explain geographic phenomena;
 - 3h. examine, interpret and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas, and ecosystem changes;
 - 3k. propose, compare and evaluate alternative policies for the use of land and other resources in communities, regions, nations and the world.
4. Thematic Strand: Individual Development and Identity
 - 4a. articulate personal connections to time, place and social/cultural systems;
 - 4c. describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status and other group and cultural influences contribute to the development of a sense of self;
 - 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
 - 4f. analyze the role of perceptions, attitudes, values and beliefs in the development of personal identity;
 - 4h. work independently and cooperatively within groups and institutions to accomplish goals;
6. Thematic Strand: Power, Authority and Governance
 - 6c. analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security and balance competing conceptions of a just society;
7. Thematic Strand: Production, Distribution and Consumption
 - 7a. explain how the scarcity of productive resources (human, capital, technological and natural) requires the development of economic systems to make decisions about how goods and services are to be produced and distributed;
 - 7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;
 - 7f. compare how values and beliefs influence economic decisions in different societies;

- 7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;
- 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;
- 8. Thematic Strand: Science, Technology and Society
 - 8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;
 - 8c. analyze how science and technology influence the core values, beliefs and attitudes of society, and how the core values, beliefs and attitudes of society shape scientific and technological change;
 - 8e. recognize and interpret varied perspectives about human societies and the physical world using scientific knowledge, ethical standards and technologies from diverse world cultures;
- 9. Thematic Strand: Global Connections
 - 9d. analyze the causes, consequences and possible solutions to persistent, contemporary, and emerging global issues, such as health, security, resource allocation, economic development and environmental quality;

National FFA Creed Speaking Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The FFA Creed outlines the organization's beliefs regarding the industry of agriculture, FFA membership and the value of citizenship and patriotism. The Creed is recited by FFA members as part of the requirements to earn the Greenhand FFA Degree. The purpose of the Creed speaking career development event is to develop the public speaking abilities of 7th, 8th and 9th grade FFA members as well as develop their self-confidence and contribute to their advancement in the FFA degree program.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. The National FFA Creed Speaking Career Development Event will be limited to one participant per state; participant must qualify in grades 7, 8 or 9; participant must compete at the next national convention following their state qualifying round.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Three to eight competent and impartial persons will be selected to judge the event. At least one judge should have an agricultural/FFA background. Each state with a speaker shall provide a judge for preliminary and semifinal rounds of the national event. ***Any advisor who has a student competing in a speaking event may not serve as a judge for that respective speaking event.***
- D. Any participant in possession of any electronic device is subject to disqualification.

IV. Event Format

- A. The event will include an oral presentation and answering critical thinking questions directly related to the Creed. Each participant will be asked three questions per round with a five minute total time limit. The questions used will change as the participant progresses to semifinal and final rounds of the event. The questions will be formulated annually by the Creed speaking career development event committee and will avoid two part questions. Sample questions will not be available prior to the event.
- B. Members will present the Creed from the current year's Official FFA Manual.
- C. The event will be a timed activity with four minutes for presentation. After four minutes, the participant will be deducted 1 point for every second over set time.

- D. The national event will be conducted in three rounds: preliminary (consisting of 5–8 speakers per section), semifinals (2 sections of 8 speakers each) and finals (4 participants). The top two speakers from each preliminary section will advance to the semifinals. The top two speakers from the semifinal sections will advance to the final round. No ranking will be given except for the final four. Comment cards for all participants will be distributed at the awards function.
- E. Event officials will randomly determine the speaking order. The room facilitator will introduce each participant by participant number and state association in order of the drawing. No props are to be used. Applause shall be withheld until all participants have spoken.
- F. Each participant must recite the Creed from memory. Each participant shall begin the presentation by stating, “The FFA Creed by E.M. Tiffany.” Each CDE participant should end the presentation with the statement, “... that inspiring task. Thank you.” Additional introductory or concluding remarks will result in accuracy deductions as indicated on the scorecard.
- G. Participants will be held in isolation until their presentation. Participants will not be allowed to have contact with any outside persons.
- H. At the time of the event, the judges will be seated in a designated section of the room in which the event is held. They will score each participant on the delivery of the Creed, using the score sheet provided.
- I. Timekeepers will be designated to record the time used by each participant in delivering his/her speech. Content accuracy judges will record the number of recitation errors during delivery.
- J. When participants have finished the presentation and answering of questions, each judge will total the score of each speaker. The timekeepers’ and accuracy judges’ records will be used in computing the final score for each participant. The judges’ score sheets will then be submitted to event officials to determine final ratings of participants.
- K. Participants will be ranked in numerical order on the basis of the final score to be determined by each judge without consultation. The judges’ ranking of each participant then will be added, and the winner will be that participant whose total ranking is the lowest. Other placings will be determined in the same manner (low point score method of selection).
- L. During preliminary and semifinal rounds, recording of presentations is permitted by one person from each participant’s association for that participant only.

V. Tiebreakers

Ties will be broken based on the greatest number of low ranks. Participant’s low ranks will be counted and the participant with the greatest number of low ranks will be declared the winner. If a tie still exists, then the event superintendent will rank the participant’s response to questions. The participant with the greatest number of low ranks from the response to questions will be declared the winner. If a tie still exists then the participant’s raw scores will be totaled. The participant with the greatest total of raw points will be declared the winner.

VI. Awards

Plaques and medals will be awarded to the national participants by the National FFA Foundation. In addition, *if funding is available*, the final four speakers will receive a monetary award *for travel and registration to the Washington Leadership Conference, not to exceed \$1,000*. The recipients must use this monetary award prior to high school graduation.

VII. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

Current year's Official FFA Manual

www.ffa.org

National FFA Core Catalog—*Figures of Speech* DVD

<http://shop.ffa.org/figures-of-speech-dvd-p37895.aspx>

Creed Speaking CDE Presentation Rubric - 1,000 points
Participant # _____

Oral Communication – 200 points						
Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Speaking without hesitation	Speaks very articulately without hesitation. • Never has the need for unnecessary pauses or hesitation when speaking.	Speaks articulately, but sometimes hesitates. • Occasionally has the need for a long pause or moderate hesitation when speaking.	Speaks articulately, but frequently hesitates. • Frequently hesitates or has long, awkward pauses while speaking.		X 20	
B. Pace	Speaks at a moderate pace to be clear.	Speaks at a moderate pace most of the time, but shows some nervousness.	Pace is too fast/slow; nervous.		X 5	
C. Tone	Voice is upbeat, impassioned and under control.	Voice is somewhat upbeat, impassioned and under control.	Voice is not upbeat; lacks passion and control.		X 5	
D. Pronunciation	Pronunciation of words is very clear and intent is apparent.	Pronunciation of words is usually clear, sometimes mumbled.	Pronunciation of words is difficult to understand; unclear.		X 5	
E. Volume	Emitted a clear, audible voice for the audience present.	Emitted a somewhat clear, audible voice for the audience present.	Emitted a barely audible voice for the audience present.		X 5	
Non-verbal Communication – 400 points						
A. Attention (eye contact)	Eye contact constantly used as an effective connection. • Constantly looks at the entire audience (90-100% of the time).	Eye contact is mostly effective and consistent. • Mostly looks around the audience (60-80% of the time).	Eye contact does not always allow connection with the speaker. • Occasionally looks at someone or some groups (less than 50% of the time).		X 20	
B. Mannerisms	Does not have distracting mannerisms that affect effectiveness. • No nervous habits.	Sometimes has distracting mannerisms that pull from the presentation. • Sometimes exhibits nervous habits or ticks.	Has mannerisms that pull from the effectiveness of the presentation. • Displays some nervous habits – fidgets or anxious ticks.		X 20	
C. Gestures	Gestures are purposeful and effective. • Hand motions are expressive and used to emphasize talking points. • Great posture (confident) with positive body language.	Usually uses purposeful gestures. • Hands are sometimes used to express or emphasize. • Occasionally slumps; sometimes negative body language.	Occasionally gestures are used effectively. • Hands are not used to emphasize talking points; hand motions are sometimes distracting. • Lacks positive body language; slumps.		X 20	
D. Well poised	Is extremely well poised. • Poised and in control at all times.	Usually is well poised. • Poised and in control most of the time; rarely loses composure.	Isn't always well poised. • Sometimes seems to lose composure.		X 20	
Question and Answer—400 points						
A. Being detail-oriented	Is able to stay fully detail-oriented. • Always provides details which support answers/basis of the question.	Is mostly good at being detail-oriented. • Usually provides details which are supportive of the answers/basis of the question.	Has difficulty being detail-oriented. • Sometimes overlooks details that could be very beneficial to the answers/basis of the question.		X 30	
B. Speaking unrehearsed	Speaks unrehearsed with comfort and ease. • Is able to speak quickly with organized thoughts and concise answers.	Speaks unrehearsed mostly with comfort and ease, but sometimes seems nervous or unsure. • Is able to speak effectively, has to stop and think and sometimes gets off focus.	Shows nervousness or seems unprepared when speaking unrehearsed. • Seems to ramble or speaks before thinking.		X 30	
C. Examples used in response to questions	Examples are vivid, precise and clearly explained. • Examples are original, logical and relevant.	Examples are usually concrete, some-times needs clarification. • Examples are effective, but need more originality or thought.	Examples are abstract or not clearly defined. • Examples are sometimes confusing, leaving the listeners with questions.		X20	
Gross Total Points						
Time Deduction*						
Accuracy Deduction**						
Net Total Points						
Rank						

* -1 point per second over, determined by the timekeepers
** - 20 points per word, determined from by the accuracy judges.

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Activity	Related Academic Standards
	CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	Presentation	
	CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
	CS.02.05.03.c. Exhibit self confidence while in the workplace.	Presentation	
	CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
	CS.03.01.03.c. Make effective business presentations.	Presentation	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
12. Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture
 - 1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;
4. Thematic Strand: Individual Development and Identity
 - 4a. articulate personal connections to time, place and social/cultural systems;

National FFA Dairy Cattle Management and Evaluation Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the National FFA Dairy Cattle Management and Evaluation Career Development Event is to provide a competitive event for agricultural education students which emphasizes skills in dairy cattle management and evaluation.

II. Objectives

- A. To provide a practical experience to students enrolled in agricultural education with an interest in dairy cattle to help prepare for industry positions or in management of a modern dairy herd.
- B. To develop students' skills in observation, analysis, communication and team collaboration.
- C. To provide experience in the evaluation of dairy cattle type, production records and dairy herd management.
- D. To encourage agriculture instructors to seek assistance from various resources in the dairy industry. (Examples: dairy breed associations, artificial breeding associations, state extension dairy specialists, state dairy herd improvement associations, dairy equipment manufacturers, local dairy farmers and breeders, etc.)

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Each team will be comprised of four members. All four scores will be used to determine total team score.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Participants will report to the team orientation meeting for instructions at the time and place shown in the current year's team orientation packet.
- D. The most current and updated information will be used as industry standards change.
- E. Computer score sheets will be used in the event to record all responses. These forms must be completed within the time allotted for each section of the event. No additional time will be permitted to transfer responses to computer scoring sheets. Responses that are not correctly recorded on the computer score sheets cannot be considered due to the large number of participants' responses that must be processed.

V. Event Format

- A. *Materials student must provide:* Each participant must have:
1. A clean, free of notes clipboard
 2. Two sharpened No. 2 pencils
 3. An electronic calculator. Calculators used in this event should be battery operated, non-programmable and silent with large keys and displays. Calculators should only have these functions: addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. No other calculators are allowed to be used during the event.
- B. *Team Activity - Dairy Management Activity - 600 points*
1. Each team will be provided with a dairy farm management scenario to identify problems and determine possible improvements. (See team activity example in Appendix C.) All necessary information will be provided. Teams should assume the role of a hired consultant advising a producer (judges). Teams will be given 40 minutes to prepare their recommendations to be presented to a panel of judges. It is not necessary to describe the scenario to the judges since they are the producer. Teams will be allowed 10 minutes to present their recommendations, followed by 5 minutes of clarifying questions from the judges.
 2. The scenario will be based on the following rotating topic areas:
 - 2012 & 2016: Genetics/Reproduction
 - 2013: Feeds/Nutrition
 - 2014: Housing/Facilities
 - 2015: Health/Diseases
 3. Each scenario may include animal welfare, biosecurity, business management, current issues, environmental management and safety concerns related to the topic area.
- C. *Individual Activities*
1. General Knowledge Exam - 150 points
 - a. The exam will consist of a 50 question exam involving dairy management practices and DHI records.
 - i. Forty questions will cover various dairy management and industry related topics.
 - ii. Ten questions will be answered using a dairy herd record evaluation data sheet to analyze individual cows. (See sample herd record evaluation data sheet in reference section.)
 - b. Appropriate information necessary to answer the DHI questions will be provided.
 - c. Participants will have 30 minutes to complete the exam.
 2. Evaluation and Selection - 300 points
 - a. Six classes of four dairy animals will each be placed on type. Classes will be selected from the recognized breeds of dairy cattle. The class selection committee, however, shall give priority to selecting quality cattle in the breeds available and not be obligated to having all breeds represented in the evaluation classes. Classes will consist of heifers, young cows or mature cows.
 - b. Participants will be permitted to view the animals from all angles but will not be permitted to handle them.
 - c. The handlers/cattle will wear numbers which identify the animals.
 - d. Each class is worth 50 points maximum for a correct placing.
 - e. Participants will have 12 minutes to place each class. For classes on which oral reasons will be given, participants will be given 15 minutes.

6. Oral Reasons - 150 points
- Oral reasons will be required on three classes. These three classes will be designated by the event superintendent prior to the actual evaluation of the class.
 - Oral reasons will be given in another location immediately following the evaluation classes.
 - Participants may not use notes during delivery of reasons. Points will be deducted for the use of notes.
 - Each class is worth 50 points maximum for each set of reasons.
 - Participants will have 12 minutes to prepare each set of oral reasons. No more than two minutes may be used to deliver the reasons before the judges.

VI. Scoring

Individual	Maximum Points
General knowledge exam	150
Evaluation	300
Oral reasons	<u>150</u>
Total possible score	600

Team	Maximum Points
Dairy management activity	600
Total individual score x4	<u>2,400</u>
Total possible score	3,000

VII. Tiebreakers

If a tie occurs, the following events will be used to determine award recipients:

Individual

- Oral reasons score
- General knowledge exam score
- Evaluation score

Overall Team

- Team activity score
- Total oral reasons score
- Total general knowledge exam score
- Total evaluation score

VII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

The high-scoring participant in each of the following categories will also receive a certificate recognizing their accomplishment:

- High Breed total (High individual of each breed- Holstein, Jersey, Guernsey, Brown Swiss, etc.) with associated oral reasons scores as applicable
- Oral reasons score
- General knowledge exam
- Team- dairy management activity

VIII. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog—Past CDE Material (<http://shop.ffa.org/cde-qas-c1413.aspx>)

Hoard's Dairyman- Judging contest and materials, youth tests and quiz questions:
www.hoards.com

Cornell University Department of Animal Science Dairy Resources:
<http://www.ansci.cornell.edu/4H/dairycattle/dairyresources.html>

Virginia Dairy Quiz Bowl study materials: <http://www2.dasc.vt.edu/youth/bowlmat.html>

CEV Multimedia, Inc.: www.cevmultimedia.com

Holstein Association: www.holsteinusa.com

Dairy Herd Improvement: www.drms.org

2009 Dairy Unified Scorecard: [http://www.usjersey.com/Reference/PDCA Dairy Cow Unified Scorecard 2009update.pdf](http://www.usjersey.com/Reference/PDCA_Dairy_Cow_Unified_Scorecard_2009update.pdf)

Dairy Cattle Management and Evaluation Team Activity Content Scorecard - 400 points

State: _____

Indicators	Very strong evidence skill is present 10-8	Moderate evidence skill is present 7-4	Strong evidence skill is not present 3-0	Points Earned	Weight	Total Score
A. Opening statement	Begins with an impact statement or question that articulates the focus of the topic area.	Begins with an impact statement or question that is vague concerning the topic area.	Begins with a statement or question that is completely irrelevant to the topic area.		X 2	
B. Identification of problem areas	4 or more problems from the scenario are accurately identified and discussed.	2-3 problems from the scenario are accurately identified and discussed.	1 or no problems from the scenario are accurately identified and discussed.		X 4	
C. Supporting information	Does an outstanding job discussing industry trends with related statistics.	Does an adequate job discussing industry trends with related statistics.	Vaguely discusses industry trends with related statistics.		X 6	
D. Factors of impact	All factors that are impacted by problems listed in the scenario are addressed. (i.e. economic impact, production factors, etc.)	Some factors that are impacted by problems listed in the scenario are addressed. (i.e. economic impact, production factors, etc.)	Little or no factors that are impacted by problems listed in the scenario are addressed. (i.e. economic impact, production factors, etc.)		X 10	
E. Identifying solutions	All solutions connect with and support industry best practices.	Some solutions connect with and support industry best practices.	Solutions do not connect with and do not support industry best practices.		X 10	
F. Implementation of solutions	All solutions are correctly prioritized for implementation; provides complete justification for the implementation process.	Few solutions are correctly prioritized for implementation; provides little justification for the implementation process.	Solutions are incorrectly prioritized for implementation; provides no justification for the implementation process.		X 6	
G. Conclusion	Provides a summary statement that provides a clear and concise overview of the topic area.	Provides a summary statement that provides a vague overview of the topic area.	Provides a summary statement that has little relevance to the topic area.		X 2	
Total Points						

Dairy Cattle Management and Evaluation Team Activity Communication Scorecard (200 points)

State: _____

Oral Communication—140 points						
Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Examples	<i>Examples are vivid, precise and clearly explained.</i> • Examples are original, logical and relevant.	<i>Examples are usually concrete, sometimes needs clarification.</i> • Examples are effective, but need more originality or thought.	<i>Examples are abstract or not clearly defined.</i> • Examples are sometimes confusing, leaving the listeners with questions.		X 4	
B. Speaking without hesitation	<i>Speaks very articulately without hesitation.</i> • Never has the need for unnecessary pauses or hesitation when speaking.	<i>Speaks articulately, but sometimes hesitates.</i> • Occasionally has the need for a long pause or moderate hesitation when speaking.	<i>Speaks articulately, but frequently hesitates.</i> • Frequently hesitates or has long, awkward pauses while speaking.		X 4	
C. Tone	<i>Appropriate tone is consistent.</i> • Speaks at the right pace to be clear. • Pronunciation of words is very clear and intent is apparent.	<i>Appropriate tone is usually consistent.</i> • Speaks at the right pace most of the time, but shows some nervousness. • Pronunciation of words is usually clear, sometimes vague.	<i>Has difficulty using an appropriate tone.</i> • Pace is too fast; nervous. • Pronunciation of words is difficult to understand; unclear.		X 4	
D. Being detail-oriented	<i>Is able to stay fully detail-oriented.</i> • Always provides details which support the issue; is well organized.	<i>Is mostly good at being detail-oriented.</i> • Usually provides details which are supportive of the issue; displays good organizational skills.	<i>Has difficulty being detail-oriented.</i> • Sometimes overlooks details that could be very beneficial to the issue; lacks organization.		X 4	
E. Speaking unrehearsed	<i>Speaks unrehearsed with comfort and ease.</i> • Is able to speak quickly with organized thoughts and concise answers.	<i>Speaks unrehearsed mostly with comfort and ease, but sometimes seems nervous or unsure.</i> • Is able to speak effectively, has to stop and think and sometimes gets off focus.	<i>Shows nervousness or seems unprepared when speaking unrehearsed.</i> • Seems to ramble or speaks before thinking.		X 4	
F. Connecting and articulating facts and issues	<i>Exemplary in connecting facts and issues and articulating how they impact the issue locally and globally.</i> • Possesses a strong knowledge base and is able to effectively articulate information regarding related facts and current issues.	<i>Sufficient in connecting facts and issues and articulating how they impact the issue locally and globally.</i> • Possesses a good knowledge base and is able to, for the most part, articulate information regarding related facts and current issues.	<i>Has difficulty with connecting facts and issues and articulating how they impact the issue locally and globally.</i> • Possesses some knowledge base but is unable to articulate information regarding related facts and current issues.		X 4	
G. All team members participated	• All team members took an active role in the presentation.	• Three team members took an active role in the presentation.	• Two or less team members took an active role in the presentation.		X 4	
Non-verbal Communication—60 points						
A. Attention (eye contact)	<i>Eye contact constantly used as an effective connection.</i> • Constantly looks at the entire audience (90-100% of the time).	<i>Eye contact is mostly effective and consistent.</i> • Mostly looks around the audience (60-80% of the time).	<i>Eye contact does not always allow connection with the speaker.</i> • Occasionally looks at someone or some groups (less than 50% of the time).		X 3	
B. Mannerisms	<i>Does not have distracting mannerisms that affect effectiveness.</i> • No nervous habits.	<i>Sometimes has distracting mannerisms that pull from the presentation.</i> • Sometimes exhibits nervous habits or ticks.	<i>Has mannerisms that pull from the effectiveness of the presentation.</i> • Displays some nervous habits – fidgets or anxious ticks.		X 3	
C. Gestures	<i>Gestures are purposeful and effective.</i> • Hand motions are expressive and used to emphasize talking points. • Great posture (confident) with positive body language.	<i>Usually uses purposeful gestures.</i> • Hands are sometimes used to express or emphasize. • Occasionally slumps; sometimes negative body language.	<i>Occasionally gestures are used effectively.</i> • Hands are not used to emphasize talking points; hand motions are sometimes distracting. • Lacks positive body language; slumps.		X 3	
D. Well-poised	<i>Is extremely well-poised.</i> • Poised and in control at all times.	<i>Usually is well-poised.</i> • Poised and in control most of the time; rarely loses composure.	<i>Isn't always well-poised.</i> • Sometimes seems to lose composure.		X 3	
Total Points						

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
ABS.07.02. Performance Indicator: Develop a production and operational plan.			Language Arts: 4, 5, 6 and 12
	ABS.07.02.01.b. Evaluate the components of a production and operational plan and then revise an existing plan.	team activity	
	ABS.07.02.02.a. Identify common resources needed to operate a production facility.	team activity	
ABS.07.03. Performance Indicator: Utilize appropriate techniques to determine the most likely strengths, weaknesses and inconsistencies in a business plan and relate these to risk management strategies.			Language Arts: 12
	ABS.07.03.01.b. Describe approaches to use in revising a business plan for improved consistency and realism.	team activity	
AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution.			Science: C3 Social Studies: 7h
	AS.01.01.02.a. Define major components of the animal industry.	exam	
AS.02.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.			Science: C1, C5 and F2
	AS.02.02.01.c. Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.	team activity	
AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.			Science: C5
	AS.02.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.	evaluation	
	AS.02.03.02.c. Develop efficient procedures to produce consistently high-quality animals, well suited for their intended purposes.	team activity	
AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders.			Science: C4, F1 and F5
	AS.03.01.02.a. Identify common diseases, parasites and physiological disorders that affect animals.	exam, team activity	
	AS.03.01.03.b. Evaluate preventive measures for controlling and limiting the spread of diseases, parasites and disorders among animals.	team activity	

AS.03.02. Performance Indicator: Provide for the biosecurity of agricultural animals and production facilities.		Science: F5 and F6 Social Studies: 9d
	AS.03.02.01.a. Explain the importance of biosecurity to the animal industry.	exam
	AS.03.02.01.b. Discuss procedures at the local, state and national levels to ensure biosecurity of the animal industry.	team activity
AS.04.01. Performance Indicator: Formulate feed rations to provide for the nutritional needs of animals.		Math: 1C and 6B Science: A4 and C5
	AS.04.01.01.b. Determine the relative nutritional value of feedstuffs by evaluating their general quality and condition.	exam
	AS.04.01.01.c. Select appropriate feedstuffs for animals based on factors such as economics, digestive system and nutritional needs.	team activity
	AS.04.01.02.a. Explain the importance of a balanced ration for animals.	exam
	AS.04.01.02.b. Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance.	team activity
AS.04.02. Performance Indicator: Prescribe and administer animal feed additives and growth promotants in animal production.		Science: C5
	AS.04.02.01.b. Discuss how feed additives and growth promotants are administered and the precautions that should be taken.	exam, team activity
AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals.		Science: C1 and C3
	AS.05.01.01.a. Explain the male and female reproductive organs of the major animal species.	exam
AS.05.02. Performance Indicator: Evaluate animals for breeding readiness and soundness.		Science: C6
	AS.05.02.02.c. Treat or cull animals with reproductive problems.	exam, team activity

AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.		Math: 6C Science: A4, C2 and E2
AS.05.03.01.c. Select a breeding system based on the principles of genetics.	team activity	
AS.05.03.02.c. Select animal breeding methods based on reproductive and economic efficiency.	team activity	
AS.05.03.03.a. Explain the use of quantitative breeding values (e.g., EPDs) in the selection of genetically superior breeding stock.	exam	
AS.05.03.03.c. Select animals based on quantitative breeding values for specific characteristics.	team activity	
AS.05.03.04.b. Explain the processes of major reproductive management practices, including estrous synchronization, superovulation, flushing and embryo transfer.	exam, team activity	
AS.05.03.05.b. Explain the materials, methods and processes of artificial insemination.	exam, team activity	
AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.		Science: C6 and F6
AS.07.01.01.b. Critique designs for an animal facility and prescribe alternative layouts and adjustments for the safe and efficient use of the facility.	team activity	
AS.07.01.02.b. Explain how modern equipment and handling facilities enhance the safe and economic production of animals.	team activity	
AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.		Science: C4 and F4
AS.08.01.01.a. Evaluate the effects of animal agriculture on the environment.	exam	
AS.08.01.01.b. Outline methods of reducing the effects of animal agriculture on the environment.	team activity	
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.		Science: C6 and F4
AS.08.02.01.a. Identify optimal environmental conditions for animals.	exam	
AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	team activity	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.		Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	presentation	

CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	presentation
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
	CS.02.05.03.c. Exhibit self confidence while in the workplace.	presentation
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
	CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	written plan
	CS.03.01.03.c. Make effective business presentations.	presentation

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates.
6. Standard and Expectations: Problem Solving
 - 6B. Solve problems that arise in mathematics in other contexts.
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
- C. Content Standard: Life Science
 - C1. The cell.
 - C2. Molecular basis of heredity.
 - C3. Biological evolution.
 - C4. Interdependence of organisms.
 - C5. Matter, energy and organization in living systems.
 - C6. Behavior of organisms.
- E. Content Standard: Science and Technology
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.
 - F6. Science and technology in local, national and global challenges.
 - E2. Understanding about science and technology.
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F2. Population growth.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

7. Thematic Strand: Production, Distribution and Consumption

7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;

Appendix C: Dairy Cattle Management and Evaluation Team Activity Example Scenario

Directions: Please read the dairy farm management scenario and supplemental information provided for the scenario, identify problems and determine possible improvements. Your team should assume the role of a hired consultant advising the producer (judges). Then, you have 10 minutes to respond orally to the judges. Your team has 40 minutes to prepare your recommendations to be presented to a panel of judges. It is not necessary to describe the scenario to the judges since they are the producer. Teams will be allowed 10 minutes to present their recommendations, followed by 5 minutes of clarifying questions from the judges.

You will be provided with an additional worksheet to assist you with your presentation. This worksheet will be turned in to the judges after the completion of your presentation and responses to the judges' questions. All four team members are expected to participate in the oral presentation. You may make and take notes for the presentation.

This scenario, your responses and evidence of team work are worth 600 points (400 points on content and 200 points on communication).

Scenario: A dairy producer in Western Kentucky calls you indicating he is having some production problems with his dairy herd. Unfortunately, budget constraints have dictated that you will be unable to visit his herd in person. You do have access to his DHI records, however. Using the DHI-202 Herd Summary below, answer the following questions.

1. Production (Provide data/numbers to support your observations).
 - Using standardized 150 day milk, describe any trends you observe with regard to seasonality of milk production.
 - Discuss what might contribute to these differences.
 - Examine peak milk and summit milk trends by age group and describe any differences you observe. Are these differences what you would expect?
 - Describe the difference between peak milk and summit milk.
2. Mastitis/Somatic Cell Count
 - Describe any trends you see in somatic cell count by month.
 - What factors might contribute to this trend?
 - Cows with a somatic cell score >3.9 percent are generally considered to be experiencing some level of infection. Using this cut-off, what percentage of this herd had some type of infection during the November 2009 test day?
 - What is the value (\$) of the unrealized milk production resulting from somatic cell count during the current test period?

HERD SUMMARY DHI-202

HERD CODE AND TYPE OF RECORD			DATE TESTED		
ST	CO	HELD NO.	MO	DAY	YEAR
		1811	4	09	
DHI-OS					
COWS WITH NO SERVICE DATES OR DIAG. OPEN			COWS BRED BUT NOT DIAG. PREG.		
OPEN OVER 100 DAYS			DAYS OPEN AT LAST SERVICE		
VMP TO 100 DAYS			VMP TO 100 DAYS		
OTHER			OTHER		
TOTAL COWS IN BREEDING HERD			TOTAL COWS IN BREEDING HERD		
35			60		
VOLUNTARY WAITING PERIOD (VMP)			NUMBER COWS IN BREEDING HERD		
5			6		
14			17		
			110		

PRODUCTION, INCOME, & FEED COST SUMMARY

DESCRIPTION	DAILY AVERAGE PER COW ON TEST DAY	ROLLING YEARLY HERD AVERAGES
TOTAL COWS	103	109.7
COWS IN MILK	NUMBER %	NUMBER %
MILK LBS. (ALL COWS)	82 80	94.3 86
FAT PERCENT (ALL COWS)	50.3	19,589
PROTEIN LBS. (ALL COWS)	1.97	682
FAT PERCENT (MILKING COWS)	3.9	3.5
PROTEIN LBS. (MILKING COWS)	1.69	616
MILK LBS. (MILKING COWS)	3.4	3.1
MILK LBS. (ALL COWS)	63.6	
LIBS. CONSUMED	LIBS. CONSUMED	%NE
LIBS. CONSUMED	LIBS. CONSUMED	%NE
LIBS. CONSUMED	LIBS. CONSUMED	%NE
LIBS. CONSUMED	LIBS. CONSUMED	%NE
PASTURE (YES OR NO)	DAYS	%NE
LIBS. CONSUMED	LIBS. CONSUMED	%NE
8.46	6.57	2,774
VALUE OF CONCENTRATES \$		
TOTAL FEED COST \$		
FEED COST PER COW		
PER CWT	%FAT	%PROT
12.85	3.5	14.12
MILK BLEND PRICE		
3.5		

MISCELLANEOUS

ASSOC	SAMPLES	IBPC
990	REV. AT LAB	MAILED
SUPV.	MO.	DAY
998	11	10
TEST ON	MILKING TIMES	MO
PROB. AT	4:20 PM	Y
2ND	4:50 AM	Y
3RD		

HERD INFORMATION

SHIPPED-TEST DAY	YEARLY AVERAGE
5085	5920
REPORTED AV. DAILY BULK TANK WTS (LBS)	5835
% DEVIATION	+2.0
	+1.5

REPRODUCTIVE SUMMARY OF CURRENT BREEDING HERD

TOTAL COWS IN BREEDING HERD		TOTAL COWS IN BREEDING HERD	
35		60	
COWS WITH NO SERVICE DATES OR DIAG. OPEN		COWS BRED BUT NOT DIAG. PREG.	
OPEN OVER 100 DAYS		DAYS OPEN AT LAST SERVICE	
VMP TO 100 DAYS		VMP TO 100 DAYS	
OTHER		OTHER	
5		6	
14		17	
		40	

REPRODUCTIVE SUMMARY OF TOTAL HERD

SERVICES PER PREGNANCY		SERVICES PER HEAT INTERVALS	
ALL COWS		NUMBER INTERVALS	
2.1		3	
2.3		36	
2.8		20	
2.8		60	
15.5			
SERVICES FOR PAST 12 MONTHS		SERVICES FOR PAST 12 MONTHS	
NUMBER SERVICE		NUMBER SERVICE	
100		100	
44		44	
+348		+348	
60		60	
40		40	
+393		+393	
225		225	
42		42	
+368		+368	
ABORTIONS THIS MONTH		ABORTIONS THIS MONTH	
PAST YEAR		PAST YEAR	
1		1	
APPARENT		APPARENT	
7		7	

YEARLY REPRODUCTIVE SUMMARY

DATE OF TEST	% HEATS SUCCESSFUL	% PREG RATE	NUMBER SERVICES	NUMBER CONFIRM PREG.	NUMBER CALVING	TOTAL PREGNANT COWS
MONTH DROPPED	32	25	5	12	3	12
1-14-09	45	64	24	39	9	38
2-18-09	62	21	14	34	12	18
3-25-09	56	42	18	36	6	5
4-21-09	45	40	15	20	10	6
5-27-09	43	45	19	29	14	4
7-01-09	43	33	6	18	19	7
7-28-09	47	57	5	14	1	63
9-09-09	33	31	13	5	9	57
10-06-09	39		12	8	8	48
11-04-09	47		12	8	8	51
AVERAGES	46	42	14	23	8	10
TOTALS			227	104		48

BIRTH SUMMARY

DAMS LACT	OFFSPRING BORN			CALVING DIFFICULTY SCORE		
	MALES	FEMALES	DEAD	1	2	3
1	14	17	4	7	1	485
2+	34	22	1	34	2	
TOTAL	48	39	5	41	3	

COWS TO BE MILKING, DRY, CALVING, BY MONTH

MONTH	DEC	JAN	FEB	MAR	APR	MAY
* MILKING	87	86	94	99	99	95
DRY	22	23	14	10	7	8
COWS TO CALVE	11	9	12	6	4	6
REFERS TO CALVE	5	2	3	4		

* ASSUMES 3.1% PER MONTH CULLING RATE.

REMARKS:

IDENTIFICATION AND GENETIC SUMMARY

HERO MERT \$ OPTION	HERO MERT \$ OPTION	GENETIC PROFILE OF SERVICE STRES ALL VOLLING STRES
NM		73 27
% OF HERO NUMBER OF BULLS USED		9 5
AVERAGE MERIT \$		+390 +392
P-F IN MILK (FAMILI MERIT)		62 66

CURRENT SOMATIC CELL COUNT SUMMARY

HERO PRODUCTION LOST FROM SCC THIS TEST PERIOD	MILK \$	7,490
DCR MLK		73.9
% COWS SCC SCORE		0.1-2.3 4 5 6 7,8,9
		182,000 200,000 250,000 300,000 350,000 400,000 450,000

NO ANIMALS IDENTIFIED BY NUMBER OF CHANGES	DAIRY	ANIMAL	SIRE
37		+151	+270
12		+130	+175
49		+146	+247

PRODUCTION BY LACTATION SUMMARY

NO. ANIMALS PRODUCING FEMALES	51	45
NO. ANIMALS PRODUCING MALES	2	2
NO. ANIMALS PRODUCING TOTAL	13	14
NO. ANIMALS PRODUCING DAIRY	20	24
NO. ANIMALS PRODUCING OTHER	2	2
NO. ANIMALS PRODUCING TOTAL	29	34

STAGE OF LACTATION PROFILE

1 THRU 40	41 THRU 80	81 THRU 120	121 THRU 160	161 THRU 200	201 THRU 240	241 THRU 280	281 THRU 320	321 THRU 360	361 THRU 400	TOTAL
4	5	7	8	7	8	7	6	23	23	306

PRODUCTION BY LACTATION SUMMARY

AVG. AGE MOON	AVG. MON.	PEAK MILK	SUMMIT MILK	PROJ ME 305 DAY MILK	FAT	PROTEIN
34	26	78	72	23004	742	699
28	41	93	84	23739	821	724
41	61	96	85	21248	766	689
103	45	88	81	22571	775	696

STAGE OF LACTATION PROFILE

1 THRU 40	41 THRU 80	81 THRU 120	121 THRU 160	161 THRU 200	201 THRU 240	241 THRU 280	281 THRU 320	321 THRU 360	361 THRU 400	TOTAL
4	5	7	8	7	8	7	6	23	23	306

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28	41	93	84	23739	821	724
41	61	96	85	21248	766	689
103	45	88	81	22571	775	696

YEARLY SUMMARY OF COWS ENTERED AND LEFT THE HERD

NUMBER PERIODS	26	73	2	15	9
2ND LACT	39	77	3	18	18
3+ LACTS	65	75	5	33	27
ALL LACTATIONS	48	44	40	36	3

YEARLY SUMMARY OF COWS ENTERED AND LEFT THE HERD

NUMBER PERIODS	26	73	2	15	9
2ND LACT	39	77	3	18	18
3+ LACTS	65	75	5	33	27
ALL LACTATIONS	48	44	40	36	3

DRY COW PROFILE

NUMBER PERIODS	26	73	2	15	9
2ND LACT	39	77	3	18	18
3+ LACTS	65	75	5	33	27
ALL LACTATIONS	48	44	40	36	3

DRY COW PROFILE

NUMBER PERIODS	26	73	2	15	9
2ND LACT	39	77	3	18	18
3+ LACTS	65	75	5	33	27
ALL LACTATIONS	48	44	40	36	3

YEARLY PRODUCTION AND MASTITIS SUMMARY

TEST PERIOD	1-14-09	2-18-09	3-25-09	4-21-09	5-27-09	7-01-09	7-28-09	9-09-09	10-06-09	11-04-09
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102

YEARLY PRODUCTION AND MASTITIS SUMMARY

TEST PERIOD	1-14-09	2-18-09	3-25-09	4-21-09	5-27-09	7-01-09	7-28-09	9-09-09	10-06-09	11-04-09
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TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102

YEARLY PRODUCTION AND MASTITIS SUMMARY

TEST PERIOD	1-14-09	2-18-09	3-25-09	4-21-09	5-27-09	7-01-09	7-28-09	9-09-09	10-06-09	11-04-09
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102

YEARLY PRODUCTION AND MASTITIS SUMMARY

TEST PERIOD	1-14-09	2-18-09	3-25-09	4-21-09	5-27-09	7-01-09	7-28-09	9-09-09	10-06-09	11-04-09
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102
TEST PERIOD	37	56	111	177	111	95	252	55.1	59.9	102

Key DHI Benchmarks from DairyMetrics (9-16-09)			
All KY Holstein Herds (N=73) with at least 100 cows			
	Percentile		
	50th	75th	95th
Rolling Milk	19388.6	21482.4	24494.6
Rolling Fat	702.4	778.4	887.8
Rolling Protein	595.4	657.4	746.6
Daily Milk-Milk cows	59.0	65.6	75.1
Summit Milk 1st Lactation	66.2	72.4	81.3
Summit Milk 2nd Lactation	82.1	90.3	102.2
Summit Milk 3rd+ Lactation	87.4	95.9	108.1
Peak Milk 1st Lactation	71.8	78.5	88.2
Peak Milk 2nd Lactation	88.8	98.2	111.7
Peak Milk 3rd+ Lactation	95.2	103.7	115.9
Proj 305 Day ME Milk	21502.8	23491.3	26352.0
Standardized 150 Day Milk	67.6	75.2	86.0
Days in Milk	210.9	191.4	163.4
Age of 1st Lactation Cows	26.5	24.8	22.4
Cows Left Herd-All Lactations, %	34.5	25.0	11.3
Cows Died-All Lactations, %	7.4	4.0	0.0
Cows Left Herd for Repro-All Lactations, %	5.5	1.3	0.0
SCC Actual	397.0	273.0	94.5
SCC Score	3.2	2.8	2.2
SCC Score for 1st Lact Cows	2.8	2.4	1.8
SCC Score for 2nd Lact Cows	3.1	2.6	1.9
SCC Score for 3rd+ Lact Cows	3.6	3.1	2.4
Cows (SCCS of 0-3), %	57.9	65.2	75.7
1st lact (SCCS of 0-3), %	65.0	72.7	83.8
2nd lact (SCCS of 0-3), %	60.9	70.1	83.4
3rd lact (SCCS of 0-3), %	50.1	59.4	72.8
Pregnancy Rate-Current, %	13.5	19.7	28.6
Days Open-Projected Minimum-Total Herd	180.7	155.6	119.5
Projected Calving Interval	15.2	14.3	12.9
Actual Calving Interval	14.5	13.7	12.5
Days to 1st Service-(%herd < VWP)	19.2	28.0	40.7
Days to 1st Service-(%VWP to 100D)	44.8	56.9	74.2
Days to 1st Service-(%herd > 100D)	37.5	49.9	67.8
Days to 1st Service-Total Herd	108.1	84.0	49.2
Days to 1st Service(%herd <100D)-1st Lact	62.5	76.3	96.1
Days to 1st Service(%herd <100D)-2nd Lact	65.5	79.2	98.9
Days to 1st Service(%herd <100D)-3rd+ Lact	63.0	74.1	90.1
Conception Rate for Past 12M-1st Service, %	48.4	66.5	92.6
Conception Rate for Past 12M-2nd Service, %	45.1	63.9	90.8
Conception Rate for Past 12M-3rd+ Service, %	35.0	51.9	76.3
Service per Preg-All Lact	2.5	1.8	
Service per Preg-1st Lact	2.5	1.8	
Service per Preg-2nd Lact	2.6	1.7	
Service per Preg-3rd+ Lact	2.6	1.8	
Heats Observed, %	29.7	42.1	60.0
Percentile Rank of Proven AI Bulls	40.0	61.8	93.1

Dairy Cattle Management and Evaluation Team Activity Worksheet

Strengths	Weaknesses
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
Opportunities	Threats
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

Please turn worksheet over to complete page 2

Problems or Opportunities Identified	Relevant Data and Supporting Facts	Proposed Solutions
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.

National FFA Dairy Cattle Handlers Activity

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the National FFA Dairy Cattle Handlers Activity is to recognize the contributions of the handlers in presenting each animal to its best advantage in the evaluation of the dairy cows and heifers during the National FFA Dairy Cattle Management and Evaluation Career Development Event.

II. Event Rules

- A. It is highly recommended that participants wear either dairy whites or official dress.
- B. Each state shall be eligible to nominate one member to serve as a participant in the dairy cattle handlers activity. A state may determine its dairy handler by selecting the top handler in a state FFA dairy showing event or any other method a state prefers to select a qualified dairy handler.
- C. All handlers will be recognized with gold and silver emblem medals. All handlers will be recognized at the National FFA Dairy Cattle Management and Evaluation Career Development Event awards program.
- D. Handler participants must identify the class of dairy that they wish to handle on their certification form; however, they may not be assigned their first choice.
- E. Handlers should have had prior experience in showing dairy cattle.
- F. Handlers will not participate in either the preparation or fitting of the animals assigned.
- G. Handlers will report to the event superintendent for instructions at the time and place shown in the current year's team orientation packet. It is important that all handlers attend the team orientation meeting the day before the National FFA Dairy Cattle Management and Evaluation Career Development Event, as well as report on time on the event day. Those who do not report the day before the event or on time on the event day will be substituted by approved alternates.
- H. If a dairy handler cannot control his/her animal, this animal may have to be displayed by an alternate holder. The original handler WILL NOT be given a different animal to display.

III. Scoring - 100 points

Evaluation and scoring of each participant will be performed by a person(s) designated by the event superintendent.

Evaluation Criteria:	Points
Appearance of the handler	10
Control of animal(s) by the handler	20
Poise and calmness of the handler	20
Demonstrate competence in:	40

A.setting up the assigned animal to its best advantage	
B.maintaining the animal(s) in its most advantageous pose	
C.effectively restraining, as well as avoiding exciting the assigned animal(s)	
D.moving the animal(s) as requested by the ringmaster	
Display a cooperative, courteous, helpful and positive attitude	$\frac{10}{100}$
Total	$\frac{10}{100}$

Dairy Cattle Handlers Activity Scorecard

Name: _____

State: _____

Criteria:	Points Possible	Points Earned
Appearance of the handler	10	
Control of animal(s) by the handler	20	
Poise and calmness of the handler	20	
Demonstrate competence in: <ul style="list-style-type: none"> A. setting up the assigned animal to its best advantage B. maintaining the animal(s) in its most advantageous pose C. effectively restraining, as well as avoiding exciting the assigned animal(s) D. moving the animal(s) as requested by the ringmaster 	40	
Display a cooperative, courteous, helpful and positive attitude	10	
Total	100	

Judge's signature

National FFA Environmental and Natural Resources Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

Environmental and natural resource education has a responsibility to educate the public and prepare students to enter careers in the environmental and natural resource industry. The purpose of the environmental and natural resource career development event is to foster student interest, promote environmental and natural resource instruction in the agricultural education curriculum and provide recognition for those who have demonstrated skills and competencies as a result of environmental and natural resource instruction.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. Each team will be comprised of four members. All four scores will be used to determine the total team score.
- B. Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of the weather. Participants should have rainwear, warm clothes and appropriate footwear.
- C. Under no circumstance will any participant be allowed to handle any of the items in the identification portion of the practicums. Any infraction of this rule will be sufficient to eliminate a team from the event.
- D. Participants will be assigned to group leaders who will escort them to various event-staging sites. Each participant is to stay with his or her assigned group leader throughout the event or until told to change leaders by the event superintendent.
- E. All participants will be given an identification number by which they will be designated throughout the event.
- F. All written material will be furnished for the event. No written materials such as tests, problems and worksheets shall be removed from the site.

IV. Event Format

A. Equipment

1. **Materials student must provide** - teams will be notified in the team orientation packet if these materials will be needed for the current year:
 - a. **Computers:** Each state team is required to provide a laptop computer for the team activity. Minimum computer specifications will be determined and posted on the CDE webpage prior to the event. Computers must be Microsoft Office ® compatible.
 - b. **Global Positioning System (GPS):** The minimum requirements for GPS will be the Garmin eTrex receiver or compatible. Position accuracy WAAS enabled three meters, 20 routes, 500 way points (total).
2. **Equipment provided-** A clipboard, two sharpened No. 2 pencils and all other tools and equipment will be furnished for the event. Participants must use the tools and equipment furnished at the event.

B. Team Activity - 90 minutes - 1,000 points total

1. Students will be provided a scenario that deals with an environmental/natural resource problem from the following areas:
 - a. Soils
 - i. Physical properties
 - ii. Soil erosion
 - iii. Soil analysis
 - iv. Environmental impact of soil degradation
 - b. Water
 - i. Importance of water quality
 - ii. Factors that influence the quality of water
 - iii. Measure to ensure water quality
 - iv. Management practices used to ensure water quality
 - c. Ecosystems
 - i. Basic ecological concepts
 - ii. Management of ecosystems
 - iii. Grassland ecosystems
 - iv. Forestry ecosystems
 - v. Aquatic ecosystems
 - vi. Wetland ecosystems
 - vii. Non-native species effect on ecosystems
 - d. Waste management
 - i. Preventing and reducing solid waste
 - ii. Disposing of waste
 - iii. Manure management
 - iv. Hazardous waste
2. Teams will be evaluated on their ability to work together.
3. Teams will be required to develop both an oral, as well as a written statement that addresses the questions in the annual scenario.
4. Teams will submit a written summary of their findings at the end of one hour.
5. Teams will have ten (10) minutes of prep time prior to their oral presentation.
6. Teams will be required to give an oral presentation justifying the decisions made by the team. The team will have eight minutes to make the oral presentation.
7. Teams will be required to answer questions regarding the decision reached by their team. The question period will be five minutes in length.

8. Team Activity scorecard	
Oral presentation and questions	700 points
Written presentation	150 points
Teamwork	150 points
TOTAL	1000 points

C. Individual Activities

1. **Objective Written Exam** - 60 minutes - 100 points

The written exam will consist of fifty questions submitted by the event committee.

2. **Annual Practicums:** Students will participate in the following two areas on an annual basis:

a. *Writing exercise – 100 points*

- i. Participants will create a written document of 350 words or less that may be a news/press release, letter to the editor, etc.
- ii. The document should contain the basic elements/facts customarily found in written publications (who, what, where, when and how). The elements/facts presented are to reflect the thoughts of the participant in relation to the topic being addressed.

Examples -

- What type of change is being proposed?
- Does the proposed solution reflect an economic or natural resource impact on surrounding communities?
- Have participants clearly stated the outlined problem and a solution?
- Does the document outline and explain the problem in a clear manner? Could someone from outside of the CDE or FFA arena read the release and understand the problem and proposed solution?

b. *Identification – 100 points*

Students will identify fifty items from the following combined areas. See complete list in the reference section of this chapter of the handbook.

i. Equipment

- Water quality
- Aquatic
- Wildlife
- Geographical
- Weather
- Forestry

ii. Native Species

- Wildlife
- Birds
- Reptiles/amphibians
- Fish and other aquatic animals

iii. Invasive/non-native species

- Plants
- Animals

3. **Rotational Practicums:** Students will participate in four of the following practicums each year. Practicums may vary from year to year -100 points each.

a. Water Analysis

- i. Using measuring devices, each participant will measure a sample of water for quality analysis. Four of the following categories will be tested each year: dissolved oxygen, nitrates, nitrites, pH, temperature, phosphates, water hardness, chlorine and ammonia.
- ii. Analyze the results of measurements and determine if it is suitable for a specific use.
- iii. Explain ways the water quality can be improved.

b. Soil Analysis (lab analysis)

Participants will:

- i. Use a soil probe to pull a soil sample.
- ii. Be given a map of a specific field to be sampled and plot areas for pulls.
- iii. Analyze actual lab results.
- iv. Use this information along with an extension service bulletin to make recommendations that need to be applied.

c. Soil Profile

- i. Students will be furnished with a scorecard, an interpretation guide and a pre-dug soil pit or core/monolith to judge. The participants will identify soil horizons, textures, percentage coarse fragments, pH, horizon colors, slope, geologic origin, soil permeability, irrigation suitability and soil structure types of the soil present in the given example.
- ii. Using the information from the scorecard and interpretation guide, the student will then identify the most appropriate use for the given area and the erosion control practice that best fits the designated use for the land.

d. GPS Locations

Participants will utilize the global position system (GPS) unit (supplied by the team) to complete one of the following:

- i. Identify the longitude and latitude of a given set of points using a GPS unit and a map.
- ii. Identify boundaries of a given area including calculation of land area and linear feet of boundary.
- iii. Use GPS unit and topographic map to layout the location of fence line, pond, drainage structure or other related facility.
- iv. Use a GPS unit to mark the location of a path or road through a given area.
- v. Use GPS unit to determine slope of land area for installation of drainage and or other related facilities.

e. Environmental Analysis

Areas that could be analyzed are as follows: forests, grasslands, wetlands, farm land and rangelands. Any of these areas could be bordered by industry, urban development, recreational areas, etc.

Students will address the following five aspects:

- i. Living organisms: students will identify and list as many living organisms (both native and invader) as they can find within the marked boundaries of the site. Additional species may be artificially introduced as mounted or preserved specimens.
- ii. Non-living components (shelter, nutrients): students will inventory resources such as water, shelter, etc. upon which resident species depend for survival.

- iii. Food web: students will define relationships among the plants and animal species that are found or introduced in the study area.
 - iv. Ecological succession: students will identify the stages of succession of various grasses, shrubs and trees. They will also identify causes of changes in succession patterns.
 - v. Situation analysis: students will determine whether a healthy balance exists between the environment and the species that depend upon it. They will also check remediation practices where needed.
- f. Waste Management*
- i. Participants will be presented with a scenario (agricultural producer, neighborhood, office building, manufacturing plant, etc.) that generates waste material creating environmental threats.
 - ii. Participants will evaluate the nature of waste output to identify plausible options for reducing the rate of waste generation, recycling or providing potential alternative uses for the waste, treating the waste or disposing of the waste.
 - iii. Participants should be able to identify at least one benefit and one deterrent for each possible option that is offered.

V. Scoring

<i>Individual</i>	<i>Possible Points</i>
Written Exam	100
Writing Exercise	100
Identification	100
Rotational Practicums	400 (100 points/practicum)
Total Possible Individual Points	700

<i>Team</i>	<i>Possible Points</i>
Individual scores of four team members	2800
<u>Team Activity</u>	<u>1000</u>
Total Possible Team Points	3800

VI. Tiebreaker

A. Team

1. Team with the highest team activity score
2. Team with the highest annual practicum scores
3. Team with the highest rotational practicum scores

B. Individual

1. Individual with the highest exam score
2. Individual with the highest annual practicum scores
3. Individual with the highest rotational practicum scores

VII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

VIII. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog - CDE Questions and Answers

<http://shop.ffa.org/cde-qas-c1413.aspx>

Wildlife Science Manual Instructional CD-ROM: The Core Catalog, National FFA Organization product number CAERT-WSM. 888-332-2668 fax orders to 800-366-6556 or on line at <http://shop.ffa.org/wildlife-science-manual-cd-rom-p39980.aspx>

Environmental Science and Technology. Porter, Lee, Turner and Hillan. Interstate Publishers, Inc. 1997. PO Box 50 Danville, IL 61834-0050

Managing Our Natural Resources. Camp and Daughtery. Delmar Publishers, Inc. 1988. Albany NY.

Wildlife Management, Stutzenbaker, Scheil, Swan, Lee and Mattics, Interstate Publishers, Inc. 1999.

Natural Resources and Environmental Technology, Lee, Interstate Publishers, Inc. 2000.

Environmental Science for Agriculture and the Life Sciences. Albany, NY. Delmar Publishers 1994.

Our Natural Resources and Their Conservation. Kircher, H.B., Wallace, D.L., & Gore, D.J. Danville, IL. Interstate Publishers, Inc. 1992.

Soil Science: Evaluation, Interpretation, and Management of Soil. Columbia, MO. Instructional Materials Laboratory, University of Missouri, phone: 800-669-2465.

The Global Ecology Handbook. What You Can Do About the Environmental Crisis. Courson, W.H. (Ed.). Boston, MA. Beacon Press 1990.

Biological Science, an Ecological Approach. Dubuque, IA. Kendall Hunt Publishers, 1992

Introduction to Forestry Science. L.DeVere Burton. Delmar Publishers, 2000.

Agriscience & Technology. L. DeVere Burton. Delmar Publishers, 1992.

Land Judging in Oklahoma. J.H. Stiegler, 4-H Member's Guide, Oklahoma Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources, Oklahoma State University. 4H.HPS.101

Non-Native (Invader) Resource List

U.S. Fish and Wildlife Service <http://www.fws.gov/>
U.S. Park Service <http://www.nps.gov/index.htm>
U.S. Dept. of Interior <http://www.doi.gov/index.cfm>
U.S. Forest Service <http://www.fs.fed.us/>
State Department of Natural Resources
National Biological Information Infrastructure www.nbio.gov
Great Lakes Indian Fish and Wildlife Commission www.glifwc.org
EPA– Gulf of Mexico Program www.epa.gov/gmpo

Identification List – 100 points

Equipment

Water Quality

- 101. refractometer
- 102. secchi disk
- 103. thermometer
- 104. water bottle samplers
- 105. water meter for physical/chemical parameters (pH, conductivity and/or DO)

Aquatic

- 107. aquatic net
- 108. bottom dredges
- 109. fish measuring board
- 110. plankton net
- 111. seines
- 112. sieves
- 113. stream bottom sampler

Wildlife

- 114. animal tags/bands
- 115. binoculars
- 116. mammal traps
- 117. snake/reptile stick
- 118. radio telemetry unit

Geographical

- 119. GPS unit

Weather

- 120. anemometer
- 121. barometer
- 122. sling psychrometer
- 123. rain gauge

Forestry

- 124. biltmore stick
- 125. diameter tape
- 126. prism
- 127. tree increment borer

Native Species

Wildlife

- 201. armadillo
- 202. badger
- 203. beaver
- 204. bighorn sheep
- 205. bison
- 206. black bear
- 207. blacktail deer
- 208. bobcat
- 209. chipmunk
- 210. cottontail
- 211. coyote
- 212. elk
- 213. fox squirrel
- 214. gray squirrel
- 215. gray wolf
- 216. grizzly bear
- 217. jack rabbit
- 218. mole
- 219. moose
- 220. mountain goat
- 221. mountain lion
- 222. mule deer
- 223. muskrat
- 224. opossum
- 225. pocket gopher
- 226. polar bear
- 227. porcupine
- 228. prairie dog
- 229. pronghorn
- 230. raccoon
- 231. red fox
- 232. skunk
- 233. weasel
- 234. whitetail deer
- 235. woodchuck

Birds

- 301. bald eagle
- 302. blue jay
- 303. bluebird
- 304. brown thrasher
- 305. Canada goose
- 306. canvas duck
- 307. cardinal
- 308. Cooper's hawk
- 309. Crissal thrasher

Birds (cont.)

- 310. dove
- 311. great blue heron
- 312. great horned owl
- 313. golden eagle
- 314. hummingbird
- 315. kestrel
- 316. least tern
- 317. mallard duck
- 318. osprey
- 319. pelican
- 320. purple martin
- 321. quail
- 322. red-tailed hawk
- 323. sand hill crane
- 324. teal duck
- 325. turkey
- 326. whooping crane
- 327. wood duck

Reptiles/Amphibians

- 401. alligator
- 402. alligator snapping turtle
- 403. black rat snake
- 404. bullfrog
- 405. collared lizard
- 406. common snapping turtle
- 407. copperhead snake
- 408. coral snake
- 409. corn snake
- 410. cottonmouth
- 411. crocodile
- 412. fence lizard
- 413. garter snake
- 414. green anole lizard
- 415. gray tree frog
- 416. rattlesnake
- 417. red eared slider
- 418. ring neck snake
- 419. rubber boa snake
- 420. scarlet king snake
- 421. Woodhouse's toad

Fish and Other Aquatic Animals

- 501. blue catfish
- 502. bream/bluegill
- 503. brown trout
- 504. carp
- 505. channel catfish
- 506. clam

- 507. crab
- 508. crappie
- 509. crayfish
- 510. flathead catfish
- 511. largemouth bass
- 512. lobster
- 513. salmon
- 514. shrimp
- 515. smallmouth bass
- 516. sturgeon
- 517. trout
- 518. walleye
- 519. yellow bullhead catfish

Invasive/Non-Native Species*Plants*

- 601. broom snake weed
- 602. cheatgrass
- 603. Chinese tallow
- 604. cogongrass
- 605. English ivy
- 606. Himalaya blackberry
- 607. hydrilla
- 608. juniper
- 609. kudzu
- 610. leafy spurge
- 611. melaleuca
- 612. mimosa tree
- 613. purple loosestrife
- 614. Russian olive
- 615. saltcedar

Animals

- 701. Asiatic clam
- 702. Asian long-horned beetle
- 704. carp
- 705. Chinese mitten crab
- 706. chukkar
- 707. English sparrow
- 708. European starling
- 709. feral hog
- 710. feral horse
- 711. fire ant
- 712. gopher
- 713. Norway rat
- 714. nutria
- 715. ring neck pheasant
- 716. sea lamprey
- 717. tilapia
- 718. zebra mussel

**Environmental and Natural Resources
Team Activity Summary Scorecard**

State: _____

Team No.: _____

	Category	Possible	Score
1	Quality of Management Plan (Written Statement)	150	
2	Teamwork Demonstrated	150	
3	Analysis of Information (Oral Presentation)	200	
4	Team Presentation	300	
5	Questions - need scorecard	200	
	TOTAL	1000	

Judge's Name

Judge's Signature

Date

**Environmental and Natural Resources
Team Activity Written Statement Scorecard – 150 points**

State: _____

Team No.: _____

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Spelling/grammar (sentence structure, verb agreement, etc.)	<i>Spelling and grammar are extremely high quality.</i> <ul style="list-style-type: none"> 2 or fewer spelling errors are present. 2 or fewer grammar errors are present. 	<i>Spelling and grammar are adequate.</i> <ul style="list-style-type: none"> 3-5 spelling errors are present. 3-5 grammar errors are present. 	<i>Spelling and grammar are less than adequate.</i> <ul style="list-style-type: none"> 6 or more spelling errors are present. 6 or more grammar errors are present. 		X 5	
B. Message	<i>Communicates ideas extremely clearly as well as extremely focused. Thoughts are very interesting and understandable.</i> <ul style="list-style-type: none"> All main ideas are supported by clear and vivid details. Clearly organized and concise by remaining on target, is completely focused with obvious construction and strong introduction, body and conclusion layout. 	<i>Communicates ideas clearly and concisely, and message is interesting and understandable.</i> <ul style="list-style-type: none"> Most of the main ideas are supported by sufficient details. Good organization with few statements out of place or lacking in clear construction. 	<i>Communicates ideas clearly, but message is difficult to understand.</i> <ul style="list-style-type: none"> None of the main ideas are supported by sufficient details. Little to no organization is present and is sometimes awkward and lacking construction. 		X 5	
C. Writing style	<i>Writing style is selectively appropriate for the intended audience.</i> <ul style="list-style-type: none"> The style chosen has obviously been well thought-out based on the specific audience. 	<i>Thought was given to the intended audience, and the style reflects the purpose for communicating with that audience.</i> <ul style="list-style-type: none"> Most language is appropriate for the intended audience. 	<i>Writing style does not show intent to connect with different types of audiences, style is more for a generic reader.</i> <ul style="list-style-type: none"> Some language used might be confusing for some audiences 		X 5	
CONTENT						
Indicator	10-7 points	6-4 points	3-0 points			
D. Written content	<i>Covers topic in-depth with details and examples.</i> <ul style="list-style-type: none"> Subject knowledge is excellent. 	<i>Includes essential knowledge about the topic.</i> <ul style="list-style-type: none"> Subject knowledge appears to be good. 	<i>Includes essential information about the topic but there are 1-2 factual errors.</i>		X 7.5	
Total Points						

Environmental Natural Resources Team Activity – Teamwork Scorecard – 150 points

State: _____

Team No.: _____

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Managing team dynamics	<p><i>Completely committed to team dynamics, maturity and professionalism are always present.</i></p> <ul style="list-style-type: none"> In team conflicts, problem-solving and decision-making methods and skills are used to produce a positive compromise. 	<p><i>Somewhat committed to team dynamics, maturity and professionalism are seldom present.</i></p> <ul style="list-style-type: none"> In team conflicts, problem-solving and decision-making methods and skills are sometimes used to produce a compromise. Sometimes involvement in this process is limited. 	<p><i>Lacking team dynamics, maturity and professionalism.</i></p> <ul style="list-style-type: none"> When team conflict arises little is done to resolve the conflict at hand. 		X 4	
B. Awareness of personality styles of others	<p><i>Totally conscious and respectful of differing attitudes, personalities and behaviors.</i></p> <ul style="list-style-type: none"> Language is free of bias and completely shows an understanding and respect for others' differences in learning and personality. 	<p><i>Is, for the most part, respectful of others' differences in personality and behavior.</i></p> <ul style="list-style-type: none"> For the most part, language conveys an understanding of others' differences in learning and personality. 	<p><i>Shows little tolerance for differing personalities and behaviors.</i></p> <ul style="list-style-type: none"> Language used may be expressed as not understanding others' differences in personality and learning styles. 		X 4	
C. Uses positive and mature language and mannerisms	<p><i>Always uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> Never uses immature verbal and/or nonverbal communication. Always has positive communications. 	<p><i>Almost always uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> Rarely uses immature verbal and/or nonverbal communication. Usually has positive communications. 	<p><i>Usually uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> Frequently uses immature verbal and/or nonverbal communication. Seldom has positive communications. 		X 4	
	10-7 points	6-4 points	3-0 points			
D. Reacting to changes	<p><i>Has ability to react and transition effortlessly to change.</i></p> <ul style="list-style-type: none"> Able to transition with change; thinks quickly; shows no sign of stress. 	<p><i>Typically reacts well to changes.</i></p> <ul style="list-style-type: none"> Seems able to transition to change most of the time; occasionally stresses. 	<p><i>Has difficulty reacting well to changes.</i></p> <ul style="list-style-type: none"> Seems stressed by change. 		X 9	
Total Points						

**Environmental and Natural Resources
Team Activity - Analysis of Information (presentation) – 200 Points**

State: _____

Team No.: _____

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Examples	<p><i>Examples are vivid, precise and clearly explained.</i></p> <ul style="list-style-type: none"> Examples are original, logical and relevant. 	<p><i>Examples are usually concrete, sometimes needs clarification.</i></p> <ul style="list-style-type: none"> Examples are effective, but need more originality or thought. 	<p><i>Examples are abstract or not clearly defined.</i></p> <ul style="list-style-type: none"> Examples are sometimes confusing, leaving the listeners with questions. 		X 10	
D. Being detail-oriented	<p><i>Is able to stay fully detail-oriented.</i></p> <ul style="list-style-type: none"> Always provides details which support the issue; is well organized. 	<p><i>Is mostly good at being detail-oriented.</i></p> <ul style="list-style-type: none"> Usually provides details which are supportive of the issue; displays good organizational skills. 	<p><i>Has difficulty being detail-oriented.</i></p> <ul style="list-style-type: none"> Sometimes overlooks details that could be very beneficial to the issue; lacks organization. 		X 10	
F. Connecting and articulating facts and issues	<p><i>Exemplary in connecting facts and issues and articulating how they impact the issue locally and globally.</i></p> <ul style="list-style-type: none"> Possesses a strong knowledge-base and is able to effectively articulate information regarding related facts and current issues. 	<p><i>Sufficient in connecting facts and issues and articulating how they impact the issue locally and globally.</i></p> <ul style="list-style-type: none"> Possesses a good knowledge-base and is able to, for the most part, articulate information regarding related facts and current issues. 	<p><i>Has difficulty with connecting facts and issues and articulating how they impact the issue locally and globally.</i></p> <ul style="list-style-type: none"> Possesses some knowledge-base but is unable to articulate information regarding related facts and current issues. 		X 20	
Total Points						

Environmental and Natural Resources Team Activity – Team Presentation – 300 points

State: _____

Team No.: _____

Oral Communication – 200 points						
Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
B. Speaking without hesitation	<i>Speaks very articulately without hesitation.</i> • Never has the need for unnecessary pauses or hesitation when speaking.	<i>Speaks articulately but sometimes hesitates.</i> • Occasionally has the need for a long pause or moderate hesitation when speaking.	<i>Speaks articulately but frequently hesitates.</i> • Frequently hesitates or has long, awkward pauses while speaking.		X 10	
C. Tone	<i>Appropriate tone is consistent.</i> • Speaks at the right pace to be clear. • Pronunciation of words is very clear and intent is apparent.	<i>Appropriate tone is usually consistent.</i> • Speaks at the right pace most of the time but shows some nervousness. • Pronunciation of words is usually clear, sometimes vague.	<i>Has difficulty using an appropriate tone.</i> • Pace is too fast; nervous. • Pronunciation of words is difficult to understand; unclear.		X 10	
E. Speaking unrehearsed	<i>Speaks unrehearsed with comfort and ease.</i> • Is able to speak quickly with organized thoughts and concise answers.	<i>Speaks unrehearsed mostly with comfort and ease but sometimes seems nervous or unsure.</i> • Is able to speak effectively, has to stop and think and sometimes gets off focus.	<i>Shows nervousness or seems unprepared when speaking unrehearsed.</i> • Seems to ramble or speaks before thinking.		X 10	
G. All team members participated	• All team members took an active role in the presentation.	• Three team members took an active role in the presentation.	• Two or less team members took an active role in the presentation.		X 10	
Non-verbal communication – 100 points						
A. Attention (eye contact)	<i>Eye contact constantly used as an effective connection.</i> • Constantly looks at the entire audience (90-100% of the time).	<i>Eye contact is mostly effective and consistent.</i> • Mostly looks around the audience (60-80% of the time).	<i>Eye contact does not always allow connection with the speaker.</i> • Occasionally looks at someone or some groups (less than 50% of the time).		X 5	
B. Mannerisms	<i>Does not have distracting mannerisms that affect effectiveness.</i> • No nervous habits.	<i>Sometimes has distracting mannerisms that pull from the presentation.</i> • Sometimes exhibits nervous habits or ticks.	<i>Has mannerisms that pull from the effectiveness of the presentation.</i> • Displays some nervous habits – fidgets or anxious ticks.		X 5	
C. Gestures	<i>Gestures are purposeful and effective.</i> • Hand motions are expressive and used to emphasize talking points. • Great posture (confident) with positive body language.	<i>Usually uses purposeful gestures.</i> • Hands are sometimes used to express or emphasize. • Occasionally slumps; sometimes negative body language.	<i>Occasionally gestures are used effectively.</i> • Hands are not used to emphasize talking points; hand motions are sometimes distracting. • Lacks positive body language; slumps.		X 5	
D. Well-poised	Is extremely well-poised. • Poised and in control at all times.	Usually is well-poised. • Poised and in control most of the time; rarely loses composure.	Isn't always well-poised. • Sometimes seems to lose composure.		X 5	
Total Points						

Environmental and Natural Resources Writing Exercise Scorecard – 100 points

State: _____

Team No.: _____

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Spelling/grammar (sentence structure, verb agreement, etc.)	<i>Spelling and grammar are extremely high quality.</i> <ul style="list-style-type: none"> 2 or fewer spelling errors are present. 2 or fewer grammar errors are present. 	<i>Spelling and grammar are adequate.</i> <ul style="list-style-type: none"> 3-5 spelling errors are present. 3-5 grammar errors are present. 	<i>Spelling and grammar are less than adequate.</i> <ul style="list-style-type: none"> 6 or more spelling errors are present. 6 or more grammar errors are present. 		X 5	
B. Message	<i>Communicates ideas extremely clearly as well as extremely focused. Thoughts are very interesting and understandable.</i> <ul style="list-style-type: none"> All main ideas are supported by clear and vivid details. Clearly organized and concise by remaining on target, is completely focused with obvious construction and strong introduction, body and conclusion layout. 	<i>Communicates ideas clearly and concisely, and message is interesting and understandable.</i> <ul style="list-style-type: none"> Most of the main ideas are supported by sufficient details. Good organization with few statements out of place or lacking in clear construction. 	<i>Communicates ideas clearly, but message is difficult to understand.</i> <ul style="list-style-type: none"> None of the main ideas are supported by sufficient details. Little to no organization is present and is sometimes awkward and lacking construction. 		X 5	
C. Writing style	<i>Writing style is selectively appropriate for the intended audience.</i> <ul style="list-style-type: none"> The style chosen has obviously been well thought-out based on the specific audience. 	<i>Thought was given to the intended audience, and the style reflects the purpose for communicating with that audience.</i> <ul style="list-style-type: none"> Most language is appropriate for the intended audience. 	<i>Writing style does not show intent to connect with different types of audiences, style is more for a generic reader.</i> <ul style="list-style-type: none"> Some language used might be confusing for some audiences. 		X 5	
CONTENT						
Indicator	10-7 points	6-4 points	3-0 points			
D. Written content	<i>Covers topic in-depth with details and examples.</i> <ul style="list-style-type: none"> Subject knowledge is excellent. 	<i>Includes essential knowledge about the topic.</i> <ul style="list-style-type: none"> Subject knowledge appears to be good. 	<i>Includes essential information about the topic but there are 1-2 factual errors.</i>		X 5	
Total Points						

**Environmental and Natural Resources
Water Analysis Scorecard – 100 points**

Name: _____

Participant No.: _____

State: _____

Team No.: _____

Your job today is to analyze the given water sample. You will need to find the given levels of the following possible factors: nitrites, dissolved oxygen, nitrates, pH, phosphates, water hardness, chlorine, ammonia and the current temperature. Using this information indicate if the water quality is suitable for the given species. Indicate the limiting factors and explain ways this water quality can be improved. (Each year, you will test for four of the categories listed in the handbook.)

Category	Answers	Possible Points	Score
1		10	
2		10	
3		10	
4		10	
Indicate if the quality of the sample is suitable for the following use:		10	
Indicate the limiting factor(s):		25	
How can water quality be improved?		25	
Total Score:		100	

Judge's Name_____
Judge's Signature_____
Date

**Environmental and Natural Resources
Soil Analysis Scorecard – 100 points**

Name: _____

Participant No.: _____

State: _____

Team No.: _____

Your job today is to take a soil sample from the given area. You will need to determine the levels of nitrogen, phosphorus, potassium and pH from the lab results. Utilizing the lab results and the given Extension Service bulletin make a recommendation for the amount and type of fertilizer that should be added to grow the designated crop.

				Possible Points	Score
Samples are pulled correctly - process					
Sample				10	_____
Samples are pulled from correct locations					
Location 1	Yes	No		4	_____
Location 2	Yes	No		4	_____
Location 3	Yes	No		4	_____
Location 4	Yes	No		4	_____
Location 5	Yes	No		4	_____
Location 6	Yes	No		4	_____
Location 7	Yes	No		4	_____
Location 8	Yes	No		4	_____
Location 9	Yes	No		4	_____
Location 10	Yes	No		4	_____
Analyze Lab Results					
Category	Level				
Nitrogen (N)				5	_____
Potassium (K)				5	_____
Phosphorus (P)				5	_____
pH				5	_____
Fertilizer Recommendation				30	_____
Total				100	_____

Judge's Name

Judge's Signature

Date

**Environmental and Natural Resources
Soil Profile Scorecard – 100 points
PART 1- 60 points**

Name: _____

Participant No.: _____

State: _____

Team No.: _____

Soil Factors – Part 1		Interpretation of Soil Factors	
<i>Check Appropriate Box</i>		<i>Check Appropriate Box</i>	
Score		Score	
	<p>Texture</p> <p><i>Sur.</i> <i>Sub.</i></p> <p><input type="checkbox"/> <input type="checkbox"/> 1. Coarse</p> <p><input type="checkbox"/> <input type="checkbox"/> 2. Moderately Coarse</p> <p><input type="checkbox"/> <input type="checkbox"/> 3. Medium</p> <p><input type="checkbox"/> <input type="checkbox"/> 4. Moderately Fine</p> <p><input type="checkbox"/> <input type="checkbox"/> 5. Fine</p> <p>B. Depth of Soil</p> <p><input type="checkbox"/> 1. Deep</p> <p><input type="checkbox"/> 2. Moderately Deep</p> <p><input type="checkbox"/> 3. Shallow</p> <p><input type="checkbox"/> 4. Very Shallow</p> <p>C. Slope</p> <p><input type="checkbox"/> 1. Nearly Level 0-1%</p> <p><input type="checkbox"/> 2. Gently Sloping 1-3%</p> <p><input type="checkbox"/> 3. Moderate Sloping 3-5%</p> <p><input type="checkbox"/> 4. Strongly Sloping 5-8%</p> <p><input type="checkbox"/> 5. Steep 8-15%</p> <p><input type="checkbox"/> 6. Very Steep > 15%</p> <p>D. Erosion – Wind and Water</p> <p><input type="checkbox"/> 1. None to Slight</p> <p><input type="checkbox"/> 2. Moderate</p> <p><input type="checkbox"/> 3. Severe</p> <p><input type="checkbox"/> 4. Very Severe</p>		<p>E. Permeability</p> <p><input type="checkbox"/> 1. Rapid</p> <p><input type="checkbox"/> 2. Moderate</p> <p><input type="checkbox"/> 3. Slow</p> <p><input type="checkbox"/> 4. Very Slow</p> <p>F. Surface Runoff</p> <p><input type="checkbox"/> 1. Rapid</p> <p><input type="checkbox"/> 2. Moderate</p> <p><input type="checkbox"/> 3. Slow</p> <p><input type="checkbox"/> 4. Very Slow</p> <p>G. Major Factors That Keep Area Out of Class 1</p> <p><input type="checkbox"/> 1. Texture <input type="checkbox"/> 6. Runoff</p> <p><input type="checkbox"/> 2. Depth <input type="checkbox"/> 7. Wetness</p> <p><input type="checkbox"/> 3. Slope <input type="checkbox"/> 8. Flooding</p> <p><input type="checkbox"/> 4. Erosion <input type="checkbox"/> 9. None</p> <p><input type="checkbox"/> 5. Permeability</p> <p>H. Land Capability Class</p> <p><input type="checkbox"/> 1. Class I <input type="checkbox"/> 5. Class V</p> <p><input type="checkbox"/> 2. Class II <input type="checkbox"/> 6. Class VI</p> <p><input type="checkbox"/> 3. Class III <input type="checkbox"/> 7. Class VII</p> <p><input type="checkbox"/> 4. Class IV <input type="checkbox"/> 8. Class VIII</p>
	Total Score Column		Total Score Column
			Total Score PART 1

Soil Profile Scorecard PART 2- 40 points

Recommended Treatments – Part 2		Check Appropriate Box
Score		
	<p>A. Vegetative</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1. Row crop/occasional soil conserving crop <input type="checkbox"/> 2. Row crop/frequent soil conserving crop <input type="checkbox"/> 3. Row crops not more than 2 out of 4 years <input type="checkbox"/> 4. Row crops not more than 1 out of 5 years <input type="checkbox"/> 5. Return crop residue to the soil <input type="checkbox"/> 6. Practice conservation tillage <input type="checkbox"/> 7. Establish recommended grass or grasses & legumes <input type="checkbox"/> 8. Proper pasture and range management <input type="checkbox"/> 9. Protect from burning <input type="checkbox"/> 10. Control grazing <input type="checkbox"/> 11. Plant recommended trees <input type="checkbox"/> 12. Harvest trees selectively <input type="checkbox"/> 13. Use only for wildlife or recreation area <p>B. Mechanical</p> <ul style="list-style-type: none"> <input type="checkbox"/> 14. Control brush or trees <input type="checkbox"/> 15. Terrace and farm on contour <input type="checkbox"/> 16. Maintain terraces <input type="checkbox"/> 17. Construction diversion terraces <input type="checkbox"/> 18. Install drainage system <input type="checkbox"/> 19. Control gullies <input type="checkbox"/> 20. No mechanical treatment needed <p>C. Fertilizer and Soil Amendments</p> <ul style="list-style-type: none"> <input type="checkbox"/> 21. Soil amendments <input type="checkbox"/> 22. Phosphorous [P] <input type="checkbox"/> 23. Potassium [K] <input type="checkbox"/> 24. Nitrogen [N] <input type="checkbox"/> 25. Fertilizer or soil amendments not needed 	
	Total Score PART 2 -40	
	Total Score PART 1 – 60	
	GRAND Total Score – 100	

Judge's Name

Judge's Signature

**Environmental and Natural Resources
GPS Location Scorecard – 100 points**

Name: _____

Participant No.: _____

State: _____

Team No.: _____

List your numbers for each location point following the latitude and longitude given.
Note: Variance for differential corrections are noted on condition sheet.

Location Point	Point Number	Possible Points	Score
1		20	
2		20	
3		20	
4		20	
5		20	
Total Points			

 Judge's Name

Judge's Signature

Date

Environmental and Natural Resources Environmental Analysis Scorecard – 100 points

Name: _____

Participant No.: _____

State: _____

Team No.: _____

Your assignment is to analyze the given ecosystem with the following aspects in mind:

Question	Possible Points	Score
List ten (10) biotic organisms that you observed within the marked boundaries of this site.	20	
List ten (10) abiotic organisms that you observed within the marked boundaries of this site.	20	
List five relationships (food web) found among the biotic factors in this environment.	20	
Identify the stages of succession found in this ecosystem.	20	
Is this a balanced ecosystem? – Yes or No (circle) – Why or Why Not? – Provide four reasons.	20	
Total Score	100	

Judge's Name

Judge's Signature

Date

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
AS.07.02. Performance Indicator: Comply with government regulations and safety standards for facilities used in animal production.			Science: F5
	AS.07.02.01.c. Design a facility that meets standards for the legal, safe, ethical and efficient production of animals.	Team activity	
AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.			Science: C4 and F4
	AS.08.01.01.b. Outline methods of reducing the effects of animal agriculture on the environment.	Team activity; Water analysis practicum; Waste management practicum	
BS.01.03. Performance Indicator: Analyze the ethical, legal, social and cultural issues relating to biotechnology.			Science: A4 Language Arts: 4, 7 and 8 Social Studies: 10c and 10i
	BS.01.03.01.c. Research, evaluate and articulate the implications of an ethical, legal, social or cultural biotechnology issue.	Team activity	
ESS.01.01. Performance Indicator: Analyze and interpret samples.			Math: 1A, 1B, 4A and 5B Science: A2
	ESS.01.01.01.c. Analyze and interpret results of sample measurements.	All rotational practicums	
	ESS.01.01.02.c. Calibrate and use laboratory and field equipment and instruments according to standard operating procedures.	GPS practicum; Water analysis practicum	
ESS.03.02. Performance Indicator: Apply soil science principles to environmental service systems.			Science: B2, D2 Social Studies: 3k
	ESS.03.02.03.c. Conduct tests of soil to determine its use for environmental service systems.	Soil analysis practicum	
	ESS.03.02.04.c. Design a master land-use management plan for a given area.	Soil profile practicum	
ESS.03.03. Performance Indicator: Apply hydrology principles to environmental service systems.			Science: D2
	ESS.03.03.01.c. Research and debate one or more current environmental issues associated with the supplies of groundwater and surface water.	Team activity; Writing exercise	
	ESS.03.03.04.c. Test and document the quality of groundwater supplies.	Water analysis practicum	

ESS.03.04. Performance Indicator: Apply best management techniques associated with the properties, classifications and functions of wetlands.		Science: C4 and F3 Social Studies: 3c
	ESS.03.04.01.a. Describe the functions of wetlands and differentiate types of wetlands.	Environmental analysis practicum; Team activity
	ESS.03.04.02.c. Conduct a survey of the predominant species in a local wetland.	Environmental analysis practicum
	ESS.03.04.03.b. Identify techniques used in wetland management, creation, enhancement and restoration programs.	Team activity
ESS.04.01. Performance Indicator: Use pollution control measures to maintain a		Science: F4 and F5
	ESS.04.01.01.c. Survey the local area for evidence of industrial and nonindustrial pollution.	Waste management practicum; Team activity
	ESS.04.01.02.c. Plan and develop a pollution remediation, management or prevention program.	Team activity
ESS.04.02. Performance Indicator: Manage safe disposal of all categories of solid waste.		Science: F1, F4 and F5
	ESS.04.02.01.b. Evaluate environmental hazards created by different types of solid waste, solid waste accumulation and solid waste disposal.	Waste management practicum
	ESS.04.02.02.b. Identify characteristics of solid waste treatment and recognize the byproducts of solid waste treatment.	Team Activity
	ESS.04.02.03.b. Explain basic sanitary landfill operating procedures and design.	Waste management practicum; Team activity
	ESS.04.02.04.a. Define compost and composting.	Written exam
ESS.04.04. Performance Indicator: Apply principles of wastewater treatment to manage wastewater disposal in keeping with rules and regulations.		Science: F4 and F5
	ESS.04.04.01.a. Define wastewater.	Written exam
NRS.01.01. Performance Indicator: Apply knowledge of natural resource components to the management of natural resource systems.		Math: 5a Science: C4 and F3 Social Studies: 3h and 3k
	NRS.01.01.01.c. Research and debate one or more current issues related to the conservation or preservation of natural resources.	Team activity; Writing exercise
	NRS.01.01.02.c. Conduct a field study of an ecosystem, and record and document observations of species interactions.	Environmental analysis

NRS.01.02. Performance Indicator: Classify natural resources.			Science: F3
	NRS.01.02.01.c. Conduct a field inventory of trees and other woody plants and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practicum	
	NRS.01.02.02.c. Conduct a field inventory of herbaceous plants and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practicum	
	NRS.01.02.03.c. Conduct a field inventory of wildlife species and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practicum	
	NRS.01.02.04.c. Conduct a field inventory of aquatic species and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practicum	
	NRS.01.02.05.c. Conduct a field inventory of rock, mineral and soil types and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practicum	
NRS.02.02. Performance Indicator: Demonstrate cartographic skills to aid in developing, implementing and evaluating natural resource management plans.			Math: 4B Science: A3 and F2 Social Studies: 3b and 3c
	NRS.02.02.01.c. Employ Global Positioning System and Geographic Information Systems technologies to inventory features in natural resource management.	GPS practicum	
NRS.02.03. Performance Indicator: Measure and survey natural resource status to obtain planning data.			Math: 5C Science: A3 and F2 Social Studies: 3h
	NRS.02.03.01.c. Conduct resource inventories and population studies to assess resource status.	Environmental analysis practicum	

NRS.02.04. Performance Indicator: Demonstrate natural resource enhancement techniques.		Science: F3 Social Studies: 3g and 3k
	NRS.02.04.01.b. Identify indicators of the biological health of a stream.	Environmental analysis practicum; Water analysis practicum
	NRS.02.04.02.c. Formulate a timber stand improvement plan for a forest.	Team activity
	NRS.02.04.03.c. Conduct a survey of a habitat and devise a comprehensive improvement plan.	Team activity; Environmental analysis practicum
	NRS.02.04.05.c. Evaluate the impact of recreational activities on natural resources and create an improvement plan.	Team activity
NRS.02.06. Performance Indicator: Apply ecological concepts and principles to natural resource systems.		Science: D2 and F3 Social Studies: 3b, 3f and 3h
	NRS.02.06.02.c. Analyze ecosystem functions of a watershed.	Environmental analysis practicum; Team activity; Water analysis practicum
	NRS.02.06.04.b. Identify techniques used in the creation, enhancement and management of riparian zones and riparian buffers.	Written exam; Team activity; Soil profile practicum; Soil analysis practicum
	NRS.02.06.05.c. Conduct a field study to determine the stages of ecological succession in a community of organisms.	Environmental analysis practicum
	NRS.02.06.06.c. Create and implement a management plan based on a population study for a community of organisms.	Team activity; Environmental analysis practicum
	NRS.02.06.07.c. Develop and implement a plan to reduce the impact of invasive species on natural resources.	Team activity
	NRS.02.06.08.b. Describe the impact of pollution on natural resources.	Environmental analysis practicum; Team activity; Written exam
	NRS.02.06.09.b. Describe the impact climate has on natural resources.	Environmental analysis practicum; Team activity; Written exam
NRS.04.01. Performance Indicator: Manage fires in natural resource systems.		Science: F5
	NRS.04.01.01.b. Describe techniques used to suppress wildfires and manage prescribed fires.	Team activity; Writing exercise

NRS.04.03. Performance Indicator: Manage insect infestations of natural resources.		Science: C4 and F3
NRS.04.03.01.c. Describe techniques used to manage pests of natural resources.	Team activity	
NRS.05.01. Performance Indicator: Communicate natural resource information to the public.		Science: F3 and F6 Language Arts: 5, 6
NRS.05.01.01.c. Communicate a natural resource message through the press, radio, television or public appearances.	Team activity; Writing exercise	
PS.03.04. Performance Indicator: Apply principles and practices of sustainable agriculture to plant production.		Science: F3, F4 and F6
PS.03.04.01.b. Describe sustainable agriculture practices and compare the ecological effects of traditional agricultural practices with those of sustainable agriculture.	Team activity	
PST.05.03. Performance Indicator: Use geospatial technologies in agricultural applications.		Science: A3, E2, F6 Social Studies: 3c
PST.05.03.01.a. Identify geospatial technologies, including global positioning, geographical information and remote sensing.	GPS practicum	
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	Team activity	
CS.01.01.03.c. Implement an effective project plan.	Team activity	
CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	Team activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
CS.01.02.02.b. Utilize communication skills to collaborate in a group setting.	Team activity	
CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtues.		Social Studies: 4c and 4f
CS.01.04.04.c. Demonstrate respect for others.	Team activity	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.		Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	Team activity	

CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	Team activity
	CS.02.02.03.b. Exhibit the behaviors needed for developing and maintaining a professional relationship.	Team activity
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4, 8
	CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	Team activity
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
	CS.02.05.03.c. Exhibit self confidence while in the workplace.	Team activity
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
	CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	Writing exercise; Team activity
	CS.03.01.03.c. Make effective business presentations.	Team activity
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
	CS.03.02.01.c. Make decisions for a given situation by applying the decision-making process.	All event areas
	CS.03.02.02.c. Use problem-solving skills.	All event areas
CS.03.03. Performance Indicator: Flexibility/Adaptability: Describe traits that enable one to be capable and willing to accept change.		Science: A2, A6 and E2 Language Arts: 7 Social Studies: 8a
	CS.03.03.02.c. Evaluate strategies that can be used to manage change within the workplace.	Team activity

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1A. Understand numbers, ways of representing numbers, relationships among numbers and number systems.
 - 1B. Understand meanings of operations and how they relate to one another.
4. Standard and Expectations: Measurement
 - 4A. Understand measurable attributes of objects and the units, systems and processes of measurement.
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
 - 5B. Select and use appropriate statistical methods to analyze data.
 - 5C. Develop and evaluate inferences and predictions that are based on data.

Science

- A. Content Standard: Science as an Inquiry
 - A2. Design and conduct scientific investigations.
 - A3. Use technology and mathematics to improve investigations and communications.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
- B. Content Standard: Physical Science
 - B2. Structure and properties of matter.
- C. Content Standard: Life Science
 - C4. Interdependence of organisms.
- D. Content Standard: Earth and Space Science
 - D2. Geochemical cycles.
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology.
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F2. Population growth.
 - F3. Natural resources.
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.
7. Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

Social Studies

3. Thematic Strand: People, Places and Environments
 - 3b. create, interpret, use and synthesize information from various representations of the earth, such as maps, globes and photographs;
 - 3c. use appropriate resources, data sources and geographic tools such as aerial photographs, satellite images, geographic information systems (GIS), map projects and cartography to generate, manipulate and interpret information such as atlases, data bases, grid systems, charts, graphs and maps;
 - 3f. use knowledge of physical system changes such as seasons, climate and weather and the water cycle to explain geographic phenomena;
 - 3g. describe and compare how people create places that reflect culture, human needs, government policy and current values and ideals as they design and build specialized buildings, neighborhoods, shopping centers, urban centers, industrial parks and the like;
 - 3h. examine, interpret and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas and ecosystem changes;
 - 3k. propose, compare and evaluate alternative policies for the use of land and other resources in communities, regions, nations and the world.
10. Thematic Strand: Civic Ideals and Practices
 - 10c. locate, access, analyze, organize, synthesize, evaluate and apply information about selected public issues—identifying, describing and evaluating multiple points of view;
 - 10i. construct a policy statement and an action plan to achieve one or more goals related to an issue of public concern;

National FFA Extemporaneous Public Speaking Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The National FFA Extemporaneous Public Speaking Career Development Event is designed to develop the ability of all FFA members to express themselves on a given subject without having prepared or rehearsed its content in advance. This gives FFA members an opportunity to formulate their remarks for presentation in a very limited amount of time. The event will be held in connection with the national FFA convention.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. The National FFA Extemporaneous Public Speaking Career Development Event will be limited to one participant from each state association.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Copies of the rules and score sheet will be supplied to participants in advance of the national event.
- D. Three to eight competent and impartial persons will be selected to judge the event. At least one judge should have an agricultural background. Each state with a speaker shall provide a judge for preliminary and semifinal rounds of the national event. ***Any advisor who has a student competing in a speaking event may not serve as a judge for that respective speaking event.***
- E. Any participant in possession of any electronic device in the preparation room is subject to disqualification.

IV. Event Format

- A. Event officials will randomly draw speaking order. The superintendent will announce each participant by name and in order of the drawing.
- B. The selection of topics will be held 30 minutes before the event. The participants will draw three specific topics, selected at random from the pool of 12, relating to the industry of agriculture. After selecting the topic they desire to speak on, all three topics will be returned for the next drawing.

- C. Twelve topics will be prepared by the event superintendent and will include three each from the following categories:
1. **agriscience and technology**
 2. **agrimarketing and international agriculture**
 3. **food and fiber systems**
 4. **urban agriculture**
- D. Participants will be admitted to the preparation room at 15 minute intervals and given exactly 30 minutes for topic selection and preparation.
- E. The officials in charge of the event will screen reference material on the following basis:
1. Must be limited to five items
 2. Printed material such as books or magazines
 3. Printed compilations of materials collected from internet research
 4. To be counted as one item, a notebook or folder of collected materials may contain NO more than 100 single-sided pages or 50 pages double-sided numbered consecutively.
 5. Cannot be notes or speeches prepared by the participant or by another person for the purpose of use in this event
- F. Each speech should be the result of the participant's own effort using approved reference material which the participant may bring to the preparation room. No other assistance may be provided. Participants must use the uniform note cards provided. Any notes for speaking must be made during the 30 minute preparation period. A participant will be permitted to use notes while speaking, but deductions in scoring may be made for this practice if it detracts from the effectiveness of the presentation.
- G. A list of all possible topics will be given to and reviewed by the judges prior to the beginning of the event.
- H. Each speech should be no less than four and no more than six minutes in length. An additional five minutes will be allowed for the judges to ask related questions. The room coordinator of the event will introduce the participant by name and state. The participant may introduce his or her speech by title only. Participants will be penalized one point per second on each judge's score sheet for being over six minutes or under four minutes. Time commences when the speaker begins talking. Speakers may use a watch to keep a record of their time. Event officials or observers will give no time warnings.
- I. The national event will be conducted in three rounds: preliminaries, semifinals and finals. No ranking will be given except for the final four speakers. Comment cards for all participants will be distributed at the awards function.
- J. Timekeepers will record the time for each participant in delivering his or her speech, noting under time or overtime, if any, for which deductions should be made.
- K. At the time of the event, the judges will be seated in a designated section of the room in which the event is held. They will score each participant on the delivery of the production using the score sheet provided.
- L. Each judge shall formulate and ask questions. Questions will pertain directly to the speaker's subject. Questions containing two or more parts should be avoided. Judges will score each participant on the ability to answer all questions asked by all judges. The full five minutes should be used.
- M. When all participants have finished speaking, each judge will total the score on each participant. The timekeepers' record will be used in computing the final score for each participant. The judges' score sheets will then be submitted to event officials to determine final ratings of participants.
- N. During preliminary and semifinal rounds, recording of presentations is permitted by one person from each participant's association, including advisor or family member, for that participant only.

V. Scoring

Participants will be ranked in numerical order on the basis of the final score to be determined by each judge without consultation. The judges' ranking of each participant then will be added, and the winner will be the participant whose total ranking is the lowest. Other placings will be determined in the same manner (low rank method of selection).

VI. Tiebreakers

Ties will be broken based on the greatest number of low ranks. The participant's low ranks will be counted and the participant with the greatest number of low ranks will be declared the winner. If a tie still exists, then the event superintendent will rank the participant's response to questions. The participant with the greatest number of low ranks from the response to question will be declared the winner. If a tie still exists then the participant's raw scores will be totaled. The participant with the greatest total of raw points will be declared the winner.

VII. Awards

Awards will be presented at the awards function. Awards are presented to individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

VIII. Resources

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog:

Figures of Speech DVD—<http://shop.ffa.org/figures-of-speech-dvd-p37895.aspx>

Great Speeches and Presentations—<http://shop.ffa.org/great-speeches-and-presentations-p37634.aspx>

CDE Q&A's DVD (2007-2010)—<http://shop.ffa.org/cde-qas-c1413.aspx>

FFA Learn—2005 & 2006 CDE Q&A's—<https://ffa.learn.com/learncenter.asp>

American Farm Bureau Federation – www.fb.org

United States Department of Agriculture – www.usda.gov

Extemporaneous Public Speaking CDE Scorecard – 1000 points

State: _____

Participant #: _____

Oral Communication – 600 points						
Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Examples	<p><i>Examples are vivid, precise and clearly explained.</i></p> <ul style="list-style-type: none"> Examples are original, logical and relevant. 	<p><i>Examples are usually concrete, sometimes needs clarification.</i></p> <ul style="list-style-type: none"> Examples are effective, but need more originality or thought. 	<p><i>Examples are abstract or not clearly defined.</i></p> <ul style="list-style-type: none"> Examples are sometimes confusing, leaving the listeners with questions. 		X 10	
B. Speaking without hesitation	<p><i>Speaks very articulately without hesitation.</i></p> <ul style="list-style-type: none"> Never has the need for unnecessary pauses or hesitation when speaking. 	<p><i>Speaks articulately, but sometimes hesitates.</i></p> <ul style="list-style-type: none"> Occasionally has the need for a long pause or moderate hesitation when speaking. 	<p><i>Speaks articulately, but frequently hesitates.</i></p> <ul style="list-style-type: none"> Frequently hesitates or has long, awkward pauses while speaking. 		X 15	
C. Tone	<p><i>Appropriate tone is consistent.</i></p> <ul style="list-style-type: none"> Speaks at the right pace to be clear. Pronunciation of words is very clear and intent is apparent. 	<p><i>Appropriate tone is usually consistent.</i></p> <ul style="list-style-type: none"> Speaks at the right pace most of the time, but shows some nervousness. Pronunciation of words is usually clear, sometimes vague. 	<p><i>Has difficulty using an appropriate tone.</i></p> <ul style="list-style-type: none"> Pace is too fast; nervous. Pronunciation of words is difficult to understand; unclear. 		X 15	
D. Being detail-oriented	<p><i>Is able to stay fully detail-oriented.</i></p> <ul style="list-style-type: none"> Always provides details which support the issue; is well organized. 	<p><i>Is mostly good at being detail-oriented.</i></p> <ul style="list-style-type: none"> Usually provides details which are supportive of the issue; displays good organizational skills. 	<p><i>Has difficulty being detail-oriented.</i></p> <ul style="list-style-type: none"> Sometimes overlooks details that could be very beneficial to the issue; lacks organization. 		X 20	
E. Connecting and articulating facts and issues	<p><i>Exemplary in connecting facts and issues and articulating how they impact the issue locally and globally.</i></p> <ul style="list-style-type: none"> Possesses a strong knowledge base and is able to effectively articulate information regarding related facts and current issues. 	<p><i>Sufficient in connecting facts and issues and articulating how they impact the issue locally and globally.</i></p> <ul style="list-style-type: none"> Possesses a good knowledge base and is able to, for the most part, articulate information regarding related facts and current issues. 	<p><i>Has difficulty with connecting facts and issues and articulating how they impact the issue locally and globally.</i></p> <ul style="list-style-type: none"> Possesses some knowledge base but is unable to articulate information regarding related facts and current issues. 		X 20	
F. Speaking unrehearsed (questions & answers)	<p><i>Speaks unrehearsed with comfort and ease.</i></p> <ul style="list-style-type: none"> Is able to speak quickly with organized thoughts and concise answers. 	<p><i>Speaks unrehearsed mostly with comfort and ease, but sometimes seems nervous or unsure.</i></p> <ul style="list-style-type: none"> Is able to speak effectively, has to stop and think and sometimes gets off focus. 	<p><i>Shows nervousness or seems unprepared when speaking unrehearsed.</i></p> <ul style="list-style-type: none"> Seems to ramble or speaks before thinking. 		X 40	

OVER

Non-verbal Communication – 400 points				Points Earned	Weight	Total Score
A. Attention (eye contact)	<i>Eye contact constantly used as an effective connection.</i> <ul style="list-style-type: none"> Constantly looks at the entire audience (90-100% of the time). 	<i>Eye contact is mostly effective and consistent.</i> <ul style="list-style-type: none"> Mostly looks around the audience (60-80% of the time). 	<i>Eye contact does not always allow connection with the speaker.</i> <ul style="list-style-type: none"> Occasionally looks at someone or some groups (less than 50% of the time). 		X 20	
B. Mannerisms	<i>Does not have distracting mannerisms that affect effectiveness.</i> <ul style="list-style-type: none"> No nervous habits. 	<i>Sometimes has distracting mannerisms that pull from the presentation.</i> <ul style="list-style-type: none"> Sometimes exhibits nervous habits or ticks. 	<i>Has mannerisms that pull from the effectiveness of the presentation.</i> <ul style="list-style-type: none"> Displays some nervous habits – fidgets or anxious ticks. 		X 20	
C. Gestures	<i>Gestures are purposeful and effective.</i> <ul style="list-style-type: none"> Hand motions are expressive and used to emphasize talking points. Great posture (confident) with positive body language. 	<i>Usually uses purposeful gestures.</i> <ul style="list-style-type: none"> Hands are sometimes used to express or emphasize. Occasionally slumps; sometimes negative body language. 	<i>Occasionally gestures are used effectively.</i> <ul style="list-style-type: none"> Hands are not used to emphasize talking points; hand motions are sometimes distracting. Lacks positive body language; slumps. 		X 20	
D. Well-poised	<i>Is extremely well-poised.</i> <ul style="list-style-type: none"> Poised and in control at all times. 	<i>Usually is well-poised.</i> <ul style="list-style-type: none"> Poised and in control most of the time; rarely loses composure. 	<i>Isn't always well-poised.</i> <ul style="list-style-type: none"> Sometimes seems to lose composure. 		X 20	
Gross Total Points						
Time Deduction*						
Net Total Points						
Rank						

* -1 point per second under 4 minutes or over 6 minutes, determined by the timekeepers

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Activity	Related Academic Standards
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.			Social Studies: 4d and 4h
	CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	Presentation	
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.			Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	Presentation	
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.			Social Studies: 4a
	CS.02.05.03.c. Exhibit self confidence while in the workplace.	Presentation	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.			Language Arts: 4, 5 and 12
	CS.03.01.03.c. Make effective business presentations.	Presentation	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture

1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;

4. Thematic Strand: Individual Development and Identity

4a. articulate personal connections to time, place, and social/cultural systems;

4e. examine the interactions of ethnic, national or cultural influences in specific situations or events;

10. Thematic Strand: Civic Ideals and Practices

10b. identify, analyze, interpret and evaluate sources and examples of citizens' rights and responsibilities;

10j. participate in activities to strengthen the "common good," based upon careful evaluation of possible options for citizen action.

National FFA Farm Business Management Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The National FFA Farm Business Management Career Development Event provides competition that fosters information assimilation, critical thinking and problem-solving skills necessary for successful business management. The skills learned in this event can be used to successfully manage a farm, pursue agricultural business careers and can be applied to personal financial management. The National FFA Farm Business Management Career Development Event enhances and encourages opportunities for all participants to receive instruction that develops business management skills.

For details about the scope of farms included in this event, see “What is a Farm?” in the Resources section of this chapter.

II. Objectives

The event objectives are for participants to demonstrate their ability to:

- A. Analyze business management information.
- B. Apply economic principles and concepts of business management to the decision-making process.
- C. Evaluate business management decisions.
- D. Work together cooperatively as a group.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Principles and Concepts

The principles and concepts listed below may be included in each section event.

- A. Economic Principles Related to Business Management
 1. Production functions
 - a. diminishing returns
 - b. profit maximizing point:
 - i. $MFC=MVP$
 - ii. $MC=MR$
 2. Opportunity costs
 - a. alternative investment opportunities
 - b. alternative use of resources

3. Cost analysis
 - a. fixed costs
 - b. variable costs
 4. Input combinations
 5. Enterprise selection
 - a. equi-marginal returns
 - b. specialization and diversification
 6. Supply and demand
 - a. price and quantity determination
 - b. elasticity of demand
 - c. elasticity of supply
 - d. substitute, complementary and competitive products
 - e. comparative advantage
 7. Types of markets
 - a. perfectly competitive markets
 - b. oligopoly markets
 - c. monopolistic competitions
 - d. monopoly markets
- B. Concepts related to the use and analysis of records to manage resources
1. Analysis of records
 - a. financial statements
 - i. balance sheet
 - ii. income statement
 - iii. statement of owner equity
 - iv. statement of cash flow
 - b. financial statement ratios
 - i. solvency
 - ii. liquidity
 - iii. profitability
 - iv. repayment capacity
 - v. financial efficiency
 2. Budgeting
 - a. partial budgets
 - b. whole farm budgets
 - c. enterprise budgets
 3. Cash flow analysis
 - a. summary
 - b. projections
 4. Managerial accounting
 5. Tax management
- C. Concepts and functions of risk management
1. Financial
 - a. capital budgeting
 - i. time value of money
 - ii. net present value
 - b. credit
 - i. sources
 - ii. loan applications
 - iii. interest
 - iv. collateral

- c. leasing of real property
 - d. land acquisition and ownership
 - e. machinery management
 - f. insurance
 - i. life insurance
 - ii. property insurance
 - iii. crop insurance
 - iv. health insurance
 - v. liability insurance
2. Marketing
- a. functions
 - b. price methods
 - i. cash markets
 - ii. futures and options
 - iii. contracting
 - c. trade
 - i. domestic
 - ii. international
3. Legal
- a. estate planning
 - b. business organization
 - i. sole proprietorship
 - ii. cooperatives
 - iii. corporations
 - iv. partnership
 - v. limited liability company or partnership
 - c. written agreements
4. Production
- a. government programs and regulations
 - b. weather
 - c. disease
5. Human resources
- a. training programs
 - b. hiring employees
 - c. employee policies and procedures
 - d. compensation and benefits
- D. Business Management
- 1. Strategic management
 - a. vision statement
 - b. mission statement
 - c. goals
 - 2. Tactical planning
 - 3. Operational planning
 - 4. Succession planning

V. Event Rules

- A. Team make-up- A team consists of three or four members. A team score consists of the total of the top three individuals' scores on the written exam plus the team activity score (all certified members must participate in the team activity).
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Copies of the complete event with answers are distributed to all who are present at the event evaluation meeting.

VI. Event Format

A. Equipment Provided:

1. Two sharpened No. 2 pencils.
2. Non-programmable calculator – participants will not be allowed to provide their own.

B. Team Activity

The team activity evaluates the ability of team members to work together to use decision-making and problem analysis skills while applying economic principles and concepts taught in business management.

1. Members of a team work together cooperatively to complete this section.
2. Ninety (90) minutes are allowed for completion of the team activity. At the end of the activity, each team submits a written report to be scored.
3. The team activity involves the use of business management skills and the resource information.
4. The team activity focus may include but is not limited to the following:
 - a. An outgrowth of the current resource information and/or problems.
 - b. Topics in the outline under the principles and concepts.
 - c. Information in the most current *Farm and Ranch Business Management* text published by John Deere Publishing.
5. The team activity has a maximum value of 300 points per team and is only included in the team score. Points are divided as follows:
 - a. Team Evaluation – 100 points- During the team activity section, the team is observed by event judges and is evaluated on the team's ability to work cooperatively as a group.
 - b. Team written answer sheet – 200 points
6. All team members must be involved in the team activity to receive credit. If a team has two or less participants no credit will be allowed in the team portion of the event.

C. Individual Activity

The written exam tests the ability of the participants to use decision-making and problem analysis skills while applying economic principles and concepts taught in business management.

1. Each team member works independently to complete the written exam. Each team member receives an individual score on the written exam.
2. Three hours are allowed for completion of the written exam.
3. The written exam may include any type of question (such as multiple choice, short answer and fill-in-the-blank).
4. All topics in the outline under the "Principles and Concepts" section can be included in the written exam. Business management forms and procedures follow the samples and procedures as presented in the most current *Farm and Ranch Business Management* text published by John Deere Publishing.
5. The written exam has a maximum value of 300 points per team member.
6. Individual scores on the written exam are used to calculate both the individual and team score.

VII. Event Scoring

The following table summarizes the breakdown of points, event section for each point allocation and the amount of time allowed for each section of the event.

POINTS

Section	Time	Individual	Team
Written Exam	180 Minutes	300	900
Team Activity	90 Minutes		300
Total		300	1200

VIII. Tiebreakers

- A. Judges will break ties on team scores using the following sequence:
1. The score on the written section of the team activity.
 2. The score on pre-selected sections of the written exam.
- B. Judges will break ties on individual scores using the following sequence:
1. The score on pre-selected sections of the written exam.

IX. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

X. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the best instructional materials available. The following list contains references that may prove helpful during event preparation.

Numerous sources of materials exist, and participating teams should consult with their state's cooperative extension service, the colleges and universities teaching farm and ranch business management and other material services available to the participating school. For the most current listing of resources and definitions for economic terms, refer to the national FFA website- farm business management CDE section at www.ffa.org.

A. Primary:

1. Jobs, Steward, Casey and Purcell (2004). *Farm and Ranch Business Management (5th edition)*. Deere & Company, John Deere Publishing, East Moline, Illinois 61244. <http://www.deere.com/publications>
2. Kay, Edwards and Duffy. *Farm Management*. McGraw-Hill Book Co., New York, NY. (6th edition, 2008)
3. CDE NCQ, National FFA Core Catalog, Indianapolis, IN. <http://shop.ffa.org/cde-qas-c1413.aspx> (Published annually following the CDE.) Good source for examples of enterprise budgets and financial statements used in the CDE.

B. Secondary:

1. Boehlje and Eidman (1984). *Farm Management*. John Wiley and Sons, New York, NY.
2. Bowers, Love and Kletke (1994). *Machinery Replacement Strategies*. Deere & Company, John Deere Publishing, East Moline, Illinois 61244. Deere & Company. <http://www.deere.com>
3. Dicks, Michael (1998). *Agricultural Policy and How it Affects You*, Deere & Company, John Deere Publishing, East Moline, Illinois 61244.

4. Oltmans, Klinefleter, and Frey (2001) *Agricultural Financial Reporting and Analysis*. Doane Agricultural Services, St. Louis, MO.
5. Purcell, Wayne D. (1995). *Marketing Agricultural Commodities*. Deere & Company, John Deere Publishing, East Moline, Illinois 61244.
6. Wilson, Purcell, Burton, and Wahlberg (1994). *Managing Livestock Production*. Deere & Company, John Deere Publishing, East Moline, Illinois 61244.
7. Wilson, Purcell, Burton, and Wahlberg (1994). *Managing Agricultural Commodities*. Deere & Company, John Deere Publishing, East Moline, Illinois 61244

C. Technical References:

1. *Farmers Tax Guide*, published by the Department of the Treasury, Internal Revenue Service, can be obtained from the IRS Forms Distribution center in your state or the IRS website. <http://www.irs.gov/publications/p225/index.html>
2. Farm Financial Standards Council, *Financial Guidelines for Agriculture Producers*, 1998 <http://www.ffsc.org/>.
3. Assorted educational materials are available on hedging, forward contracting, and commodity futures trading from any of the following addresses.
 - a. Chicago Mercantile Exchange, 30 South Wacker Drive, Chicago, Illinois 60604. <http://www.cmegroup.com>
 - b. Kansas City Board of Trade, 4800 West Main Street, Kansas City, Missouri 64112
 - c. New York Cotton Exchange, New York Mercantile Exchange Building, One North End Avenue, New York, NY 10282-1101
 - d. New York Mercantile Exchange, Commodity Exchange Ctr., One North End Avenue, New York, NY 10282-1101
4. Doane Agricultural Services, Vance Publishing Corp., 77 Westport Plaza, #250, St. Louis, MO 63416. Doane provides a variety of educational materials related to farm and ranch management.
5. Cooperative Extension Service in your state. Contact your local extension agent for access to farm and ranch management educational materials.

D. What is a Farm?

A farm is an area of land, including various structures, devoted primarily to the practice of producing food, fiber and, increasingly, fuel. It is the basic production entity. A farm can be a holding of any size from a fraction of an acre to several thousand acres. For purposes of the Census of Agriculture, the U.S. Department of Agriculture defines a farm as any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. Single individuals or family members, partners or corporations can own and operate farms. Depending on the volume of business produced on the farm, the farm may provide either part-time or full-time employment for the owners.

Farms are often categorized by the enterprises produced. Diversified farms will include several different crop and livestock enterprises. Grain farms specialize in the production of grain and often do not have any livestock production. A ranch is a farm specializing in the raising of grazing livestock such as cattle or sheep for meat or wool. Farms specializing in the production of tree fruits or nuts are orchards; a vineyard produces grapes. A stable is a farm principally involved in the training of horses. Stud and breeding stock farms breed and produce other animals and livestock. Dairy farms focus on the production of milk. A vegetable or truck farm is a farm that grows vegetables but little or no grain. Additional specialty farms include fish farms, which raise fish in captivity as a food source, and tree farms, which grow trees for sale for transplant, lumber or decorative use such as Christmas trees. Farms are usually thought of as being located in rural areas, but they are also located in urban areas. Urban farms are focused on cultivating, processing and distributing food in, or around a village, town or city. Urban farms can also be involved in animal husbandry, aquaculture, agro-forestry and horticulture.

Team Activity Evaluation - Observers Score Sheet

Criteria:

Name of Observer: _____

- All team members were involved and contributed to the activity in an organized manner.
- Team members demonstrated effective listening and oral communication skills in resolving issues related to the presented task(s).
- Team members demonstrated cooperation in negotiating possible solutions that were relevant to the activity as presented.

Teamwork Evaluation Questions	Scoring Ranges			Team No.	1	2	3	4
	Low	Medium	High					
1 Leadership Identified	5-6 points Leadership not evident, no listing completed.	7-8 points Leadership evident, listing incomplete.	9-10 points Clearly identifies and lists leaders.	Points	Points	Points	Points	Points
	22-24 points Not listening to each other, talking over other team member, 1 member dominating.	25-27 points Listening and communications occurring, but 2-3 members dominating.	28-30 points Clearly evident that all team members are listening and discussing issues.					
2 Effective listening & oral communication	22-24 points Tasks primarily completed by one member, other members contributing only slightly.	25-27 points Tasks primarily completed by 2-3 members, other member(s) assist occasionally.	28-30 points Clearly all team members completing tasks, sharing written and oral computations/solutions.					
	22-24 points 1-2 members form the primary team, other members participate occasionally early, fade over time.	25-27 points Members are engaged & attentive, with 2-3 making notes, participation fades over time.	28-30 points Clearly all members are engaged, attentive and making notes for the full term of event.					
3 Demonstrated cooperation								
4 Participated in the team								
Total:								

Team Activity Evaluation Summary Scorecard

National FFA Farm Business Management CDE

Instructions:

Participants should complete the information on this side of the scorecard. Please print clearly.

Team Number _____

State _____

Team members:

1. Name: _____

Role: _____

2. Name: _____

Role: _____

3. Name: _____

Role: _____

4. Name: _____

Role: _____

Team Activity Evaluation Summary Scorecard

National FFA Farm Business Management CDE

A. Teamwork Evaluation (observations)

Criteria:

- All team members were involved and contributed to the activity in an organized manner.
- Team members demonstrated effective listening and oral communication skills in resolving issues related to the presented task(s).
- Team members demonstrated cooperation in negotiating possible solutions that were relevant to the activity as presented.

	Points Possible
1. Team leadership roles were identified and demonstrated	10
2. Team members demonstrated effective listening and oral communication skills in resolving issues related to the presented task(s)	30
3. Team members demonstrated cooperation in negotiating possible solutions that were relevant to the activity as presented	30
4. Each team member participated in the team activity and contributed to the results reached by the team	30
Total	100

Summary of Evaluator's Scores:

	Points Earned
Evaluator:	
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

Average Evaluator Score:

(Maximum 100 points) **B**

B. Team Activity Solution Evaluation (written answer sheet)

Criteria:

- Team demonstrated knowledge of farm business management principles and concepts and summarized consensus in the team activity answer sheet.

Points Possible 200

Score:

(Maximum 200 points) **B**

Total Score for Team Activity

A + B =

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.			Social Studies: 7b and 7g
	ABS.01.01.01.b. Differentiate types of ownership and outline the structure of AFNR businesses in a capitalistic economic system.	exam, team activity	
ABS.02.01. Performance Indicator: Compose and analyze a business plan for an enterprise.			Language Arts: 3, 4, 5, 7 and 8 Social Studies: 7h
	ABS.02.01.01.c. Prepare and critique AFNR business plans.	exam, team activity	
ABS.02.02. Performance Indicator: Read, interpret, evaluate and write a mission statement to guide business goals, objectives and resource allocation.			Language Arts: 3, 4, 5 and 6
	ABS.02.02.01.a. Read and interpret mission statements.	exam, team activity	
ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.			Language Arts: 12
	ABS.02.03.02.a. Identify appropriate local, state, federal, international and industry regulations for AFNR businesses.	exam, team activity	
ABS.03.01. Performance Indicator: Prepare and maintain all files needed to accomplish effective record keeping.			Math: 5A and 6B Language Arts: 8
	ABS.03.01.01.c. Apply management information systems in AFNR business financial analysis.	exam, team activity	
ABS.03.02. Performance Indicator: Implement appropriate inventory management practices.			Language Arts: 8
	ABS.03.02.01.a. Monitor inventory to maintain optimal levels and calculate costs of carrying input and output inventory.	exam, team activity	

ABS.04.01. Performance Indicator: Use accounting fundamentals to accomplish dependable bookkeeping and fiscal management.		Math: 1C, 5A and 5C Social Studies: 7h
	ABS.04.01.02.c. Evaluate characteristics of lines of credit, loan terms and alternatives in sources of capital.	exam
	ABS.04.01.03.b. Analyze reporting requirements for income, property and employment taxes associated with small AFNR businesses.	exam, team activity
ABS.05.01. Performance Indicator: Maintain and interpret financial information (income statements, balance sheets, inventory, purchase orders, accounts receivable and cash-flow analyses) for businesses.		Math: 1C, 5A and 5C Language Arts: 8
	ABS.05.01.01.c. Interpret financial information for an AFNR business to determine profitability, net worth position, financial ratios, performance measures and ability to meet cash-flow requirements.	exam, team activity
	ABS.05.01.02.b. Recognize how changes in prices of inputs and/or outputs influence the financial statements of an AFNR business.	exam, team activity
	ABS.05.01.03.c. Conduct a breakeven analysis for an AFNR business.	exam, team activity
	ABS.05.01.04.c. Interpret and evaluate financial statements, including income statements,	exam, team activity
ABS.06.01. Performance Indicator: Conduct appropriate market and marketing research.		Social Studies: 7b and 7h
	ABS.06.01.01.c. Implement and evaluate marketing strategies with agricultural commodities, products and services.	exam, team activity
	ABS.06.01.02.a. Describe functions in agricultural marketing.	exam, team activity
ABS.06.03. Performance Indicator: Develop strategies for marketing plan implementation.		Social Studies: 7b and 7h
	ABS.06.03.01.b. Determine marketing strategies that are most likely to be effective in an AFNR business.	exam, team activity
ABS.07.03. Performance Indicator: Utilize appropriate techniques to determine the most likely strengths, weaknesses and inconsistencies in a business plan and relate these to risk management strategies.		Language Arts: 12
	ABS.07.03.01.b. Describe approaches to use in revising a business plan for improved consistency and realism.	exam, team activity

ABS.07.04. Performance Indicator: Manage risk and uncertainty.		Language Arts: 12
ABS.07.04.01.b. Describe alternative approaches to reducing risk, including the use of insurance for product liability, property, production or income loss and for personnel life and health.	exam, team activity	
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	team activity	
CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.	team activity	
CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	team activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
CS.01.02.02.b. Utilize communication skills to collaborate in a group setting.	team activity	
CS.01.03. Performance Indicator: Vision: Establish a clear image of what the future should look like.		Social Studies: 4a, 4d and 4h
CS.01.03.04.b. Demonstrate consensus building.	team activity	
CS.01.06. Performance Indicator: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.		Science: A4 Language Arts: 8 Social Studies: 4h
CS.01.06.03.b. Utilize a problem-solving model to solve a given problem.	team activity	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	team activity	
CS.02.04.02.c. Implement effective problem solving strategies.	team activity	
CS.02.04.03.c. Demonstrate the skills needed to negotiate with others.	team activity	

CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1, A5 Social Studies: 1c and 4h
	CS.03.02.01.c. Make decisions for a given situation by applying the decision-making pro-	team activity
	CS.03.02.02.c. Use problem-solving skills.	team activity

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates.
5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
 - 5C. Develop and evaluate inferences and predictions that are based on data.
6. Standard and Expectations: Problem Solving
 - 6B. Solve problems that arise in mathematics in other contexts.
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
 - A5. Recognize and analyze alternative explanations and models.

English Language Arts

3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.
7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture

1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;

4. Thematic Strand: Individual Development and Identity

4a. articulate personal connections to time, place and social/cultural systems;

4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;

4h. work independently and cooperatively within groups and institutions to accomplish goals;

7. Thematic Strand: Production, Distribution and Consumption

7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;

7f. compare how values and beliefs influence economic decisions in different societies;

7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;

7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;

National FFA Floriculture Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The National FFA Floriculture Career Development Event is designed to promote the study of and interest in production and retailing of flowers, plants and foliage through the agricultural education curriculum.

II. Objectives

- A. Identify floriculture and bedding plant materials.
- B. Identify and understand treatment of unhealthy plants due to pest, nutritional, mechanical or chemical injury.
- C. Understand the biological and scientific principles and develop the skills underlying propagation, growth requirements, growing techniques, harvesting, marketing and maintenance of established floriculture plants.
- D. Understand principles and develop skills of floral design.
- E. Identify and select appropriate supplies and equipment for the flower shop and greenhouse.
- F. Understand and demonstrate the use of safety procedures and practices in floriculture operations.
- G. Operate and maintain appropriate equipment for floriculture operations.
- H. Understand and demonstrate interpersonal skills necessary for successful employment in the floriculture industry.
- I. Understand and demonstrate proper sales and customer service skills.
- J. Understand general business practices appropriate to the floriculture industry.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Each team will be comprised of four members. All four scores will be used to determine total team score.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Under no circumstances will any participant be allowed to touch or handle plant material during the event except when instructed by the event staff.
- D. Any communication between participants during the event will be sufficient cause to eliminate the team from the event. The exception to this is the team activity.
- E. Any participant caught cheating during the event will be expelled from the event.

- F. All participants are expected to be prompt at their stations throughout the event. No provision will be made for tardiness, which will in most cases cause the late participant to lose event points.
- G. The event superintendent will assign the participants to group leaders who will escort them to various event staging sites. Participants must know their participant number and stay in their assigned group at all times or until told to change leaders by the event superintendent.
- H. Any assistance given to a participant from any source during the event, other than a floriculture official, will be sufficient cause to eliminate the team from the event.
- I. All participants will be given an identification number by which they will be designated throughout the event.
- J. Various computer applications may be utilized throughout the floriculture event.
- K. Any participant in possession of an electronic device in the event area is subject to disqualification.

V. Event Format

A. Materials students need to provide:

1. Clean clipboard, free of notes
2. Two sharpened No. 2 pencils
3. Prepared résumé
4. Floral shears
5. Knife
6. Calculator- Should be battery operated, non-programmable and non-scientific. No other calculators are allowed to be used during the event.
7. Participants may also bring an apron and/or a tool belt and towels; these items will not be provided.

B. Team Activity- 1,000 points

1. Each team will perform an assignment routinely performed in some phase of the floriculture industry that requires teamwork. Prior to the event, the National FFA Floriculture Career Development Event committee will select a theme and series of floriculture industry assignments. These tasks will be described in situational terms for presentation to each team. Forty-five minutes will be allowed for completing the activity. There will be an additional fifteen minutes for preparation and clean up. All materials needed to complete the assignment will be provided.
2. The type of assignments that may be used in this phase of the event are:
 - a. Designing floral decorations for an event or party.
 - b. Packing plants for shipping and updating inventory.
 - c. Filling orders for customers.
3. Scoring criteria for the team preparation and presentation are on the *team activity score-card* which will be recorded by a judge.

C. Individual Activities

1. Identification of plant materials and equipment- 200 points

Forty specimens from the floriculture plant and equipment identification list will be displayed for participants to identify by technical and common names. A number will designate each specimen. Five points will be awarded for each specimen that is correctly identified. Each participant will be allowed 20 minutes to complete this phase of the event.

2. General Knowledge Examination- 250 points

Participants will answer 50 multiple choice questions that cover the areas of the floriculture industry reflected in the event objectives. This phase of the event will test participants' knowledge and understanding of basic biological and scientific principles of producing and marketing flowers, plants and foliage. Each participant will be allowed 50 minutes to complete the exam. Each answer has a value of five points.

3. Problem-Solving/Decision-Making- 200 points

Each participant will solve ten problems related to the various aspects of the floriculture industry identified in the event objectives. Each problem will describe the situation or create the problem and list four possible solutions to the problem. The participant must decide on the BEST possible solution to the problem. All materials and information necessary to solve the problem will be available to the participant as he/she solves the problem. Each participant will be allowed 50 minutes to complete this phase of the event. Each correct solution has a value of 20 points.

4. Annual Practicums- 300 points

Each participant will complete three annual practicums: floral arrangement, job interview and a selling practicum.

a. Floral Arrangement- 100 points

Make a \$35 floral arrangement. The event superintendent will announce the type of arrangement during the team orientation meeting. Using the materials provided, participants will be allowed 20 minutes to complete their arrangements and itemized bills. The event assistant at the beginning of the practicum will provide participants the RETAIL price of the flowers and foliage that they will use in their arrangements. The MARKUP will be built into the retail price. When the participant has determined the total arrangement cost, he or she has included the markup. Retail cost of flowers and foliage given to the participant will be determined after polling florists to determine their current retail prices on the flowers and foliage used in the event.

Scoring criteria are presented on the *floral arrangement practicum scorecard* which will be recorded by a judge.

Explanation of Floral Arrangement Terms:

- i. **Design:** Design is the overall shape or form of composition; a planned relationship of the parts. The elements of design include: line (linear patterns attracting the eye to the focal point); form (three dimensional shape); texture (surface appearance of materials); color (use of tints, tones, shades of hues, as well as black, gray and white); the pleasing way in which lines, textures, sizes and colors are blended or contrasted and the tying together of the parts by the combination of good design, balance and harmony.
- ii. **Balance:** Visual stability, regardless of whether design is symmetrical or asymmetrical determined by the relative sizes of material and relative darkness of lightness and the placement of them.
- iii. **Functionality:** Appropriateness of arrangement for intended use, soundness of construction.
- iv. **Judges' Choice:** The use of plant materials and design principles in a particularly creative, original and unique manner.

b. Job Interview- 100 points

Each participant will appear before an employer (judge) for the purpose of interviewing for a position available in the employer's business. The event superintendent will announce specific information about the job for which the participant is applying at the team orientation meeting. Participants will be given two job descriptions at the team orientation meeting along with application forms to complete. Participants will be allowed to choose the job they wish to interview for and prepare their applications prior to participating in the practicum. Participants will be expected to prepare, prior to the event, a résumé of their experiences and background to present to the judge at the time of the interview. Ten minutes will be allowed for this practicum. Participants will be allowed five minutes to complete the interview and five minutes for judges to score the interview.

Scoring criteria are presented on the *job interview practicum scorecard* which will be recorded by a judge.

c. Selling Practicum- 100 points (one will be chosen)**i. Telephone Sales**

Each participant will be provided a telephone and appropriate materials. An event judge will serve as a customer and will score telephone usage and the written order. Ten minutes will be allowed for completion of this practicum including the judging of the telephone dialogue and sales form. Of the ten minutes, participants will be allowed five minutes for dialogue with the customer and completion of the sales form. Judges will be allowed five minutes to score the participant. Scoring criteria are presented on the *telephone sales practicum scorecard* which will be recorded by a judge.

ii. Selling One-On-One

Each participant will assume the role of a sales person in a floriculture business (grower, florist shop, garden center, etc.) A customer (judge) with a specific need will approach the participant. The participant will help the customer meet his/her need by using sales skills. All supplies, information and the business setting in which the participant works will be provided. Ten minutes will be allowed for this practicum. Of the ten minutes, participants will be allowed five minutes for dialogue with the customer and completion of the sales form. Judges will be allowed five minutes to score the participant. Scoring criteria are presented on the *selling one-on-one practicum*

scorecard which will be recorded by a judge.

5. Rotational Practicums

In addition to the three annual practicums, three practicums will be selected from the list below for each noted year.

2012, 2014, 2016

Handling a Hazardous Situation
Make a Dish Garden
Make a Product Display
Growing Procedures
Media Selling

2013, 2015

Growing Procedures
Handling a Customer Complaint
Identifying and Controlling Plant Disorders
Make and Package a Corsage
Media Selling

a. Growing Procedures- 75 points (one of the three will be chosen)

i. Potting of Plant Cuttings

Participants will be asked to plant five rooted cuttings in the pot provided. Each participant will be given a group of cuttings from which to select five; a 5 1/2-to-6-inch pot; a soil medium at the correct moisture level, ID stake and a marking pencil. Ten minutes will be allowed for completion of this practicum including the judging of the potted plant cuttings.

Scoring criteria are presented on the *plant potting practicum scorecard* which will be recorded by a judge.

ii. Asexual Propagation of Plants

Each participant will be provided the parent plant materials and all other materials needed to propagate plants asexually. Using the available materials, participants will take five cuttings from the plant before them and stick them in rooting media. Ten minutes will be allowed for completion of this practicum including the judging of the participant's performance in completing the practicum.

Scoring criteria are presented on the *asexual plant propagation scorecard* which will be recorded by a judge.

iii. Pinching Plants

A plant will be placed before each participant. The participant will be given instructions as to what they are to do to the plant by the event assistant in charge of the practicum. Participants will be judged on the procedures they follow in pinching the plant. Ten minutes will be allowed for completion and judging of this practicum.

Scoring criteria are presented on the *pinching plant scorecard* which will be recorded by a judge.

b. Make a Dish Garden- 75 points

Each participant will make a \$35 dish garden. All plant materials, growing media and containers will be provided. Twenty minutes will be allowed for each participant to make their dish garden and complete the itemized listing of costs. At the beginning of the practicum, the participant will be provided with the RETAIL price of plants and other materials to be used in their dish garden. The MARKUP is built into the retail price.

Scoring criteria are presented on the *making a dish garden practicum scorecard* which will be recorded by a judge.

c. Make a Product Display- 75 points

Each participant will set up a sales display of items commonly sold by a retail florist. Display areas will be established for each participant along with the product(s) to be displayed and all materials to establish the display. Twenty minutes will be allowed for completion of this practicum.

Scoring criteria are presented on the *making a product display practicum scorecard* which will be recorded by a judge.

d. Make and Package a Corsage- 75 points

Each participant will make and package a \$15 corsage. The type of corsage and information about the corsage will be announced by the event assistant in charge at the beginning of the practicum. All plant and non-plant materials needed to construct and package the corsage will be provided. Each participant will be allowed 20 minutes to complete the construction of the corsage and complete an itemized listing of costs for the corsage constructed.

Scoring criteria are presented on the *making and packing a corsage scorecard* which will be recorded by a judge.

e. Identifying and Controlling Plant Disorders- 75 points

Each participant will be given a plant with a nutritional, environmental, disease or insect disorder. After viewing the plant, the participant will identify the disorder and prescribe treatment. Containers marked with specific chemicals or chemical products (will contain water colored to resemble the products) may be available. In addition to the above points, participants will be judged on their knowledge of safety procedures while completing this practicum. Ten minutes will be allowed for this practicum.

Scoring criteria are presented on the *control of plant disorders scorecard* for plants with insect or disease disorders or the *identifying and prescribing treatment for plant disorders scorecard* for plants with nutritional or environmental disorders which will be recorded by a judge.

The plant disorder to be used in the event may be, but is not limited to, selections from the following list of disorders.

i. Nutritional and Environmental Disorders

- Poor soil drainage
- Overwatering damage
- Insufficient water damage
- Inadequate lighting
- Too much light
- Improper temperature
- Iron deficiency
- Nitrogen deficiency
- Phosphorus deficiency
- Salt damage

ii. Diseases

- Powdery mildew
- Leaf spot
- Root rot
- Stem rot
- Verticillium wilt
- Fusarium wilt
- Rust
- Damping-off
- Mosaic
- Rhizoctonia
- Anthracnose
- Bacterial wilt

iii. Insects and Pests

- Snails
- Slugs
- Whiteflies
- Aphids
- Leaf miner
- Spider mites
- Mealybugs
- Leafhopper
- Spittlebug
- Scale

f. Handling a Hazardous Situation- 75 points

Each participant will be presented with a hazardous situation that could develop in a floriculture business. The participant will be asked to explain how to resolve the problem. The participant will be evaluated on their understanding of the problem and procedures and practices followed in resolving the problem. Ten minutes will be allowed for this practicum.

Scoring criteria are presented on the *hazardous situation scorecard* which will be recorded by a judge.

g. Handling a Customer Complaint- 75 points

Each participant will assume the role of an employee in a floriculture business (grower, flower shop, garden center, etc.). A customer or potential customer who has a complaint will approach the participant. The participant will work with the customer to resolve their complaint. Ten minutes will be allowed for this practicum.

Scoring criteria are presented on the *customer complaint scorecard* which will be recorded by a judge.

h. Media Selling- 75 points

Each participant will be asked to create or evaluate advertising from the following (not an inclusive list):

- i. Newspaper
- ii. TV
- iii. Billboard
- iv. Newsletter
- v. Brochure
- vi. Social Media

All information and materials needed to develop the advertisement will be provided. Twenty minutes will be allowed for this practicum. Of the 20 minutes, 12 minutes will be allotted for preparation, five minutes for presentation and three for judges to score.

Scoring criteria are presented on the *media selling practicum (written) scorecard* or *media selling practicum (electronic) scorecard* which will be recorded by a judge.

VI. Scoring

Phase	Individual Points	Team Points
Identification of Plant Material	200	800
General Knowledge	250	1,000
Problem Solving	200	800
Annual Practicums	300	1,200
Rotational Practicums	225	900
Team Activity	0	1,000
Total	1,175	5,700

VII. Tiebreakers

If ties occur the following events will be used in order to determine award recipients:

1. Floral arrangement practicum
2. Sales practicum
3. Job Interview

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at an awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

IX. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog—Past CDE Q&A's (<http://shop.ffa.org/cde-qas-c1413.aspx>)

American Style Flower Arranging. Peter B. Pfahl and Elwood W. Kalin, Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 1982

Floral Design & Interior Landscape Management. Dianne A. Noland, Prentice Hall Interstate

Floriculture – From Greenhouse Production to Floral Design. Ronald J. Biondo and Dianne A. Noland, Interstate Publishers.

Introduction to Floriculture, 1980. Roy A. Larson. Academic Press, New York, NY.

Introduction to Horticulture Science and Technology. Felton, Ruter, Kelley and Krewer, Inter-

state Publishers, Inc.

The Pesticide Book. 6th Edition, by: George W. Ware and David M. Whitacre, MeisterPro Information Resources.

The Retail Florist Business, 4th Ed., 1983. Peter B. Pfahl, Interstate Publishers and Printers, Danville, IL.

Ball Publishing:

Grower Talks on Pest Control

Grower Talks on Perennials

Grower Talks on Plugs

Ball Redbook, Volume 1&2, 17th Edition

Floriculture Plant Identification List

Participant Name _____ Participant Number _____

<i>Number Botanical Name/Common Name</i>	<i>Number Botanical Name/Common Name</i>
101 Aechmea chantinii cv. / Bromeliad	102 Ageratum mexicanum cv. / Ageratum
103 Aglaonema commutatum cv. / Aglaonema	104 Alstroemeria aurantiaca / Peruvian Lily
105 Antirrhinum majus cv. / Snapdragon	106 Anthurium x andraeanum cv. / Anthurium, Flamingo Lily
107 Aphelandra squarrosa cv. / Aphelandra, Zebra Plant	108 Araucaria heterophylla / Norfolk Island Pine
109 Argyranthemum frutescens / Marguerite Daisy	110 Asparagus densiflorus 'Sprengeri' / Sprengeri "Fern"
111 Asparagus setaceus / Asparagus "Fern"	112 Astilbe hybrid cv. / Astilbe
113 Begonia x tuberhybrida cv. / Tuberous Begonia	114 Begonia x semperflorens- cultorum / Wax Begonia
115 Caladium x hortulanum cv. / Fancy-Leaved Caladium	116 Calceolaria crenatiflora cv. / Pocketbook Plant
117 Callistephus chinensis cv. / China Aster	118 Camellia japonica cv. / Common Camellia
119 Canna x generalis cv. / Common Garden Cannana	120 Catharanthus roseus / Madagascar Periwinkle
121 Cattleya cv. / Cattleya Orchid Hybrid	122 Celosia argentea cv. / Cockscomb
123 Chamaedorea elegans / Parlor Palm	124 Chamelaucium uncinatum / Waxflower
125 Cholorophytum comosum cv. / Spider Plant	126 Chrysanthemum x morifolium cv. / Florist's Chrysanthemum
127 Cissus rhombifolia 'Mandaiana' / Grape Ivy	128 Clematis Jackmanii Group cv. / Clematis
129 Codiaeum variegatum pictum cv. / Croton	130 Crassula argentea / Jade Plant
131 Cyclamen x persicum cv. / Florist's Cyclamen	132 Cymbidium cv. / Cymbidium Orchid
133 Dianthus caryophyllus cv. / Carnation	134 Dieffenbachia maculata cv. / Spotted Dumbcane
135 Dracaena fragrans 'Massangeana' / Corn Plant Dracaena	136 Dracaena cincta / Red Edge Dracaena
137 Echeveria cv. / Hens and Chickens	138 Echinocactus cv. / Barrel Cactus
139 Epipremnum aureum cv. / Golden Pothos, Devil's Ivy	140 Erica carnea cv. / Spring Heath
141 Eucalyptus polyanthemos / Silver Dollar Gum	142 Euphorbia milii splendens / Crown-of-Thorns
143 Euphorbia pulcherrima cv. / Poinsettia	144 Exacum affine / German (Persian) Violet
145 Ficus benjamina 'Exotica' / Benjamin Fig	146 Ficus elastica 'Decora' / 'Decora' Rubber Plant
147 Ficus pumila / Creeping Rubber Plant	148 Freesia x hybrida / Freesia
149 Fittonia verschaffeltii / Nerve Plant	150 Gardenia jasminoides 'Fortuniana' / Gardenia
151 Gerbera jamesonii / Transvaal Daisy	152 Gladiolus x hortulanus cv. / Garden Gladiolus
153 Gynura aurantiaca 'Sarmentosa' / "Purple Passion", Velvet Plant	154 Gypsophila elegans cv. / Baby's Breath
155 Hedera helix cv. / English Ivy	156 Hemerocallis cv. / Daylily

157	Heptapleurum arboricola / Dwarf Schefflera, Dwarf Octopus Tree	158	Hippeastrum hybrid cv. / Amaryllis
159	Hosta undulata / Plantain Lily	160	Hoya carnosa / Wax Plant
161	Hyacinthus orientalis cv. / Hyacinth	162	Hydrangea macrophylla cv. / French (Florist's) Hydrangea
163	Impatiens hybrid cv. / Impatiens	164	Iris x germanica florentina cv. / Flag (Bearded) Iris
165	Iris x xiphium cv. / Dutch Iris	166	Justicia brandegeana / Shrimp Plant
167	Kalanchoe x blossfeldiana cv. / Kalanchoe	168	Leucanthemum x superbum cv. / Shasta Daisy
169	Liatris spicata / Liatris	170	Lilium longiflorum cv. / Trumpet (Easter) Lily
171	Lilium x hybridum cv. / Hybrid (Garden) Lily	172	Limonium sinuatum / Statice
173	Lobularia maritima / Sweet Alyssum	174	Maranta leuconeura var. kerchoviana / Prayer Plant
175	Matthiola incana cv. / Flowering Stock	176	Monstera deliciosa / Cutleaf "Philodendron"
177	Narcissus pseudonarcissus cv. / Daffodil	178	Neoregelia carolinae 'Tricolor' / Bromeliad
179	Nephrolepis exaltata cv. / Boston Fern	180	Opuntia tribe cv. / Cactus
181	Paeonia cv. / Peony	182	Paphiopedilum x hybrid cv. / Ladyslipper Orchid
183	Pelargonium x domesticum cv. / Regal (Lady Washington) Geranium	184	Pelargonium x hortorum cv. / (Zonal) Geranium
185	Pelargonium peltatum cv. / Ivy Geranium	186	Peperomia argyrea / Watermelon Pe- peromia
187	Peperomia caperata / Emerald Ripple Pe- peromia	188	Peperomia obtusifolia 'Variegata' / Var- iegated Peperomia
189	Petunia x hybrida cv. / Common Garden Petunia	190	Phalaenopsis cv. / Phalaenopsis (Butterfly) Orchid
191	Philodendron scandens oxycardium / Heartleaf Philodendron	192	Pilea cadierei / Aluminum Plant
193	Pilea involucrata / Friendship Plant	194	Pilea microphylla / Artillery Plant
195	Pilea nummularifolia / Creeping Charley	196	Plectranthus mummularis / Swedish Ivy
197	Polianthes tuberosa / Tuberose	198	Primula x polyanthus cv. / Polyanthus (Primrose)
199	Primula malacoides cv. / Fairy Primrose	200	Rhododendron cv. / Azalea
201	Rosa hybrid, Class Hybrid Tea cv. / Hybrid Tea Rose	202	Rumohra adiantiformis / Leatherleaf Fern
203	Saintpaulia ionantha cv. / African Violet	204	Salvia splendens cv. / Salvia
205	Sansevieria trifasciata cv. / Snake Plant	206	Saxifraga stolonifera / Strawberry Plant
207	Schlumbergera bridgesii / Christmas Cactus	208	Schlumbergera truncata cv. / Thanksgiving Cactus, Crab Cactus
209	Senecio cineraria 'Diamond' / Diamond Dusty Miller	210	Senecio x hybridus cv. / Florist's Cin- eraria
211	Sinningia speciosa Fyfiana Group cv. / Gloxinia	212	Solanum pseudocapsicum cv. / Jerusalem Cherry

213	Solenostemon scutellarioides / Coleus	214	Spathiphyllum clevelandii / White Anthurium, Peace Lily
215	Stephanotis floribunda / Stephanotis	216	Strelitzia reginae / Bird-of-Paradise
217	Syngonium podophyllum / Nephthytis	218	Tagetes species cv. / Marigold
219	Tolmiea menziesii / Pickaback Plant	220	Tulipa cv. / Tulip
221	Vaccinium ovatum / Florist's "Huckleberry"	222	Viola x wittrockiana cv. / (Garden) Pansy
223	Zebrina pendula cv. / Wandering Jew	224	Zinnia elegans / Zinnia

Floriculture Equipment Identification List

225	Boutonniere Pin	226	Corsage Pin
227	Corsage Stem	228	Corsage Tape
229	Glue Gun	230	Glue Pan
231	Knife sharpener	232	Paddle Wire
233	Pruner	234	Ribbon Scissor
235	Rose Stripper	236	Steel Pick Machine
237	Styrofoam Cutter	238	Under Water cutter
239	Waterproof Tape	240	Wire cutters
241	Wristlet		

Floriculture Floral Arrangement Practicum Scorecard

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Possible Score	Needs Improvement	Good	Excellent	Member Score
Arrangement	65				
• Design		0-11	12-24	25-35	
• Balance		0-5	6-10	11-15	
• Functionality		0-2	3-4	5	
• Judges Choice		0-3	4-6	7-10	
Itemized List of Costs	35				
• Price Range		0-3	4-8	9-11	
• Accuracy		0-3	4-6	7-10	
• Completeness		0-2	3-5	6-7	
• Neatness		0-2	3-5	6-7	
Total Possible:	100				

Explanation of Floral Arrangement Terms

Design: Design is the overall shape or form of the composition; a planned relationship of the parts. The elements of design include: line (linear patterns attracting the eye to the focal point); form (three dimensional shape); texture (surface appearance of materials); color (use of tints, tones, shades of hues, as well as black, gray and white); the pleasing way in which lines, textures, sizes and colors are blended or contrasted and the tying together of the parts by the combination of good design, balance and harmony.

Balance Visual stability, regardless of whether design is symmetrical or asymmetrical determined by the relative sizes of materials and relative darkness of lightness and the placement of them.

Functionality Appropriateness of arrangement for intended use and soundness of construction.

Judge's Choice The use of plant materials and design principles in a particularly creative, original and unique manner.

Judge's Name_____
Judge's Signature_____
Date

Floriculture

Floral Arrangement Itemized List of Costs

Name: _____

Team No.: _____

State: _____

Member No.: _____

Flower/ Foliage	Quantity Used	Unit Cost	Total

Total Flower/Foliage Material Cost _____

Other	Quantity Used	Unit Cost	Total

Total Other Materials Cost _____

Total Flower/Foliage Material Cost	
Total Other Material Cost	
Floral foam	
Container Cost	
Total Arrangement Cost*	

Floriculture

* Participants will be provided the RETAIL price of flowers and foliage that they will use in their arrangement by the event official at the beginning of the practicum. The MARKUP is built into the retail price of the flowers and the foliage used in the arrangement.

Job Interview Practicum Scorecard

Name: _____
State: _____

Team No.: _____
Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Introduction <ul style="list-style-type: none"> • Initial presentation • Eye contact • Handshake • Gives name • States why here 	0-3	4-8	9-11	
Knowledge of job <ul style="list-style-type: none"> • <i>Resume</i> <ul style="list-style-type: none"> • Typed • Completeness • Content/Accurate • <i>Application</i> <ul style="list-style-type: none"> • Legibility • Completed 	0-8	9-16	17-25	
Knowledge of the floriculture industry/job <ul style="list-style-type: none"> • Tell me about yourself • What skills do you have for this job? • What are your experiences relating to this job? • Why should I hire you over someone else? 	0-6	7-12	13-20	
Response to questions <ul style="list-style-type: none"> • What are your weaknesses? • Where do you see yourself in the next 5 years? • BONUS: Would you hire this person? 	0-4	5-8	9-14	
Personality <ul style="list-style-type: none"> • Confidence • Enthusiasm • Appearance 	0-5	6-10	11-15	
Poise <ul style="list-style-type: none"> • Posture • Closure (“Thank you.”) • Asks for the job or a decision date 	0-5	6-10	11-15	
Total Score: 100				

 Judge’s Name

 Judge’s Signature

 Date

**Floriculture
 Telephone Sales Practicum Scorecard**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Possible Score	Needs Improvement	Good	Excellent	Member Score
Telephone Usage	70				
• Introduction		0-2	3-4	5	
• Voice		0-2	3-5	6-7	
• Personality		0-4	5-8	9-12	
• Information Gathered		0-6	7-12	13-18	
• Evidence of Product Knowledge		0-4	5-8	9-14	
• Closing of Order		0-4	5-8	9-14	
Written Order	30				
• Delivery Instructions		0-2	3-4	5	
• Description of Floral Items		0-2	3-4	5	
• Billing Information		0-2	3-4	5	
• Card Message		0-2	3-4	5	
• Neatness and Completeness		0-2	3-4	5	
• Correct Computation		0-2	3-4	5	
Total Score:	100				

Judge's Name

Judge's Signature

Date

**Floriculture
Selling One-on-One Practicum Scorecard**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Took initiative	0-5	6-10	11-16	
Communicated effectively	0-5	6-10	11-16	
Exhibited ambition and efficiency	0-6	7-12	13-20	
Diplomatic and courteous	0-6	7-12	13-20	
Knew merchandise, prices and policies	0-4	5-8	9-14	
Closed sale properly	0-4	5-8	9-14	
Total Score:	100			

Judge's Name

Judge's Signature

Date

Floriculture Plant Potting Practicum Scorecard

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Possible Score	Needs Improvement	Good	Excellent	Member Score
Potting Process	52				
• Selection cuttings		0-3	4-6	7-10	
• Filling pot with soil		0-1	2-3	4	
• Placing of cuttings		0-2	3-4	5-6	
• Covering cutting rooted ends		0-6	7-12	13-18	
• Labeling of pot		0-3	4-6	7-9	
• Watering of potted cuttings		0-2	3-4	5	
Potting Product	23				
• Depth of planting		0-2	3-4	5	
• Correct soil level in pot		0-2	3-4	5	
• Cutting arrangement & angle		0-2	3-4	5	
• Firmness of soil		0-1	2-3	4	
• General appearance (free from handling damage)		0-1	2-3	4	
Total Possible:	75				

Judge's Name_____
Judge's Signature_____
Date

**Floriculture
Making a Dish Garden Scorecard**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Selection of products	0-2	3-5	6-8	
Preparation of plant materials	0-2	3-5	6-7	
Use of growing media	0-3	4-6	7-10	
Use of other materials	0-4	5-8	9-12	
Design	0-5	6-10	11-15	
Attractiveness	0-4	5-9	10-13	
Pricing	0-3	4-6	7-10	
Total Score:	75			

Judge's Name

Judge's Signature

Date

**Floriculture
Dish Garden Itemized List of Costs**

Name: _____

Team No.: _____

State: _____

Member No.: _____

Plant Material	Quantity Used	Unit Cost	Total

Total Plant Material Cost _____

Other	Quantity Used	Unit Cost	Total

Total Other Materials Cost _____

Total Plant Material Cost	
Total Other Material Cost	
Container Cost	
Total Dish Garden Cost	

**Floriculture
Making a Product Display Scorecard**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Creates interest	0-3	4-6	7-9	
Attractiveness	0-3	4-6	7-10	
Central theme	0-2	3-5	6-8	
Sales appeal	0-5	6-10	11-15	
Design	0-5	6-10	11-16	
Color harmony	0-3	4-6	7-9	
Focal point	0-2	3-5	6-8	
Total Score:	75			

Judge's Name

Judge's Signature

Date

**Floriculture
Making and Packing a Corsage Scorecard**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Possible Points	Members Score
Wiring and taping	15	
Use of ribbon	10	
Design	17	
Wear-ability	14	
Packaging	7	
Pricing	12	
Total Points	75	

Judge's Name

Judge's Signature

Date

**Floriculture
Corsage Itemized List of Costs**

Name: _____

Team No.: _____

State: _____

Member No.: _____

Flower/Foliage	Quantity Used	Unit Cost	Total

Total Flower/Foliage Material Cost _____

Other	Quantity Used	Unit Cost	Total

Total Other Materials Cost _____

Total Flower/Foliage Material Cost	
Total Other Material Cost	
Total Arrangement Cost*	

**Floriculture
Asexual Plant Propagation Scorecard**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Possible Points	Members Score
Selection of cutting	12	
Making cuttings	15	
Preparation of cuttings for sticking in growing media	10	
Use of rooting hormone	6	
Selection of growing media	12	
Sticking of cuttings in growing media	8	
Response to questions	12	
Total Points	75	

Judge's Name

Judge's Signature

Date

**Floriculture
Control of Plant Disorders Scorecard
(For Plants with Insect or Disease Disorders)**

Name: _____ **Team No.:** _____

State: _____ **Member No.:** _____

	Needs Improvement	Good	Excellent	Member Score
Diagnosis of problem	0-4	5-8	9-14	
Prescription of treatment	0-4	5-8	9-14	
Preparation of treatment	0-5	6-10	11-16	
Application of treatment	0-5	6-10	11-16	
Followed recommended safety practices	0-5	6-10	11-15	
Total Score:	75			

Judge's Name

Judge's Signature

Date

Floriculture
Identifying and Prescribing Treatment for Plant Disorders Scorecard
(For Plants with Nutritional or Environmental Disorders)

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Diagnosis of problem	0-4	5-8	9-12	
Description of problem	0-5	6-10	11-15	
Discussion of problem	0-6	7-12	13-18	
Prescription of treatment	0-6	7-12	13-18	
Personality	0-4	5-8	9-12	
Total Score:	75			

 Judge's Name

 Judge's Signature

 Date

Floriculture Pinching Plants Scorecard

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Selection of plant part to pinch	0-5	6-10	11-16	
Use of proper procedures in making pinches	0-6	7-12	13-20	
Make of proper hard pinches	0-4	5-8	9-12	
Made proper soft pinches	0-4	5-8	9-12	
Overall effect of making pinches	0-5	6-10	11-15	
Total Score:	75			

Judge's Name

Judge's Signature

Date

**Floriculture
Hazardous Situation Scorecard**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Utilize proper personal safety precautions	0-6	7-12	13-20	
Utilize proper safety procedures in clearing up the situation	0-8	9-16	17-25	
Proper disposal of problem materials	0-6	7-12	13-20	
Utilize proper follow-up procedures	0-3	4-6	7-10	
Total Score:	75			

Judge's Name

Judge's Signature

Date

Floriculture Customer Complaint Scorecard

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Obtained clear understanding of complaint	0-3	4-6	7-10	
Restate complaint in less negative terms	0-2	3-5	6-8	
Changed complaint into question	0-2	3-5	6-8	
Explored alternative solutions	0-6	7-12	13-20	
Solved problem	0-5	6-10	11-15	
Exhibited a pleasing personality	0-4	5-8	9-14	
Total Score:	75			

Judge's Name

Judge's Signature

Date

**Floriculture
Media Selling Practicum Scorecard
(Written)**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Needs Improvement	Good	Excellent	Member Score
Identified target group	0-2	3-5	6-8	
Informed the reader	0-3	4-6	7-10	
Appeared in good taste	0-3	4-6	7-10	
Easy to read	0-3	4-6	7-10	
Presented one idea	0-5	6-10	11-15	
Included only the essentials	0-4	5-8	9-12	
Proper use of space	0-3	4-6	7-10	
Total Score:	75			

Judge's Name

Judge's Signature

Date

**Floriculture
Media Selling Practicum Scorecard
(Electronic)**

Name: _____

Team No.: _____

State: _____

Member No.: _____

	Possible Score	Needs Improvement	Good	Excellent	Member Score
Ad Information	36				
• Identified target group		0-2	3-5	6-8	
• Informed the listener		0-2	3-5	6-8	
• Presented one idea		0-2	3-5	6-7	
• Contained essential information		0-2	3-5	6-7	
• Appealed to the listener		0-2	3-4	5-6	
Camera Performance	39				
• Voice		0-3	4-6	7-10	
• Personality		0-4	5-8	9-12	
• Diplomatic and courteous		0-2	3-5	6-9	
• Enthusiastic about product		0-2	3-5	6-8	
Total Possible:	75				

Judge's Name

Judge's Signature

Date

Floriculture Team Activity Scorecard

Name: _____ Team No.: _____

State: _____

	Points Possible	Points Earned
Established team leadership role	15	
• No leadership role(s) were established <i>(0 points)</i>		
• One member seemed to assume leadership <i>(10 points)</i>		
• One member seemed to assume leadership and others cooperated <i>(15 points)</i>		
Member participation in planning activity	35	
• No member discussion occurred before work began <i>(0 points)</i>		
• Limited member discussion occurred before work began <i>(24 points)</i>		
• All members participated in discussion before work began <i>(35 points)</i>		
Developed a workable plan	40	
• Duties were not assigned and participation varied <i>(0 points)</i>		
• Duties were assigned and all had near equal parts <i>(26 points)</i>		
• Duties were assigned and all had equal parts <i>(40 points)</i>		
Membership responsibilities were outlined and assigned	15	
• Responsibilities were not verbally assigned <i>(0 points)</i>		
• Responsibilities were assigned with little interaction <i>(10 points)</i>		
• Responsibilities were assigned with interaction between members <i>(15 points)</i>		
Material was organized prior to commencing activity	15	
• Material was left as presented until needed <i>(0 points)</i>		
• Most material was organized <i>(10 points)</i>		
• Material was organized and distributed <i>(15 points)</i>		
Member participation in carrying out activity functions	30	
• One or more members had almost no participation <i>(0 points)</i>		
• All members participated <i>(20 points)</i>		
• All members participated with leadership provided <i>(30 points)</i>		
Followed proper procedures in carrying out activity	30	
• Some activities resulted in completed product <i>(0 points)</i>		
• Most activities resulted in completed product <i>(20 points)</i>		
• All activities resulted in completed product <i>(30 points)</i>		
Quality of activity product	20	
• Products below industry standard <i>(0-6 points)</i>		
• Products meet minimum industry standards <i>(7-12 points)</i>		
• Products exceed minimum industry standard <i>(13-20 points)</i>		
TOTAL POINTS	200	

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.			Social Studies: 7b and 7g
	ABS.01.01.01.a. Recognize principles of capitalism as related to	selling, floral arrangement, corsage, dish garden	
ABS.01.02. Performance Indicator: Apply principles of entrepreneurship in businesses.			Social Studies: 7d
	ABS.01.02.01.b. Classify the characteristics of successful entrepreneurs in AFNR businesses.	selling	
ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.			Language Arts: 12; Social Studies: 7f
	ABS.02.03.01.c. Implement management approaches to assure efficiency and profitability.	team activity	
ABS.06.04. Performance Indicator: Develop specific tactics to market AFNR products and services.			Social Studies: 7b, 7g and 7h
	ABS.06.04.01.b. Develop advertising campaigns that promote products and services.	media selling, product display	
ABS.06.05. Performance Indicator: Merchandise products and services to achieve specific marketing goals.			Language Arts: 4; Social Studies: 7b and 7d
	ABS.06.05.01.c. Monitor marketing approaches to determine effectiveness in goal achievement and make needed changes in such approaches.	product display, sales	
ABS.07.01. Performance Indicator: Prepare a step-by-step production plan that identifies needed resources.			Language Arts: 4, 5 and 8
	ABS.07.01.01.c. Adapt production processes based on changing product characteristics.	problem solving	
BS.02.04. Performance Indicator: Safely manage biological materials, chemicals and wastes used in the laboratory.			Science: B2, B3, F4 and F5; Language Arts: 7
	BS.02.04.01.a. Prepare simple chemical solutions using standard operating procedures.	plant disorders/diseases, hazardous situations	

ESS.03.02. Performance Indicator: Apply soil science principles to environmental service systems.		Science: B2 and D2; Social Studies: 3k
ESS.03.02.02.b. Relate the activities of microorganisms in soil to environmental service systems.	plant disorders/diseases, hazardous situations, general knowledge exam	
ESS.03.02.03.b. Identify the physical qualities of the soil that determine its use for environmental service systems.	potting, asexual propagation, plant disorders/diseases, general knowledge exam	
ESS.03.05. Performance Indicator: Apply chemistry principles to environmental service systems.		Science: B2, B3 and F4
ESS.03.05.01.c. Apply standard operating procedures for use of chemicals in environmental service systems.	plant disorders/diseases, hazardous situations	
ESS.04.02. Performance Indicator: Manage safe disposal of all categories of solid waste.		Science: F1, F4 and F5
ESS.04.02.01.b. Evaluate environmental hazards created by different types of solid waste, solid waste accumulation and solid waste disposal.	hazardous situations, plant disorders/diseases	
ESS.04.05. Performance Indicator: Manage hazardous materials to assure a safe facility and to comply with applicable regulations.		Science: F4 and F5
ESS.04.05.01.c. Describe the procedures for the treatment and disposal of hazardous materials and hazardous waste.	hazardous situations	
ESS.06.02. Performance Indicator: Maintain tools, equipment and machinery in safe working order for tasks in environmental service		
ESS.06.02.01.b. Operate equipment and machinery in accordance with manufacturers' instructions and OSHA standards, specifically addressing personal protective equipment and proper machine guarding.	hazardous situation, team activity, corsage, dish garden, floral arrangements, plant disorders/diseases	
NRS.01.01. Performance Indicator: Apply knowledge of natural resource components to the management of natural resource systems.		Math: 5a; Science: C4 and F3; Social Studies: 3h and 3k
NRS.01.01.01.a. Identify natural resources.	plant ID, general knowledge exam	
NRS.01.02. Performance Indicator: Classify natural resources.		Science: F3
NRS.01.02.01.b. Identify trees and other woody plants.	plant ID	
NRS.01.02.02.b. Identify herbaceous plants.	plant ID	

NRS.03.01. Performance Indicator: Produce, harvest, process and use natural resource products.		Science: F3
	NRS.03.01.01.a. Describe forest harvesting methods.	problem solving, general knowledge exam (harvesting of flowers)
PS.01.01. Performance Indicator: Classify agricultural plants according to taxonomy systems.		Science: C3
	PS.01.01.01.c. Classify agricultural plants according to the hierarchical classification system, life cycles, plant use and as monocotyledons or dicotyledons.	plant ID, general knowledge exam, problem solving
	PS.01.01.02.c. Identify agriculturally important plants by scientific names.	plant ID
PS.01.02. Performance Indicator: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.		Science: B6, C3 and C5
	PS.01.02.01.c. Apply the knowledge of cell differentiation and the functions of the major types of cells to plant systems.	general knowledge exam, potting plants, asexual propagation
	PS.01.02.02.c. Relate the active and passive transport of minerals into and through the root system to plant nutrition.	general knowledge exam, problem solving, plant disorders/diseases
	PS.01.02.03.c. Apply concepts associated with translocation to the management of plants.	general knowledge exam
	PS.01.02.04.c. Explain the relationships between leaf structure and functions and plant management practices.	general knowledge exam, problem solving, asexual propagation
	PS.01.02.05.c. Apply the knowledge of flower structures to plant breeding, production and use.	asexual propagation, general knowledge exam, potting plant
	PS.01.02.06.c. Apply the knowledge of seed and fruit structures to plant culture and use.	general knowledge exam, problem solving

PS.01.03. Performance Indicator: Apply knowledge of plant physiology and energy conversion to plant systems.		Science: B6 and C5
	PS.01.03.01.c. Explain the light-dependent and light-independent reactions that occur during photosynthesis and apply the knowledge to plant management.	general knowledge exam, problem solving
	PS.01.03.02.c. Explain the four stages of aerobic respiration and relate cellular respiration to plant growth, crop management and post-harvest handling.	general knowledge exam, asexual propagation
	PS.01.03.03.c. Relate the principles of primary and secondary growth to plant systems.	potting plants, pinching, general knowledge exam
	PS.01.03.04.c. Select plant growth regulators to produce desired responses from plants.	general knowledge exam, problem solving, plant disorders/diseases
PS.02.01. Performance Indicator: Determine the influence of environmental factors on plant growth.		Science: C6
	PS.02.01.01.c. Evaluate plant responses to varied light color, intensity and duration.	general knowledge exam, problem solving
	PS.02.01.02.c. Design, implement and evaluate a plan to maintain optimal conditions for plant growth.	general knowledge exam, problem solving, potting plants
PS.02.02. Performance Indicator: Prepare growing media for use in plant systems.		Science: B2
	PS.02.02.01.b. Describe the physical characteristics of growing media and explain the influence they have on plant growth.	asexual propagation, potting plants, general knowledge exam, plant disorders/diseases
	PS.02.02.02.b. Discuss how soil drainage and water-holding capacity can be improved.	general knowledge exam, plant disorders/diseases
PS.02.03. Performance Indicator: Develop and implement a fertilization plan for specific plants or crops.		Math: 4B; Science: A2
	PS.02.03.01.c. Monitor plants for signs of nutrient deficiencies and prepare a scouting report.	plant disorders/diseases
	PS.02.03.02.a. Discuss the influence of pH and cation exchange capacity on the availability of nutrients.	plant disorders/diseases, general knowledge exam
	PS.02.03.04.a. Identify fertilizer sources of essential plant nutrients, explain fertilizer formulations and describe different methods of fertilizer application.	plant disorders/diseases, general knowledge exam

PS.03.01. Performance Indicator: Demonstrate plant propagation techniques.		Science: C2
PS.03.01.01.a. Explain pollination, cross-pollination and self-pollination of flowering plants.	general knowledge exam	
PS.03.01.02.a. Demonstrate sowing techniques and provide favorable conditions for seed germination.	general knowledge exam	
PS.03.01.03.c. Evaluate asexual propagation practices based on productivity and efficiency.	asexual propagation, general knowledge exam	
PS.03.02. Performance Indicator: Develop and implement a plant management plan for crop production.		Science: C5 and C6; Language Arts: 7
PS.03.02.01.b. Inspect propagation material for evidence of pests or disease.	plant disorders/diseases	
PS.03.02.02.c. Prepare growing media for planting.	potting, asexual propagation, general knowledge exam	
PS.03.02.05.a. Explain the reasons for controlling plant growth.	general knowledge exam, pinching plants	
PS.03.03. Performance Indicator: Develop and implement a plan for integrated pest management.		Science: C4 and C6; Language Arts: 7
PS.03.03.01.b. Identify major local weeds, insect pests and infectious and noninfectious plant diseases.	plant disorders/diseases, general knowledge exam	
PS.03.03.02.c. Predict pest and disease problems based on environmental conditions and life cycles.	plant disorders/diseases, general knowledge exam	
PS.03.03.03.c. Employ pest management strategies to manage pest populations, assess the effectiveness of the plan and adjust the plan as needed.	plant disorders/diseases, general knowledge exam	
PS.03.03.04.b. Explain procedures for the safe handling, use and storage of pesticides.	hazardous materials, general knowledge exam	
PS.04.01. Performance Indicator: Create designs using plants.		Language Arts: 12
PS.04.01.01.c. Select plants, hard goods, supplies and other materials for use in a design based on a range of criteria.	corsage, team activity, dish garden, floral arrangement, growing procedure, general knowledge exam	
PS.04.01.02.c. Create and implement designs by following established principles of art.	floral arrangement, team activity, corsage, dish garden	

CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	team activity, practicums, general knowledge exam	
CS.01.01.02.c. Assess outcomes to determine success for a task.	corsage, team activity, dish garden, floral arrangement, growing procedure, job interview, sales	
CS.01.01.03.c. Implement an effective project plan.	team activity, dish garden, floral arrangement, corsage	
CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	all event activities	
CS.01.01.06.c. Develop strengths and talents of team members so that all can achieve success.	team activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12; Social Studies: 4h
CS.01.02.02.c. Engage others in conversations to respond to an obstacle when completing a task.	team activity, sales, job interview	
CS.01.02.04.c. Evaluate the effectiveness of team members.	team activity	
CS.01.06. Performance Indicator: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.		Science: A4; Language Arts: 8; Social Studies: 4h
CS.01.06.03.c. Use problem solving strategies to solve a professional or personal issue.	problem solving	
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12; Social Studies: 4a
CS.02.03.03.c. Demonstrate employability skills for a specific career.	job interview	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C; Science: A4; Language Arts: 4, 8
CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	media selling, problem solving	
CS.02.04.02.c. Implement effective problem solving strategies.	problem solving	
CS.02.04.03.c. Demonstrate the skills needed to negotiate with others.	customer complaint, sales	

CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.02.c. Demonstrate effective use of a resume as part of an effort to obtain a job.	job interview	
CS.03.01.03.c. Make effective business presentations.	sales, media selling, customer complaint	
CS.05.01. Performance Indicator: Manage organizational structures and processes to better serve customers.		Social Studies: 7a
CS.05.01.01.c. Implement a plan to manage relationships with both internal and external customers.	team activity, sales	
CS.06.04. Performance Indicator: Examine health risks associated with a particular skill to better develop personnel safety guidelines.		Science: F1 and F5
CS.06.04.01.c. Implement a plan to mitigate the level of contamination or injury identified in the workplace.	hazardous situation, general knowledge exam	
CS.07.01. Performance Indicator: Apply safety/health practices to AFNR worksites.		Science: F1 and F5
CS.07.01.01.b. Use appropriate personal protective equipment for a given task.	hazardous situation, general knowledge exam	
CS.07.03. Performance Indicator: Follow appropriate procedures in case of an emergency.		
CS.07.03.01.b. Develop various emergency response plan requirements for a facility.	hazardous situation	
CS.07.04. Performance Indicator: Assess workplace safety.		Science: F5
CS.07.04.01.c. Apply general workplace safety precautions/procedures.	hazardous situation, general knowledge exam	
CS.07.04.02.c. Evaluate general workplace safety precautions/procedures for compliance with regulations.	hazardous situation, general knowledge exam	
CS.08.01. Performance Indicator: Evaluate and select the appropriate tool to perform a given task.		
CS.08.01.01.c. Use tools and equipment appropriately to complete a specific task.	floral arrangement, corsage, sales, dish garden	
CS.09.02. Performance Indicator: Apply skills with computer software to accomplish a variety of business activities.		Math: 6C; Science: A3
CS.09.02.01.b. Use basic software systems such as spreadsheet and word processing to complete a task.	job interview, media selling	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

4. Standard and Expectations: Measurement
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
6. Standard and Expectations: Problem Solving
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A2. Design and conduct scientific investigations.
 - A3. Use technology and mathematics to improve investigations and communications.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
- B. Content Standard: Physical Science
 - B2. Structure and properties of matter.
 - B3. Chemical reactions.
 - B6. Interactions of energy and matter.
- C. Content Standard: Life Science
 - C2. Molecular basis of heredity.
 - C3. Biological evolution.
 - C4. Interdependence of organisms.
 - C5. Matter, energy and organization in living systems.
 - C6. Behavior of organisms.
- D. Content Standard: Earth and Space Science
 - D2. Geochemical cycles.
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F3. Natural resources.
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
7. Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

3. Thematic Strand: People, Places and Environments
 - 3h. examine, interpret and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas and ecosystem changes;
 - 3k. propose, compare and evaluate alternative policies for the use of land and other resources in communities, regions, nations and the world.
4. Thematic Strand: Individual Development and Identity
 - 4a. articulate personal connections to time, place and social/cultural systems;
 - 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
 - 4h. work independently and cooperatively within groups and institutions to accomplish goals;
7. Thematic Strand: Production, Distribution, and Consumption
 - 7a. explain how the scarcity of productive resources (human, capital, technological and natural) requires the development of economic systems to make decisions about how goods and services are to be produced and distributed;
 - 7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;
 - 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;
 - 7d. describe relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions and corporations;
 - 7f. compare how values and beliefs influence economic decisions in different societies;
 - 7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;

National FFA Food Science and Technology Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The food science and technology career development event is designed to promote learning activities in food science and technology related to the food industry and to assist students in developing practical knowledge of principles used in a team decision-making process.

II. Objectives

- A. To encourage FFA members to gain an awareness of career and professional opportunities in the field of food science and technology.
- B. To provide FFA members with the opportunity to experience group participation and leadership responsibilities in a competitive food science and technology program.
- C. To help FFA members develop technical competence and personal initiative in a food science and technology occupation.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Team make-up- The team will consist of four members with all four members' scores being totaled for the team score.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Any participant in possession of an electronic device, except a calculator, in the event area is subject to disqualification.

V. Event Format

- A. The food science and technology career development event will consist of four activities: a team product development project, an objective test, a food safety and quality practicum and a sensory evaluation practicum.
- B. All team members will participate in all of the activities. There will be a possible 1,000 total points per team. The team product development project will be worth 400 points per team, the objective test will be worth 50 points per individual and each of the two practicums will be worth 50 points per individual.
- C. *Allergy Information:* Food products used in this event may contain or come in contact with potential allergens. Advisors must submit a special needs request form for participants with any allergies with certification. The event committee will make all reasonable efforts to accommodate students with food allergies.

- D. Each participant must provide:
1. A clipboard that is clean and free of notes.
 2. Two sharpened No. 2 pencils.
 3. Electronic calculator- Calculators used in this event should be non-programmable and non-graphing. Calculators should have only basic functions such as addition, subtraction, multiplication, division, equals, percent, square root, +/- key. No other calculators are allowed to be used during the event including cell phones.
 4. Teams and/or individuals will not be permitted to use electronic media during the event. This includes but is not limited to cell phones, mp3 players, cameras, etc.
- E. Team Product Development Project
1. Each team will receive a product development scenario describing the need for a new or redesigned product that appeals to a potential market segment. The team's task will be to design a new food product or reformulate an existing product based on information contained within the product development scenario.
 2. The team will be responsible for understanding and using the following concepts:
 - a. Formulation of product to meet specified requirements.
 - b. Package design and labeling requirements to reflect the developed product.
 - c. Nutritional fact development.
 - d. Production and packaging equipment.
 - e. Quality control and safety programs, i.e., good manufacturing practices (GMP) and hazard analysis critical control points (HACCP).
 - f. Formulation and costing (ingredient, packaging, etc.).
 - g. Current food trends.
 - h. Market segments.
 3. Each team will be provided with packaging materials, ingredients and necessary ingredient information in order to develop, label and package a product.
 4. The team will have 60 minutes to respond to the product development scenario and reformulate or develop a product, calculate a nutritional label, develop the ingredient statement and information panel and develop the front or principle display panel to reflect the new product.
 5. After this time period, each team member will contribute to a ten minute oral presentation delivered to a panel of judges. No electronic media will be used in the presentation.
 6. Following the presentation there will be a ten minute question and answer period with the judges in which each team member is expected to contribute. All materials will be collected after the presentation.
 7. Total time involved for each team will be 80 minutes. Total number of points possible for this activity will be 400 points.
 8. Product development scenarios will describe a category, platform and market. These may include but are not limited to the following categories, platforms and markets listed below.
 - a. Categories
 - i. Cereal
 - ii. Snacks
 - iii. Meals
 - iv. Side dishes
 - v. Beverages
 - vi. Supplements
 - vii. Condiments
 - viii. Desserts

- b. Platform
 - i. Frozen
 - ii. Refrigerated
 - iii. Shelf-stable
 - iv. Convenience
 - v. Ready to eat
 - vi. Heat and serve
 - c. Market (domestic and international)
 - i. Retail
 - ii. Wholesale
 - iii. Food service
 - iv. Convenience store
9. Example of scenario product from past events:
- a. Ready to eat breakfast cereal for retail
 - b. Refrigerated frozen cookie dough for wholesale
 - c. Yogurt parfait for convenience store
 - d. Refrigerated, heat and serve pizza for retail
 - e. Shelf stable, dried fruit snack mix for retail
10. Evaluation criteria and points for team activity can be found on the team product development project scorecard at the end of this chapter.
- F. Individual Activities
1. Objective Test
- a. The objective questions administered during the food science and technology examination will be designed to determine each team member's understanding of the basic principles of food science and technology. The test will be primarily based on the list of references at the end of this chapter.
 - b. Team members will work individually to answer each of the 50 questions. Each person will have 60 minutes to complete the examination. Each question will be worth 1 point, for a total of 50 points.
2. Practicums—Each team member will complete all parts of both practicums.
- a. Food Safety and Quality Practicum- 50 points
 - i. *Customer Inquiry*- Each participant will be given five scenarios representing general consumer inquiries. Participants must determine if the consumer inquiry reflects a quality or safety issue and determine if it is a biological, chemical or physical concern or hazard. (25 points)
 - ii. *Food Safety/Sanitation*- Each participant will be given ten situations (e.g., photos, videos, written scenarios, live demonstrations or a combination). A numbered list of problems will be provided at the beginning of this practicum segment. The list will contain concepts such as good manufacturing practices (GMP), sanitation, food handling/storage and other pre-requisite programs. Participants will identify if there is a violation presented in the situation. If participants decide that there is a violation, they will indicate the number of the violation from the list of problems provided. (25 points)
 - b. Sensory Evaluation Practicum- 50 points
 - i. *Triangle Tests*- Three different triangle tests will be conducted. Participants are expected to identify the different samples through flavor, aroma, visual cues and/or textural differences. Answers will be given on the sheet provided. No list will be provided for this segment of the practicum. Each test is worth 5 points. (15 points)

- ii. *Flavor Identification*- Three samples will be tasted. Participants will be expected to discern the flavor of each sample by taste. Flavors may include but are not limited to fruits, vegetables, florals, savory, sweeteners, etc. Each sample is worth 5 points. (15 points)
- iii. *Aromas*- Each participant will be asked to identify four different aromas from vials provided at each station and record the answer on the sheet provided. A list of potential aromas will be provided to each person. Each sample is worth 5 points. (20 points)

Aromas

Cinnamon	Grape
Chocolate	Garlic
Maple	Peppermint
Oregano	Clove
Basil	Nutmeg
Lemon	Ginger
Lime	Molasses
Orange	Wintergreen
Vanilla	Banana
Smoke (liquid)	Coconut
Cherry	Lilac
Pine	Raspberry
Onion	Strawberry
Butter	Licorice (anise)
Menthol	

VI. Scoring

Section	Time Allowed	Section Points	Total Points
Individual Activities			
Objective Test	60 minutes		50
Food Safety and Quality Practicum			50
Customer Inquiry		25	
Food Safety/Sanitation		25	
Sensory Evaluation			50
Triangle Tests		15	
Flavor Identification		15	
Aromas		20	
Total Individual Points			150
Team Product Development Project	80 minutes		400
Package Design		100	
Product Development		250	
Response to Judges' Questions		50	
Individual Points (150 pts x 4 members)			600
TOTAL TEAM POINTS			1000

VII. Tiebreakers

- A. Team:** Should a tie occur in the overall team placing, the tie will be broken by the highest team product development project score. If this score does not break the tie, then the highest number of total points earned from the objective test (adding all four team member scores) will break the tie. If a third tiebreaker is needed, the total points earned by the team in the food safety and quality practicum will be used.
- B. Individual:** To identify the high individual for this event in case of a tie, the highest objective test score will be used as the first tiebreaker, followed by the highest food safety and quality practicum score as the second tiebreaker.

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at an awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

IX. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog—CDE Questions and Answers
<http://shop.ffa.org/cde-qas-c1413.aspx>

Mehas and Rodgers, 5th Edition, 2006. Kay Yockey Mehas and Sharon Lesley Rodgers, Glencoe/McGraw, New York.

Food Science and Safety, 2nd Edition, 2004, George J. Seperich, Pearson Publishers

Principles of Food Sanitation, 5th Edition, 2006, Norman G. Marriott and Robert B. Gravani, Springer Science + Business Media, Inc.

Institute of Food Technology website, <http://www.ift.org>

USDA Food Safety and Inspection Service website, <http://www.fsis.usda.gov>

Penn State Kitchen Chemistry: Experiments, resources and materials for educators and students, <http://foodscience.psu.edu/public/kitchen-chemistry>

Food Safety Education, http://www.fsis.usda.gov/food_safety_education/for_kids_&_teens/index.asp

Partnership for Food Safety Education, <http://www.fightbac.org>

FoodSafety.gov, <http://www.foodsafety.gov>

**Food Science and Technology CDE
Team Product Development Project Scorecard**

State: _____

Team #: _____

Package Design	Possible Score	Team Score
o Use and development of nutrition label		
o Required information present	10	
o Correct calculations	10	
o Correct organization	10	
o Use and development of the ingredient statement		
o Present	10	
o Correct order and all ingredients included	10	
o Location on package	10	
o Use of principle display panel to convey information		
o All required components	15	
o Correct information	15	
o Location on package	10	
Package Design Subtotal	100	
Product Development Oral Presentation	Possible Score	Team Score
• Cost of Goods Sold o Costing o Accuracy	20	
• Nutrition o Communicate nutritional quality of product o Apply nutritional quality to health benefits	20	
• Target Audience o Identification of key consumer	20	
• Quality Control o Key quality attribute of consistent product o Examples: Flavor, color, texture, net weight, size, etc.	20	
• Marketing & Sales o Communicated with future users o Promotions o Market location	20	

<ul style="list-style-type: none"> • Product <ul style="list-style-type: none"> o Appearance o Texture o Shelf-life o Interaction of ingredients o Creativity 	20	
<ul style="list-style-type: none"> • Processing <ul style="list-style-type: none"> o Description of how to make product o Equipment o Flow diagram, unit operations o People 	20	
<ul style="list-style-type: none"> • Packaging <ul style="list-style-type: none"> o Materials used o Appropriate for use of product o Creativity 	20	
<ul style="list-style-type: none"> • Food Safety <ul style="list-style-type: none"> o Discussed potential hazards/concerns associated with products 	20	
<ul style="list-style-type: none"> • Formulation Concepts 		
<ul style="list-style-type: none"> o How well did product match concept/product development scenario 	30	
<ul style="list-style-type: none"> o Category 	5	
<ul style="list-style-type: none"> o Platform 	5	
<ul style="list-style-type: none"> • Quality of Presentation 		
<ul style="list-style-type: none"> o Equitable participation of team members 	5	
<ul style="list-style-type: none"> o Organization 	5	
<ul style="list-style-type: none"> o Use of time allowed 	5	
<ul style="list-style-type: none"> o Professionalism 	5	
<ul style="list-style-type: none"> o Presence & enthusiasm 	5	
<ul style="list-style-type: none"> o Mannerisms 	5	
Product Development Oral Presentation Subtotal	250	
	Possible Score	Team Score
Response to Judges' Questions		
<ul style="list-style-type: none"> • Team Participation in Question Response <ul style="list-style-type: none"> o All team members contributed 	25	
<ul style="list-style-type: none"> • Quality of Response <ul style="list-style-type: none"> o Accuracy o Ability to answer o Originality o Knowledge 	25	
Response to Judges' Questions Subtotal	50	
TOTAL POINTS	400	

Food Science and Technology CDE Customer Inquiry Scorecard

Name: _____ State: _____

Participant #: _____

	Points Possible	Points Earned
Scenario # 1 This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: Bi- (Check only one) ological _____ Chemical _____ Physical _____	3	
Scenario # 2 This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: Bi- (Check only one) ological _____ Chemical _____ Physical _____	3	
Scenario # 3 This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: Bi- (Check only one) ological _____ Chemical _____ Physical _____	3	
Scenario # 4 This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: Bi- (Check only one) ological _____ Chemical _____ Physical _____	3	
Scenario # 5 This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: Bi- (Check only one) ological _____ Chemical _____ Physical _____	3	
TOTAL	25	

Food Science and Technology CDE Food Safety and Sanitation Scorecard

Name: _____ State: _____

Participant #: _____

Situation # 1 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

1a) Yes _____ 1b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 1c) _____

Situation # 2 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

2a) Yes _____ 2b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 2c) _____

Situation # 3 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

3a) Yes _____ 3b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 3c) _____

Situation # 4 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

4a) Yes _____ 4b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 4c) _____

Situation # 5 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

5a) Yes _____ 5b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 5c) _____

Situation # 6 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

6a) Yes _____ 6b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 6c) _____

Situation # 7 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

7a) Yes _____ 7b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 7c) _____

Situation # 8 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

8a) Yes _____ 8b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 8c) _____

Situation # 9 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

9a) Yes _____ 9b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 9c) _____

Situation # 10 – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

10a) Yes _____ 10b) No _____

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 10c) _____

TOTAL: _____ / 25 Possible Points

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
	ABS.04.01. Performance Indicator: Use accounting fundamentals to accomplish dependable bookkeeping and fiscal management.		Math: 1C, 5A, 5C Social Studies: 7h
	ABS.04.01.02.b. Use accounting information to estimate the cost of goods sold and margins on the goods.	team activity	
	ABS.06.01. Performance Indicator: Conduct appropriate market and marketing research.		Social Studies: 7b, 7h
	ABS.06.01.01.b. Apply benefit/cost analysis to marketing in AFNR businesses.	team activity	
	ABS.07.02. Performance Indicator: Develop a production and operational plan.		Language Arts: 4, 5, 6, 12
	ABS.07.02.02.b. Examine legal and industry requirements for a production facility.	team activity, exam	
	BS.03.01. Performance Indicator: Evaluate the application of genetic engineering to improve products of AFNR systems.		Math: 2C Science: A2, C2, E2, F4 Language Arts: 7 and 8
	BS.03.01.02.a. Describe enzymes, the changes they cause in foods and the physical and chemical parameters that affect enzymatic reactions.	exam	
	BS.03.02. Performance Indicator: Perform biotechnology processes used in AFNR systems.		Science: B3, C5, D1, E2 Language Arts: 4
	BS.03.02.02.a. Identify foods produced through fermentation.	exam	
	FPP.01.01. Performance Indicator: Evaluate the significance and implications of changes and trends in the food products and processing industry.		Science: F1 Language Arts: 7 and 8 Social Studies: 1g and 8c
	FPP.01.01.02.c. Determine appropriate industry response to consumer concerns to assure a safe and wholesome food supply.	consumer inquiry	
	FPP.01.02. Performance Indicator: Work effectively with industry organizations, groups and regulatory agencies affecting the food products and processing industry.		Language Arts: 12 Social Studies: 6c and 8f
	FPP.01.02.01.a. Explain the purposes of organizations that are part of or regulate the food products and processing industry.	exam	

FPP.02.02. Performance Indicator: Implement Hazard Analysis and Critical Control Point (HACCP) procedures to establish operating parameters.		Science: F5 Language Arts: 8
	FPP.02.02.01.a. Describe contamination hazards (physical, chemical and biological) associated with food products and processing.	consumer inquiry, exam
	FPP.02.02.02.a. Identify the seven principles of HACCP.	team activity, exam
FPP.02.03. Performance Indicator: Apply safety and sanitation procedures in the handling, processing and storing of food products.		Science: A2 and F5
	FPP.02.03.01.a. Explain techniques and procedures for the safe handling of food products.	team activity, exam, consumer inquiry, safety/sanitation
	FPP.02.03.02.b. Perform quality-assurance tests on food products.	sensory
FPP.03.01. Performance Indicator: Apply principles of science to food processing to provide a safe, wholesome and nutritious food supply.		Science: A2, B3 and F1
	FPP.03.01.02.b. Explain how the chemical and physical properties of foods influence nutritional value and eating quality.	team activity, exam
	FPP.03.01.05.b. Describe the purpose of common food additives.	exam
	FPP.03.01.06.c. Prepare and label foods according to the established standards of regulatory agencies.	team activity
	FPP.03.01.07.b. Plan and create a new food product.	team activity
FPP.04.03. Performance Indicator: Process, preserve, package and present food and food products for sale and distribution.		Math: 1C, 4A and 4B Science: F1
	FPP.04.03.01.c. Use weights and measures to formulate and package food products.	team activity, exam
	FPP.04.03.02.a. Explain methods and materials for processing foods for sale as fresh-food products.	team activity
	FPP.04.03.03.b. Explain the processes of food preservation methods.	team activity, exam
	FPP.04.03.04.a. Explain techniques for preparing ready-to-eat food products.	team activity
	FPP.04.03.05.b. Select and utilize packaging materials in storing processed foods and raw food products.	team activity
	FPP.04.03.06.a. Identify and explain storage conditions to preserve product quality.	team activity, exam

CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
	CS.01.01.01.c. Work independently and in group settings to accomplish a task.	all event
	CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	team activity
	CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	team activity
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
	CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	team activity, safety & quality
	CS.02.04.02.c. Implement effective problem solving strategies.	team activity, safety & quality
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
	CS.03.01.01.b. Select the appropriate form of technical and business writing or communication for a specific situation.	team activity
	CS.03.01.03.c. Make effective business presentations.	team activity
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
	CS.03.02.02.c. Use problem-solving skills.	team activity, sensory, safety & quality
CS.06.01. Performance Indicator: Observe required regulations to maintain/improve safety health and environmental management systems.		Science: F4 and F5 Social Studies: 3g
	CS.06.01.01.a. Examine major health, safety, and environmental management system components in AFNR organizations.	quality & safety, exam

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates.
2. Standard and Expectations: Algebra
 - 2C. Use mathematical models to represent and understand quantitative relationships.
4. Standard and Expectations: Measurement
 - 4A. Understand measurable attributes of objects and the units, systems and processes of measurement.
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
 - 5C. Develop and evaluate inferences and predictions that are based on data.
6. Standard and Expectations: Problem Solving
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A2. Design and conduct scientific investigations.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
 - A5. Recognize and analyze alternative explanations and models.
- B. Content Standard: Physical Science
 - B3. Chemical reactions.
- C. Content Standard: Life Science
 - C2. Molecular basis of heredity.
 - C5. Matter, energy and organization in living systems.
- D. Content Standard: Earth and Space Science
 - D1. Energy in the earth system.
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology.
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.
7. Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture
 - 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
 - 1g. construct reasoned judgments about specific cultural responses to persistent human issues;
3. Thematic Strand: People, Places and Environments
 - 3g. describe and compare how people create places that reflect culture, human needs, government policy and current values and ideals as they design and build specialized buildings, neighborhoods, shopping centers, urban centers, industrial parks and the like;
4. Thematic Strand: Individual Development and Identity
 - 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
 - 4h. work independently and cooperatively within groups and institutions to accomplish goals;
6. Thematic Strand: Power, Authority and Governance
 - 6c. analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security and balance competing conceptions of a just society;
7. Thematic Strand: Production, Distribution and Consumption
 - 7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;
 - 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;
8. Thematic Strand: Science, Technology and Society
 - 8c. analyze how science and technology influence the core values, beliefs and attitudes of society, and how the core values, beliefs and attitudes of society shape scientific and technological change;
 - 8f. formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.

National FFA Forestry Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The National FFA Forestry Career Development Event is designed to stimulate student interest and to promote forestry instruction in the agricultural education curriculum and to provide recognition for those who have demonstrated skills and competencies as a result of forestry instruction.

II. Objectives

- A. Ability to understand and use forestry terms.
- B. Ability to promote an understanding of the economic impact of the forest environment and the forest industry to the American economy.
- C. Ability to recognize sustainability (multiple use) opportunities in the forests.
- D. Ability to recognize environmental and social factors affecting the management of forests.
- E. Ability to identify major species of trees of economic importance to the United States and internationally.
- F. Ability to identify hand tools, equipment and their uses in forestry management.
- G. Ability to recognize and understand approved silvicultural practices in the United States.
- H. Ability to identify forest disorders.
- I. Ability to take a forest inventory.
- J. Ability to utilize marketing management strategies.
- K. Ability to recognize safety practices in forest management:

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. The team will consist of four individuals and **all four scores will count** toward the team score. The team score is comprised of the combined scores of each individual and the team activity in which all team members will participate.
- B. Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of weather. Participants should have rain gear, warm clothes and proper footwear. Each participant must provide the following safety equipment, and it must be worn while in the woods or the participant will be disqualified:
 - 1. Hard Hat
 - 2. Safety Glasses

- C. All other equipment including clipboard and pencils will be furnished for the event. Participants must use the tools and equipment provided.
- D. Participants must follow instructions from event staff for handling materials during the event. Any infraction of this rule will be sufficient to eliminate the team from the event.
- E. Observers will not be permitted in the event area while the event is in progress.
- F. No team, team member or team coach shall visit the event facilities to observe plant materials and facilities after September 1. Any team, team member or coach reported and proven to do so will cause the elimination of the team from the National FFA Forestry CDE.
- G. Participants will be assigned to group leaders who will escort them to various event-staging sites. Each participant is to stay with his/her assigned group leader throughout the event or until told to change leaders by the event superintendent.
- H. All participants will be given an identification number by which they will be designated throughout the event.
- I. Written Materials: All written materials will be furnished for the event. No written materials such as tests, problems and worksheets shall be removed from the event site.
- J. Any participant in possession of an electronic device in the event area is subject to disqualification.

V. EVENT FORMAT

A. Individual Activities

1. General Knowledge Exam - 100 points
 - a. Fifty (50) multiple-choice questions will be selected from areas of the forestry industry reflected in the event objectives. This phase of the event will test the participant's knowledge and understanding of basic principles of forestry.
 - b. Time: Each participant will be allowed 45 minutes to complete this phase of the event.
 - c. Scoring: Each answer has a value of 2 points for a total maximum score of 100 points.
2. Forestry Issues Interview - 100 points
 - a. Participants will communicate their knowledge and opinion about national or regional forestry issues through a personal interview with a judge. A list of general issue topics for participants to study will be provided prior to convention. The specific topic will be provided at the event.
 - b. Time: Each participant will have ten minutes to prepare and be allowed ten minutes to complete the interview.
 - c. Scoring: Scoring criteria are presented on the issues interview score card, which will be recorded by a judge.
3. Tree Identification - 100 points
 - a. Twenty (20) live specimens, pressed samples, fresh leaf samples and/or standing trees, from the list below will be displayed for participants to identify by common names. A number will designate each specimen.
 - b. Time: Each participant will be allowed 30 minutes to complete this phase.
 - c. Scoring: Five points will be given for each specimen that is correctly identified for a maximum of 100 points.
4. Tree Measurement—Timber Cruising for Board Volume - 100 points
 - a. Using the provided tree measurement tools, each participant will measure ten pre-numbered trees on a plot for board foot volume. The participant must record the DBH (Diameter Breast Height) to the nearest one-inch class and the merchantable height of each tree height rounded down to the nearest $\frac{1}{2}$ log. Volume tables will be provided at the event.

- b. The following minimum diameters and log length will be:

Minimum Saw Timber

DBH	10 inches
Top Diameter	10 inches DIB
Height	16 feet

- c. Merchantable height stops are estimated to the upper point on a tree where it becomes 10 inches in diameter or where a major fork in a tree stem occurs or where a limb has a diameter equal to $\frac{1}{2}$ of the diameter of the tree at that point.
- d. Time: Each participant will be allowed 30 minutes to complete this phase.
- e. Scoring: Thirty points will be given for the correct DBH and thirty points for the correct height. Forty points will be given for the correct volume per acre. Five points will be deducted for each 5 percent deviation (plus or minus) from the correct measured volume.
- B. Individual Practicums - 100 points each for total of 200 points per individual
- Participants will compete individually in two practicums from the following list. The event superintendent will designate two practicums to be completed by the participant. Each participant will have 30 minutes to complete each practicum.
1. Forest Management Evaluation - Timber Stand Improvements (TSI) and/or Thinning Practicum
- The trees selected and designated for use in this part of the event may be all of one species or a mixture of species.
 - An area will be selected and identified by ribbons, paint, rope, etc. It will contain 20 marked trees within a timber stand that needs thinning or some TSI work. All trees in the selected area will be considered as a forest management site, and the participants will score each marked tree using one of the following options:
 - Harvest - utilize the tree
 - Leave - the tree should remain in stand for a good reason
 - Deaden - Undesirable tree, not merchantable or beneficial to wildlife, should be deadened or cut down and left in woods
 - The participants will be given a situation concerning the forest management objectives of the stand selected. This information will be given to participants at the site before they start. Information that will be needed to help participants in their decisions will include:
 - Markets available
 - Wildlife considerations
 - Present condition of stand
 - Management plan
 - Scoring: A total of 100 points are possible for this practicum.
2. Equipment Identification Practicum
- Twenty-five (25) pieces of equipment from the list below will be displayed for participants to identify by technical names. Each piece of equipment will be designated by number.
 - Time: Each participant will be allowed 30 minutes to complete this phase.
 - Scoring: Four points will be given for each piece of equipment identified correctly for a total of 100 points.

3. Map Interpretation Practicum

- a. Participants will answer questions using a furnished United States Geological Survey topographic map. The participant should know legal description, recognize topographic map symbols, understand the meaning of map symbols, size and location of 40 acres or more in a parcel.
- b. Examples:
 - i. What is the legal description of the boxed area?
 - ii. What is the item located at this point?
 - iii. What is the acreage of the area enclosed?
 - iv. In what section is the city of Marshall located?
 - v. What is the elevation at this point?
- c. Legal descriptions will be written or described according to the public land survey system.
- d. Example: SE $\frac{1}{4}$ of NW $\frac{1}{4}$ of Section 3, T3N, R1E

4. Compass Practicum

- a. The participant will use a hand compass and pacing to the nearest full foot to simulate the determination of the property lines on a tract of timber. The participant will start at any point and record the compass reading and distance to the next point. Azimuth readings shall be recorded.
- b. Scoring: A total of 100 points are possible for this practicum. Partial credit will be given with a deduction of one point for each two degrees or two feet the participant is off the correct answer.

5. Chainsaw Part Identification, Troubleshooting and Safety Practicum

- a. This practicum will consist of one or more of the parts below. Parts may utilize photos, video, demonstration, actual parts, written situations and/or problems. This is not an inclusive list.
 - i. Chainsaw parts identification- Each participant will identify parts of a chainsaw.
 - ii. Troubleshooting - The participant will identify chainsaw problems or troubles.
 - iii. Safety - The participant will identify safety hazards or unsafe practices.
- b. Scoring: A total of 100 points are possible for this practicum.

6. Tree/Forest Disorders Practicum

- a. Symptoms of at least ten (10) and not more than twenty (20) disorders from the list at the end of this chapter will be displayed for participants to identify by common names. The symptoms will be presented in one or more of the following forms:
 - i. Actual sample
 - ii. Pictures/slides
 - iii. Written description
 - iv. Written case history
- b. A number will designate each set of symptoms representing a disorder.
- c. Scoring: A total of 100 points are possible for this practicum.

7. Forest Products Practicum

- a. Ten (10) to twenty (20) wood products/samples will be displayed for participants to evaluate and identify its tree species source from the tree identification specimen list. The wood products/samples will be presented in one or more of the following forms:
 - i. Actual Sample
 - ii. Pictures/slides
 - iii. Written description
- b. Scoring: This will be a multiple-choice practicum. A total of 100 points are possible for this practicum.

8. Forest Business Management Problem Practicum

- a. This section is designed to determine the participant's ability to apply economic principles and concepts of management to the decision making process by actual problem analysis and to defend the decisions made. This will involve a model forest operation with possible calculation on profit/loss, cost of operation, taxes, depreciation, marketing product, stumpage cost, record keeping, etc. The exact problem may or may not be in a listed reference. A maximum of ten problems or questions will be used.
- b. Scoring: A total of 100 points are possible for this practicum.

C. Team Activity - 450 points

Each team will be provided with a forest industry scenario. The scenario will utilize components from the individual forestry CDE practicums. Teams must work together using forestry skills and tools to complete the team activity. Ninety (90) minutes will be allowed to plan and complete the activity. All supplies and materials needed to complete the task will be provided.

VI. Scoring

Phase	Individual Points	Team Points
General Knowledge Exam	100	400
Tree Identification.....	100	400
Issues Interview	100	400
Timber Cruising.....	100	400
Forestry Practicums (2).....	200	800
Team Activity	0	450
Total	600	2,850

VII. Tiebreakers

Tiebreakers for teams will be the first, second and third high individuals. Tiebreakers for individual scores will be 1) Knowledge Exam, 2) Timber Cruising, 3) Tree Identification, 4) Issues Interview.

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

The high individual in each of the following areas will be given special recognition certificates:

1. General Knowledge Exam
2. Issues Interview
3. Practicums
4. Team Activity

IX. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

The most current edition of each of the following references will be used.

National FFA Core Catalog:

CDE Q&A's (2007-2010)- (<http://shop.ffa.org/cde-qas-c1413.aspx>)

Forestry CDE Scan Forms- (<http://shop.ffa.org/cde-materials-c1289.aspx>)

FFA Learn- 2005 & 2006 CDE Q&A's- (<http://ffa.learn.com/learncenter.asp?id=178409&page=31&mode=preview>)

The U.S. Department of Interior Geological Survey Topographic Map Information and Symbols Key, Map Distribution, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80223.

W. M. Harlow, E. S. Harrar, and F. M. White. *Textbook of Dendrology*, current edition. New York, NY: McGraw-Hill Book Company.

Silvics of Forests of United States, Handbook #654, volume one and two, U. S. Forest Service, P.O. Box 2417, 12th and Independence Avenue SW, Washington, DC 20013.

Forestry Handbook, current edition, Edited by Karl Wenger for the Society of American Foresters, 5400 Grosvenor Lane, Bethesda, MD 20814.

Choices in Silviculture for American Forests, current edition. Society of American Foresters, 5400 Grosvenor Lane, Bethesda, MD 20814.

Dendrology at Virginia Tech, <http://www.cnr.vt.edu/DENDRO/dendrology/main.htm>

Science of Forestry Management, Kris Irwin, University of Georgia, AAVIM.

Chainsaw manuals from various manufacturers.

Equipment References

Current Catalog of Forestry Suppliers, Inc., 205 West Rankin Street, Jackson, MS 39204-0397.

Other selected references are available from the U.S. Forest Service and state forestry agencies.

Tree Identification Specimen List

11. Alder, Red (*Alnus rubra*)
12. Ash (*Fraxinus sp.*)
13. Aspen, Bigtooth (*Populus grandidentata*)
14. Aspen, Quaking (*Populus tremuloides*)
15. Baldcypress (*Taxodium distichum*)
16. Beech, American (*Fagus americana*)
17. Birch, Black (*Betula lenta*)
18. Birch, White (*Betula papyrifera*)
19. Cherry, Black (*Prunus serotina*)
20. Cottonwood, Eastern (*Populus deltoides*)
21. Elm (*Ulmus sp.*)
22. Fir, Balsam (*Abies balsamea*)
23. Fir, Douglas (*Pseudotsuga menziesii*)
24. Hemlock, Eastern (*Tsuga canadensis*)
25. Hemlock, Western (*Tsuga heterophylla*)
26. Hickory (*Carya sp.*)
27. Maple, Red (*Acer rubrum*)
28. Maple, Sugar (*Acer saccharum*)
29. Oak, Black (*Quercus velutina*)
30. Oak, Chestnut (*Quercus Montana*)
31. Oak, Northern Red (*Quercus rubra*)
32. Oak, Scarlet (*Quercus coccinea*)
33. Oak, Southern Red (*Quercus falcata*)
34. Oak, White (*Quercus alba*)
35. Pecan (*Carya illinoensis*)
36. Pine, Eastern White (*Pinus strobus*)
37. Pine, Loblolly (*Pinus taeda*)
38. Pine, Lodgepole (*Pinus contorta*)
39. Pine, Longleaf (*Pinus palustris*)
40. Pine, Pitch (*Pinus rigida*)
41. Pine, Ponderosa (*Pinus ponderosa*)
42. Pine, Red (*Pinus resinosa*)
43. Pine, Shortleaf (*Pinus echinata*)
44. Poplar, Yellow (*Liriodendron tulipifera*)
45. Red Cedar, Western (*Thuja plicata*)
46. Redcedar, Eastern (*Juniperus virginiana*)
47. Spruce, Red (*Picea rubens*)
48. Spruce, Sitka (*Picea sitchensis*)
49. Spruce, White (*Picea glauca*)
50. Sweetgum (*Liquidambar styraciflua*)
51. Sycamore (*Platanus sp.*)
52. Walnut, Black (*Juglans nigra*)

Equipment Identification List

53. Altimeter
54. Back-pack Fire Pump
55. Bark Gauge
56. Bulldozer

57. Canthook
58. Chainsaw
59. Chainsaw Chaps
60. Clinometer
61. Data Recorder
62. Densiometer
63. Diameter Tape
64. Dot Grid
65. Drip Torch
66. Endloader
67. Feller Buncher
68. Fiberglass Measuring Tape
69. Fire Rake
70. Fire Weather Kit
71. Fire-Swatter
72. Flow/current Meter
73. GPS Receiver
74. Hand Compass
75. Hand Lens/Field Microscope
76. Hip Chain
77. Hypo-Hatchet
78. Increment Borer
79. Log Rule
80. Logger's Tape
81. pH Meter
82. Planimeter
83. Plant Press
84. Plastic Flagging
85. Pulaski Forester Axe
86. Relaskop
87. Safety Glasses
88. Safety Hard Hat
89. Soil Sampler
90. Soil Test Kit
91. Staff Compass
92. Stereoscope
93. Survey Instrument
94. Tally Book
95. Tally Meter
96. Tree Caliper
97. Tree Harvester
98. Tree Marking Gun
99. Tree Planting Hoe or Bar
100. Tree Skidder
101. Tree Stick
102. Water Sampler
103. Water Test Kit
104. Wedge Prism
105. Wheeler Caliper

Tree Disorders Identification List

106. Air pollution
107. Aphid
108. Beetles
109. Butt or Heart Rot
110. Canker
111. Chemical damage
112. Cicada
113. Climatic injury: snow, wind, frost, drought, hail
114. Damping off
115. Douglas fir tussock moth
116. Emerald ash borer
117. Fire damage
118. Gypsy moth
119. Hemlock woolly adelgid
120. Landscape equipment damage
121. Lightning damage
122. Mechanical damage
123. Mistletoe
124. Nematode
125. Rust
126. Sawfly
127. Scale
128. Spruce budworm
129. Sunscald
130. Tent caterpillar
131. Wetwood or slime flux
132. Wildlife/Livestock damage
133. Wood borer

National FFA Forestry CDE Issues Interview Scoring Rubric—100 points

Indicators	Point Value					Points Earned	Weight	Total Score
	5	4	3	2	1			
Introduction 5 pts.	Introduction is clear, well organized and focused; clearly prepares listener for what is to come	Topic indicated clearly; organized; focused	Indication of topic somewhat clear; generally organized and focused	Introduction gives some indication of topic; poorly organized	No introduction; extremely brief, non-specific, not related to the topic; disorganized		X1	
Personality/Confidence 10 pts.	Appears friendly and confident; positive attitude; relaxed; defends position without being confrontational	Fairly calm and non-confrontational; defends with confidence; mostly positive attitude	Somewhat nervous; confrontational; somewhat defensive	Nervous; uneasy; shows little confidence in position; confrontational	Extremely nervous; lacks confidence; confrontational		X2	
Poise/ Posture 10 pts.	Maintains good eye contact; voice projection and speed excellent; good posture and uses hand gestures as appropriate	Has good eye contact; voice quality is good; posture somewhat rigid	Breaks eye contact; looks away occasionally; voice quality uneven; poor posture	Seldom makes eye contact; voice quality uneven; distracting gestures	Does not make eye contact; difficult to understand; mumbles; generally distracted		X2	
Response to Questions 15 pts.	Responds quickly with complete statements; uses factual information; opinion based on fact; presents information in a logical manner	Responds with little wait time; uses complete statements most of the time; most answers based on facts; presents information in a somewhat logical order	Hesitates before answering; speaks in phrases rather than complete statements; repeats information; opinions lack factual basis; random thoughts	Few facts and basic information; often uses one word answers; many pauses; long response time; no structure to response	No factual answers; uses one word answers; long delays in responding; answers indicate no understanding of question		X3	
Knowledge of Issue 20 pts.	Extremely well informed; clearly differentiates between fact and opinion; aware of current issues	Well informed; differentiates between fact and opinion; aware of current issues	Somewhat knowledgeable; lines between fact and opinion are blurred; responses sound memorized; limited awareness of current issues	Lacks knowledge; more opinion than fact; talks in circles; avoids the issue; seemingly unaware of current issues	No knowledge of issue; no understanding of current issues		X4	
Conveyance of Thought and Meaning 40 pts.	Communicates opinion as clear statement; uses appropriate terminology; backs up statements with suitable examples; clear, coherent expression of ideas	Makes fairly clear statements using appropriate language; is able to back up most statements	Sounds somewhat rehearsed; difficulty backing up statements; draws blanks; often uses filler words ("ah", "um")	Sounds rehearsed; uses incorrect terminology; unable to back up statements; demonstrates little understanding of terminology	Unable to clearly articulate a clear thought; cannot back up any statements; demonstrates no understanding of terminology		X8	
Total Points								

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.			Social Studies: 7b and 7g
	ABS.01.01.01.c. Execute supply-and-demand principles in AFNR businesses.	business management problem/general knowledge exam/team activity/TSI	
ESS.02.01. Performance Indicator: Interpret laws affecting environmental service systems.			Science: F4 Language Arts: 1 and 8 Social Studies: 10c
	PST.01.02.01.b. Classify lubricants by SAE viscosity and API service classifications.	chainsaw practicum/general knowledge exam	
ESS.03.01. Performance Indicator: Apply meteorology principles to environmental service systems.			Science: D2 and F4 Language Arts: 8 Social Studies: 3c
	PST.03.01.01.a. Identify components and systems of internal combustion engines.	chainsaw practicum/general knowledge exam	
	PST.03.01.02.b. Analyze and troubleshoot internal combustion engines.	chainsaw practicum/general knowledge exam	
ESS.03.04. Performance Indicator: Apply best management techniques associated with the properties, classifications and functions of wetlands.			Science: C4 and F3 Social Studies: 3c
	CS.08.03.01.a. Describe the conditions that cause the need for tool maintenance.	chainsaw practicum/general knowledge exam	
ESS.06.02. Performance Indicator: Maintain tools, equipment and machinery in safe working order for tasks in environmental service systems.			
	CS.07.01.01.b. Use appropriate personal protective equipment for a given task.	chainsaw practicum/team event	

NRS.01.01. Performance Indicator: Apply knowledge of natural resource components to the management of natural resource systems.		Math: 5a Science: C4 and F3 Social Studies: 3h and 3k
NRS.04.03.01.a. Identify harmful and beneficial insects and signs of insect damage to natural resources.	disorders/general knowledge exam	
ESS.02.01.01.b. Identify the purposes of laws associated with environmental service systems.	general knowledge exam	
NRS.01.02. Performance Indicator: Classify natural resources.		Science: F3
NRS.03.01.02.b. Describe processing of forest products.	general knowledge exam	
NRS.02.01. Performance Indicator: Develop a safety plan for work with natural resources.		Science: F3 and F5 Language Arts: 8
NRS.04.01.01.b. Describe techniques used to suppress wildfires and manage prescribed fires.	general knowledge exam	
NRS.02.02. Performance Indicator: Demonstrate cartographic skills to aid in developing, implementing and evaluating natural resource management plans.		Math: 4B Science: A3 and F2 Social Studies: 3b and 3c
NRS.04.03.01.c. Describe techniques used to manage pests of natural resources.	general knowledge exam	
NRS.02.03. Performance Indicator: Measure and survey natural resource status to obtain planning data.		Math: 5C Science: A3 and F2 Social Studies: 3h
PS.01.01.01.a. Explain systems used to classify plants.	general knowledge exam	
NRS.02.04. Performance Indicator: Demonstrate natural resource enhancement techniques.		Science: F3 Social Studies: 3g and 3k
PS.01.02.02.a. Identify the components, the types and the functions of plant roots.	general knowledge exam	
NRS.02.05. Performance Indicator: Interpret laws related to natural resource management and protection.		Science: F3 Language Arts: 7 Social Studies: 6c
PS.01.02.03.a. Identify the components and the functions of plant stems.	general knowledge exam	

NRS.02.06. Performance Indicator: Apply ecological concepts and principles to natural resource systems.		Science: D2 and F3 Social Studies: 3b, 3f and 3h
PS.01.02.04.a. Discuss leaf morphology and the functions of leaves.	general knowledge exam	
PS.01.02.06.b. Identify the major types of fruit.	general knowledge exam	
PS.01.03.01.a. Explain the basic process of photosynthesis and its importance to life on Earth.	general knowledge exam	
NRS.03.01. Performance Indicator: Produce, harvest, process and use natural resource products.		Science: F3
PS.01.03.01.c. Explain the light-dependent and light-independent reactions that occur during photosynthesis and apply the knowledge to plant management.	general knowledge exam	
PS.02.01.01.b. Describe plant responses to light color, intensity and duration.	general knowledge exam	
NRS.04.01. Performance Indicator: Manage fires in natural resource systems.		Science: F5
PS.02.01.02.b. Determine the optimal air, temperature and water conditions for plant growth.	general knowledge exam	
NRS.04.02. Performance Indicator: Diagnose plant and wildlife diseases and follow protocol to prevent their spread.		Science: F1 and F3 Social Studies: 9d
PS.03.01.01.a. Explain pollination, cross-pollination and self-pollination of flowering plants.	general knowledge exam	
NRS.04.03. Performance Indicator: Manage insect infestations of natural resources.		Science: C4 and F3
PS.03.01.02.a. Demonstrate sowing techniques and provide favorable conditions for seed germination.	general knowledge exam	
CS.06.03.01.a. Demonstrate the importance of safety, health and environmental practices in the workplace.	general knowledge exam/ chainsaw practicum	
PS.01.01. Performance Indicator: Classify agricultural plants according to taxonomy systems.		Science: C3
CS.07.02.01.a. Inform others how to avoid placing oneself in hazardous work situations.	general knowledge exam/ chainsaw practicum	

PS.01.02. Performance Indicator: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.		Science: B6, C3 and C5
PST.02.02.01.a. Identify power unit and equipment controls and instruments, along with their functions.	general knowledge exam/ chainsaw practicum/tool ID	
ESS.03.01.01.b. Differentiate the types of weather systems and weather patterns.	general knowledge exam/issues interview	
ESS.03.04.01.a. Describe the functions of wetlands and differentiate types of wetlands.	general knowledge exam/issues interview	
NRS.02.05.01.b. Identify the purposes of laws associated with natural resource systems.	general knowledge exam/issues interview	
PS.01.03. Performance Indicator: Apply knowledge of plant physiology and energy conversion to plant systems.		Science: B6 and C5
NRS.02.06.02.a. Describe properties of watersheds and identify the boundaries of local watersheds.	general knowledge exam/issues interview	
NRS.02.06.07.b. Discuss factors that influence the establishment and spread of invasive species.	general knowledge exam/issues interview	
PS.02.01. Performance Indicator: Determine the influence of environmental factors on plant growth.		Science: C6
ESS.03.01.02.a. Explain how meteorological conditions influence air quality.	general knowledge exam/issues interview/tree disorders	
NRS.02.03.01.a. Describe the value of resource inventories and population studies.	general knowledge exam/team event	
PS.03.01. Performance Indicator: Demonstrate plant propagation techniques.		Science: C2
CS.07.04.01.c. Apply general workplace safety precautions/procedures.	general knowledge exam/team event	
CS.02.03.01.a. Explore various career interests/options.	issues interview	
PS.03.05. Performance Indicator: Harvest, handle and store crops.		Science: F5
CS.03.01.01.b. Select the appropriate form of technical and business writing or communication for a specific situation.	issues interview	

PST.01.02. Performance Indicator: Apply physical science laws and principles to identify, classify and use lubricants.		Science: B4
NRS.01.01.01.c. Research and debate one or more current issues related to the conservation or preservation of natural resources.	issues interview/general knowledge exam	
PST.02.02. Performance Indicator: Operate, service and diagnose the condition of power units and equipment.		Science: E2
NRS.02.02.01.a. Demonstrate how to use maps to identify directions and features, calculate actual distance and determine the elevations of points.	mapping practicum/general knowledge exam/compass practicum	
PST.03.01. Performance Indicator: Troubleshoot and repair internal combustion engines.		Science: A1 and A4 Language Arts: 3
NRS.02.01.01.b. Demonstrate safety practices when working in an outdoor environment.	team event	
ESS.06.02.01.a. Demonstrate proper use and maintenance of hand tools.	team event/chainsaw practicum	
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12 Social Studies: 4a
NRS.02.04.02.c. Formulate a timber stand improvement plan for a forest.	team event/TSI	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.08.01.02.b. Demonstrate appropriate operation, storage and maintenance techniques for tools and equipment.	timber cruising/team event	
CS.06.03 Performance Indicator: Provide health, safety and environmental operating guidelines.		Science: F4 and F5 Language Arts: 4 and 5
NRS.01.02.01.c. Conduct a field inventory of trees and other woody plants, and record and document findings.	Timber cruising/TSI/team event	
CS.07.01. Performance Indicator: Apply safety/health practices to AFNR worksites.		Science: F1 and F5
NRS.02.06.08.b. Describe the impact of pollution on natural resources.	Tree disorders/general knowledge exam	

CS.07.02. Performance Indicator: Demonstrate recognized first aid knowledge and procedures to show how they are used by AFNR industries.		Science: F5
NRS.04.02.01.c. Explain management techniques used to reduce infection and spread of plant diseases in natural resources.	Tree disorders/general knowledge exam	
CS.07.04. Performance Indicator: Assess workplace safety.		Science: F5
PS.03.05.01.b. Assess the stage of growth to determine crop maturity or salability and demonstrate proper harvesting techniques.	TSI	
CS.08.01. Performance Indicator: Evaluate and select the appropriate tool to perform a given task.		
NRS.03.01.01.b. Determine when to harvest forest products.	TSI	
NRS.01.01.02.c. Conduct a field study of an ecosystem, and record and document observations of species interactions.	TSI/team event	
CS.08.03. Performance Indicator: Maintain tools for efficient use.		
CS.08.01.01.c. Use tools and equipment appropriately to complete a specific task.	TSI/timber cruising/team event/compass practicum	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

- 4. Standard and Expectations: Measurement
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
- 5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
 - 5C. Develop and evaluate inferences and predictions that are based on data.

Science

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A3. Use technology and mathematics to improve investigations and communications.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
- B. Content Standard: Physical Science
 - B4. Motions and forces.
 - B6. Interactions of energy and matter.
- C. Content Standard: Life Science
 - C2. Molecular basis of heredity.
 - C3. Biological evolution.
 - C4. Interdependence of organisms.
 - C5. Matter, energy and organization in living systems.
 - C6. Behavior of organisms.
- D. Content Standard: Earth and Space Science
 - D2. Geochemical cycles.
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology.
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F2. Population growth.
 - F3. Natural resources.
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.

English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that support their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

3. Thematic Strand: People, Places and Environments
 - 3b. create, interpret, use and synthesize information from various representations of the earth, such as maps, globes and photographs;
 - 3c. use appropriate resources, data sources and geographic tools such as aerial photographs, satellite images, geographic information systems (GIS), map projects, and cartography to generate, manipulate and interpret information such as atlases, data bases, grid systems, charts, graphs and maps.
 - 3f. use knowledge of physical system changes such as seasons, climate and weather, and the water cycle to explain geographic phenomena;
 - 3g. describe and compare how people create places that reflect culture, human needs, government policy and current values and ideals as they design and build specialized buildings, neighborhoods, shopping centers, urban centers, industrial parks and the like;
 - 3h. examine, interpret and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas and ecosystem changes;
 - 3k. propose, compare and evaluate alternative policies for the use of land and other resources in communities, regions, nations and the world.
4. Thematic Strand: Individual Development and Identity
 - 4a. articulate personal connections to time, place and social/cultural systems;
6. Thematic Strand: Power, Authority and Governance
 - 6c. analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security and balance competing conceptions of a just society;

7. Thematic Strand: Production, Distribution and Consumption

7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;

7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;

9. Thematic Strand: Global Connections

9d. analyze the causes, consequences and possible solutions to persistent, contemporary and emerging global issues, such as health, security, resource allocation, economic development and environmental quality;

10. Thematic Strand: Civic Ideals and Practices

10c. locate, access, analyze, organize, synthesize, evaluate and apply information about selected public issues—identifying, describing and evaluating multiple points of view;

Appendix C: Doyle Log Rule

Doyle Log Rule Form Class 80 Volume (Board Feet) by Number of 16 Foot Logs									
DBH Inches	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5
10	16	20	23	24	26				
11	24	30	35	38	42				
12	31	39	47	52	57	60	62		
13	42	53	64	72	80	84	88		
14	52	67	82	93	104	109	114		
15	64	84	104	118	132	141	150		
16	77	101	125	143	161	174	186		
17	92	122	152	175	198	214	230		
18	108	144	179	206	234	254	273		
19	126	168	210	244	278	301	324		
20	144	193	242	282	321	348	374	396	417
21	164	221	278	324	370	403	436	462	489
22	185	250	315	368	420	458	497	529	561
23	208	282	356	417	478	521	564	604	643
24	231	314	397	466	536	583	630	678	725
25	256	350	443	522	600	655	710	764	818
26	282	386	489	576	663	727	791	852	912
27	310	425	540	638	735	806	877	946	1015
28	339	466	592	700	807	885	963	1040	1118
29	370	509	648	766	884	970	1056	1144	1232
30	400	552	703	832	961	1055	1149	1248	1346

National FFA Horse Evaluation Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the National FFA Horse Evaluation Career Development Event is to:

- A. promote the study of and interest in equine science selection, care and well being, management and production through the agricultural education curriculum.
- B. encourage experiential learning through use of practical skills and applied knowledge.
- C. provide recognition for those who have demonstrated skills and competencies as a result of instruction in equine science.

II. Objectives

- A. To instill leadership and motivate learning in the classroom through development of student skills in cooperative learning, observation, analysis and communication.
- B. To develop and exercise competitive spirit in a team atmosphere.
- C. To create a foundation for career choices by building an awareness of opportunities within the equine industry.
- D. To advance knowledge in equine science selection, care and well being, management and production of horses.
- E. To provide the opportunity to evaluate, make decisions and orally justify decisions on conformation traits and performance of horses.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Each team will be comprised of three or four members. The top three members' scores will be used to determine the total team score.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. All attire of riders and handlers and tack is legal in the selection classes.
- D. All in-hand classes will be judged as sound, and all performance classes will be judged as they go, in regard to soundness.
- E. AQHA novice rules will be used in Hunter Under Saddle and Western Pleasure classes in reference to head set and head carriage .
- F. Any participant in possession of an electronic device in the event area is subject to disqualification.

V. Event Format

A. Materials each participant needs to provide:

1. Clipboard
2. Two sharpened No. 2 pencils for placing classes
3. No pre-printed materials will be allowed during the team activity.

B. Individual Activities

1. Identification classes - 40 points

Participants will identify 10 breeds and/or colors and markings of horses and 10 tack and equipment items. Each problem will be worth 2 points each.

2. Selection classes - 600 points

- a. There will be a total of eight classes judged, four classes of halter and four classes of performance events. There will be four classes of reasons, two reasons classes in each area. Classes will be approximately 12–15 minutes in length. All classes will be 50 points. Oral reasons should not exceed two minutes in length.
- b. Four halter classes will be judged. Halter classes may be represented by the following breeds and types: Quarter Horse, Conformation Hunter, Appaloosa, Arabian, Paint, American Saddle Bred and Morgan. All halter classes will be judged as sound.
- c. Four performance classes will be judged. Performance classes may include: Western Horsemanship, Hunt Seat Equitation, Western Pleasure, Western Riding, Reining, English Pleasure (Saddle Seat), Hunter Under Saddle (Hunt Seat), Trail and Hunter Hack. Performance classes will be judged as presented (unsoundness to be penalized accordingly). Patterns will be provided to the teams prior to the start of the event for all classes requiring patterns.
- d. There will be two oral reasons classes selected from Western Pleasure, Reining, English Pleasure (Saddle Seat) and Hunter Under Saddle (Hunt Seat). Note: Points will be deducted if participants use notes during oral reasons presentations.

C. Team Activity – 250 points total

1. *Part 1 – Practical Application Activities – 100 points (50 points per activity)*

Participants will be answering questions and gathering information from practical application activities. Teams will complete four activities. Participants will have ten minutes for each activity. Examples of practical activities include feed/hay selection and selecting equipment to properly shoe a horse.

2. *Part 2 – Team Scenario and Presentation – 50 points*

Following completion of the practical application activities, this part of the team activity requires all members of the team to work cooperatively to complete the problem-solving portion. Teams will orally present solutions to problems found in the given scenario. Teams will have ten minutes to organize and prepare information and ten minutes to present solutions to judges. Judges may ask clarifying questions to the teams. For a sample scenario, see the reference section of this handbook. Examples topics include:

- a. Nutrition
- b. Management
- c. Anatomy
- d. Marketing/current trends
- e. Animal welfare (care and well-being)

VI. Scoring

The event is organized into the following parts, classes and point values:

	Individual	Team
Identification Classes		
Breed and/or colors & markings [1]	20	
Tack and Equipment [1]	20	
Selection Classes		
<i>Halter Class</i>		
Placings [4]	200	
Oral Reasons [2]	100	
<i>Performance Class</i>		
Placings [4]	200	
Oral Reasons [2]	100	
Total Classes	640	
Team Activity		
Practical Application Activities [4]		200
Team Scenario/Presentation		50
Total Team Activity		250
Total Team Score*		2,170

* (top 3 individual's scores plus team activity)

VII. Tiebreakers

Ties will be broken in the following order:

A. Individual:

1. Oral reasons total
2. Performance classes total
3. Halter classes total

B. Team:

1. Team oral reasons total
2. Team performance classes total
3. Team halter classes total

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

Specialty awards certificates will be presented for the top five individuals in the following areas: Halter, Performance and Oral Reasons.

IX. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog - CDE Questions and Answers
<http://shop.ffa.org/cde-qas-c1413.aspx>

Current Official AQHA Handbook

American Quarter Horse Association, Amarillo Texas – Video References <http://www.aqhastore.com/store/category/3/11/How-To/>

2002 edition of the AQHA Championship Judging Series <http://nhjtca.org/contentsales.html>

Heird, James C. and The American Quarter Horse Association, *Competitive Horse Judging*. First Edition. The American Quarter Horse Association, 1990.

Evans, J. Warren, Borton, Anthony, Hintz, Harold F., and Van Vleck, L. Dale, *The HORSE*, second edition. W. H. Freeman and Company, 41 Madison Avenue, New York, NY 10010 ISBN 0-7167-1811-1

Horse Industry Handbook, published by the American Youth Horse Council. Order by calling 1-800-Try-AYHC <http://ayhc.com/resources.htm>

Equine Science Curriculum – a special project from the National Council for Agricultural Education <http://www.teamaged.org/council/index.php/resources/60>

Judging 101 <http://judging101.com/>

Tack Identification <http://www.saddleshop.com> (official reference for terminology for tack equipment identification)

Oklahoma State University horse breed website <http://www.ansi.okstate.edu/breeds/horses/>

University of Kentucky Agripedia website <http://www.ca.uky.edu/agripedia/>

Official Judging Guide from each of the various breed associations and audiovisuals

SAMPLE TEAM ACTIVITY SCENARIO

Directions: Your team has 10 minutes to read the problem statement, solve the problem, and decide how the team will respond to the judge. Your team will then have 5 minutes to respond orally to the judge. You may make and take notes.

This scenario, your responses and evidence of team work are worth 40 points.

Scenario: A 600-lb., four-month old Quarter Horse foal is presented with enlarged knees and fetlocks and seems stiff to move. The foal's hoof angle is steeper than the pastern angle and the pasterns seem to be getting steeper each week. The owner has been turning the mare and foal out days and in nights, but isn't sure how much exercise the foal is getting. The foal is nursing the dam and is receiving five pounds of oats and two pounds of soybean meal in addition to two flakes of alfalfa hay per day. The foal's body condition score is 7.0 and the dam is 4.0. The owner is very pleased with the grooming, hair coat, hoof quality, and general appearance of the foal.

Team response called for (orally to the judge):

- What are the symptoms that have you most concerned?
- What else would you ask? What do you think is causing the problem?
- What feeding changes do you recommend?
- What other long-term management recommendations would you make?

Horse Evaluation CDE

Team Activity Presentation Scorecard

State: _____

Team No: _____

	5-4 Excellent	3-2 Moderate	1-0 Poor	Weight	Total Points
Organization <ul style="list-style-type: none"> • <i>Did the team clearly introduce the presentation?</i> • <i>Did the presentation transition from introduction to body?</i> • <i>Was the conclusion of the presentation evident?</i> 				x2	
Content <ul style="list-style-type: none"> • <i>Is the problem in the scenario addressed in the presentation?</i> • <i>Are the presented solutions feasible?</i> 				x4	
Presentation <ul style="list-style-type: none"> • <i>Did the team speak articulately without hesitation?</i> • <i>Was the team extremely well poised?</i> • <i>Did the team make eye contact with the judge?</i> • <i>Were gestures purposeful and effective?</i> 				x2	
Evidence of Teamwork <ul style="list-style-type: none"> • <i>Did each member participate?</i> • <i>Were excellent team dynamics and professionalism demonstrated?</i> 				x2	
Total Points					

Appendix A: AFNR Career Cluster Content Standards

Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
ABS.01.02. Performance Indicator: Apply principles of entrepreneurship in businesses.		Social Studies: 7d
ABS.01.02.01.a. Describe the meaning, importance and economic impact of entrepreneurship.	Team Activity	
ABS.02.01. Performance Indicator: Compose and analyze a business plan for an enterprise.		Language Arts: 3, 4, 5, 7 and 8 Social Studies: 7h
ABS.02.01.02.a. Identify and observe ethical standards in planning and operating AFNR businesses.	Team Activity	
ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.		Language Arts: 12 Social Studies: 7f
ABS.02.03.01.b. Identify management types in AFNR businesses.	Team Activity	
ABS.06.01. Performance Indicator: Conduct appropriate market and marketing research.		Social Studies: 7b and 7h
ABS.06.01.01.c. Implement and evaluate marketing strategies with agricultural commodities, products and services.	Team Activity	
ABS.06.02. Performance Indicator: Develop a marketing plan.		Language Arts: 3, 5, 7 and 8 Social Studies: 7b and 7d
ABS.06.02.01.b. Perform a marketing analysis, including evaluation of the competitors, customers, international and domestic policy environment, regulations and rules, standards and AFNR business resources.	Team Activity	
ABS.06.03. Performance Indicator: Develop strategies for marketing plan implementation.		Social Studies: 7b and 7h
ABS.06.03.01.b. Determine marketing strategies that are most likely to be effective in an AFNR business.	Team Activity	
AS.02.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.		Science: C1, C5 and F2
AS.02.02.01.c. Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.	Team Activity; Oral Reasons	
AS.02.02.06.c. Explain the impact of animal body systems on performance, health, growth and reproduction.	Team Activity	

AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.		Science: C5
AS.02.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.	Selection Classes	
AS.02.03.02.b. Assess an animal to determine if it has reached its optimal performance level based on anatomical and physiological characteristics.	Team Activity; Selection Classes	
AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders.		Science: C4, F1 and F5
AS.03.01.01.a. Explain methods of determining animal health and disorders.	Team Activity	
AS.03.01.02.a. Identify common diseases, parasites and physiological disorders that affect animals.	Team Activity	
AS.03.01.03.c. Design and implement a health maintenance and disease and disorder prevention plan for animals in their natural and/or confined environments.	Team Activity	
AS.03.02. Performance Indicator: Provide for the biosecurity of agricultural animals and production facilities.		Science: F5 and F6 Social Studies: 9d
AS.03.02.01.a. Explain the importance of biosecurity to the animal industry.	Team Activity	
AS.04.01. Performance Indicator: Formulate feed rations to provide for the nutritional needs of animals.		Math: 1C and 6B Science: A4 and C5
AS.04.01.01.b. Determine the relative nutritional value of feedstuffs by evaluating their general quality and condition.	Team Activity	
AS.04.01.02.b. Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance.	Team Activity	
AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.		Math: 6C Science: A4, C2 and E2
AS.05.03.01.c. Select a breeding system based on the principles of genetics.	Team Activity	
AS.05.03.04.a. Explain the advantages of major reproductive management practices, including estrous synchronization, superovulation, flushing and embryo transfer.	Team Activity	
AS.05.03.05.a. Discuss the uses and advantages and disadvantages of natural breeding and artificial insemination.	Team Activity	
AS.06.01. Performance Indicator: Demonstrate safe animal handling and management techniques.		Science: C6
AS.06.01.02.b. Design programs that assure the welfare of animals and prevent abuse or mistreatment.	Team Activity	

AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.		Science: C6 and F6
AS.07.01.01.b. Critique designs for an animal facility and prescribe alternative layouts and adjustments for the safe and efficient use of the facility.	Team Activity	
AS.07.01.02.b. Explain how modern equipment and handling facilities enhance the safe and economic production of animals.	Team Activity	
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.		Science: C6 and F4
AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	Team Activity	
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	Team Activity; Selection Classes	
CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.	Team Activity	
CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	Team Activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
CS.01.02.04.c. Evaluate the effectiveness of team members.	Team Activity	
CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtues.		Social Studies: 4c and 4f
CS.01.04.04.c. Demonstrate respect for others.	Team Activity	
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
CS.02.02.02.c. Present oneself appropriately in various settings.	Team Activity	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	Team Activity; Selection Classes	
CS.02.04.02.c. Implement effective problem solving strategies.	Team Activity	
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
CS.02.05.03.c. Exhibit self confidence while in the workplace.	Team Activity; Oral Reasons	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.03.c. Make effective business presentations.	Team Activity; Oral Reasons	

CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
CS.03.02.01.c. Make decisions for a given situation by applying the decision-making process.	Team Activity; Selection Classes	
CS.03.02.02.c. Use problem-solving skills.	Team Activity; Selection Classes	
CS.03.03. Performance Indicator: Flexibility / Adaptability: Describe traits that enable one to be capable and willing to accept change.		Science: A2, A6 and E2 Language Arts: 7 Social Studies: 8a
CS.03.03.03.c. Respond to feedback to improve a situation, skill or performance.	Team Activity	

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The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates.
6. Standard and Expectations: Problem Solving
 - 6B. Solve problems that arise in mathematics in other contexts.
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
 - A5. Recognize and analyze alternative explanations and models.
 - A6. Communicate and defend a scientific argument.
- C. Content Standard: Life Science
 - C1. The cell.
 - C2. Molecular basis of heredity.
 - C4. Interdependence of organisms.
 - C5. Matter, energy and organization in living systems.
 - C6. Behavior of organisms.
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F2. Population growth.
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.
 - F6. Science and technology in local, national and global challenges.

English Language Arts

3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture

- 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
- 1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;

4. Thematic Strand: Individual Development and Identity

- 4a. articulate personal connections to time, place and social/cultural systems;
- 4c. describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status and other group and cultural influences contribute to the development of a sense of self;
- 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception, and personality;
- 4f. analyze the role of perceptions, attitudes, values and beliefs in the development of personal identity;
- 4h. work independently and cooperatively within groups and institutions to accomplish goals;

7. Thematic Strand: Production, Distribution and Consumption

- 7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;
- 7d. describe relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions and corporations;
- 7f. compare how values and beliefs influence economic decisions in different societies;
- 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;

8. Thematic Strand: Science, Technology and Society

- 8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;

9. Thematic Strand: Global Connections

- 9d. analyze the causes, consequences and possible solutions to persistent, contemporary and emerging global issues, such as health, security, resource allocation, economic development and environmental quality;

National FFA Job Interview Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The National FFA Job Interview Career Development Event is designed for FFA members to develop, practice and demonstrate skills needed for seeking employment in the industry of agriculture. Each part of the event simulates, as closely as possible, real-world activities that will be used by real-world employers.

II. Agriculture, Food and Natural Resource (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. The National FFA Job Interview Career Development Event will be limited to one participant per state.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. All written materials, including cover letter, resume, etc., will be the result of each participant's own efforts.
- D. Any participant in possession of an electronic device in the event area is subject to disqualification.

IV. Event Format

A. Equipment

1. Participants should bring the following items to the event:
 - a. Writing Utensils
 - b. Blank paper
 - c. Resume
 - d. Cover letter
 - e. List of references
 - f. Business cards
 - g. Pad folio
2. The following items are not permitted:
 - a. Letters of reference
 - b. Samples of work
 - c. Pictures
 - d. Personal pages

B. Activities

1. The event is developed to help participants in their current job search (for SAE projects, internships, part-time and full-time employment). Therefore, the cover letter, résumé and references submitted by the participant must reflect their current skills and abilities and must be targeted to a job for which they would like to apply. In other words, participants cannot develop a fictitious résumé; they must utilize their actual experience. They are expected to target the résumé toward a real job for which they presently qualify.

By September 15 participants will submit the following:

- a. Cover Letter - 100 Points
 - i. **Ten copies** of the cover letter on 8 1/2" x 11" **white** paper. The cover letter is to be typed, one page, single spaced, left justified using Times, Times New Roman or Arial 11 point minimum font.
 - ii. The letter is to be dated for the first day of the national event and addressed to:
Job Interview CDE Superintendent
6060 FFA Dr.
P.O. Box 68960
Indianapolis, IN 46268-0960
 - b. Resume - 200 Points
 - i. **Ten copies** of the resume on 8 1/2" x 11" **white** paper. The resume is to be single sided, typed using Times, Times New Roman or Arial 11 point minimum font. The resume should not exceed two pages total. Paper should be 24 lb max weight. DO NOT use cardstock or colored paper for the event. Resume paper is acceptable.
 - ii. Resume must be non-fictitious and based upon actual work history.
 - c. Score of the cover letter and resume from the preliminary round will be transferred to the scorecard for those participants who advance to the final round.
 - d. **Ten copies** of the cover letter and resume must be sent to the National FFA Center at the address above and postmarked by September 15 prior to the national FFA convention at which the participant is competing.
 - i. A penalty of 10% will be assessed for documents received after the postmark deadline. If document is not received by seven days after postmark deadline, the participant may be subject to disqualification.
 - ii. States qualifying after the September 15 deadline will have ten days from state qualifying event date to submit their documents.
3. At the national event, the participant will complete:
Preliminary Round
 - a. Electronic Employment Application—100 Points
 - i. Participants will complete a standard electronic job application on-site, prior to the personal interview.
 - b. Initial Telephone Contact—50 Points
 - i. The participant will be contacted by the potential employer to arrange an interview time. The potential employer may ask questions regarding aspects of the participant's resume.
 - ii. The initial telephone contact will last three to five minutes.
 - c. Personal Interview—500 Points
 - i. The preliminary round interview will be with a panel of judges. Each interview will last twenty minutes.

d. Follow-Up Correspondence—50 Points

- i. Participants will submit follow-up correspondence after the interview. Participants will be provided with necessary materials to compose a follow-up correspondence. Correspondence may include, but is not limited to, one of the following: e-mail, hand-written note or typed letter. Participants will have 30 minutes to complete the follow-up correspondence.

Final Round

All scores from the preliminary round will be carried over for the participants advancing to the final round.

e. Networking Activity—100 points

Final participants will be given a networking scenario in which they will be expected to formulate a 2-3 minute extemporaneous response to one or more judges. Scenarios may include, but are not limited to, meal function, mixer, career show or elevator pitch.

f. Personal Interview—500 Points

The final round interview will be conducted with a different panel of judges than the preliminary round. Each interview will last a maximum of twenty minutes.

V. Tiebreakers

In the event of a tie, the participant with the highest personal interview score shall receive the higher rank. If a tie still exists, the highest resume score will receive the higher rank.

VI. Awards

Awards will be presented to individuals based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

VII. Scoring

All event participants will be evaluated in the preliminary round. The eight students with the top scores will advance to the final round. The participants advancing to the final round will have all scores from the preliminary round carried into the final round.

Preliminary Round

Section	Points
Cover letter	100
Resume	200
Application	100
Telephone	50
Personal Interview	500
Preliminary Follow up Letter	50
TOTAL POSSIBLE	1000

Final Round

Section	Points
Preliminary Round Points	1000
Networking Activity	100
Final Round Personal Interview	500
TOTAL POSSIBLE	1600

VIII. References

This list of references is not intended to be inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog—Past CDE Material (<http://shop.ffa.org/cde-qas-c1413.aspx>)

Greggs Manual

Elements of Style - Strunk and White

Microsoft® Word® résumé templates

101 Toughest Interview Questions...and Answers That Win Job, Daniel Porto, Daniel Porot / Paperback / Published 1999

25 Reasons Why I Won't Hire You! What You Did Wrong Before, During & After the Interview!, Zenja Glass / Paperback / Published 1998

Best Answers to the 201 Most Frequently Asked Interview Questions, Matthew J. DeLuca, Mathew J. DeLuca / Paperback / Published 1996

The Complete Job Interview Handbook, John J. Marcus / Paperback / Published 1994

**Job Interview CDE
Cover Letter Scorecard**

Name: _____

State: _____

Member #: _____

	Possible Score	Participant's Score
Format		
• Spacing	5	
• Appropriate Font	5	
• Paragraph justification (left)	5	
• Addressed correctly	5	
• Limited to one page	5	
• Used correct paper	5	
Grammar/Punctuation/Spelling	20	
Content		
• Identified position sought	5	
• Interest in position	5	
• Where learned of job	5	
• Appropriately conveyed contact info	5	
• Employability	10	
• Identified next steps	5	
• Meshed with resume and references	5	
General appearances		
• Overall impression	5	
• Readability and flow	5	
Subtotal	100	
Deduction for materials postmarked after the deadline	10% or -10 points maximum	
Total	100	

**Job Interview CDE
Resume Scorecard**

Name: _____

State: _____

Member #: _____

	Possible Score	Participant's Score
Format		
• Appropriate Font	2	
• Structure	2	
• Limited to two pages	4	
• Used correct paper	2	
Content		
• Contact information conveyed	25	
• Position sought or employment objective	25	
• Identified education or relevant course-work	25	
• Identified relevant experience & skills	25	
• Identified achievements & honors	25	
• Mentioned/had references	25	
Grammar	3	
Punctuation	3	
Spelling	4	
General appearance		
• Overall impression	15	
• Readability and flow- spacing	15	
Subtotal	200	
Deduction for materials postmarked after the deadline	10% or -10 points maximum	
Total	200	

**Job Interview CDE
Application Scorecard**

Name: _____

State: _____

Member #: _____

	Possible Score	Participant's Score
Consistent with Resume		
• Name	10	
• Education	10	
• Experience	10	
• Other information	10	
• Reference	10	
Grammar/Punctuation/Spelling		
• Capitalization when appropriate	6	
• Abbreviations when appropriate	6	
• Punctuation	6	
• Spelling	6	
• Grammar	6	
Form Completed		
• Finished in allotted time	5	
• "N/A" indicated where appropriate	5	
Overall impression		
• Spacing	5	
• Consistency	5	
Total	100	

**Job Interview CDE
Initial Telephone Contact Scorecard**

Name: _____ **State:** _____

Member #: _____

	Possible Score	Participant's Score
First Impression		
• Introduction	5	
• Spoke clearly	5	
• Appropriate voice inflection	5	
Gathered appropriate information		
• Time/Date	5	
• Location	5	
• Contact information (name, number, etc.)	5	
Response to questions		
• Accurate	5	
• Concise	5	
Overall impression	10	
• Poise		
• Pleasant		
• Professional		
• Courteous		
• Communicated effectively		
• Ends call appropriately		
Total	50	

**Job Interview CDE
Personal Interview Scorecard**

Name: _____

State: _____

Member #: _____

	Possible Score	Participant's Score
Appearance		
• Professional dress	25	
• Appropriately groomed/neat	25	
First impression		
• Greeting	25	
• Introduction	25	
• Body language	25	
Responses to questions		
• Knowledge relayed	30	
• Abilities described & matched resume	20	
• Accurate	20	
• Cogent & organized	20	
• Shared appropriate experiences	20	
• Quality of information	20	
• Consistent responses	20	
Communication skills		
• Persuasive	20	
• Proper grammar	15	
• Enunciation	15	
• Appropriate volume	15	
• Concise, avoided rambling	15	
• Confident	20	
• Sincere	15	
• Poise	20	
• Discretion/tact	15	
Conclusion		
• Posed appropriate questions to employer	25	
• Clarified next steps	25	
• Appropriate thanks and exit	25	
Total	500	

**Job Interview CDE
Follow-up Correspondence Scorecard**

Name: _____

State: _____

Member #: _____

	Possible Score	Participant's Score
Format		
<ul style="list-style-type: none"> • Directed to appropriate person • Address/salutation appropriate • Level of formality appropriate 	10	
Content		
<ul style="list-style-type: none"> • Expressed appreciation 	5	
<ul style="list-style-type: none"> • Appropriate level of reiteration of qualities 	5	
<ul style="list-style-type: none"> • Re-expressed interest 	5	
<ul style="list-style-type: none"> • Provisions for follow-up stated 	5	
Grammar/punctuation/spelling	10	
Overall impression		
<ul style="list-style-type: none"> • Legible (including signature) • Appropriate length 	10	
Total	50	

**Job Interview CDE
Networking Activity Scorecard**

Name: _____

State: _____

Member #: _____

	Possible Score	Participant's Score
First Impression		
• Initiated conversation politely	5	
• Clear introduction	5	
• Body language (posture, eye contact)	5	
Communication Skills		
• Engaged in the conversation	10	
• Concise, avoid rambling	10	
• Confident	10	
• Sincere	5	
Making the Connection		
• Connected interest to company/person	10	
• Attempted to find commonalities with company/person	10	
• Posed appropriate questions	10	
• Made positive comments about company/person	5	
Conclusion		
• Exchange of contact information	5	
• Inquired about follow-up options (website, email, upcoming company events)	5	
• Appropriate thanks and exit	5	
Total	100	

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.			Social Studies: 4d and 4h
	CS.01.01.01.c. Work independently and in group settings to accomplish a task.	all event activities	
	CS.01.01.03.a. Exhibit good planning skills for a specific task or situation	application, follow-up letter, telephone	
	CS.01.01.07.a. Set personal goals using the SMART goals method (Specific, Measurable, Approved by you, Realistic, Time-stamped).	resume, cover letter, follow-up letter	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.			Language Arts: 12 Social Studies: 4h
	CS.01.02.01.a. Explain human relation skills such as compassion, empathy, unselfishness, trustworthiness, reliability and being friendly.	interview	
CS.01.03. Performance Indicator: Vision: Establish a clear image of what the future should look like.			Social Studies: 4a, 4d and 4h
	CS.01.03.04.a. Describe techniques used to build consensus.	interview	
CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtues.			Social Studies: 4c and 4f
	CS.01.04.01.b. Explain a personal decision where integrity played a role in the decision.	interview	
	CS.01.04.02.a. Describe personal values.	interview	
	CS.01.04.04.c. Demonstrate respect for others.	interview, networking	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.			Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
	CS.01.05.02.a. Identify civic leadership role opportunities.	resume, cover letter, application	
CS.01.06. Performance Indicator: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.			Science: A4 Language Arts: 8 Social Studies: 4h
	CS.01.06.05.b. Assess personal motivations and their impact on acquiring new knowledge and skills.	interview, cover letter, resume	
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.			Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	interview, networking, telephone	
	CS.02.02.03.c. Maintain effective professional relationships.	follow up, interview, telephone, networking	

CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12 Social Studies: 4a
CS.02.03.01.a. Explore various career interests/options.	resume, application, networking	
CS.02.03.03.b. Develop skills required for a specific career.	resume, application	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.01.a. Describe the skills necessary to think critically and creatively.	cover letter, interview, networking	
CS.02.04.02.b. Analyze problems that were solved well and problems that were not solved well.	interview	
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
CS.02.05.03.b. Analyze an individual's personal level of self confidence.	interview, telephone, networking	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.01.b. Select the appropriate form of technical and business writing or communication for a specific situation.	resume, cover letter, follow-up letter	
CS.03.01.02.c. Demonstrate effective use of a resume as part of an effort to obtain a job.	resume, application	
CS.03.02. Performance Indicator: Decision Making: Analyze situations and execute an appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
CS.03.02.04.c. Implement appropriate preparation plans for a career path based on passion, abilities, aptitude, opportunities.	resume, cover letter, application	
CS.09.02. Performance Indicator: Apply skills with computer software to accomplish a variety of business activities.		Math: 6C Science: A3
CS.09.02.01.a. Demonstrate basic computer and software systems skills.	application, follow-up letter	
CS.09.03. Performance Indicator: Use technology to demonstrate the ability to network and interface with technology.		Science: A3 and E2
CS.09.03.01.b. Show technical competence for efficient workplace communications.	application, interview, cover letter, resume, follow up	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics**6. Standard and Expectations: Problem Solving**

- 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science**A. Content Standard: Science as an Inquiry**

- A1. Identify questions and concepts that guide scientific investigation.
- A3. Use technology and mathematics to improve investigations and communications.
- A4. Formulate and revise scientific explanations and models using logic and evidence.
- A5. Recognize and analyze alternative explanations and models.

E. Content Standard: Science and Technology

- E2. Understanding about science and technology

English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies**1. Thematic Strand: Culture**

- 1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;
- 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;

4. Thematic Strand: Individual Development and Identity

- 4a. articulate personal connections to time, place and social/cultural systems;
- 4c. describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status and other group and cultural influences contribute to the development of a sense of self;
- 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
- 4e. examine the interactions of ethnic, national or cultural influences in specific situations or events;
- 4f. analyze the role of perceptions, attitudes, values and beliefs in the development of personal identity;
- 4h. work independently and cooperatively within groups and institutions to accomplish goals;

10. Thematic Strand: Civic Ideals and Practices

- 10j. participate in activities to strengthen the “common good,” based upon careful evaluation of possible options for citizen action.
- 10b. identify, analyze, interpret and evaluate sources and examples of citizens’ rights and responsibilities;

National FFA Livestock Evaluation Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Objectives

The objective of the National FFA Livestock Evaluation Career Development Event is to:

- A. Understand and to interpret the value of performance data based on industry standards.
- B. Measure students' knowledge in the following categories:
 1. to make accurate observations of livestock.
 2. to determine the desirable traits in animals.
 3. to make logical decisions based on these observations.
 4. to discuss and to defend their decisions for their placing.
 5. to instill an appreciation for desirable selection, management and marketing techniques.
- C. Develop the ability to select and market livestock that will satisfy consumer demands and provide increased economic returns to producers as well as meet the needs of the industry.
- D. Become proficient in communicating the terminology of the industry and the consumer.
- E. Provide an opportunity for participants to associate with professionals in the industry.
- F. Utilize current technology as it relates to the livestock industry.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. Each team will be comprised of four members. All four scores will be used to determine the total team score.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Event information may be added or deleted as changes occur in the livestock industry. When new criteria are adopted, the information will be forwarded to all states by January 1 of the event year by the National FFA program manager responsible for career development events.
- D. Participants will report to the event superintendent or designee for instructions at the time and place shown in the current year's team orientation packet.
- E. Any participant in possession of an electronic device in the event area is subject to disqualification.

IV. Event Format

A. Equipment

1. Materials students must provide: Participants must bring two No. 2 pencils. Teams may be asked to provide two laptops depending on each year's activities (all computers must have wireless Internet access). The announcement regarding laptops will be included in the team orientation packet provided to each certified team.
2. Equipment provided: Participants are not to bring any paper or clipboards. All paper and support boards will be provided. All other necessary materials will be provided by event committee.

B. Team Activity - 300 points total

1. Assessment and Solutions – 100 points
Team members working collaboratively will answer 10 questions drawn from a live animal class. Scenario and/or performance data may be provided as needed.
2. Scenario Activities – 200 points
For example team activity scenarios, refer to section IX in this handbook.
 - a. Market activity–100 points
Two team members will be assigned to participate in the market activity. Students will work collaboratively to provide a response to the scenario provided by event officials.
 - b. Genetics activity–100 points
Two team members will be assigned to participate in the genetics activity. Students will work collaboratively to provide a response to the scenario provided by event officials.

C. Individual Activities

1. Livestock classes: Eight classes of four animals each will be placed using a computerized scorecard. Classes may be breeding or market animals from beef, swine, sheep or meat goat species. At least one class will include the use of production/performance data. (50 points/class, 400 points total)
2. Oral reasons: Four sets of oral reasons will be designated by the event superintendent at the beginning of the event. One set of reasons will be given on the production data class. Reasons will be given after all classes have been placed. Participants will be provided paper to take notes on each reason class for preparation. Use of notes during the reason presentation is strongly discouraged. (50 points/class, 200 points total)
3. Keep/cull classes: There will be three selection classes that may be beef, swine, sheep or meat goats; each made up of eight breeding animals. Participants will be required to select the four best animals from the eight, using visual appraisal and performance data. Performance data will be provided. Production/performance data (including EPD's) may be used in the keep/cull classes of beef, swine, sheep or meat goats. Performance criteria, when used, shall be based on current industry standards. (50 points/class, 150 points total)
4. Written test: The objective, multiple choice exam is designed to determine team members understanding of the livestock industry. The exam will consist of 50 multiple choice questions. Sixty minutes will be given for the exam. (50 points)

V. Scoring

All team member scores will be used to determine final team placing.

	Individual	Team
Team		
Assessment and solutions		100
Market activity		100
Genetics activity		100
Individuals		
Classes – 8 at 50 points each	400	1600
Reasons – 4 at 50 points each	200	800
Keep/cull – 3 at 50 points each	150	600
Exam – 50 questions	<u>50</u>	<u>200</u>
Totals	800	3500

VI. Tiebreakers

If ties occur, the following events will be used in order to determine award recipients:

1. Total of oral reasons.
2. Total of placing classes.
3. Total of keep/cull classes.

VII. Awards

Awards will be presented at the awards ceremony. Awards are presented to teams as well as individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation. The individual and the team scoring the highest in each species of livestock, oral reasons and exam will receive special recognition. The top five team scores in the team activity will receive a certificate.

VIII. References

This list of references is not intended to be all-inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog – national CDE test, practicums and team activities

<http://shop.ffa.org/cde-qas-c1413.aspx>

Beef Improvement Federation
 Department of Animal Sciences and Food
 Kansas State University
 Northwest Research Extension Center
 105 Experiment Farm Road
 Colby, KS 67701
www.beefimprovement.org

National Swine Improvement Federation
204 Polk Hall
North Carolina State University
Raleigh, NC 27695-7621
www.nsif.com

Gillispie, James R. *Modern Livestock and Poultry Production 8th edition* or most current edition.
Albany, NY: Delmar Publishers, Inc. 2004.

Hunsley, R. *Livestock Judging, Selection and Evaluation*. 5th Edition. Danville, IL: Interstate Publishers, 2001.

Sheep Evaluation Reference
<http://animalscience.ag.utk.edu/itcmodules/module1/introductiontosheepevaluation.htm>

Meat Goat Evaluation Reference
<http://www.lsuagcenter.com/NR/rdonlyres/B8FE3706-64DC-417F-A592-B8DEC14B4D9F/43292/pub2951MeatGoatJanuary2008LOWRES.pdf>

Goat Handbook
www.texasgoat.com/Goat_Handbook/

IX. Team Activity Example Scenarios

The team activity portion of the livestock evaluation CDE will be separated into two sections. The sections will focus on a market activity and a genetic activity. Teams will be split into two pairs to work on the two activities. This will be decided randomly by the committee and announced at the event; therefore, all team members should be prepared for each section.

Market Activity Example – 30 minutes

Team members will view a video auction (Western Video Markets, Superior, etc.) and purchase a group of animals (steers, heifers, market hogs, etc.). They will use a laptop and determine mileage and transportation cost. Predetermined animal pick-up and delivery locations will be provided. Participants will be required to calculate several expenses possibly based on weight, quantity processing cost per head and transportation cost. Value will be determined by final sale price. Teams' final answer(s) will be derived from several steps (including calculation of cost and income); therefore, allowing the accumulation of partial points. Examples of costs and income are animal cost, transportation, labor expense, feed consumption, feed conversion rate, feed cost and market value.

Genetics Activity Example – 30 minutes

Teams will be given a group of females (heifers, gilts, ewes, etc.) with performance data, ultrasound data, etc. A group of four or five males (bulls, boars, rams, etc.) with performance data and genetic background will be used to determine mating decisions. Mating decisions will need to correlate with a given outcome scenario (replacements, market cattle, show cattle, bulls) and an environmental scenario (labor availability, weather, terrain, feed availability, etc.) provided by the committee. Teams' final answers will be derived from several areas allowing the accumulation of partial points. Such areas are mating methods (artificial insemination or natural), cost of mating methods, sire selections for environmental conditions and specific pairings (more than one sire that can earn points with some of greater value than others).

Team Review – 10 minutes

All four team members will be given time to reconvene and review decisions before the completion of the team activity.

X. Keep/Cull Example

Keep/Cull Class Sample Card									
Beef/Sheep/Swine									
Participant/Team Name _____									
Participant/Team No. _____									
Circle or list the numbers of the 4 animals you want to keep as replacements.									
1 - 2 - 3 - 4 - 5 - 6 - 7 - 8									
Event officials will assign a point value to each one of the individual animals, giving the most points to the most desirable animal and the least points to the least desirable animal. If the participant selects the best four animals, full credit will be given.									

Official Placing- Keep/Cull

8	7	6	5	4	3	2	1	Animal
18	13	11	8	7	4	3	0	Points

Keep/Cull Class Scores

Participant	Score								
A	6	11	3	4	4	7	2	3	25
B	8	18	7	13	6	11	5	8	50
C	7	13	6	11	5	8	1	0	32

Animals are shown in regular font and point values are in bold font. Point values are established by official judges and will differ with each class.

**Livestock Evaluation Career Development Event
Keep/Cull Scorecard**

Name: _____

Chapter: _____

State: _____

Team No.: _____

Member No.: _____

Keep/Cull Activity

Beef/Sheep/Swine – (Select only one species)

Circle or list the numbers of the four animals you want to keep as replacements.

1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

Event officials will assign a point value to each of the individual animals, giving the most points to the most desirable animal and the least points to the least desirable animal. If the participant selects the best four animals, full credit will be given.

Example of Official Placing – Keep/Cull

8	7	6	5	4	3	2	1	Animal
18	13	11	8	7	4	3	0	Points

<i>Participant</i>									<i>Score</i>
A	6	11	3	4	4	7	2	3	25
B	8	18	7	13	6	11	5	8	50
C	7	13	6	11	5	8	1	0	32

Animals selected are shown in regular font with point values for that particular animal shown in bold font. Point values are established by official judges and will differ with each class.

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution.			Science: C3 Social Studies: 7h
	AS.01.01.01.c. Predict adaptations of animals to production practices and environments.	All activities	
AS.02.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.			Science: C1, C5 and F2
	AS.02.02.01.c. Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.	All activities	
AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.			Science: C5
	AS.02.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.	All activities	
	AS.02.03.02.b. Assess an animal to determine if it has reached its optimal performance level based on anatomical and physiological characteristics.	All activities	
AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders.			Science: C4, F1 and F5
	AS.03.01.01.a. Explain methods of determining animal health and disorders.	Exam	
AS.04.01. Performance Indicator: Formulate feed rations to provide for the nutritional needs of animals.			Math: 1C and 6B Science: A4 and C5
	AS.04.01.02.b. Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance.	Team activity, exam, performance class, keep/cull	
AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals.			Science: C1 and C3
	AS.05.01.01.c. Select breeding animals based on characteristics of the reproductive organs.	All activities	
AS.05.02. Performance Indicator: Evaluate animals for breeding readiness and soundness.			Science: C6
	AS.05.02.01.c. Evaluate and select animals for reproductive readiness.	All activities	
	AS.05.02.02.c. Treat or cull animals with reproductive problems.	Keep/cull, performance class, placing classes, reasons	

AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.		Math: 6C Science: A4, C2
	AS.05.03.01.c. Select a breeding system based on the principles of genetics.	Performance class, team activity, keep/cull, exam
	AS.05.03.02.c. Select animal breeding methods based on reproductive and economic efficiency.	Exam, team activity
	AS.05.03.03.c. Select animals based on quantitative breeding values for specific characteristics.	Team activity, keep/cull, performance class
	AS.05.03.04.b. Explain the processes of major reproductive management practices, including estrous synchronization, superovulation, flushing and embryo transfer.	Exam
	AS.05.03.05.b. Explain the materials, methods and processes of artificial insemination.	Exam
AS.06.01. Performance Indicator: Demonstrate safe animal handling and management techniques.		Science: C6
	AS.06.01.02.a. Explain the implications of animal welfare and animal rights for animal agriculture.	Exam, team activity
AS.06.02. Performance Indicator: Implement procedures to ensure that animal products are safe.		Science: F1 and F5
	AS.06.02.01.a. Identify animal production practices that could pose health risks or are considered to pose risks by some.	Exam, team activity
	AS.06.02.02.a. Describe how animal identification systems can track an animal's location, nutrition requirements, production progress and changes in health.	Exam, team activity
AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.		Science: C6 and F6
	AS.07.01.01.a. Identify facilities needed to house and produce each animal species safely and efficiently.	Exam, team activity
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.		Science: C6 and F4
	AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	Team activity, exam, performance class, keep/cull

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates.
6. Standard and Expectations: Problem Solving
 - 6B. Solve problems that arise in mathematics in other contexts.
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
- C. Content Standard: Life Science
 - C1. The cell
 - C2. Molecular basis of heredity
 - C3. Biological evolution
 - C4. Interdependence of organisms
 - C5. Matter, energy and organization in living systems
 - C6. Behavior of organisms
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health
 - F2. Population growth
 - F4. Environmental quality
 - F5. Natural and human-induced hazards
 - F6. Science and technology in local, national and global challenges

English Language Arts

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

7. Thematic Strand: Production, Distribution and Consumption
 - 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;

National FFA Marketing Plan Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The marketing plan event is designed to assist students with developing practical skills in the marketing process through the development and presentation of a marketing plan. Students research and present a marketing plan for an agricultural product, supply or service. It is intended as a competitive activity involving a team of three persons working for an actual local agri-business, either an existing or start-up enterprise, to support FFA's outreach mission.

Local chapters may involve the entire chapter, a specific agriculture class or a three-person team in the development of the plan. A three-person team will present the results of primary research involving the local community that provides a reasonable and logical solution to a marketing problem. Understanding of the marketing process is manifested in the marketing plan, which is presented in a written plan and in a live presentation to qualified judges. Though only three individuals are on a team, any number of students may assist with the primary and secondary research.

II. Objectives

- A. To encourage students to demonstrate an understanding of the marketing plan process.
- B. To provide an activity to focus student and community attention on the agri-marketing curriculum.
- C. To encourage students to explore and prepare for possible careers in agri-marketing.
- D. To help develop partnerships and improve relations between industry, local FFA chapters and the general public.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Team Make-up- A team representing a state will consist of three members listed at the state and national levels from the same chapter. Only the three certified team members can take an active role in the presentation of materials and use of technology during the presentation.
- B. It is highly recommended that participants wear FFA Official Dress for this event.

- C. At least three qualified judges will be used. Judges should be selected to represent a mix of industry, education and communication and will have a sufficient understanding of the marketing planning process.
 - 1. Verbal feedback from judges will be available following preliminary and semifinal rounds for teams that do not advance.
 - 2. The judges' written evaluations will be distributed at the awards ceremony.
- D. A timekeeper will be provided.

V. Event Format

A. Equipment

- 1. Equipment provided at the event site:
 - a. two tripod easels
 - b. one LCD projector with standard VGA cable
 - c. one screen
 - d. one AV cart including power strip and extension cord
 - e. one table
 - f. three chairs
- 2. It is the responsibility of the team to provide any additional equipment.

B. Written Plan – 100 Points

- 1. Instructions
 - a. Teams should select an actual local agri-business, either an existing or start-up enterprise, that serves the community and decide on the product or service for the marketing plan. Teams should work with an off-campus organization; they should not use their chapter as a client.
 - b. Emphasis should be placed on the “value added” concept using marketing techniques to increase the value of products or services.
 - c. A marketing plan is concerned with the future. Historical information is very valuable, but the actual plan must be a projection. A plan presented in the current year should be developed for the following year. A three-year timeframe may be needed, which would mean the inclusion of the two years following the current year.
 - d. The project outline should include the following aspects of the marketing process:
 - i. Brief description of product or service (product/service attributes: size, quality, etc.) – 5 points
 - ii. Market analysis – 30 points
 - 1. Client's status in current market
 - 2. Industry trends
 - 3. Buyer profile and behavior
 - 4. Competition's SWOT analysis
 - 5. Product's/client's SWOT analysis
 - 6. Primary research results (surveys, focus groups, interviews)
 - iii. Business proposition – 10 points
 - 1. Develop a mission statement
 - 2. Key planning assumptions (cite sources of information)
 - 3. Short and long-term goals - must be measurable, specific, attainable and have completion dates
 - 4. Target market – identify specific market segments which achieve the goals

- iv. Strategies and action plan – 25 points
 1. Product
 2. Price
 3. Place
 4. Promotion
 5. Position
 - v. Projected budget – 15 points
 1. What will the strategies cost?
 2. Pro forma income statement which details the realistic costs and returns of the marketing strategies
 3. Calculate the financial return of the marketing plan
 - vi. Evaluation – 5 points
 1. Establish benchmarks to track progress toward goals
 2. Identify specific tools to measure established benchmarks
 3. Recommendations for alternative strategies, if benchmarks are not reached
 - vii. Technical and business writing skills – 10 points
2. Procedures
- a. Twenty (20) copies of the plan must be sent to the CDE program manager at the national FFA center postmarked by September 15 prior to the national FFA convention at which the plan is to be presented.
 - i. A penalty of 10% will be assessed for documents received after the September 15 postmark deadline.
 - ii. If document is not received seven days after postmark deadline, the team may be subject to disqualification. States qualifying after the September 15 deadline will have ten days from state qualifying event date to submit their written plan.
 - iii. State name and chapter number **MUST** be on the written plan title page. If not included, a penalty will be assessed to the written plan.
 - b. The document should not exceed eight (8) single-sided, 8.5”x11” pages and must be ten point or larger type size. Different formats and page sizes can be used as long as the document does not exceed the equivalent of eight (8) single-sided, 8.5” x 11” pages. A five (5) point deduction will be applied to all marketing plans that do not follow these guidelines.
 - i. Title page - 1 page
 1. Project title
 2. State name
 3. Chapter name
 4. Chapter number
 5. Year
 - ii. Text and appendices - 7 pages
 1. Marketing plan
 2. Surveys
 3. Graphs
 4. Maps
 5. Promotional pieces
 - iii. Written expression is important. Attention should be given to language, general appearance, structure and format.

C. Live Presentation – 200 Points

1. The team assumes the role of a marketing consultant. The judges assume the role of the selected client.
2. Each team will be allowed five minutes to set up before their 15 minute time allowance begins. After the presentation, teams are required to reset the equipment as they found it.
3. In the case of equipment failure, every effort will be made to rectify the problem as quickly as possible; however, at the judges' discretion, a team may be asked to move forward with the presentation. A back-up plan is recommended.
4. The live presentation should not exceed fifteen minutes. Five points will be deducted from the final score for each minute, or major fraction thereof, over fifteen minutes for the presentation. The timekeeper shall be responsible for keeping an accurate record of time.
5. Each member of the team should participate in the question and answer session.
 - a. The preliminary presentation will be followed by five minutes maximum of clarifying questions.
 - b. During the semifinal round, there will be ten minutes maximum of both clarifying and general marketing questions. A minimum of three general marketing questions will be asked.
 - c. In the final round, the presentation will be followed by twelve minutes maximum of both clarifying and general marketing questions.
6. Visual aids are only limited by your imagination. Do not assume that the lights can be adjusted or the competition room can be drastically remodeled. Scoring will be based on how effectively visual aids are used, not how elaborate they are. Remember that visual aids should enhance and clarify what the speakers are saying; not replace them.
7. Before the presentation, teams are allowed to hand judges one single-sided, 8.5"x11" page with changes/corrections to the written plan. No other handouts or samples are allowed.

VI. Scoring

Teams will be ranked in numerical order on the basis of the final score to be determined by each judge without consultation. The judges' ranking of each team then shall be added, and the winner will be that team whose total ranking is the lowest. Other placings will be determined in the same manner (low rank method of selection). All event scorecards are at the end of this chapter of the handbook.

VII. Tiebreaker

Ties will be broken based on the greatest number of low ranks. Team low ranks will be counted and the team with the greatest number of low ranks will be declared the winner. If a tie still exists, then the event superintendent will rank the teams' response to questions. The team with the lowest rank from the response to questions will be declared the winner. If a tie still exists then the team's raw scores will be totaled. The team with the greatest total of raw points will be declared the winner.

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation. Teams participating in the preliminary round will receive a bronze placing, teams continuing on to the semifinal round will receive a silver placing and all teams competing at the final round will receive a gold placing.

IX. Resources

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog

- National Career Development Event Questions and Answers— <http://shop.ffa.org/cde-qas-c1413.aspx>
- *Power of Demonstration* DVD—<http://shop.ffa.org/power-of-demonstration-p38845.aspx>

Agricultural Marketing Resource Center, <http://www.agmrc.org/>

Written Marketing Plan Score Sheet

State: _____

Chapter: _____

Team No.: _____

	Possible Points	Earned	Comments
DESCRIPTION OF PRODUCT/SERVICE AND CLIENT STATUS	5		
MARKET ANALYSIS	30		
Client's status in current market	5		
Industry trends	5		
Buyer profile and behavior	5		
Competition's SWOT analysis	5		
Product's/client's SWOT analysis	5		
Primary research results (surveys, focus groups, interviews)	5		
BUSINESS PROPOSAL	10		
Mission statement	2		
Key planning assumptions	2		
Short and long-term goals	3		
Target market	3		
STRATEGIES AND ACTION PLAN	25		
Product	1		
Price	7		
Place	5		
Promotion	7		
Position	5		
BUDGET (income statement, costs, returns, accuracy)	15		
EVALUATION	5		
TECHNICAL & BUSINESS WRITING SKILLS	10		
Deduction – Written plan received after post-mark deadline. Deduction 10% of possible written plan score (or 10 points).			
Deduction – Five (5) points deducted for incorrect written plan format .			
WRITTEN PLAN TOTAL POINTS	100		

Marketing Plan Presentation Scorecard

State: _____

Chapter: _____

Team No.: _____

	Possible Points	Earned	Comments
MARKETING PROCESS (understanding and clear presentation of the six parts of the marketing plan)	130		
Brief description/client status	5		
Marketing analysis	10		
Primary research	35		
Business proposal	15		
Strategies/action plan	30		
Budget	25		
Evaluation	10		
COMMUNICATION <ul style="list-style-type: none"> • Examples explained, detailed • Speaking without notes, unrehearsed • Tone • All members participated • Eye contact • Mannerisms, gestures • Poised 	20		
QUESTIONS AND ANSWERS	50		
PRESENTATION TOTAL POINTS:	200		
WRITTEN PLAN SCORE	100		
SUB-TOTAL (WRITTEN & PRESENTATION):	300		
Deduction – Five (5) points for each minute, or major fraction thereof, presentation went over fifteen (15) minutes			
NET TOTAL POINTS			
Team Ranking:			

Judge's Signature: _____ Date: _____

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.			Social Studies: 7b and 7g
	ABS.01.01.01.a. Recognize principles of capitalism as related to AFNR businesses.	Written plan; presentation	
	ABS.01.01.01.c. Execute supply-and-demand principles in AFNR businesses.	Written plan; presentation	
ABS.06.01. Performance Indicator: Conduct appropriate market and marketing research.			Social Studies: 7b and 7h
	ABS.06.01.01.a. Investigate the meaning and methods of marketing in AFNR as related to agricultural commodities, products and services and to agricultural goods in domestic and international markets.	Written plan; presentation	
	ABS.06.01.02.c. Evaluate alternative marketing strategies, such as value-adding, branding and niche marketing, and propose and implement appropriate modifications to achieve AFNR business goals.	Written plan; presentation	
ABS.06.02. Performance Indicator: Develop a marketing plan.			Language Arts: 3, 5, 7 and 8 Social Studies: 7b and 7d
	ABS.06.02.01.b. Perform a marketing analysis, including evaluation of the competitors, customers, international and domestic policy environment, regulations and rules, standards and AFNR business resources.	Written plan; presentation	
	ABS.06.02.01.c. Establish marketing plan goals/objectives, including monitoring, measuring and analyzing goal achievement.	Written plan; presentation	
ABS.06.03. Performance Indicator: Develop strategies for marketing plan implementation.			Social Studies: 7b and 7h
	ABS.06.03.01.a. Identify and use strategies frequently employed in marketing programs, including those used in niche markets.	Written plan; presentation	
	ABS.06.03.01.b. Determine marketing strategies that are most likely to be effective in an AFNR business.	Written plan; presentation	
	ABS.06.03.01.c. Revise marketing strategies based on monitoring and measurement information for target customer base.	Written plan; presentation	

Appendix A: AFNR Career Cluster Content Standards

ABS.06.04. Performance Indicator: Develop specific tactics to market AFNR products and services.		Social Studies: 7b, 7g and 7h
ABS.06.04.01.a. Explain the meaning and use of the four Ps (product, place, price and promotion) in marketing.	Presentation	
ABS.06.04.01.b. Develop advertising campaigns that promote products and services.	Written plan	
ABS.06.04.01.c. Implement sales goals and incentive programs, and identify pricing strategies used by competitors.	Written plan; presentation	
ABS.06.05. Performance Indicator: Merchandise products and services to achieve specific marketing goals.		Language Arts: 4 Social Studies: 7b and 7d
ABS.06.05.01.c. Monitor marketing approaches to determine effectiveness in goal achievement, and make needed changes in such approaches.	Written plan; presentation	
ABS.06.05.02.a. Develop strategies to gain new customers.	Written plan; presentation	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.		Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
CS.01.05.01.c Articulate current issues that are important to the local, state, national and global communities.	Presentation	
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
CS.02.02.02.c. Present oneself appropriately in various settings.	Presentation	
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
CS.02.05.03.c. Exhibit self confidence while in the workplace.	Presentation	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	Written plan	
CS.03.01.03.c. Make effective business presentations.	Presentation	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Science:**A. Content Standard: Science as an Inquiry**

- A1. Identify questions and concepts that guide scientific investigation.
- A5. Recognize and analyze alternative explanations and models.

Language Arts:

- 3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
- 4. Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- 8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- 12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies:**4. Thematic Strand: Individual Development and Identity**

4h. work independently and cooperatively within groups and institutions to accomplish goals;

4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;

7. Thematic Strand: Production, Distribution and Consumption

7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;

7d. describe relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions and corporations;

7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;

7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;

National FFA Meats Evaluation and Technology Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Objectives

The objectives of the National FFA Meats Evaluation and Technology Career Development Event are to:

- A. Develop employment skills for students who are interested in exploring or pursuing career opportunities in the meat animal industry.
- B. Assist the local agricultural education instructor in motivating students to become knowledgeable consumers of meat animal products and/or involved in the industry of meat animal marketing and merchandising.
- C. Develop broader analytical skills, critical thinking strategies and an understanding of appropriate meat terminology for high school students.
- D. Develop the ability to evaluate meat animal products in order to optimize economic returns to producers and industry as well as to meet the needs of the consumer.
- E. Develop cooperation and communication skills.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. Each team will be comprised of 3 or 4 members. The top 3 members' scores will be used to determine the total team score.
- B. Participants will report for instructions to the team orientation meeting at the time and place indicated in the current year's team orientation packet.
- C. **Clothing-** Participants must come to the event prepared to work in a cold storage facility (approximately 0° C) for approximately two hours. Participants are required to wear protective clothing: 1) hard hats 2) clean, white frocks 3) hairnets 4) warm clothing and proper footwear. While official dress is not worn during the event, it is recommended for awards presentation activities.
- D. All participants are expected to be prompt at their stations throughout the event; no provision will be made for tardiness and will cause late participants to lose event points.
- E. No conversation will be allowed between participants after the individual activities begin. Conversation among participants constitutes disqualification.
- F. Participants and official judges are to make their placings and identifications without handling the exhibit.
- G. Two minutes stand back time on placing classes will be utilized when applicable.

IV. Event Format

A. The event is comprised of the following activities: a written test, meat formulation problem solving, retail meat cuts identification (30 cuts), Beef Quality and Yield Grading (three-five carcasses), placing of four-six classes (may include keep/cull class), ten questions (from two of the placing classes) and four possible team practicums.

B. Equipment

If not provided, each participant must bring two sharpened No. 2 pencils, a clean clipboard and an electronic calculator. Calculators used in the event should be battery powered, non-programmable and silent. When possible these items will be provided by the event committee, please consult team orientation packet and superintendent letter to determine if these items will be provided. Participants must not bring any blank paper, notes, training aids, other electronic items, purses or backpacks.

Blank paper, training aid sheets and scan forms will be provided by the event committee.

C. Individual Activities

1. Beef Quality and Yield Grading - 80 points maximum

Participants will quality grade and yield grade three to five beef carcasses. (16 points per carcass).

a. *Quality Grading*: Participants may or may not use the training aid provided for Beef Grading. If using the Training Aid II (located at end of Meats Evaluation section), the participant may give the carcass skeletal maturity score and lean maturity score and calculate a final maturity. Then they will assign a marbling score based on USDA standards and then determine the final quality grade. The participant should complete the section of answers for quality grading on the computerized scorecard. Eight points are awarded for each correct grade. Each will be scored for the applicable adjacent grade as follows: 8, 6, 4, 0. However, in the case of “B” Maturity, Select High and Select Low will be awarded zero points.

b. *Yield Grading*: Participants may or may not use the training aid provided for Beef Grading. If using the Training Aid II, participants may write in the carcass weight which is given for each carcass, estimate the carcass preliminary yield grade based on USDA Standards, and then adjust the preliminary yield grade using “Ribeye Area”, “Carcass Weight,” and “% Kidney, Pelvic and Heart Fat.” After completing these steps, the participant may write in the final “Yield Grade” to the nearest one-tenth of a grade. The participant should complete the section of answers for yield grading on the computerized scorecard.

Full points will be earned for 1/10th above or below official yield grade. A two point deduction will be made for 2/10th – 5/10th above or below official yield grade. A four point deduction for 6/10th – 9/10th above or below official yield grade. Zero points will be awarded for answers 1 yield grade above or below the official yield grade.

Official United States Department of Agriculture Yield Grades are 1.0 – 5.9.

Example: Official Yield Grade (FYG Official) = 2.2

FYG 2.1- 2.3 = full points (8)

FYG 1.7 – 2.0 or 2.4-2.7 = minus 2 points

FYG 1.3 – 1.6 or 2.8 – 3.1 = minus 4 points

Zero points for any FYG a full yield grade above or below official FYG

2. Placing Classes - 350 points maximum

Placing of four to six classes which may include classes of four exhibits OR possibly a keep/cull class of more than four exhibits per class. Classes may come from the following list. Classes may also be ranked using a value based marketing pricing grid provided by event official committee/superintendent of the event.

- Carcasses (beef or pork)

NOTE: Policy Statement-Backfat Recommendations for Placing Unribbed Pork Carcass Classes - The National Pork Board has published live and carcass specifications for the “ideal” market hog, known as Symbol III (National Pork Board, 2005). Pork carcasses with less than 0.60 inches backfat have a higher incidence of bellies which are too thin for high quality bacon production and also tend to have unacceptably low marbling levels and less palatable pork. If this situation is presented in competition, students would be expected to evaluate the given carcass or carcasses against contemporaries within the class and rank accordingly.

- Value based pricing beef
- Wholesale/subprimal cuts (beef, pork, lamb)
- Retail cuts (beef, pork, lamb)
- Processed meats (cured/smoked center ham slices, shank or rump portion of ham)

a. Keep/Cull Class - 50 points

Participants will be provided with a scenario based on an industry standard or situation. Participants will be given time to review the scenario and then time to evaluate the meat product and make a selection based on the provided information.

Example: Select the four ribeye steaks to be sold to a high value “white table cloth” restaurant that advertises superior quality.

Scoring: Four meat products to be kept will have an aggregate score of 50 points.

Correct Selection	*					*	*	*
Exhibit Item	a	b	c	d	e	f	g	h
Points possible	12	8	5	5	4	18	11	9

*The four correct selections will add up to 50 points. The culled items will have a lesser value than the fourth place item kept.

b. Value Based Pricing Beef Placing Class – 50 points

Participants will place or keep/cull (scenario will be provided) four exhibits (carcasses or wholesale cuts) based upon value (per hundred weight) derived from the pricing structure provided on the pricing sheet. The prices will reflect current market values. Pricing sheet will be provided to each participant.

Carcasses exhibiting dairy type are ineligible for Yield Grade 1 or 2 premiums. Carcasses classified as Hardbone will exhibit C, D or E skeletal maturity and should be yield graded only. Carcasses with blood splash or Dark Cutter are ineligible for quality grading and should be yield graded only. A bruise is classified as an area located on the carcass where excess trimming has been performed and a major portion of the major muscle groups in the chuck, rib, loin or round has been removed.

A Sample Beef Carcass Pricing Sheet [Training Aid]: Values in parentheses are discounts and should be subtracted from the Carcass Base Price, which is established based on the exhibits USDA Quality and Yield Grade. Prices on the Grid Pricing Sheet may change from year to year.

Example Class:

Carcass #1 = Carcass Weight = 758 pounds

Quality Grade = Choice –

Yield Grade = 2.5

Base Value = \$125.00

No Discounts

Carcass Value = \$125.00

Carcass #2 = Carcass Weight = 976 pounds

Quality Grade = Choice +/-

Yield Grade = 3.9

Base Value = \$127.00

Weight Discounts = minus \$4.00

Carcass Value = \$123.00

Carcass #3 = Carcass Weight = 758 pounds

Quality Grade = Choice +/-

Yield Grade = 3.2

Base Value = \$127.00

Dairy Discounts = minus \$5.00

Carcass Value = 122.00

Carcass #4 = Carcass Weight = 843 pounds

Quality Grade = Ineligible due to being a Dark Cutter

Yield Grade = 3.5

Base Value = \$92.00

Bruise on Left Side Loins extending into the Longissimus dorsi muscle =
minus \$10.00

Carcass Value = \$82.00

Final Placing = 1 – 2 – 3 - 4

Example**National FFA Meats Evaluation and Technology CDE*****Pricing Sheet***

Prices based on the USDA Beef Carcass Price Equivalent Index and the USDA National Carcass Premiums and Discounts

Base Price (\$/cwt.)

	Prime	Choice +/o	Choice -	Select	Standard	Hardbone	Dark Cutter/ Blood Splash
YG 1	\$136	\$130	\$126	\$119	\$110	\$96	\$92
YG 2	\$134	\$128	\$125	\$117	\$108	\$96	\$92
YG 3	\$133	\$127	\$123	\$116	\$107	\$96	\$92
YG 4	\$121	\$115	\$112	\$104	\$95	\$84	\$81
YG 5	\$113	\$108	\$104	\$97	\$87	\$77	\$73

Discounts (\$/cwt.)***Carcass Weight***

<500	(\$27)
500 to 549	(\$16)
550 to 599	(\$4)
900 to 949	(\$2)
950 to 999	(\$4)
1000 and up	(\$19)

Dairy Type*	(\$5)
Bruise	(\$10) per side**

Notes

*Carcasses exhibiting dairy type are ineligible for YG1 and YG2 premiums

**Maximum discount of \$20 per carcass for bruising

3. Question Classes – 50 points

Two of the four to six placing classes will be selected as classes for questions. A total of ten questions will be asked covering both classes; typically five questions per class but it could vary if needed to make the best possible questions. Questions will not be asked on the keep/cull or the value based beef pricing classes. Answers will be transferred to the appropriate computerized scorecard. Notepaper will be provided for note-taking for two identified questions classes. However, participants will not be able to use their notes when answering questions. Participants will be given a short time period to study their notes before answering questions after they have observed and placed the classes. Questions will be worth five points each.

Guidelines for Questions:

- a. All questions must be written in a manner that they can be answered by only one of the following responses: 1, 2, 3, 4
- b. Questions should pertain to the criteria and differences used in placing the class (Trimness, Muscling, Quality and/or Sex). Questions that do not relate to the placing of the class or are not significant to the overall evaluation are not desirable questions and should not be used if possible.
- c. When asking questions about the differences within a class, the differences must be visually distinguishable.
- d. Sample Acceptable Questions:
 - Which beef carcass had the largest ribeye?
 - Which pork carcass had the least backfat opposite the last rib?
 - Which ribeye steak exhibited the brightest colored lean?
 - Which ham was trimmest beneath the butt face?
 - Which beef rib exhibited the most marbling in the blade face?
- e. Sample Unacceptable Questions:
 - Which pork carcass had a missing foot?
 - Which beef carcass displayed indications of a bruise?
 - Which ribeye steak was bigger?
- f. A separate scan form will be used for questions during the event.

4. Retail Meat Cuts Identification - 180 points

Participants will identify 30 retail meats cuts found on the “Meats Identification Card.” The official key (Retail Cuts Coding) is located at the end of this chapter of the handbook. Only the cuts listed are eligible to be used in this event. Participants will be given one point for correct species identification, one point for correct primal cut identification, one point for correct cookery and three points for correct retail trade name. Answers will be recorded on a computerized scorecard.

CLARIFICATION OF TERMS FOR RETAIL ID

- **CHOP**—Smaller, flat cuts of meat, usually from the pork, veal or lamb rib, loin or shoulder, generally ranging from ½” to 1½” in thickness. A chop usually is of a size to be a single meal portion.
- **SLICE**—A section of meat, usually less than one inch thick, taken from the center or either side of center of the leg of pork, lamb or veal.
- **STEAK**—A flat cut of meat, larger than a chop, ranging from ¾” to 1½” of thickness cut from various parts of a beef carcass, or the shoulder of pork and veal. The size of a steak often is sufficient to provide more than one portion.
- **ROAST (Meat Cut)**—Cuts of meat larger than steaks, chops or slices (usually two or more inches thick). This cut is intended to serve more than two people.

5. **Meat Formulation Problem Solving - 50 points**

Participants will complete a meat formulation problem solving exercise. An example is at the end of this chapter. Eight questions are to be answered using the computerized scorecard. The one solution to the meat formulation problem will be worth 15 points. The other 7 questions based on the correct formulation will be valued at 5 points each. All problems will be worked to three decimal places and rounded to two places at each step in the calculation. If the third decimal is five or more, the number will be rounded up.
 6. **Written Exam - 80 points**

Each participant will be given a written test relating to meat storage and handling, cookery, nutrition, food safety (HACCP principles, bio-security and personal safety), animal welfare and animal identification systems. Questions could include multiple choice, true/false or situation based questions. Value per question will be based on question type. Maximum points possible on the exam is 80 points.
All questions will be based on materials taken from the “Meat Science and Food Safety” DVD available through CEV Multimedia as listed on the resource material list. Identified chapters of the DVD will be publicized for the written exam.
- D. **Team Practicums - 4 practicums possible at 50 points each, 200 total points maximum**
The team practicums will be conducted at the product evaluation site after the individual activities. This could be a combination of one or more of each practicum, not to exceed four of the same practicums in each event. A specific practicum may not be utilized in any given year.
1. **Team Practicum Example #1 - 50 points**

Utilizing carcass, primal or subprimal exhibit, participants will be asked to identify the following from selected locations on the exhibit:

Major muscle groups:

 - Longissimus dorsi
 - Spinalis dorsi
 - Psoas major
 - Gluteus medius
 - Biceps femoris
 - Semitendinosus
 - Semimembranosus

Major bones:

 - Scapula
 - Humerus
 - Femur
 - Thoracic Vertebrae
 - Lumbar Vertebrae

Example Scenario:

Specific areas on one or more carcasses or wholesale/subprimal cuts will be identified. Based on the identified areas, participants will confer with team members to answer the following items.

- 1) Find the area on the carcass marked “A”. Which of the following muscles can be found within this area of the carcass?
 - a) Biceps femoris
 - b) Longissimus dorsi
 - c) Semimembranosus
 - d) Semitendinosus
- 2) On the Porterhouse steak at station #1, name the muscle identified by the tag “A”:
 - a) Spinalis dorsi
 - b) Gluteus medius
 - c) Semitendinosus
 - d) Psoas major
- 3) On the Chuck Roast at station #2, name the bone specified by tag “B”:
 - a) Femur
 - b) Lumbar Vertebrae
 - c) Scapula
 - d) Humerus

2. Team Practicum Example #2 - 50 points

Utilizing the 30 Retail ID cuts, the participants will work as a team to solve a meats problem. A scenario will be provided which will allow participants to apply meats concepts from present cuts.

Example of possible questions: 2-10 questions

The Retail ID cuts utilized in the CDE represent the product you have available in your present meats operation. With this in mind, communicate with your teammates to fill the following orders.

- 1) The organizer of a family reunion is planning the annual event. The family wants a low-cost beef cut that can be cooked, shredded and smothered in BBQ sauce. Which cut is most appropriate?
 - a) Retail Cut #9
 - b) Retail Cut #12
 - c) Retail Cut #23
 - d) Retail Cut #29

3. Team Practicum Example #3 - 50 points

Utilizing keep/cull class(es), the participants will work as a team to appraise a class of primal, subprimal or retail cuts. A scenario will be provided which will allow participants to make conclusions. Team members will identify the four exhibits and mark it appropriately on a computerized scorecard form to fit the scenario given to them by the officials.

*Example Scenario: As a consumer, you arrive at a supermarket meat counter with the objective of selecting ribeye steaks for a social gathering being hosted at your house. The guests include your immediate supervisor from work and her husband. Consequently, you wish to select the steaks that are most juicy, flavorful and tender. Refer to the **Keep/Cull** section from Individual Activities for further instructions.*

4. Team Practicum Example #4 - 50 points

Value Based Pricing Beef Placing Class

Example Scenario: As a team you will review a current Grid Pricing Sheet given by the officials. Team members are to evaluate, communicate and reach a conclusion on the correct placing of the class based on the value of the beef carcasses.

Refer to the **Value Based Pricing Beef Placing Class** section from Individual Activities for further instructions.

V. Scoring

The event will be divided in the following sections and scored as follows:

Individual Activities	Possible Maximum Points
Written test	80
Meat formulation problem solving	50
Retail meat cuts identification (30 cuts)	180
Beef Quality and Yield Grading (3-5 carcasses)	80
Placing of 4-6 classes (may include keep/cull class)	300
Ten questions (from two of the placing classes)	50
Total possible points per individual	740
Team Activity	
Four possible team practicums @ 50 points each	200
Total maximum points possible per team*	2,420

*top 3 individual's scores plus team activity score

VI. Tiebreakers

If ties occur, the following events will be used in order to determine award recipients:

Individual

1. Identification Retail Meat Cuts
2. Grading
3. Class Questions

Team

1. Retail ID total of highest three scores
2. Grading total of highest three scores
3. Class questions total of highest three scores

VII. Awards

Awards will be presented at the awards ceremony to teams as well as individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

VIII. References

This list of references is not intended to be all-inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog – <http://shop.ffa.org/cde-materials-c1289.aspx>

- Meat Evaluation Handbook (hard bound)
- Retail Meat Instructional Materials/Instructor Combo Pack
- Retail Meat Team Combo Pack
- Retail Meats Field Guide
- Retail Meats Flash Cards

- Meat Identification Tutorial CD-ROM
- Meat Buyer's Guide
- NAMP Meat Posters
- Beef, Lamb, Pork and Veal Cut Charts
- Meats Evaluation Scan Forms
- National FFA CDE Q&A's (2007-2010)
- FFA Learn-National FFA CDE Q&A's (2005 & 2006) <https://ffa.learn.com/learncenter.asp?id=178409&page=31&mode=preview>

CEV Multimedia

1020 SE Loop 289, Lubbock, TX 79404, (800) 922-9965

- Meat Evaluation Handbook (DVD)
- Retail Cuts Identification (DVD)
- Meat Science and Food Safety (DVD) - written exam resource

Beef Myology - <http://bovine.unl.edu/bovine3D/eng/nIntro.jsp>

National Cattlemen's Beef Association

9110 E. Nichols Ave. #300, Centennial, CO 80112, (303) 694-0305/1-800-368-3138

- USDA Marbling Photographs
- Guide to Identifying Meat Cuts
- <https://store.beef.org/>

American Meat Science Association (AMSA)

2441 Village Green Place, Champaign, Illinois 61874, (800) 517-2672

<http://www.meatscience.org/page.aspx?id=539>

Email: information@meatscience.org

- USDA Marbling Photographs

Art Services, Inc.

3015 Earl Place, N.E., Washington, D.C., 20018, (202) 526-5607

- Beef Ribeye Grids

NASCO

901 Janesville Avenue, P.O. Box 901, Fort Atkinson, WI 53538-0901, 1-800-558-9595

- Preliminary Yield Grade Rulers (<http://www.enasco.com/product/C02615N>)
- Beef and Pork Ribeye Grids

Example Meats Evaluation Websites of Classes and Materials

<http://aggiemeat.tamu.edu/judging/meatjudging.html>

<http://animalscience.unl.edu/meats/id/>

IX. Examples**A. Written Test Examples**

Sample Questions:

1. What is the maximum amount of fat that ground beef may contain?
*A. 30% C. 40%
B. 10% D. 20%

2. What is the least desirable method of thawing frozen meat?
*A. Defrosting at room temperature
B. Defrosting in refrigerator
C. Defrosting in a microwave
D. Cooking from frozen state

B. Meat Formulation Problem Solving

Participants will be given a situational problem involving the least cost formulation of a batch of particular meat products (hamburger, wiener, bologna, etc.). This problem will be worth 50 points and consist of procedural questions and the actual determination of the least cost price.

- Freezing of red meat is considered 28°F and below.
- Freshness: Slaughter date is included when counting. For example, processing on October 26 with a 72 hour freshness specification means October 25, 24 and 23 are good dates; October 22 or earlier are unacceptable dates.

**2010 National FFA Meats Evaluation & Technology CDE
Meat Formulation Problem Solving**

USDA Food Standards and Labeling Policy for Ground Beef:

May not contain added fat. Maximum total fat 30 percent. Cheek meat is permitted up to 25 percent and must be declared in the ingredients statement. For more than 25 percent, show as "Ground Beef and Cheek Meat," all the same size. Beef of skeletal origin, or from the diaphragm or esophagus (weasand) may be used in the preparation of chopped beef, ground beef or hamburger. Heart meat and tongue meat as organ meats are not acceptable ingredients in chopped beef, ground beef or hamburger.

Specifications on ground beef for this activity:

- No variety meats may be used.
- No product more than five days old may be used.
- All fresh products must be stored at a temperature not to exceed 34° F.
- Least cost determined should be performed on acceptable ingredients to select the lowest cost product that meets all ground beef guidelines.

You have received an order with the following specifications:

Desired fat content of finished product = 20%

Batch size = 5,000 lbs.

Manufacture date = Wednesday, October 20, 2010

Available Ingredients

Product	Slaughter Date	Temp. "°F"	% Fat Content	\$ Price/lb.
Beef Heart	October 15	33°	4	.41
80% Trimmings	October 16	35°	20	1.40
75% Trimmings	October 17	34°	25	1.28
Beef Flank	October 14	33°	2	.91
Chuck Tender	October 17	33°	16	1.58
Pork Trimmings	October 18	34°	15	.86
Ribeye Roll	October 18	34°	12	2.12
Bull Product	October 16	34°	8	1.74

Instructions: Carefully read each item and possible answers. Mark the correct answer on the appropriate form. Completely fill the chosen oval to indicate your answer.

Solution – Which of the following was the correct formulation for this problem?

1. 75% Trimmings and Beef Heart
2. **75% Trimmings and Bull Product**
3. 75% Trimmings and Chuck Tender
4. 75% Trimmings and Ribeye Roll
5. 80% Trimmings and Beef Heart
6. 80% Trimmings and Bull Product
7. 80% Trimmings and Chuck Tender
8. Beef Heart and Beef Flank
9. Chuck Tender and Bull Product
10. The correct solution is not listed

What was the total cost of the correct final batch?

- A. \$2,523.00
- B. \$4,544.00
- C. \$5,356.00
- D. **\$7,067.00**
- E. \$7,240.00

What was the price per pound of the correct final batch?

- A. \$1.28
- B. **\$1.41**
- C. \$1.45
- D. \$1.74
- E. \$7.67

What was the percentage of lean in the correct final batch?

- A. 17.0%
- B. 20.0%
- C. 29.0%
- D. 71.0%
- E. **80.0%**

What percentage of the correct final batch was Chuck Tender?

- A. **0%**
- B. 16%
- C. 29%
- D. 56%
- E. 71%

How much Bull Product was in the correct final batch?

- A. 0 lbs.
- B. **1,450 lbs.**
- C. 2,523 lbs.
- D. 3,550 lbs.
- E. 4,544 lbs.

Which ingredient was excluded on the basis of temperature?

- A. **80% Trimmings**
- B. Beef Flank
- C. Beef Hearts
- D. Bull Product
- E. Pork Trimmings

How much fat was in the correct final batch?

- A. 0 lbs.
- B. **1,000 lbs.**
- C. 2,000 lbs.
- D. 4,000 lbs.
- E. 5,000 lbs.

What percentage of the correct final batch was from 75% Trimmings?

- A. 0%
- B. 29%
- C. **71%**
- D. 75%
- E. 100%

Calculations for Meats Evaluation and Technology Meat Formulation Problem

Batch Size = 5,000 Lbs

	Ingredient Name	Price/Lb.	Fat Content	Desired Fat %	Multiples	Proportion of Batch	Lbs. Of Batch	Cost
Ingredient With Most Fat =	75% Trim-mings	\$1.28	25%	20%	4	0.44	2200.00 Lbs.	\$2,816.00
Ingredient With Least Fat =	Chuck Tender	\$1.58	16%		5	0.56	2800.00 Lbs.	\$4,424.00
Sum =					9	Total Cost of Batch =		\$7,240.00
								Price per Pound = \$1.45

Possible Questions:

Amount of Fat = 1000.00 Lbs.
Amount of Lean = 4000.00 Lbs.
Percentage Fat = 20.00%
Percentage Lean = 80.00%

Calculations for Meats Evaluation and Technology Meat Formulation Problem

Batch Size = 5,000 Lbs

	Ingredient Name	Price/Lb.	Fat Content	Desired Fat %	Multiples	Proportion of Batch	Lbs. Of Batch	Cost
Ingredient With Most Fat =	75% Trim-mings	\$1.28	25%	20%	8	0.62	3100.00 Lbs.	\$3,968.00
Ingredient With Least Fat =	Ribeye Roll	\$2.12	12%		5	0.38	1900.00 Lbs.	\$4,028.00
Sum =					13	Total Cost of Batch =		\$7,996.00
								Price per Pound = \$1.60

Possible Questions:

Amount of Fat = 1000.00 Lbs.
Amount of Lean = 4000.00 Lbs.
Percentage Fat = 20.00%
Percentage Lean = 80.00%

Calculations for Meats Evaluation and Technology Meat Formulation Problem								
		Batch Size =		5,000 Lbs				
Ingredient	Ingredient Name	Price/Lb.	Fat Content	Desired Fat %	Multiples	Proportion of Batch	Lbs. Of Batch	Cost
Ingredient With Most Fat =	75% Trim-mings	\$1.28	25%	20%	12	0.71	3550.00 Lbs.	\$4,544.00
Ingredient With Least Fat =	Bull Product	\$1.74	8%		5	0.29	1450.00 Lbs.	\$2,523.00
Sum =					17	Total Cost of Batch =		\$7,067.00
							Price per Pound =	\$1.41
Possible Questions:		Amount of Fat =		1000.00 Lbs.				
		Amount of Lean =		4000.00 Lbs.				
		Percentage Fat =		20.00%				
		Percentage Lean =		80.00%				

This calculator is utilized by Tarleton State University when assisting with FFA Meats CDE activities.

2007 National FFA Meats Evaluation and Technology Career Development Event
Section A – Part I
Meat Formulation Problem (50 Points)

USDA Regulations for Wiener Products:

WIENER: A small variety of cooked sausage of the frankfurter-bologna variety.

COOKED SAUSAGE (general): Semisolid sausage that is generally cured and may or may not be smoked. The quantity of added water is limited to 10 % of the finished product. Normally, the product is limited to 30 % fat, however, USDA allows for a combination of not more than 40 % fat and water. They may or may not include extenders and binders up to 3.5 %.

COOKED SAUSAGE (variety): Includes Frankfurter, Bologna, Wiener or other similar sausages. These are the only types of sausages which can contain up to 15 % poultry meats without qualifications in the product name. They are usually comminuted (emulsified), cooked, cured and if by-products are added, the name must be qualified as “with Variety Meats.” Sausages formulated with one species of skeletal red meat are labeled such as “Beef Bologna”, with the species in the product name.

Company Policy for Wiener Products:

1. No product may be used over 35 F.
2. Frozen product may not be used if stored longer than 45 days.
3. All fresh ingredients must have been slaughtered within 96 hours.
4. No variety meats may be used.
5. No head or cheek meat may be used.
6. Product must contain both beef and pork with no less than 60 % pork.
7. No imported product may be used.

The Order:

As the production supervisor at a medium size meat processing plant that specializes in custom designed sausage products you must produce a wiener for a new restaurant in your city that sells hot dogs as a primary menu item. The product must meet company specifications and inspection regulations. It will be a cured, fully-cooked wholesome product that must contain both pork and beef ingredients. The product must have a 90 day shelf life after it leaves the plant.

- A. Fat content of the finished product is 30 %
- B. Manufacturing date is October 26
- C. Batch size is 500 pounds

BONELESS MEAT INGREDIENTS AVAILABLE

PRODUCT	SLAUGHTER DATE	TEMP	FAT CONTENT	\$ PRICE
1. Beef hearts	October 25	33 F	15 %	\$0.17
2. Beef trimmings, fresh 50 %	October 24	33 F	50 %	\$0.63
3. Beef trimmings, frozen 94 %	August 20	34 F	06 %	\$1.41
4. Skinned jowls	October 23	34 F	62 %	\$0.35
5. Beef trimmings, frozen 50 %	October 01	10 F	50 %	\$0.48
6. Picnic cushion meat	October 23	31 F	25 %	\$0.78
7. Lean pork trimmings 72 %	October 24	32 F	28 %	\$0.71
8. Imported Australia Bull 95 %	July 24	0 F	05 %	\$1.47
9. Regular pork trim 42 %	October 23	37 F	52 %	\$0.48
10 Cheek meat, pork Trimmed	October 23	34 F	25 %	\$0.82
11. Pork loin, bnls, Strap off	October 24	32 F	15 %	\$1.62
12.. Cow trimmings, fresh 85 %	October 23	33 F	15 %	\$1.30

Answer the Following Questions:**Formulation Solution:**

1. _____ is the correct least cost formulation for the wiener order.
 1. Beef trimmings, 50%, fresh and lean pork trimmings 72% \$0.69
 2. Beef heart and lean pork trimmings, 72% \$0.58
 3. Regular pork trim, 42% and Beef trimmings, 94%, frozen \$0.76
 - 4. Lean pork trimmings, 72% and Beef trimmings 50 % frozen \$0.69**
 5. Imported Australia bull and Skinned jowl \$0.97
 6. Cow trimmings, 85 %, fresh and Skinned jowl \$0.99
 7. Lean pork trimmings, 72% and Skinned jowl \$0.69
 8. Beef trimmings,50%, frozen and Cheek meat \$0.74
 9. Regular pork trimmings, 42% and lean pork trimmings 72% \$0.69
 10. Pork loin, bnls, strap off and Beef trimmings, 50%, fresh \$0.67

Formulation Questions:

1. Of the following ingredients which one is not acceptable for the wiener?
 - a. Beef trimmings, fresh, 50%
 - b. Beef trimmings, frozen, 50%
 - c. Imported Australia bull, 95%**
 - d. Skinned jowls
2. Which of the following ingredients is unacceptable to use due to date?
 - a. Beef trimmings, frozen, 50%
 - b. Regular pork trim, 42%
 - c. Beef trimmings, frozen, 94%**
 - d. Beef hearts
3. A wiener product may contain what percent poultry products without qualification in the product name?
 - a. 05%
 - b. 10%
 - c. 20%
 - d. 15%**
4. If all the following ingredients were acceptable choices for the wiener order, which combination could not be used to meet the company policy content of the order?
 - a. Beef trimming, frozen, 50% and picnic cushion meat
 - b. Pork loin, bnls, strap off and regular pork trim**
 - c. Lean pork trimmings, 72% and Beef trimmings, fresh ,50%
 - d. Picnic cushion meat and beef trimmings fresh, 50%
5. By which date should the restaurant manager have used all of the product purchased from this order?
 - a. February 24, 2008
 - b. January 24, 2008**
 - c. March 24, 2008
 - d. April 24, 2008

6. The weight of beef trimmings, fresh in the solution is at or nearest:
- a. 0, none used**
 - b. 45 pounds
 - c. 455 pounds
 - d. 490 pounds
7. What percent of the final solution is lean pork trimmings, 72%?
- a. 09%
 - b. 60%
 - c. 91%**
 - d. 55%
8. The meat plant spent how many total dollars on the material used to manufacture the wieners for this order?
- a. \$345.00**
 - b. \$453.00
 - c. \$499.00
 - d. \$300.00

Retail Cuts Code Sheet with Cookery

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
B	B	89	M	Beef	Brisket	Corned	Moist
B	B	15	M	Beef	Brisket	Flat Half, Bnls	Moist
B	B	10	M	Beef	Brisket	Whole, Bnls	Moist
B	C	26	M	Beef	Chuck	7-bone Pot-Roast	Moist
B	C	03	M	Beef	Chuck	Arm Pot-Roast	Moist
B	C	04	M	Beef	Chuck	Arm Pot-Roast, Bnls	Moist
B	C	06	M	Beef	Chuck	Blade Roast	Moist
B	C	13	M	Beef	Chuck	Eye Roast, Bnls	Dry/Moist
B	C	45	D	Beef	Chuck	Eye Steak, Bnls	Dry
B	C	20	M	Beef	Chuck	Mock Tender Roast	Moist
B	C	48	M	Beef	Chuck	Mock Tender Steak	Moist
B	C	21	D	Beef	Chuck	Petite Tender	Dry
B	C	29	D/M	Beef	Chuck	Shoulder Pot Roast (Bnls)	Dry/Moist
B	C	58	D	Beef	Chuck	Top Blade Steak (Flat Iron)	Dry
B	D	47	D/M	Beef	Flank	Flank Steak	Dry/Moist
B	F	49	D	Beef	Loin	Porterhouse Steak	Dry
B	F	55	D	Beef	Loin	T-bone Steak	Dry
B	F	34	D	Beef	Loin	Tenderloin Roast	Dry
B	F	56	D	Beef	Loin	Tenderloin Steak	Dry
B	F	59	D	Beef	Loin	Top Loin Steak	Dry
B	F	60	D	Beef	Loin	Top Loin Steak, Bnls	Dry
B	F	64	D	Beef	Loin	Top Sirloin Cap Steak, Bnls	Dry
B	F	63	D	Beef	Loin	Top Sirloin Steak, Bnls Cap Off	Dry
B	F	62	D	Beef	Loin	Top Sirloin Steak, Bnls	Dry
B	F	40	D	Beef	Loin	Tri Tip Roast	Dry
B	G	28	M	Beef	Plate	Short Ribs	Moist
B	G	54	D/M	Beef	Plate	Skirt Steak, Bnls	D/M
B	H	22	D	Beef	Rib	Rib Roast	Dry
B	H	13	D	Beef	Rib	Ribeye Roast, Bnls	Dry
B	H	45	D	Beef	Rib	Ribeye Steak, Bnls	Dry
B	H	50	D	Beef	Rib	Ribeye Steak, Lip-On	Dry
B	I	08	D/M	Beef	Round	Bottom Round Roast	Dry/Moist
B	I	09	D/M	Beef	Round	Bottom Round Rump Roast	Dry/Moist
B	I	43	M	Beef	Round	Bottom Round Steak	Moist

Retail Cuts Code Sheet with Cookery (cont.)

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
B	I	46	D/M	Beef	Round	Eye Round Steak	Dry/Moist
B	I	51	M	Beef	Round	Round Steak	Moist
B	I	52	M	Beef	Round	Round Steak, Bnls	Moist
B	I	36	D/M	Beef	Round	Tip Roast - Cap Off	Dry/Moist
B	I	57	D	Beef	Round	Tip Steak - Cap Off	Dry
B	I	39	D	Beef	Round	Top Round Roast	Dry
B	I	61	D	Beef	Round	Top Round Steak	Dry
B	N	82	M	Beef	Various	Beef for Stew	Moist
B	N	83	D/M	Beef	Various	Cubed Steak	Dry/Moist
B	N	84	D	Beef	Various	Ground Beef	Dry
P	E	44	D/M	Pork	Ham/Leg	Pork Fresh Ham Center Slice	Dry/Moist
P	E	25	D/M	Pork	Ham/Leg	Pork Fresh Ham Rump Portion	Dry/Moist
P	E	27	D/M	Pork	Ham/Leg	Pork Fresh Ham Shank Portion	Dry/Moist
P	E	91	D	Pork	Ham/Leg	Smoked Ham, Bnls	Dry
P	E	90	D	Pork	Ham/Leg	Smoked Ham, Center Slice	Dry
P	E	96	D	Pork	Ham/Leg	Smoked Ham, Rump Portion	Dry
P	E	97	D	Pork	Ham/Leg	Smoked Ham, Shank Portion	Dry
P	E	35	D	Pork	Ham/Leg	Tip Roast, Bnls	Dry
P	E	38	D	Pork	Ham/Leg	Top Roast, Bnls	Dry/Moist
P	F	05	D/M	Pork	Loin	Back Ribs	Dry/Moist
P	F	66	D/M	Pork	Loin	Blade Chops	Dry/Moist
P	F	67	D/M	Pork	Loin	Blade Chops, Bnls	Dry/Moist
P	F	06	D/M	Pork	Loin	Blade Roast	Dry/Moist
P	F	68	D	Pork	Loin	Butterflied Chops Bnls	Dry
P	F	11	D	Pork	Loin	Center Loin Roast	Dry
P	F	12	D	Pork	Loin	Center Rib Roast	Dry
P	F	69	D/M	Pork	Loin	Country Style Ribs	Dry/Moist
P	F	70	D	Pork	Loin	Loin Chops	Dry
P	F	71	D	Pork	Loin	Rib Chops	Dry
P	F	73	D	Pork	Loin	Sirloin Chops	Dry
P	F	53	D	Pork	Loin	Sirloin Cutlets	Dry
P	F	30	D	Pork	Loin	Sirloin Roast	Dry
P	F	93	D	Pork	Loin	Smoked Pork Loin Chop	Dry
P	F	95	D	Pork	Loin	Smoked Pork Loin Rib Chop	Dry
P	F	34	D	Pork	Loin	Tenderloin, Whole	Dry
P	F	74	D	Pork	Loin	Top Loin Chops	Dry
P	F	75	D	Pork	Loin	Top Loin Chops, Bnls	Dry
P	F	37	D	Pork	Loin	Top Loin Roast, Bnls	Dry

Retail Cuts Code Sheet with Cookery (cont.)

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
P	J	03	D/M	Pork	Shoulder	Arm Roast	Dry/Moist
P	J	41	D/M	Pork	Shoulder	Arm Steak	Dry/Moist
P	J	07	D/M	Pork	Shoulder	Blade Boston Roast	Dry/Moist
P	J	42	D/M	Pork	Shoulder	Blade Steak	Dry/Moist
P	J	94	D/M	Pork	Shoulder	Smoked Picnic, Whole	Dry/Moist
P	K	98	D	Pork	Side	Slab Bacon	Dry
P	K	99	D	Pork	Side	Sliced Bacon	Dry
P	K	17	M	Pork	Side/Belly	Fresh Side	Moist
P	L	32	D/M	Pork	Spareribs	Pork Spareribs	Dry/Moist
P	N	85	D	Pork	Various	Ground Pork	Dry
P	N	86	M	Pork	Various	Hock	Moist
P	N	83	D/M	Pork	Various	Pork Cubed Steak	Dry/Moist
P	N	87	D	Pork	Various	Pork Sausage Links	Dry
P	N	87	D	Pork	Various	Sausage	Dry
P	N	92	M	Pork	Various	Smoked Pork Hock	Moist
L	A	24	D/M	Lamb	Breast	Ribs (Denver Style)	Dry/Moist
L	E	01	D	Lamb	Leg	American Style Roast	Dry
L	E	44	D	Lamb	Leg	Center Slice	Dry
L	E	16	D	Lamb	Leg	Frenched Style Roast	Dry
L	E	18	D	Lamb	Leg	Leg Roast, Bnls	Dry
L	E	73	D	Lamb	Leg	Sirloin Chops	Dry
L	E	31	D	Lamb	Leg	Sirloin Half	Dry
L	F	70	D	Lamb	Loin	Loin Chops	Dry
L	F	19	D	Lamb	Loin	Loin Roast	Dry
L	H	71	D	Lamb	Rib	Rib Chops	Dry
L	H	72	D	Lamb	Rib	Rib Chops Frenched	Dry
L	H	22	D	Lamb	Rib	Rib Roast	Dry
L	H	23	D	Lamb	Rib	Rib Roast, Frenched	Dry
L	J	65	D/M	Lamb	Shoulder	Arm Chops	Dry/Moist
L	J	66	D/M	Lamb	Shoulder	Blade Chops	Dry/Moist
L	J	33	D/M	Lamb	Shoulder	Square Cut	Dry/Moist
L	N	88	M	Lamb	Various	Shank	Moist
B	M	76	D/M	Beef	Variety	Heart	Dry/Moist
L	M	76	D/M	Lamb	Variety	Heart	Dry/Moist
P	M	76	D/M	Pork	Variety	Heart	Dry/Moist
B	M	77	D/M	Beef	Variety	Kidney	Dry/Moist
L	M	77	D/M	Lamb	Variety	Kidney	Dry/Moist
P	M	77	D/M	Pork	Variety	Kidney	Dry/Moist

Retail Cuts Code Sheet with Cookery (cont.)

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
L	M	78	D/M	Lamb	Variety	Liver	Dry/Moist
P	M	78	D/M	Pork	Variety	Liver	Dry/Moist
B	M	79	M	Beef	Variety	Oxtail	Moist
B	M	80	D/M	Beef	Variety	Tongue	Dry/Moist
L	M	80	D/M	Lamb	Variety	Tongue	Dry/Moist
P	M	80	D/M	Pork	Variety	Tongue	Dry/Moist
B	M	81	M	Beef	Variety	Tripe	Moist

Species		
B Beef	P Pork	L Lamb

Primal Cuts	
A Breast	H Rib or Rack
B Brisket	I Round
C Chuck	J Shoulder
D Flank	K Side (Belly)
E Ham or Leg	L Spareribs
F Loin	M Variety Meats
G Plate	N Various Meats

Retail Cuts	
Roasts/Pot Roasts	Chops
1 American Style	65 Arm Chop
2 Arm Picnic	66 Blade Chop
3 Arm Roast	67 Blade Chop (Bnls)
4 Arm Roast (Bnls)	68 Butterflied Chop (Bnls)
5 Back Ribs	69 Country Style Ribs
6 Blade Roast	70 Loin Chop
7 Blade Boston	71 Rib Chop
8 Bottom Round Roast (Bnls)	72 Rib Chop (Frenched)
9 Bottom Round Rump Roast (Bnls)	73 Sirloin Chop
10 Brisket, Whole (Bnls)	74 Top Loin Chop
11 Center Loin Roast	75 Top Loin Chop (Bnls)
12 Center Rib Roast	
13 Eye Roast (Bnls)	Variety Meats
14 Eye Round Roast	76 Heart
15 Flat Half (Bnls)	77 Kidney
16 Frenched Style	78 Liver
17 Fresh Side	79 Oxtail
18 Leg Roast (Bnls)	80 Tongue
19 Loin Roast	81 Tripe
20 Mock Tender Roast	Various Meats
21 Petite Tender	82 Beef for Stew
22 Rib Roast	83 Cubed Steak
23 Rib Roast (Frenched)	84 Ground Beef
24 Ribs (Denver Style)	85 Ground Pork
25 Rump Portion	86 Hocks
26 Seven (7) Bone Roast	87 Sausage Link/Pattie
27 Shank Portion	88 Shank
28 Short Ribs	
29 Shoulder Roast (Bnls)	Smoked/Cured
30 Sirloin Roast	89 Brisket, Corned
31 Sirloin Half	90 Center Slice
32 Spareribs	91 Ham (Bnls)
33 Square Cut (Whole)	92 Hocks
34 Tenderloin (Whole)	93 Loin Chop
35 Tip Roast (Bnls)	94 Picnic (Whole)
36 Tip, Cap Off Roast	95 Rib Chop
37 Top Loin Roast (Bnls)	96 Rump Portion
38 Top Roast (Bnls)	97 Shank Portion
39 Top Round Roast	98 Slab Bacon
40 Tri-Tip Roast	99 Sliced Bacon

Steaks
41 Arm Steak
42 Blade Steak
43 Bottom Round Steak
44 Center Slice
45 Eye Steak (Bnls)
46 Eye Round Steak
47 Flank Steak
48 Mock Tender Steak
49 Porterhouse Steak
50 Ribeye, Lip-On Steak
51 Round Steak
52 Round Steak (Bnls)
53 Sirloin Cutlets
54 Skirt Steak (Bnls)
55 T-Bone Steak
56 Tenderloin Steak
57 Tip, Cap Off Steak
58 Top Blade (Bnls) Flat Iron Steak
59 Top Loin Steak
60 Top Loin (Bnls) Steak
61 Top Round Steak
62 Top Sirloin Steak (Bnls)
63 Top Sirloin Cap Off Steak (Bnls)
64 Top Sirloin Cap Steak (Bnls)

Cookery Methods
D Dry Heat
M Moist Heat
D/M Dry or Moist Heat

ID #	Species	Primal	Retail	Cookery	Score
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

USDA BEEF GRADING TRAINING AID Carcass Yield Grading

Carcass NO.	PYG		Carcass Weight	Required REA	Rib Eye Area		% KPH		FYG
	Est.	Adj.			Est.	Adj.	Est.	Adj.	
1									
2									
3									
4									
5									

Identify the final yield grade (to the nearest tenth) and complete the scan form correspondingly. Full points will be earned for a correct answer and 1/10th above or below official yield grade. A two point deduction will be made for 2/10th – 5/10th above or below official yield grade. A four point deduction for 6/10th – 9/10th above or below official yield grade. Zero points will be awarded for answers one yield grade above or below the official yield grade. Perfect score will be a maximum of forty points (eight points for five carcasses).

Carcass Quality Grading

Carcass No.	Age		Marbling	Quality Grade
	Skeletal Maturity	Lean adj.		
1				
2				
3				
4				
5				

Prime High	Select High	Commercial High
Prime Avg.	Select Low	Commercial Ave.
Prime Low	Standard High.	Commercial Low
Choice High	Standard Low	Utility High
Choice Avg.		Utility Avg.
Choice Low		Utility Low

The participant should establish the quality grades for each carcass according to USDA standards. Each participant should complete the section of answers for quality grading on the computerized scorecard.

Canner and Cutter grades will not be used in the event. Eight points are awarded for each correct grade. Each will be scored for the applicable adjacent grade as follows: 8, 6, 4, 0. Yet, in the case of “B” Maturity; Select High and Select Low will be awarded zero points. Perfect score will be a maximum of forty points (eight points for five carcasses).

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
	ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.		Social Studies: 7b and 7g
	ABS.01.01.01.a. Recognize principles of capitalism as related to AFNR businesses.	placing, formulation, practicum, exam	
	AS.02.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.		Science: C1, C5 and F2
	AS.02.02.01.c. Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.	retail ID, team practicum	
	AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.		Science: C5
	AS.02.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.	placings, exam, formulation, practicum, team activity	
	AS.02.03.02.b. Assess an animal to determine if it has reached its optimal performance level based on anatomical and physiological characteristics.	grading, questions	
	AS.04.02. Performance Indicator: Prescribe and administer animal feed additives and growth promotants in animal production.		Science: C5
	AS.04.02.01.b. Discuss how feed additives and growth promotants are administered and the precautions that should be taken.	exam, team activity	
	AS.06.02. Performance Indicator: Implement procedures to ensure that animal products are safe.		Science: F1 and F5
	AS.06.02.01.b. Discuss consumer concerns with animal production practices relative to human health.	exam, team activity	
	FPP.01.01. Performance Indicator: Evaluate the significance and implications of changes and trends in the food products and processing industry.		Science: F1 Language Arts: 7 and 8 Social Studies: 1g and 8c
	FPP.01.01.01.b. Evaluate changes and trends in the food products and processing industry.	retail ID, exam, team activity, placings, questions	
	FPP.01.02. Performance Indicator: Work effectively with industry organizations, groups and regulatory agencies affecting the food products and processing industry.		Language Arts: 12 Social Studies: 6c and 8f
	FPP.01.02.02.b. Discuss the application of industry standards in the food products and processing industry.	all activities	

FPP.03.01. Performance Indicator: Apply principles of science to food processing to provide a safe, wholesome and nutritious food supply.		Science: A2, B3 and F1
	FPP.03.01.01.a. Discuss how research and industry developments lead to improvements in the food products and processing industry.	problem solving, team activity, exam
	FPP.03.01.02.b. Explain how the chemical and physical properties of foods influence nutritional value and eating quality.	exam
FPP.04.01. Performance Indicator: Utilize harvesting, selection and inspection techniques to obtain quality food products for processing.		Science: F1 Language Arts: 12
	FPP.04.01.01.c. Assign quality and yield grades to food products according to industry standards.	grading, placing, team activity
	FPP.04.01.02.b. Perform quality-control inspections of raw food products for processing.	problem solving, placing, team activity, grading
	FPP.04.01.03.b. Compare and contrast accepted animal treatment and harvesting techniques.	exam
	FPP.04.01.04.c. Conduct [pre-mortem and] post-mortem inspections of animals.	placing classes, grading, retail cut ID, team activity
FPP.04.02. Performance Indicator: Evaluate, grade and classify processed food products.		Science: F1 Language Arts: 8
	FPP.04.02.01.c. Evaluate, grade and classify processed meat, egg, poultry, fish and dairy products.	all activities

Appendix B: Related Academic Standard

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Science

- A. Content Standard: Science as an Inquiry
 - A2. Design and conduct scientific investigations.
- B. Content Standard: Physical Science
 - B3. Chemical reactions
- C. Content Standard: Life Science
 - C1. The cell
 - C5. Matter, energy and organization in living systems
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health
 - F2. Population growth
 - F5. Natural and human-induced hazards

English Language Arts

- 7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- 8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- 12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

- 1. Thematic Strand: Culture
 - 1g. construct reasoned judgments about specific cultural responses to persistent human issues;
- 6. Thematic Strand: Power, Authority and Governance
 - 6c. analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security and balance competing conceptions of a just society;

7. Thematic Strand: Production, Distribution and Consumption

7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;

7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;

8. Thematic Strand: Science, Technology and Society

8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;

8c. analyze how science and technology influence the core values, beliefs and attitudes of society, and how the core values, beliefs and attitudes of society shape scientific and technological change;

8f. formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.

National FFA Milk Quality and Products Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the National FFA Milk Quality and Products Career Development Event is to promote practical learning activities in milk quality and dairy products, as well as assisting students in developing team decision-making skills.

The focus of the National FFA Milk Quality and Products Career Development Event is raw milk quality, federal milk marketing orders and attributes of selected milk products. The four general areas that contribute to milk quality and consumer demand are:

- Milk production.
- Milk quality and safety.
- Milk processing or manufacturing.
- Raw milk marketing.

For information about milk production and related careers, see the reference section at the end of this chapter.

II. Objectives

A. Utilize knowledge of milk quality

1. Producing quality milk
 - A. Regulations
 - B. Grades and classes of milk
 - C. Factors necessary to produce quality milk
2. Cleaning and sanitizing
 - A. General types of cleaners and sanitizers
 - B. Water hardness
 - C. Milkstone
 - D. Equipment, teats and udders
3. Cooling milk
4. Identifying diseases transmitted to consumers via milk
5. Recognizing causes of off flavors in milk

B. Utilize knowledge of milk pricing

1. Marketing and marketing concepts
 - A. Pricing trends
 - B. Economics
 - C. Supply and demand
2. Federal milk marketing orders, economics and distribution
 - A. Transportation costs
 - B. Cooperatives
 - C. Pricing

- C. **Utilize knowledge of the composition and quality characteristics of raw and pasteurized milk and milk products**
 - 1. Nonfat solids portion
 - 2. Milkfat
 - 3. Adulterants, including water
 - 4. Bacterial standards and usual methods of estimating their numbers
- D. **Understand the causes and control of mastitis, its influences on milk quality and cheese yield and the use of mastitis detection methods in controlling the disease**
 - 1. Causes
 - 2. Prevention
 - 3. Detection (California Mastitis Test and Direct Microscopic Somatic Cell Count)
 - 4. Treatment
 - 5. Regulatory programs
- E. **Identify cheese varieties and characterize properties**
- F. **Identify flavor defects and evaluate milk quality**

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. **Team make-up-** Teams will consist of four members. Team ranking is determined by combining the scores of all team participants. Teams that have fewer than four members are not eligible for team awards, but students may receive individual awards.
- B. It is highly recommended that all participants be in official FFA dress for this event.
- C. Participants will report for instructions to the event superintendent at the time and place shown in the current year's team orientation packet.
- D. Participants are not to use strong deodorant, perfume, chewing gum or other detractors to the taste and smell senses.
- E. Any participant in possession of an electronic device in the event area is subject to disqualification.

V. Event Format

A. Equipment

- 1. Materials to be provided by the student: two no. 2 pencils.
- 2. *Optional - students may wish to bring a non-programmable calculator, bottled water and/or palette cleanser.*
- 3. Materials Provided: All paper and other supplies will be provided. Participants are not to bring clipboards, paper, etc., to the event. Participants are not to bring glass of any kind to the event.

B. Flow of Event

- 1. Milk Flavor Identification and Evaluation - 20 minutes
- 2. Fat Content Identification - 20 minutes
- 3. California Mastitis Test - 20 minutes
- 4. Cheese Identification - 20 minutes
- 5. Written Exam - 40 minutes
- 6. Problem Solving - 40 minutes
- 7. Team Activity - varied based on activities

VI. Team Activity

Teams members will work together to determine producer milk acceptability based on some or all of the following tests. Teams may have to perform the acceptability tests or analyze test results given. Teamwork will be assessed during the completion of the acceptability tests.

Examples of acceptability tests include:

- A. Recent producer history
- B. Percent TA (acidity)
- C. DMC (Direct Microscopic Somatic Cell Count)
- D. SPC (Standard Plate Count)
- E. PI count (Preliminary Incubation Count)
- F. Antibiotic screening test
- G. Sample temperature
- H. Sample freezing point

Teams will present their test findings, acceptability solution and improvement recommendations to a panel of judges.

Team Activity Scoring

- Accuracy of report results - 200 points
- Content of comments - 100 points
- Presentation (written/oral) - 50 points
- Teamwork - 50 points

VII. Individual Activities

A. Milk Flavor Identification and Evaluation (20 minutes) - 110 points

1. Ten milk samples will be scored on flavor (taste and odor) using the computerized scorecard. All samples of milk are prepared from pasteurized milk intended for table use and will score 1 to 10 (See Scoring Guide). Milk samples will be tempered to 60°F. *Only those cups provided* at the event may be used.
2. Participants are to use whole numbers when scoring “Flavor” of milk and to check only the most serious defect in a sample even if more than one flavor is detected. If no defect is noted, participants should check, “No defect” and score as a ten (See Scoring Guide).
3. Palette cleansers (e.g. apples or soda crackers) will be allowed for refreshing.

Scoring Guide – Refer to the current scorecard being used at the national level.

Scores may range from 1 to 10. On a quality basis:

- | | |
|--------|--------------------------------|
| 10 | excellent (<i>no defect</i>) |
| 8 to 9 | good |
| 5 to 7 | fair |
| 2 to 4 | poor |
| 1 | unacceptable/un-salable |

Example: Milk Flavor

DEFECTS	SCORES*		
	<i>Slight</i>	<i>Definite</i>	<i>Pronounced</i>
Acid	3	2	1
Bitter	5	3	1
Feed	9	8	5
Flat/Watery	9	8	7
Foreign	5	3	1
Garlic/Onion	5	3	1
Malty	5	3	1
Oxidized	6	4	1
Rancid	4	2	1
Salty	8	6	4

*Suggested scores are given for three intensities of flavor. All numbers within the range may be used. Intermediate numbers may also be used; for example, a bitter sample of milk may score 4.

B. Milk Fat Content of Fresh Milk Products (20 minutes) - 15 points

- Five samples of fresh fluid milk products will be identified according to their content of milk fat.
- The following products may be included among the samples: nonfat (skim) milk, reduced fat milk (2%), milk (3.3%), half and half (10.5%), coffee cream (18%) and whipping cream (30%).

C. California Mastitis Test (20 minutes) - 64 points

- The California Mastitis Test will be scored using even numbers from 0 to 8 inclusive. (See below for the Scoring Guide for the California Mastitis Test.)
- Eight samples of milk will be evaluated for abnormality, using the California Mastitis Test method.

Scoring Guide

CMT Test Score	Appearance	Participant Score
Negative	Mixture liquid, no precipitate	0
T	Slight precipitate tends to disappear with paddle movement	2
1	Distinct precipitate but does not gel	4
2	Distinct gel formation	6
3	Strong gel formation, which tends to adhere to paddle. Forms distinct central peak	8

D. Cheese Identification (20 Minutes) - 50 points

- Five cheese samples for identification will be selected from those listed below. Cubes of the cheeses will be available for tasting. Note: More than one sample of a given cheese may be used. A score of 3 points is given for each variety correctly identified. Uncolored cheeses may be used.
- In addition to identifying cheese samples, participants will classify characteristics of identified cheeses using the following matrix. Participants will have seven characteristics to select based on the five identified cheese samples (35 points possible). An example cheese characteristic problem can be found in the reference section of this handbook.

CHEESE CHARACTERISTICS MATRIX: A description of major varieties of cheeses popular among American consumers.

Variety	Moisture (%) (Maximum) ¹	Fat (%) (Minimum) ²	Gas Holes (Expected)	Pasta Filata ³	Brine/surface Salted	Ripened by	Origin
Bleu	46	50	no	no	yes	mold	England
Brick	44	50	no	no	no	bacteria	US
Brie	52.5	20	no	no	no	bacteria & mold	France
Cheddar	39	50	no	no	no	bacteria	England
Edam	45	40	no	no	yes	bacteria	Netherlands
Cream	55	33	no	no	no	unripened	US
Monterey, Jack	44	50	no	no	no	bacteria	US
Mozzarella	60	45	no	yes	yes	bacteria	Italy
Neufchatel	65	20	no	no	no	unripened	France
Parmesan	32	32	no	no	yes	bacteria	Italy
Processed							
American	40	50	no	no	no	bacteria	US
Provolone	45	45	no	yes	yes	bacteria	Italy
Swiss	41	43	yes	no	yes	bacteria	Switzerland

¹Some cheeses have a range in moisture permitted, but these are the highest permitted amounts.

²Some cheese standards use percentage by weight of total solids (e.g., Cheddar) while others use percentage by weight of the cheese (e.g., Cream).

³Curd is stretched in hot water to align the protein molecules and provide stretch to the curd.

E. Problem Solving (40 Minutes) - 100 Points

The problem solving test will consist of critical-thinking, multiple choice questions.

Topics may include, but are not limited to:

1. Decisions about the quality and acceptability of milk.
2. Calculations of the value of milk and components of milk.
3. Decisions about components of milk and milk products (including processing procedures).
4. Decisions about the use of chemicals in cleaning and sanitizing operations.

F. Written Test (40 Minutes) - 120 points

The written test will be comprised of a total of 60 multiple choice items. The test will be given in two parts with one part consisting of thirty (30) questions on quality milk production and a second part of thirty (30) questions on milk marketing.

VIII. Tiebreakers

If ties occur, the following events will be used in order to determine award recipients:

Team

1. Team activity
2. Exam score totals
3. Problem solving totals

Individual

1. Exam
2. Problem solving
3. Sum of milk flavors, fat ID, CMT and cheese ID

IX. Scoring

The event will be worth 2,240 total points based on positive-type scoring.

Activity	Points/Sample	Samples	Points
Milk Flavor Identification and Evaluation	11 points/sample	10 samples	110
Fat identification	3 points/sample	5 samples	15
California Mastitis Test (*Includes one free point)	8 points/sample	8 samples	65*
Cheese type identification	3 points/sample	5 samples	15
Cheese characteristic identification	7 point/sample	5 samples	35
Problem Solving			100
Written Exam		60 questions	120
Total Possible Individual Points			460
Team Activity			400
Total Points per team			2,240

X. Awards

Awards will be presented at the awards ceremony. Awards are presented to teams as well as individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

XI. References

This list of references is not intended to be all-inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

1. National FFA Core Catalog; National Career Development Event Questions and Answers—<http://shop.ffa.org/cde-qas-c1413.aspx>
2. Hoard's Dairyman, PO Box 801, Fort Atkinson, Wisconsin 53538. Phone (414) 563-5551. Issues used are from September of previous year to August of current year.
3. *Using the California Mastitis Test* published by the University of Missouri-Columbia Extension Division, Columbia, Missouri 65211. (Single copy free, write for price quote for multiple copies).
4. California Mastitis Test can be ordered from NASCO. Toll free 1-800-558-9595 or toll call, 1-414-563-2446. NASCO, 901 Janesville Avenue, Fort Atkinson, WI 53538.
5. The Cheese Reporter (Publication Number: ISSN 0009-2142), published weekly by Cheese Reporter Publishing Co., Inc. 4210 Washington Ave., Madison, WI 53704. Phone (608) 246-8430, Fax (608) 246-8431.
6. *Dairy Facts* – International Dairy Foods Association, 1250 H Street, N.W. Suite 900, Washington, DC 20005. Phone – 202-732-4332– www.idfa.org
7. Agricultural Marketing Service – www.ams.USDA.gov
8. *Judging and Scoring Milk and Cheese, Farmers bulletin # 2259*, United States Department of Agriculture, Washington DC, 20250. Phone 202-447-7473.
9. *Judging, Identifying and Scoring Dairy Products – Bulletin J250c*, University of Illinois, 1401 S. Maryland Drive, Urbana, IL 61801; Phone – 217-333-3871.
10. *Dairy Foods: Producing the Best*, Dr. Robert Marshall; Instructional Materials Laboratory, 1400 Rock Quarry Road, Q139, University of Missouri; Columbia, MO 65211
11. The Dairy Practices Council: Guidelines – www.dairypc.org
 1. #21 – Raw Milk Quality Tests (\$4)
 2. #24 – Troubleshooting High Bacteria Counts of Raw Milk (\$5)

3. #38 – Preventing Off-Flavors and Rancid Flavors in Milk (\$6)
12. Pasteurized Milk Ordinance – <http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/MilkSafety/NationalConferenceonInterstateMilkShipmentsNCIMSMModelDocuments/default.htm>
13. Code of Federal Regulations Title 21, Part 133 – Cheeses and Related Cheese Products – <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=133>

Milk Production and Related Careers

The production of high quality raw milk requires the following:

- Clean and healthy cows.
- Equipment that is constructed appropriately from approved materials.
- Proper installation, cleaning, sanitizing and operation of the equipment.
- Rapid cooling of milk in compliance with regulatory requirements.
- Delivery of milk to the processor within 48 hours.
- Prevention of milk adulterants such as water, antibiotics, pesticides, cleaning and sanitizing chemicals, medicinal agents and any other extraneous materials.
- Application of tests for acceptability of milk.

Fresh raw milk should possess a sweet bland flavor, be free of feed flavors and contain low number of somatic cells and bacteria. Mixed milk from several cows (herd milk) is expected to contain approximately 3.5% milk fat, 3.1% protein and 4.8% lactose, the main characterizing constituents. Milk is the most important source of calcium in the diet of the average American, supplying approximately 70% of the dietary calcium.

Students considering a career related to the subject matter in this CDE may wish to consider that persons of the following groups contribute to the successful production of high quality milk and milk products:

- **Dairy farmers and herd managers** manage and milk cows and prepare milk for dealers.
- **Field representatives** of the buying and/or selling organizations provide advice to producers and promote milk quality for buyers.
- **Milk sanitarians** enforce public health regulations.
- **Food technologists** apply chemical, physical, microbiological and sensory tests to determine the quality and safety of milk and milk products.
- **Manufacturers and dealers** of dairy equipment supply and service equipment.
- **Suppliers of chemicals** used in cleaning and sanitizing provide chemicals and advice on proper use.
- **Veterinarians** treat diseased animals and advise producers on disease prevention.
- **Milk plant operators** process milk into finished product for consumers.
- **U. S. Food and Drug Administration** manages the regulation of grade A milk.
- **U. S. Department of Agriculture** manages the regulation of manufacturing grade milk and provides grading services to manufacturers of butter, cheese and nonfat dry milk.
- **Officials and technicians** of the USDA Federal Milk Marketing Orders sample, test and account for milk marketed under federal orders. They also apply regulations to marketing raw milk.
- **State departments of agriculture and/or public health** manage the public health regulations applied to milk at the state level.
- **State dairy extension agents** provide advice to dairymen regarding production and sale of milk.

CHEESE CHARACTERIZATION EXAMPLE PROBLEM

The seven items in the “characteristics” column are based on the information found in the Cheese Characterization Matrix on page 5 of this handbook. Cheese samples are from the cheese identification activity. Participants will select all characteristics that apply to each sample. Answers will be recorded on the event-specific scan form. Characteristics in the problem can change each year.

Characteristics	Sample Numbers				
	1 (Cheddar)	2 (Cream)	3 (Swiss)	4 (Mozzarella)	5 (Bleu)
A. Maximum moisture=39%	X				
B. Minimum fat in the solids= 33%		X			
C. Gas holes are expected=yes			X		
D. Receives “pasta filata treatment”				X	
E. Salted in brine				X	
F. Ripened by molds					X
G. Originated in England	X				

Milk Quality and Products Team Activity Rubric – Communications - 50 points

Oral Communication						
Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Examples	<i>Examples are vivid, precise and clearly explained.</i> · Examples are original, logical and relevant.	<i>Examples are usually concrete, sometimes needs clarification.</i> · Examples are effective but need more originality or thought.	<i>Examples are abstract or not clearly defined.</i> · Examples are sometimes confusing, leaving the listeners with questions.		X 1	
B. Speaking without hesitation	<i>Speaks very articulately without hesitation.</i> · Never has the need for unnecessary pauses or hesitation when speaking.	<i>Speaks articulately but sometimes hesitates.</i> · Occasionally has the need for a long pause or moderate hesitation when speaking.	<i>Speaks articulately but frequently hesitates.</i> · Frequently hesitates or has long, awkward pauses while speaking.		X 1	
C. Tone	<i>Appropriate tone is consistent.</i> · Speaks at the right pace to be clear. · Pronunciation of words is very clear and intent is apparent.	<i>Appropriate tone is usually consistent.</i> · Speaks at the right pace most of the time but shows some nervousness. · Pronunciation of words is usually clear, sometimes vague.	<i>Has difficulty using an appropriate tone.</i> · Pace is too fast; nervous. · Pronunciation of words is difficult to understand; unclear.		X 1	
D. Being detail oriented	<i>Is able to stay fully detail-oriented.</i> · Always provides details which support the issue; is well organized.	<i>Is mostly good at being detail-oriented.</i> · Usually provides details which are supportive of the issue; displays good organizational skills.	<i>Has difficulty being detail-oriented.</i> · Sometimes overlooks details that could be very beneficial to the issue; lacks organization.		X 1	
E. Speaking unrehearsed	<i>Speaks unrehearsed with comfort and ease.</i> · Is able to speak quickly with organized thoughts and concise answers.	<i>Speaks unrehearsed mostly with comfort and ease but sometimes seems nervous or unsure.</i> · Is able to speak effectively, has to stop and think and sometimes gets off focus.	<i>Shows nervousness or seems unprepared when speaking unrehearsed.</i> · Seems to ramble or speaks before thinking.		X 1	
F. Connecting and articulating facts and issues	<i>Exemplary in connecting facts and issues and articulating how they impact the issue locally and globally.</i> · Possesses a strong knowledge base and is able to effectively articulate information regarding related facts and current issues.	<i>Sufficient in connecting facts and issues and articulating how they impact the issue locally and globally.</i> · Possesses a good knowledge base and is able to, for the most part, articulate information regarding related facts and current issues.	<i>Has difficulty with connecting facts and issues and articulating how they impact the issue locally and globally.</i> · Possesses some knowledge base but is unable to articulate information regarding related facts and current issues.		X 1	
G. All team members participated	· All team members took an active role in the presentation.	· Three team members took an active role in the presentation.	· Two or less team members took an active role in the presentation.		X 1	
Non-Verbal Communication						
A. Attention (eye contact)	<i>Eye contact constantly used as an effective connection.</i> · Constantly looks at the entire audience (90-100% of the time).	<i>Eye contact is mostly effective and consistent.</i> · Mostly looks around the audience (60-80% of the time).	<i>Eye contact does not always allow connection with the speaker.</i> · Occasionally looks at someone or some groups (less than 50% of the time).		X 1	
B. Mannerisms	<i>Does not have distracting mannerisms that affect effectiveness.</i> · No nervous habits.	<i>Sometimes has distracting mannerisms that pull from the presentation.</i> · Sometimes exhibits nervous habits or ticks.	<i>Has mannerisms that pull from the effectiveness of the presentation.</i> · Displays some nervous habits; fidgets or anxious ticks.		X 0.5	
C. Gestures	<i>Gestures are purposeful and effective.</i> · Hand motions are expressive and used to emphasize talking points. · Great posture (confident) with positive body language.	<i>Usually uses purposeful gestures.</i> · Hands are sometimes used to express or emphasize. · Occasionally slumps; sometimes negative body language.	<i>Occasionally gestures are used effectively.</i> · Hands are not used to emphasize talking points; hand motions are sometimes distracting. · Lacks positive body language; slumps.		X 0.5	
D. Well poised	<i>Is extremely well poised.</i> · Poised and in control at all times.	<i>Usually is well poised.</i> · Poised and in control most of the time; rarely loses composure.	<i>Isn't always well poised.</i> · Sometimes seems to lose composure.		X 1	
Total Score						

**Milk Quality and Products
Team Activity Rubric – Teamwork - 50 points**

Teamwork						
Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Managing team dynamics	<p><i>Completely committed to team dynamics, maturity and professionalism is always present.</i></p> <ul style="list-style-type: none"> · In team conflicts, problem-solving and decision-making methods and skills are used to produce a positive compromise. 	<p><i>Somewhat committed to team dynamics, maturity and professionalism is seldom present.</i></p> <ul style="list-style-type: none"> · In team conflicts, problem-solving and decision-making methods and skills are sometimes used to produce a compromise. Sometimes involvement in this process is limited. 	<p><i>Lacking team dynamics, maturity and professionalism.</i></p> <ul style="list-style-type: none"> · When team conflict arises minimal or no attempt at a resolution is made by team members. 		X 3	
B. Awareness of personality styles of others	<p><i>Totally conscious and respectful of differing attitudes, personalities and behaviors.</i></p> <ul style="list-style-type: none"> · Language is free of bias, and completely shows an understanding and respect for others' differences in learning and personality. 	<p><i>Is, for the most part, respectful of others' differences in personality and behavior.</i></p> <ul style="list-style-type: none"> · For the most part, language conveys an understanding of others' differences in learning and personality. 	<p><i>Shows little tolerance for differing personalities and behaviors.</i></p> <ul style="list-style-type: none"> · Language used may be expressed as not understanding others' differences in personality and learning styles. 		X 1	
C. Uses positive and mature language and mannerisms	<p><i>Always uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> · Never uses immature verbal and/or nonverbal communication. · Always has positive communications. 	<p><i>Usually uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> · Rarely uses immature verbal and/or nonverbal communication. · Usually has positive communications. 	<p><i>Seldom or never uses mature language and mannerisms.</i></p> <ul style="list-style-type: none"> · Frequently uses immature verbal and/or nonverbal communication. · Seldom has positive communications. 		X 2	
D. Reacting to changes	<p><i>Has ability to react and transition effortlessly to change.</i></p> <ul style="list-style-type: none"> · Shows excellent ability to adapt with unexpected change; thinks quickly; shows no sign of stress. 	<p><i>Typically reacts well to changes.</i></p> <ul style="list-style-type: none"> · Seems able to adapt to unexpected change most of the time; occasionally stresses. 	<p><i>Has difficulty reacting well to changes.</i></p> <ul style="list-style-type: none"> · Seems stressed by change. 		X 1	
E. Handling tasks	<p><i>Handles tasks with ease, including task assignment.</i></p> <ul style="list-style-type: none"> · Efficient in planning, managing and completing all tasks in a timely and organized fashion. · All project parts are assigned equally. 	<p><i>Does a good job handling tasks with some ease, including task assignment.</i></p> <ul style="list-style-type: none"> · Is thoughtful about the planning and sequencing of tasks, but occasional priority mistakes are made. · Some project parts are assigned equally. 	<p><i>Has difficulty handling tasks, including task assignment.</i></p> <ul style="list-style-type: none"> · Seems to have trouble deciding the order to do several tasks and struggles with completion in a timely manner. · No project parts are assigned equally. 		X 3	
Total Points						

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
AS.06.02. Performance Indicator: Implement procedures to ensure that animal products are safe.			Science: F1 and F5
	AS.06.02.01.b. Discuss consumer concerns with animal production practices relative to human health.	written exam	
BS.02.03. Performance Indicator: Demonstrate proper laboratory procedures using biological materials.			Science: A2, A3 and E1
	BS.02.03.02.a. Perform procedures with biological materials according to directions.	CMT, team activity	
FPP.01.01. Performance Indicator: Evaluate the significance and implications of changes and trends in the food products and processing industry.			Science: F1 Language Arts: 7 and 8 Social Studies: 1g and 8c
	FPP.01.01.01.b. Evaluate changes and trends in the food products and processing industry.	written exam	
	FPP.01.01.02.b. Discuss the issues of safety and environmental concerns about foods and food processing (e.g., Genetically Modified Organisms, microorganisms, contamination, irradiation).	written exam, team activity	
FPP.01.02. Performance Indicator: Work effectively with industry organizations, groups and regulatory agencies affecting the food products and processing industry.			Language Arts: 12 Social Studies: 6c and 8f
	FPP.01.02.02.b. Discuss the application of industry standards in the food products and processing industry.	cheese ID, team activity	
FPP.02.03. Performance Indicator: Apply safety and sanitation procedures in the handling, processing and storing of food products.			Science: A2 and F5
	FPP.02.03.01.b. Evaluate food product handling procedures.	problem solving	
	FPP.02.03.02.c. Interpret quality-assurance test results and apply corrective procedures.	team activity	
FPP.04.02. Performance Indicator: Evaluate, grade and classify processed food products.			Science: F1 Language Arts: 8
	FPP.04.02.01.c. Evaluate, grade and classify processed meat, egg, poultry, fish and dairy products.	milk flavors, cheese ID	

CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	team activity	
CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.	team activity	
CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	team activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
CS.01.02.02.b. Utilize communication skills to collaborate in a group setting.	team activity	
CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtue.		Social Studies: 4c and 4f
CS.01.04.04.c. Demonstrate respect for others.	team activity	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.		Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	team activity	
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
CS.02.02.02.c. Present oneself appropriately in various settings.	team activity	
CS.02.02.03.b. Exhibit the behaviors needed for developing and maintaining a professional relationship.	team activity	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	team activity	
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
CS.02.05.03.c. Exhibit self confidence while in the workplace.	team activity	

CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.03.c. Make effective business presentations.	team activity	
CS.03.02. Performance Indicator: Decision Making: Analyze situations and execute and appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
CS.03.02.01.c. Make decisions for a given situation by applying the decision-making process.	team activity	
CS.03.02.02.c. Use problem-solving skills.	team activity	
CS.03.03. Performance Indicator: Flexibility/Adaptability: Describe traits that enable one to be capable and willing to accept change.		Science: A2, A6 and E2 Language Arts: 7 Social Studies: 8a
CS.03.03.02.c. Evaluate strategies that can be used to manage change within the workplace.	team activity	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics**6. Standard and Expectations: Problem Solving**

6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science**A. Content Standard: Science as an Inquiry**

A1. Identify questions and concepts that guide scientific investigation.

A2. Design and conduct scientific investigations.

A3. Use technology and mathematics to improve investigations and communications.

A4. Formulate and revise scientific explanations and models using logic and evidence.

A5. Recognize and analyze alternative explanations and models.

A6. Communicate and defend a scientific argument.

E. Content Standard: Science and Technology

E1. Abilities of technological design.

E2. Understanding about science and technology.

F. Content Standard: Science in Personal and Social Perspectives

F1. Personal and community health.

F5. Natural and human-induced hazards.

English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

7. Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture

1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;

1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;

1g. construct reasoned judgments about specific cultural responses to persistent human issues;

4. Thematic Strand: Individual Development and Identity

4a. articulate personal connections to time, place and social/cultural systems;

4h. work independently and cooperatively within groups and institutions to accomplish goals;

4c. describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status and other group and cultural influences contribute to the development of a sense of self;

4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;

4e. examine the interactions of ethnic, national or cultural influences in specific situations or events;

4f. analyze the role of perceptions, attitudes, values and beliefs in the development of personal identity;

6. Thematic Strand: Power, Authority and Governance

6c. analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security and balance competing conceptions of a just society;

8f. formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.

8c. analyze how science and technology influence the core values, beliefs and attitudes of society, and how the core values, beliefs and attitudes of society shape scientific and technological change;

8. Thematic Strand: Science, Technology and Society

8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;

10. Thematic Strand: Civic Ideals and Practices

10b. identify, analyze, interpret and evaluate sources and examples of citizens' rights and responsibilities;

10j. participate in activities to strengthen the "common good," based upon careful evaluation of possible options for citizen action.

National FFA Nursery/Landscape Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Event Purpose

The purpose of the National FFA Nursery/Landscape Career Development Event is to promote career interest, encourage proficiency development and recognize excellence in participants of the event which includes all aspects of the industry to produce, market, utilize and maintain landscape plants (woody and herbaceous plants and turf grasses), as well as related production and landscaping products, equipment and services including design.

II. Objectives

- A. Nursery/Landscape Principles: To apply nursery and landscape principles and practices as they impact **residential, commercial, public and recreational applications**.
- B. Plant Materials: To demonstrate the ability to identify, select and utilize nursery and landscape plants (interior/exterior), landscape materials and turf grasses commonly used in the United States.
- C. Plant Disorders: To demonstrate the ability to identify unhealthy plant conditions due to pests, nutritional/physiological disorders and mechanical/chemical injury.
- D. Cultural Practices: To demonstrate knowledge of the principles and skills involved in propagation, growth requirements, growing techniques, harvesting, sustainability, marketing and maintenance of interior and exterior landscape plants and turf grasses.
- E. Design and Construction: To demonstrate knowledge of the principles and techniques of landscape design and construction.
- F. Supplies and Equipment: To demonstrate the ability to identify, select, use and maintain appropriate supplies and equipment for nursery and landscape operations, including equipment and procedures in mechanization and automation.
- G. Safety: To demonstrate knowledge of safety practices in nursery and landscape operations.
- H. Interpersonal Relations: To demonstrate skills in oral and written business communications.
- I. Marketing: To demonstrate an understanding of marketing principles as well as proper sales and service skills.
- J. Records and Reports: To demonstrate the ability to prepare accurate and legible records and reports and to interpret business documents.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Each team will be comprised of three or four team members. The top three individual scores and the team activity and skills challenge scores will be used to determine the final team score.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Coaches may accompany participants to the event site, but must then leave the area at the start of the event. At the conclusion of all event components, the superintendent will announce when participants and coaches may enter the competition area to review the materials and organization.
- D. Under no circumstances will any participant be allowed to touch or handle plant materials or other specimens during the event except as expressly permitted in certain practicums.
- E. Any participant in possession of an electronic device in the event area is subject to disqualification.

VI. Event Format

- A. Each participant must have the following individual tools:
 1. A clean clipboard
 2. At least two No. 2 pencils
 3. A ball-point or felt-tip pen
 4. A calculator (Calculators used in this event should be battery operated, non-programmable and silent with large keys and large displays. Calculators may have only these functions: addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. No other calculators are allowed to be used during the event.)
 5. An architect's scale
 6. An engineer's scale
 7. Additional items allowed but not required include the following: a pocket-size dictionary or electronic speller and a personal hand pruner or knife.
 8. Teams may also be requested to supply a laptop computer.
- B. Team Interactive Events (process orientation)
 1. **Phase 1: Team Activity - 50 individual points each + 100 team points**

This practicum involves the team members working together towards accomplishing an assignment. It is designed to evaluate individual and group contributions in coordination and cooperation of knowledge, evaluation and decision-making. The team activity has two parts, described below.

 - a. Team Preparation – The team members work as a group in evaluating a landscape or nursery business-type situation (production, service, personnel, business operations/relations) or educational programming, as in the following general themes: promotions, start up business plan, consulting, customer service, service-learning or community involvement. The team will have 30 minutes for preparation. Notepaper and other supplies, including computer resources that may be appropriate for the situation will be available. References will not be needed beyond what is provided for this preparation section. A judge will be observing and scoring teamwork during this time but not interacting with the team. If needed, the team may ask the judge basic questions about the assignment or materials provided.
 - b. Team Presentation — Each of the team members will participate in the verbal presentation to a judge based on decisions made during the preparation. The team will have 15 minutes for the presentation and interaction with the judge. The presentation format is informal and conversational as at a conference table, not a speech prepared with visual aids. Division of the time and organization of the presentations

is at the team's discretion. The judge may ask questions of the team members during this time. Information will be provided on the judge's role as business client, supervisor or other appropriate party to facilitate the dialogue.

- c. Scoring criteria for the team preparation and presentation portions are given on the "Team Activity" scorecard. Individual components from both phases have a value of 50 points added to the individual score, while the team components of both phases have a value of 100 points added to the composite team score.

2. Phase 2: Team Skills Challenge - 100 team points

This phase is designed to evaluate the team's ability to apply nursery/landscape knowledge and skills by completing a variety of hands-on and problem solving activities. Teams will be given a list of tasks which may be accomplished individually, in pairs or more as determined by the team members according to the skills, experience and preferences of each team member. After completing their tasks, team members may then assist other team members as time allows. Both objective questions and qualitative evaluations may be included in the task scoring. Some examples of activities include the following:

- Equipment specifications, maintenance and repair.
- Lawn care procedures and equipment operation.
- Hardscape procedures, e.g. pavers or retaining wall installation, irrigation pipe assembly.
- Chemical handling procedures, e.g. fertilizer or pesticide equipment calibration and application.
- Preparing business records, reports or invoices.
- Plant material quality in nursery grading and pruning maintenance.
- Written material problem solving.

The number and type of activities will vary from year to year. General topic areas (not actual tasks) will be communicated in the team orientation packet.

Scoring of the separate tasks will be based on correct answers for objective questions or on criteria appropriate for the task recorded by a judge. Example criteria for a possible qualitative task in riding mower operation (one team member) might include: equipment checked, engine started, proper handling and speed in covering marked course, equipment properly shut down. All task scores will be converted to percentage scores recorded on the "Team Skills Challenge" scorecard with team points earned as the average percentage of all tasks assigned.

C. Individual Events

1. Phase 3: General Knowledge Examination - 150 points

Objective questions will be prepared on topics reflecting subject areas in the objectives. This phase will evaluate the participant's knowledge and understanding of basic horticultural principles in producing, marketing, using and maintaining landscape plants and turf. Participants will record their answers on a scan form.

2. Phase 4: Identification of Plants, Pests, Disorders, Equipment and Supplies - 150 points

Participants will identify items selected from the provided list covering the following categories:

- Plant Materials
- Pests and Disorders
- Equipment and Supplies

Plants to identify will be presented as intact, live specimens. Equipment may be either an intact item or photograph. Pest and disorder items may be presented as an intact specimen, photograph or preserved specimen (herbarium sheet, insect mount, etc.). When a

problem must be presented with an affected plant, a “Disorder” label will be with the item to designate identification of the problem rather than the plant.

Each specimen will be designated by a station number. When the participant identifies the item, its name is then located on the identification list. The participant then records the number by that name on a scan form at the respective station number.

Each participant will be provided a copy of the list at the event site. No specimens or items may be touched or handled in any way.

3. Phase 5: Landscape Estimating - 100 points

This practicum is designed to evaluate participant knowledge of and ability in

1) evaluating a landscape design, 2) reading a landscape drawing, 3) measuring and calculating materials needed to execute a landscape plan, 4) evaluating factors that affect profitability of a landscape business.

A landscape drawing and scratch paper will be provided to the participants. There will be objective questions about the landscape plan. Participants will record their answers using a scan form.

4. Phase 6: Verbal Customer Assistance - 50 points

This interpersonal relations practicum is designed to evaluate participant knowledge of and ability in 1) verbal communication, 2) sales and customer assistance skills, 3) plant materials, plant culture and problems, 4) garden center supplies and equipment.

The participant will assume the role of a customer service representative (garden center or other related business or an educational agency) responding to an assistance need of the customer or client (the judge). General themes might include, but are not limited to, the following: clinic diagnosis or recommendations; care advice; sales of plants, equipment, treatments; deal with complaints.

Each participant will be located at a separated station with one minute allotted to review the materials and information provided prior to arrival of the judge. These materials may be handled and referred to as appropriate for the conversation with the judge. Plants, disorders, supplies not listed on the material and plant resource lists will be communicated prior to the event. Scoring criteria are listed on the respective scorecard.

5. Phase 7: Written Customer Assistance - 50 points

This interpersonal relations practicum has the same objectives as in Phase 6: Verbal Customer Assistance applied to written communication.

The participant will assume the role of a customer service representative. A copy of correspondence about a plant, landscape or business question will be provided, along with the appropriate response information. Each participant will compose an appropriate response in written or electronic format. Scratch paper will be provided for a rough draft in pencil if desired. If it is hand written, only the final draft in ink will be scored.

Thirty minutes will be allowed for this practicum. A pocket-size dictionary or electronic speller is allowed for checking spelling. Scoring criteria are presented on the “Written Customer Assistance” scorecard, which will be recorded by a judge.

6. Phase 8: Nursery Propagation or Potting - 50 points

This practicum is designed to evaluate participant knowledge of and ability in performing fundamental nursery production practices. All participants will perform one of the following exercises. The selected exercise will not be announced prior to the start of the event. Judges will ask clarifying questions of the students.

- a. *Propagating Nursery Stock* — Each participant will be furnished a stock plant, rooting flat and media, rooting powder, a hand pruner, a label and marking pen. (Personal propagating knives or pruners are allowed, if desired.) Participants are to prepare the designated softwood or hardwood cuttings and place them in the media with a single label.

- b. Potting Nursery Stock* — Each participant will be furnished a supply of plants, nursery containers or pots of appropriate size and media. Hand pruners, a label and a marking pen will also be provided. (Personal pruners are allowed, if desired.) The participants will pot the plants, one per container, using standard nursery practices. Plant division or grading of liners may be involved. One finished container will be labeled.

An official will observe and score each participant during the application of the practicum. Following completion of the assigned practicum the official will ask questions regarding the propagation or potting activity. Scoring criteria are listed on the respective scorecards.

VII. Scoring

Participant scores are the sum of the nine individual phases of the event, and team scores are the sum of the three highest member scores plus the group portion of the team activity and team challenge. Possible points are as follows:

Phase	Member	Team
1A. Team Activity – Individual	50	150
1B. Team Activity – Group		100
2. Team Skills Challenge		100
3. Examination	150	450
4. Identification	150	450
5. Landscape Estimating	100	300
6. Verbal Customer Assistance	50	150
7. Written Customer Assistance	50	150
8. Nursery Propagation/Potting	50	150
Individual Total	600	
Team Total		2000

VIII. Tiebreakers

If needed in the case of tied individual or team total scores, final placings will be determined by comparing, in order, scores for the following:

1. Phase 2 – Written Exam
2. Phase 3 – Identification Section
3. Phase 4 – Landscape Estimating

IX. Awards

Awards will be presented to individuals and/or teams based upon their rankings at an awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

In addition to the general awards of the career development events, the top three participants in the following two areas will be specially recognized:

- **Nursery/Landscape Knowledge and Principles** — based on the composite score from Written Exam and Identification section.
- **Nursery/Landscape Applications** — based on the composite score from the five practicums from the following sections: Team Activity – Individual; Landscape Estimating; Verbal Customer Assistance; Written Customer Assistance; Production Practices.

X. Recommended References

The following list of references is a guide to team training. Some content areas have more than one title listed. This reflects the wide array of quality references available that will provide a proper foundation for this event. No single reference is recommended as superior over others in that area. However, multiple references for the plant materials may be desirable as no single source is comprehensive for the entire country or plant list. Other references than those listed may be equally valuable resources, along with the many video and computer-based training aids that are available.

National FFA Core Catalog

- Nursery/Landscape CDE materials: <http://shop.ffa.org/cde-materials-c1289.aspx>
- CDE Q&A's: <http://shop.ffa.org/cde-qas-c1413.aspx>

Books

Introduction to Horticulture. 4th Edition, 2009. Charles B. Schroeder, Eddie Dean Seagle, Lorie M. Felton, John M. Ruter, William Terry Kell, and Gerard Krewer. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0130364134

Introductory Horticulture. 8th Edition, 2011. H. Edward Reiley and Carroll L. Shry, Jr. Clifton Park, NY : Delmar Cengage Learning. ISBN 9781435480391

Ornamental Horticultur. 4rd Edition, 2010. Jack Ingels. Delmar Publishers Inc., Albany, NY. ISBN-13: 9781435498167

Introduction to Plant and Soil Science and Technology. 2003. Ronald J. Biondo and Jasper S. Lee. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0813432162

Principles of Plant Science: Environmental Factors and Technology in Growing Plants. 2005. Dennis R. Decoteau. Pearson/Prentice Hall, Upper Saddle River, NJ. ISBN 0130163015

Practical Horticulture. 7th Edition. 2011. Laura W. Rice and Robert P. Rice. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0135038669

Plant Propagation: Principles and Practices. 8th Edition, 2011. Hudson T. Hartmann, Fred T. Davies, Jr., Dale E. Kester, and Robert L. Genieve. Prentice Hall, Boston. ISBN 0135014492

Nursery Production - A Teachers Manual. Revised edition, 1989. Department of Agricultural Education, Pennsylvania State University, University Park, PA. http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED057243&ERICExtSearch_SearchType_0=no&accno=ED057243

Nursery Management: Administration and Culture. 4th Edition, 2000. Harold Davidson, Roy Mecklenburg, and Curtis Peterson. Prentice-Hall, Upper Saddle River, NJ. ISBN 0138579962

American Standard for Nursery Stock. 2004. American Association of Nurserymen, Inc., 1250 I St., NE, Suite 500, Washington, DC. (available as pdf file free to nonmembers at <http://www.anla.org/docs/About%20ANLA/Industry%20Resources/ANLAStandard2004.pdf>)

Landscape Plants, Their Identification, Culture, and Use. 2nd Edition, 2003. Ferrell M. Bridwell. Delmar Thomson Learning, Albany, NY. ISBN 0766836347

Manual of Woody Landscape Plants. 6th Edition, 2009. Michael A. Dirr. Stipes Publishing Co., Champaign, IL. ISBN 978-1-58874-868-3

A Field Guide to Woody Landscape Plants of the Southeast. 2002. Rex Bishop. Tea Olive Productions. Marietta, GA. ISBN 097253430X

Know It and Grow It III: A Guide to the Identification and Use of Landscape Plants. 1999. Carl E. Whitcomb. Lacebark, Inc. Stillwater, OK. ISBN 0961310910

Manual of Herbaceous Ornamental Plants. 4th Edition, 1994. Steven M. Still. Stipes Publishing Co., Champaign, IL. ISBN 0-87563-433-8.

Herbaceous Perennial Plants: A Treatise on Their Identification, Culture, and Garden Attributes. 3rd Edition, 2008. Allan M. Armitage, Stipes Publishing Co., Champaign, IL. ISBN 978-1-58874-868-3.

Professional Interior Plantscaping. 2002, Barbara L. Collins. Stipes Publishing Co., Champaign, IL. ISBN 1-58874-141-9.

Introduction to Landscaping: Design, Construction, and Maintenance. 3rd Edition. 2009. Ronald J. Biondo and Charles B. Schroeder. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0133626385

Landscaping Principles and Practices. 7th Edition, 2010. Jack Ingels. Delmar Publishers Inc., Albany, NY. ISBN 13: 9781428376410

Landscape Design: A Practical Approach. 5th Edition, 2002. Leroy G. Hannebaum. Prentice-Hall, Inc., Upper Saddle River, NJ. ISBN 0130105813

An Illustrated Guide to Landscape Design, Construction, and Management. 1998. Gregory M. Pierceall. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0813430194

Landscaping Construction. 2nd Edition, 3rd Edition, 2011. David Sauter. Delmar Publishers Inc., Albany, NY. ISBN 143549718X

Planting Design: A Manual of Theory and Practice. 3rd Edition, 2004. William R. Nelson, Stipes Publishing Co., Champaign, IL. ISBN 1-58874-358-6

Landscape Construction Procedures, Techniques, and Design. 4th Edition, 1999. Floyd Giles. Stipes Publishing Co., Champaign, IL. ISBN 0875638848

Landscape Operations: Management, Methods, and Materials. 5th Edition, 2001. Leroy Hannebaum. Prentice-Hall, Inc., Upper Saddle River, NJ. ISBN 0138569150

Professional Landscape Management. 3rd Edition, 2010. David L. Hensley. Stipes Publishing Co., Champaign, IL. ISBN 1588749509

Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines. 4th Edition, 2004. Richard W. Harris, James R. Clark, and Nelda P. Matheny. Prentice-Hall, Inc., Englewood Cliffs, NJ. ISBN 0130888826

Turfgrass Science and Management. 4rd Edition, 2008. Robert D. Emmons. Delmar Publishers Inc., Albany, NY. ISBN 10: 1418013307

Turfgrass Management. 9th Edition, 2011. A.J. Turgeon. Prentice-Hall, Inc. Boston. ISBN 0137074352

The Turf Problem Solver: Case Studies and Solutions for Environmental, Cultural, and Pest Problems. 2006. A.J. Turgeon and J.M. Vargas, Jr. J. Wiley, Hoboken, NJ. ISBN 9780471736196.

Turfgrass Management Handbook. 5th Edition, 2002. Charles B. Schroeder and Howard B. Sprague. Prentice-Hall, Inc. Englewood Cliffs, NJ. ISBN 0813430836
Ortho Problem Solver. 6th Edition, 2003. Michael McKinley (ed.). Meredith Books. Des Moines, IA. ISBN 0897214943

Home Gardener's Problem Solver. 2001. Michael McKinley. Meredith Books. Des Moines, IA. ISBN 0897215044

Insects That Feed on Trees and Shrubs. 2nd Edition, 1991. Warren T. Johnson and Howard H. Lyon. Comstock Publishing Associates, Ithaca, NY. ISBN 0801426022

Diseases of Trees and Shrubs. 2nd Edition, 2005. Wayne A. Sinclair and Howard H. Lyon. Comstock Publishing Associates, Ithaca, NY. ISBN 9780801473718

Math for Horticulture. 1994. Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, Columbus, OH. Item #E025L .

Care and Operation of Small Gasoline Engines. 1988. American Association for Vocational Instructional Materials, Athens, GA. ISBN 0896062619

Reference Manual for Office Personnel. 6th Edition, 1999. Clifford R. House. South-Western Publishing Co., Cincinnati, OH. ISBN 0538114517

Business Communications. 6th Edition, 2004. A.C. Krizon, Patricia Merrier, Carol Jones Larson. South-Western Publishing Co., Cincinnati, OH. ISBN 0324272251

Trade Periodicals

American Nurseryman. American Nurserymen Publishing Co., Chicago, IL.

Grounds Maintenance. Primedia, Overland Park, KS.,
www.grounds-mag.com/

Turf Magazine, plus several other on-line titles. Moose River Media LLC.
www.turfmagazine.com/

Interiorscape.com: A Forum for Interior Plantscape Professionals.
www.interiorscape.com/

Catalogs

Many horticultural supply company catalogs can be utilized for reference support on tools, equipment and supplies that may not be illustrated in other sources. The following company has given permission for listing their catalog:

A.M. Leonard, Inc., 665 Spiker Road, Piqua, OH 45356 (513/773-2697 or <http://www.amleo.com/index1.html>)

Websites and Problem Samples

Visit the National FFA website at <http://www.ffa.org/> for information on career development events, access to prior-year event materials and links to additional study aids. Additional links and resources will be included as they are developed or identified, along with the following links of the CDE sponsors:

<http://www.stihlusa.com/information/>

<http://www.kubota.com>

<http://www.arysta-na.com>

Special Note for State Events

No national listings of plant materials and disorders can match perfectly the industry situation in every state due to the wide range of environments across the U.S. Thus, the national event committee recommends that state event coordinators, wherever feasible, modify both sections of the list to serve better their industry and student educational needs.

Nursery/Landscape Plant Identification

Participant No.	<i>Botanical Name</i> /Common Name	State/Number	<i>Botanical Name</i> /Common Name
101	<i>Abelia x grandiflora</i> / Glossy Abelia	136	<i>Ficus elastica</i> 'Decora' / Decora Rubber Plant
102	<i>Abies concolor</i> / White Fir	137	<i>Forsythia x intermedia</i> cv. / Border Forsythia
103	<i>Acer palmatum</i> cv. / Japanese Maple	138	<i>Fraxinus americana</i> cv. / White Ash
104	<i>Acer platanoides</i> cv. / Norway Maple	139	<i>Gaillardia aristata</i> cv. / Common Blanketflower
105	<i>Acer rubrum</i> cv. / Red Maple	140	<i>Gardenia jasminoides</i> 'Fortuniana' / Common Gardenia
106	<i>Acer saccharum</i> cv. / Sugar Maple	141	<i>Ginkgo biloba</i> / Ginkgo, Maidenhair Tree
107	<i>Ajuga reptans</i> cv. / Carpet Bugle	142	<i>Gleditsia triacanthos inermis</i> cv. / Thornless Honeylocust
108	<i>Antirrhinum majus</i> cv / Snapdragon	143	<i>Hedera helix</i> cv. / English Ivy
109	<i>Aquilegia x hybrida</i> cv. / Columbine	144	<i>Hemerocallis spp.</i> and cv. / Day lily
110	<i>Amelanchier arborea</i> / Downy Serviceberry	145	<i>Hosta x hybrida</i> cv. / Plaintain Lily
111	<i>Astilbe hybrid</i> cv. / Astilbe	146	<i>Hydrangea quercifolia</i> / Oakleaf Hydrangea
112	<i>Begonia semperflorens-cultorum</i> / Wax Begonia	147	<i>Ilex cornuta</i> cv. / Chinese Holly
113	<i>Berberis x mentorensis</i> / Mentor Barberry	148	<i>Ilex crenata</i> cv. / Japanese Holly
114	<i>Betula nigra</i> / River Birch	149	<i>Ilex x meserveae</i> cv. / Meserve Holly
115	<i>Brassaia actinophylla</i> / Schefflera, Octopus Tree	150	<i>Impatiens hybrid</i> cv. / Impatiens
116	<i>Buxus microphylla</i> cv. / Littleleaf Boxwood	151	<i>Iris x germanica florentina</i> cv. / Beard- ed Iris
117	<i>Camellia japonica</i> cv. / Common Camellia	152	<i>Juniperus chinensis</i> cv. / Chinese Juniper
118	<i>Cedrus atlantica</i> 'Glauca' / Blue Atlas Cedar	153	<i>Juniperus horizontalis</i> cv. / Creeping Juniper
119	<i>Cercis canadensis</i> / Redbud	154	<i>Lagerstroemia indica</i> cv / Crape Myrtle
120	<i>Chaenomeles speciosa</i> cv. / Japanese (Flowering) Quince	155	<i>Leucanthemum x superbum</i> cv. / Shasta Daisy
121	<i>Cornus florida</i> cv. / Flowering Dogwood	156	<i>Liquidambar styraciflua</i> / Sweet Gum
122	<i>Cotoneaster dammeri</i> / Bearberry Cotoneaster	157	<i>Liriodendron tulipifera</i> / Tuliptree
123	<i>Cotoneaster divaricatus</i> / Spreading Cotoneaster	158	<i>Liriope spp.</i> cv. / Lily-Turf
124	<i>Crataegus phaenopyrum</i> / Washington Hawthorn	159	<i>Lobularia maritima</i> / Sweet Alyssum
125	<i>Cynodon dactylon</i> cv / Bermudagrass	160	<i>Lonicera japonica 'Halliana'</i> / Hall's Japanese Honeysuckle
126	<i>Dieffenbachia maculata</i> cv. / Spotted Dumb Cane	161	<i>Magnolia grandiflora</i> cv. / Southern Magnolia
127	<i>Dracaena deremensis</i> 'Warneckii' / Striped Dracaena	162	<i>Magnolia x soulangiana</i> cv. / Chinese (Saucer) Magnolia
128	<i>Dracaena fragens</i> 'Massangeana' / Corn Plant	163	<i>Mahonia aquifolia</i> cv. / Oregon Grape
129	<i>Echinace purpurea</i> / Purple Coneflower	164	<i>Malus spp.</i> and cv. / Flowering Crabapple
130	<i>Epipremnum spp.</i> / Pothos	165	<i>Myrica pensylvanica</i> / Bayberry
131	<i>Euonymus alatus</i> / Winged Euonymus		
132	<i>Euonymus fortunei</i> cv. / Wintercreeper		
133	<i>Fagus sylvatica</i> cv. / European Beech		
134	<i>Festuca spp.</i> and cv / Fescue		
135	<i>Ficus benjamina</i> / Benjamin Fig		

- 166 *Nandina domestica* / Heavenly Bamboo
 167 *Narcissus pseudonarcissus* cv. / Daffodil
 168 *Nyssa sylvatica* / Sour (Black) Gum
 169 *Pachysandra terminalis* / Japanese Spurge
 170 *Paeonia hybrid* cv. / Peony
 171 *Parthenocissus tricuspidata* / Boston Ivy
 172 *Pelargonium x hortorum* cv. / Zonal Geranium
 173 *Pennisetum ruppelia* / Fountain Grass
 174 *Petunia x hybrida* cv. / Petunia
 175 *Philodendron scandens oxycardium* / Heartleaf Philodendron
 176 *Picea abies* / Norway Spruce
 177 *Picea pungens* cv. / Colorado (Blue) Spruce
 178 *Pieris japonica* / Lily-of-the-Valley Bush
 179 *Pinus mugo* / Mugo Pine
 180 *Pinus strobus* / Eastern White Pine
 181 *Pinus sylvestris* / Scotch Pine
 182 *Pinus thunbergiana* / Japanese Black Pine
 183 *Platanus x acerifolia* / London Planetree
 184 *Poa pratensis* cv. Kentucky Bluegrass
 185 *Podocarpus macrophyllus* / Southern Yew
 186 *Potentilla fruticosa* cv. / Shrubby Cinquefoil
 187 *Prunus laurocerasus* cv. / Cherry Laurel
 188 *Prunus serrulata* 'Kwanzan' / Kwanzan Japanese Flowering Cherry
 189 *Pyracantha coccinea* cv. / Firethorn
 190 *Quercus alba* / White Oak
 191 *Quercus palustris* / Pin Oak
 192 *Quercus rubra* / Red Oak
 193 *Rhododendron x catawbiense* / Catawba Hybrid Rhododendron
 194 *Rhododendron Hybrid* / Exbury Hybrid Azalea
 195 *Rosa spp.* Class Hybrid Tea cv. / Hybrid Tea Rose
 196 *Salvia nemorosa* cv. / Meadow Sage
 197 *Sedum spurium* cv. / Sedum
 198 *Solenostemon scutellarioides* / Coleus
 199 *Sorbus aucuparia* / European Mountain Ash
 200 *Spiraea x bumalda* / Bumalda Spirea
 201 *Syringa vulgaris* cv. / Common Lilac
 202 *Tagetes spp.* cv. / Marigold
 203 *Taxodium distichum* / Bald Cypress
 204 *Taxus spp.* and cv. / Yew
 205 *Thuja occidentalis* cv. / American Arborvitae
 206 *Tilia cordata* / Littleleaf Linden
 207 *Tsuga canadensis* / Canadian Hemlock
 208 *Tulipa spp.* cv. / Tulip
 209 *Verbena x hybrida* cv. / Garden Verbena
 210 *Viburnum x burkwoodii* / Burkwood Viburnum
 211 *Viburnum trilobum* / American Cranberrybush Viburnum
 212 *Vinca minor* cv. / Periwinkle
 213 *Viola x wittrockiana* cv. / Pansy
 214 *Wisteria sinensis* cv. / Chinese Wisteria
 215 *Yucca filamentosa* / Adam's Needle
 216 *Zinnia elegans* / Zinnia

Nursery/Landscape Pests and Disorders Identification

No.	Item Name	No.	Item Name
<i>Insects</i>		<i>Weeds</i>	
217	Aphid	237	Annual Bluegrass
218	Bagworm	238	Broadleaf Plantain
219	Borer	239	Buckhorn Plantain
220	Leafhopper	240	Chickweed
221	Leaf Miner	241	Crabgrass
222	Scale	242	Dandelion
223	Spider Mite	243	Henbit
224	Snail/Slug	244	Nutsedge
225	Whitefly	245	Oxalis
226	White Grub	246	Purslane
		247	White Clover
<i>Diseases</i>		<i>Physiological Problems</i>	
227	Anthracnose	248	Frost/Freeze Injury
228	Apple Scab	249	Iron Deficiency
229	Black Spot	250	Leaf Scorch (drought/winter burn)
230	Botrytis	251	Nitrogen Deficiency
231	Canker	252	Pot-bound roots
232	Cedar-Apple Rust	253	String Trimmer Injury
233	Crown Gall	254	2,4-D Injury
234	Fireblight		
235	Powdery Mildew		
236	Root Rot		

Nursery/Landscape Equipment and Supplies Identification

No.	Item Name	No.	Item Name	No.	Item Name
255	anvil-and-blade pruner	289	ground/pelleted limestone	324	reel mower
256	architect's scale	290	hearing protection	325	resin-coated fertilizer
257	ball cart (B&B truck)	291	hedge shears	326	respirator
258	bark mulch	292	hoe	327	rotary mower
259	bark medium	293	hook-and-blade pruners	328	rototiller
260	bow saw	294	hose-end repair fitting	329	round point shovel
261	brick paver	295	hose-end sprayer	330	safety goggles
262	broadcast (cyclone) spreader	296	hose-end washer	331	sand
263	bubbler head, irrigation	297	hose repair coupling	332	scoop shovel
264	bulb planter	298	impulse sprinkler	333	shade fabric
265	burlap	299	landscape fabric	334	sharpening stone
266	chaps	300	leaf rake	335	siphon proportioner
267	compressed air sprayer	301	loppers	336	soaker hose
268	core aerifier	302	mattock	337	soil sampling tube
269	chain saw	303	measuring wheel	338	solenoid valve
270	cut-off machine	304	mist nozzle (mist bed)	339	spade
271	drip emitter, irrigation	305	mower blade balancer	340	spark plug gap gauge
272	dry-lock wall block	306	nursery container	341	sphagnum moss
273	duster	307	oscillating sprinkler	342	spray suit
274	dust mask	308	peat moss	343	square point (flat) shovel
275	edger (power or hand)	309	pick axe	344	string trimmer
276	edging	310	planting/earth/soil auger	345	tape measure
277	engineer's scale	311	planting bar	346	time clock
278	erosion netting	312	pole pruner	347	topsoil
279	fertilizer tablet	313	polyethylene film	348	tree caliper
280	galvanized pipe	314	polyethylene pipe	349	tree wrap
281	garden (spading) fork	315	pop-up irrigation head	350	trowel
282	garden (bow) rake	316	post-hole digger	351	T-square
283	gas mask	317	power blower	352	vermiculite
284	grafting band	318	power hedge trimmer	353	vertical mower
285	grafting tool	320	pot-in-pot units	354	water breaker
286	granular fertilizer	321	propagation mat	355	wire tree basket
287	gravity (drop) spreader	322	pruning saw		
288	grass shears	323	PVC (polyvinylchloride) pipe		

**Nursery/Landscape
Potting Nursery Stock Practicum Scorecard**

Name: _____ **Chapter:** _____
State: _____ **Team No.:** _____
Member No.: _____

	Possible Points	Member Score
Potting Process (34 points)		
Preparation of Plants		
<ul style="list-style-type: none"> • Plants selected for quality and uniformity • Inspects/prunes/grooms damaged parts • Prunes excess root length • Handles plants properly 	10	
Placement of Plants in Containers		
<ul style="list-style-type: none"> • Plant centered and vertical • Roots carefully and properly spread • Plant at proper depth • Plant roots covered 	10	
Media Filling and Settling		
<ul style="list-style-type: none"> • Sufficient media added • Media settled by bumping • Plant remains stable 	10	
Labeling of Completed Units		
<ul style="list-style-type: none"> • Plant (variety) name and date • Legible 	2	
Safety Practices Applied		
<ul style="list-style-type: none"> • Proper cutting technique • Tool closed when finished • Minimal clutter/good organization in work area 	2	
Potting Productivity (10 points)		
Number of Units Completed	5	
Quality of Units Completed		
<ul style="list-style-type: none"> • Overall quality and uniformity of lot 	5	
Response to Questions		
	6	
Total Points	50 points	

Judge's Name: _____ **Signature/Date:** _____

**Nursery/Landscape
Propagating Nursery Stock Practicum Scorecard**

Name: _____

Chapter: _____

State: _____

Team No.: _____

Member No.: _____

	Possible Points	Member Score
Propagation Process (34 points)		
Removal of Cuttings		
<ul style="list-style-type: none"> • Selects best quality, uniform stock • Cuts at appropriate lengths • Makes clean cuts 	5	
Preparation of Cuttings		
<ul style="list-style-type: none"> • Leaves stripped/trimmed/groomed as needed • Proximity of cuts to nodes • Angled or wounded basal cut • Cutting/buds not damaged 	10	
Application of Proper Hormone		
<ul style="list-style-type: none"> • Sufficient applied and excess removed • Hormone kept clean 	7	
Placement of Cuttings in Media		
<ul style="list-style-type: none"> • Proper medium depth, as applicable • Media furrow cut and closed • Proper sticking depth • Efficient row and cutting spacing 	8	
Labeling of Completed Units		
<ul style="list-style-type: none"> • Plant (variety) name, date, treatment • Legible 	2	
Safety Practices Applied		
<ul style="list-style-type: none"> • Proper cutting technique • Tool closed when finished • Minimal clutter in work area 	2	
Propagation Productivity (10 points)		
Number of Units Completed	5	
Quality of Units Completed		
<ul style="list-style-type: none"> • Uniform size and placement • Cuttings stable in media 	5	
Response to questions		
	6	
Total Points	50 points	

Judge's Name: _____ Signature/Date: _____

Nursery/Landscape Team Activity Scorecard

Name: _____

Chapter: _____

State: _____

Team No.: _____

Member No.: _____

<i>Team Preparation</i>	Individual Possible Score	1	2	3	4	Team	Actual Team Score
Team leadership roles established/evident						10	
Project assignment and goal defined						10	
Member responsibilities outlined and defined						10	
Members effective in individual tasks	10 pts each						
Members supportive of each other	10 pts each						
Members interact in positive/constructive way	10 pts each						
Sub-Total (A)	30 possible						
Agreement reached on individual evaluation						10	
Presentation plan developed (who does what/when)						10	
Sub-Total (B)						50	
<i>Team Presentation</i>	Individual Possible Score	1	2	3	4	Team	Actual Score
Positive voice, grammar, eye contact	5 pts each						
Effective organization of information	5 pts each						
Effective communication of information	5 pts each						
Demonstrates knowledge of subject	5 pts each						
Sub-Total (C)	20 possible						
Effective team interaction during presentations						15	
Appropriate participation from each team member						15	
Effective total team presentation						10	
Team Assignments fulfilled						10	
Sub-Total (D)						50	
Total Team Member Points (A + C)	(50 possible)						
Total Team Points (B + D)						100	

Judge's Name, section A & B _____ Signature/Date: _____

Judge's Name, section C & D _____ Signature/Date: _____

**Nursery/Landscape
Verbal Customer Assistance Practicum Scorecard**

Name: _____
State: _____

Chapter: _____
Team No.: _____
Member No.: _____

	Possible Points	Member Score
Conversation (35 points)		
Approach		
<ul style="list-style-type: none"> • Effective greeting and offer to help • Positive, enthusiastic; not hesitant 	4	
Personality		
<ul style="list-style-type: none"> • Pleasant, friendly manner • Not pushy in selling 	7	
Voice		
<ul style="list-style-type: none"> • Easy to hear and understand • Proper grammar used; good speaking form 	7	
Information Requested from Customer		
<ul style="list-style-type: none"> • Determines assistance needs • Effectively ask details/preferences 	7	
Salesmanship		
<ul style="list-style-type: none"> • Effective; tries to expand sale • Develops customer confidence in product/service 	7	
Closing		
<ul style="list-style-type: none"> • Repeats order, handles payment (as applicable) • Asks if instructions understood • Thank you close 	3	
Product/Problem/Procedure Presentation * (15 points)		
Correct Product/Procedure/Selections	6	
Correct Product/Problem Information Provided	6	
Clarity of Information Provided to Customer	3	
Total Points	50 points	

* Includes, as applicable, evaluation of order form for completeness, spelling and arithmetic accuracy, clarity.

Judge's Name: _____ Signature/Date: _____

**Nursery/Landscape
Written Customer Assistance Practicum Scorecard**

Name: _____
State: _____

Chapter: _____
Team No.: _____
Member No.: _____

	Possible Points	Member Score
Customer Relations <ul style="list-style-type: none"> • Does the letter create/maintain goodwill (is it free of negative words that create an unpleasant tinge)? • Is the tone appropriate for the letter purpose? • Does the letter emphasize reader (you) rather than writer (I)? • Is the tone and reading level appropriate for reader? 	10	
Business Letter Form <ul style="list-style-type: none"> • Is the letter written in acceptable business format including the date, inside address, salutation, body, complimentary close, signature and additional data (pc, enclosure, etc.)? 	10	
Organization <ul style="list-style-type: none"> • Is the content organized in logical, coherent order? • Is the letter properly divided into paragraphs with topic sentences? • Is the letter divided into sentences which clearly convey key points? • Does the letter use short conversational words? 	10	
Technical Information <ul style="list-style-type: none"> • Is the technical information provided in letter correct? • Is the information provided in simple, clear, concise manner? • Does the letter relate directly to the inquiry? 	10	
Grammar/Punctuation <ul style="list-style-type: none"> • Is the letter free of grammatical errors and misspelled words? 	10	
Total Score:	50	
Deductions (i.e., Rules Infractions, Missing Content)		()
Grand Total:		

Judge's Name: _____ Signature/Date: _____

**Nursery/Landscape
Team Skills Challenge Scorecard**

Name: _____

Chapter: _____

State: _____

Team No.: _____

Complete lines for number and type of events included. Record percentages as whole numbers only.

A Score = _____ points of _____ possible = _____%

B Score = _____ points of _____ possible = _____%

A Score = _____ points of _____ possible = _____%

B Score = _____ points of _____ possible = _____%

C Score = _____ points of _____ possible = _____%

D Score = _____ points of _____ possible = _____%

E Score = _____ points of _____ possible = _____%

F Score = _____ points of _____ possible = _____%

G Score = _____ points of _____ possible = _____%

Team Score (average) = _____%

Judge's Name: _____ Signature/Date: _____

Appendix A: AFNR Career Content Cluster Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
	NRS.01.02. Performance Indicator: Classify natural resources.		Science: F3
	NRS.01.02.01.b. Identify trees and other woody plants.	ID, general exam	
	PS.01.01. Performance Indicator: Classify agricultural plants according to taxonomy systems.		Science: C3
	PS.01.01.01.c. Classify agricultural plants according to the hierarchical classification system, life cycles, plant use and as monocotyledons or dicotyledons.	ID, general exam	
	PS.01.01.02.c. Identify agriculturally important plants by scientific names.	ID, general exam	
	PS.01.02. Performance Indicator: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.		Science: B6, C3 and C5
	PS.01.02.02.c. Relate the active and passive transport of minerals into and through the root system to plant nutrition.	general exam	
	PS.01.02.03.c. Apply concepts associated with translocation to the management of plants.	general exam	
	PS.01.02.04.c. Explain the relationships between leaf structure and functions and plant management practices.	general exam	
	PS.01.02.05.c. Apply the knowledge of flower structures to plant breeding, production and use.	general exam	
	PS.01.02.06.c. Apply the knowledge of seed and fruit structures to plant culture and use.	general exam	
	PS.01.03. Performance Indicator: Apply knowledge of plant physiology and energy conversion to plant systems.		Science: B6 and C5
	PS.01.03.01.b. Explain requirements necessary for photosynthesis to occur and identify the products and byproducts of photosynthesis.	general exam	
	PS.01.03.02.b. Explain factors that affect cellular respiration and identify the products and byproducts of cellular respiration.	general exam	
	PS.01.03.03.c. Relate the principles of primary and secondary growth to plant systems.	pruning/ propagation, exam, assessment	
	PS.02.01. Performance Indicator: Determine the influence of environmental factors on plant growth.		Science: C6
	PS.02.01.01.c. Evaluate plant responses to varied light color, intensity and duration.	assessment and solution	
	PS.02.01.02.c. Design, implement and evaluate a plan to maintain optimal conditions for plant growth.	propagation, team activity	

PS.02.02. Performance Indicator: Prepare growing media for use in plant systems.		Science: B2
	PS.02.02.01.c. Formulate and prepare growing media for specific plants or crops.	assessment and solution
	PS.02.02.02.b. Discuss how soil drainage and water-holding capacity can be improved.	exam, assessment and solution
PS.02.03. Performance Indicator: Develop and implement a fertilization plan for specific plants or crops.		Math: 4B Science: A2
	PS.02.03.01.b. Describe nutrient deficiency symptoms and recognize environmental causes of nutrient deficiencies.	ID, general exam, assessment and solution
	PS.02.03.02.b. Contrast pH and cation exchange capacity between mineral soil and soilless growing media.	exam, assessment and solution
	PS.02.03.04.b. Calculate the amount of fertilizer to be applied and calibrate equipment to apply the prescribed amount of fertilizer.	assessment and solution
PS.03.01. Performance Indicator: Demonstrate plant propagation techniques.		Science: C2
	PS.03.01.01.b. Diagram the process of plant fertilization.	general exam
	PS.03.01.03.a. Describe optimal conditions for asexual propagation and demonstrate techniques used to propagate plants by cuttings, division, separation and layering.	propagation, production practices
	PS.03.01.04.a. Define micropropagation, discuss advantages associated with the practice and outline the four main stages of the process.	general exam
PS.03.02. Performance Indicator: Develop and implement a plant management plan for crop production.		Science: C5 and C6 Language Arts: 7
	PS.03.02.01.b. Inspect propagation material for evidence of pests or disease.	propagation
	PS.03.02.02.a. Explain the reasons for preparing growing media before planting.	general exam, potting
	PS.03.02.03.b. Apply pre-plant treatments required of seeds and plants and evaluate the results.	general exam, production practices
PS.03.03. Performance Indicator: Develop and implement a plan for integrated pest management.		Science: C4 and C6 Language Arts: 7
	PS.03.03.01.b. Identify major local weeds, insect pests and infectious and noninfectious plant diseases.	ID, general exam, assessment and solution
	PS.03.03.02.a. Describe damage caused by plant pests and diseases.	general exam
	PS.03.03.03.b. Describe types of pesticide controls and formulations.	general exam, assessment and solution
	PS.03.03.04.b. Explain procedures for the safe handling, use and storage of pesticides.	general exam, assessment and solution

PS.03.05. Performance Indicator: Harvest, handle and store crops.		Science: F5
PS.03.05.01.a. Identify harvesting methods and harvesting equipment.	general exam	
PS.03.05.03.a. Identify storage methods for plants and plant products.	general exam	
PS.03.05.04.a. Explain the reasons for preparing plants and plant products for distribution.	general exam	
PST.01.03. Performance Indicator: Identify and use hand and power tools and equipment for service, construction and fabrication.		Science: E2
PST.01.03.01.b. Select, maintain and use hand and power tools in service, construction and fabrication.	ID, general exam, assessment and solution	
PST.02.01. Performance Indicator: Perform service routines to maintain power units and equipment.		Science: E2
PST.02.01.01.a. Identify and schedule power unit and equipment lubrication.	exam	
PST.02.01.02.b. Adjust equipment, including belts and drives, chains and sprockets, and maintain fluid conveyance components, such as hoses, lines and nozzles.	ID, general exam, assessment and solution	
PST.04.01. Performance Indicator: Create sketches and plans of agricultural structures.		Math: 4A Science: A3 and E1
PST.04.01.01.a. Identify symbols and drawing techniques used to develop plans and sketches.	estimating	
PST.04.04. Performance Indicator: Follow architectural and mechanical plans to construct and/or repair equipment, buildings and facilities.		Math: 1C, 4A and 4B Science: E2
PST.04.04.05.b. Construct and/or repair with concrete, brick, stone or masonry units.	estimating, assessment and solution	
PST.04.04.06.a. Measure and calculate fencing materials.	estimating, assessment and solution	
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
CS.01.01.01.c. Work independently and in group settings to accomplish a task.	team activity, assessment and solution	
CS.01.01.03.c. Implement an effective project plan.	team activity, assessment and solution	
CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	assessment and solution	
CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	team activity, assessment and solution	

CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.		Language Arts: 12 Social Studies: 4h
CS.01.02.01.c. Demonstrate human relation skills including compassion, empathy, unselfishness, trustworthiness, reliability and being friendly to co-workers.	team activity	
CS.01.02.02.c. Engage others in conversations to respond to an obstacle when completing a task.	team activity	
CS.01.02.04.c. Evaluate the effectiveness of team members.	team activity	
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12 Social Studies: 4a
CS.02.03.01.a. Explore various career interests/options.	general exam	
CS.02.03.03.c. Demonstrate employability skills for a specific career.	all event activities	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	team activity, assessment and solution, verbal	
CS.02.04.02.c. Implement effective problem solving strategies.	team activity	
CS.02.04.03.c. Demonstrate the skills needed to negotiate with others.	team activity, verbal	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	verbal and written	
CS.03.01.03.c. Make effective business presentations.	team activity, verbal	
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
CS.03.02.02.c. Use problem-solving skills.	all event activities	
CS.06.03 Performance Indicator: Provide health, safety and environmental operating guidelines.		Science: F4 and F5 Language Arts: 4 and 5
CS.06.03.01.a. Demonstrate the importance of safety, health, and environmental practices in the workplace.	general exam, production practices	

Appendix B: Academic Standards Addressed

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Math

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates.
4. Standard and Expectations: Measurement
 - 4A. Understand measurable attributes of objects and the units, systems and processes of measurement.
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
6. Standard and Expectations: Problem Solving
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A1. Identify questions and concepts that guide scientific investigation.
 - A2. Design and conduct scientific investigations.
 - A3. Use technology and mathematics to improve investigations and communications.
 - A5. Recognize and analyze alternative explanations and models.
- B. Content Standard: Physical Science
 - B2. Structure and properties of matter
 - B6. Interactions of energy and matter
- C. Content Standard: Life Science
 - C2. Molecular basis of heredity
 - C3. Biological evolution
 - C4. Interdependence of organisms
 - C5. Matter, energy and organization in living systems
 - C6. Behavior of organisms
- E. Content Standard: Science and Technology
 - E1. Abilities of technological design
 - E2. Understanding about science and technology
- F. Content Standard: Science in Personal and Social Perspectives
 - F3. Natural resources
 - F4. Environmental quality
 - F5. Natural and human-induced hazards

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture
 - 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
4. Thematic Strand: Individual Development and Identity
 - 4a. articulate personal connections to time, place and social/cultural systems;
 - 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
 - 4h. work independently and cooperatively within groups and institutions to accomplish goals;

National FFA Parliamentary Procedure Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the Parliamentary Procedure Career Development Event is to encourage students to learn to effectively participate in a business meeting and to assist in the development of their leadership, research and problem solving skills.

II. Objectives

Students will be able to:

- A. Use parliamentary procedure to conduct an orderly and efficient meeting.
- B. Demonstrate knowledge of parliamentary law.
- C. Present a logical, realistic and convincing debate on motions.
- D. Record complete and accurate minutes.
- E. Utilize parliamentary resources to solve problems of organizational management and operations.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Team make-up: A team representing a state will consist of six members from the same chapter.
- B. It is highly recommended that participants wear FFA Official Dress for each event.
- C. The event will have four phases: written examinations, a ten minute team presentation of parliamentary procedure, oral questions following the presentation and minutes and/or a problem solving activity. Minutes will be prepared by the team secretary in consultation with the team chair. The problem solving activity will involve all six team members.
- D. The advisor will not consult with the team after beginning the event.
- E. Any participant in possession of an electronic device in the event area is subject to disqualification.

V. Event Format

A. Equipment

1. **Materials the student needs to provide:** Each participant must bring a minimum of two sharpened No. 2 pencils and a copy of the current edition of Robert's Rules of Order Newly Revised.

2. **Materials provided by the event committee:** A gavel will be supplied for the Chair. Teams may choose to use their own gavel if they so desire. Paper and pencils will be provided to Chair and Secretary. A dictionary will be provided in the minutes room.

B. Written Test - 200 points

1. Part I: Five (5) open book parliamentary procedure research questions using the current edition of *Robert's Rules of Order Newly Revised*. Participants will be allowed 30 minutes to complete Part I of the exam. All team members are required to provide their own copy of the most current edition of *Robert's Rules of Order Newly Revised*.

An example of one research question is outlined below:

List the page and beginning line number for the following statement.

"The term rules of order refers to written rules of parliamentary procedure formally adopted by an assembly or an organization."

ANSWER: Page 15 Beginning Line Number 3

2. Part II: Forty five (45) multiple choice questions taken from *Dunbar's Manual of Parliamentary Procedure Test Questions* and *Robert's Rules of Order Newly Revised*. References cannot be used for this part. Participants will have one hour to complete Part II of the exam.

Participants receiving a cumulative score of 80% or greater on the exam will be recognized as an **Accredited Parliamentarian (AP)** by the Society of Agricultural Education Parliamentarians (SAEP).

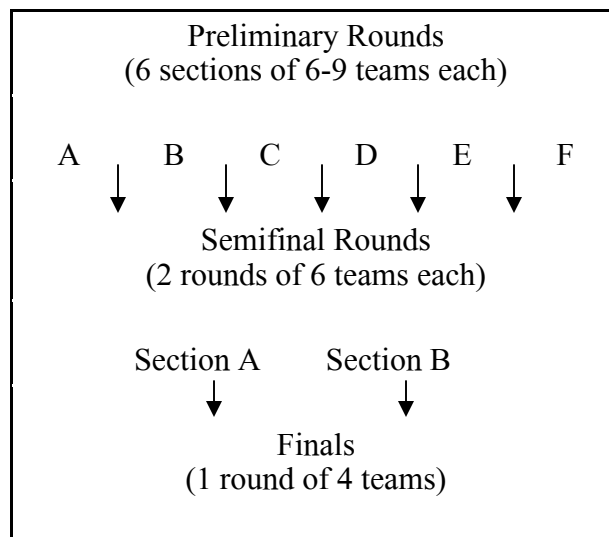
3. The average score of the six team members will be used to compute the total team score in each round.

C. Presentation - 620 points

1. Rounds

The national event will have three rounds: a preliminary round, a semifinal round and a final round. The preliminary round will have six sections. A section shall be made up of six to nine teams. Two teams from each of the sections, for a total of twelve teams, will advance to the semifinal round. The semifinal round is composed of two sections with six teams in each section. Two teams in each semifinal section will advance to the final round of four teams.

Team Progression Chart



2. Seeding Process

Teams will be placed into preliminary and semifinal rounds based on the teams' exam scores.

3. Item of Business

Each team will address a local chapter item of business, which would normally be a part of a chapter's Program of Activities (e.g., Food for America, Project PALS, WEA, fundraisers, recreation, etc.). Consult the Official FFA Manual and Student Handbook for specific activities. The motion will be specific and must be moved **as an original main motion** as it is written on the card.

4. Event Card

The event officials will select two subsidiary, two incidental and one privileged or a motion that brings a question again before the assembly from the list of permissible motions. These motions will be on an index card and one will be randomly assigned to each team member. All teams in each section will be assigned the same motions. Team members will have one minute to review the main motion, the motions to be demonstrated and to identify his/her motion (which may be noted by bolding, underlining or highlighting). Members may not confer during the one-minute time period or during the demonstration.

Sample Card

Main Motion:

I move that our chapter send two delegates to WLC.

Required Motions:

Lay on the Table

Amend

Suspend the Rules

Appeal

Reconsider *

* *I move that our chapter sells Christmas trees.*

5. Opening the Demonstration

The team demonstrating shall assume that a regular chapter meeting is in progress and new business is being handled on the agenda. The Chair shall tap the gavel once to signify the end of the previous item of business then start the presentation by saying, **“Is there any new business that should be presented at this time?”**

6. Original Main Motion

The event official will assign the main motion on an index card. This is to be the first item of business presented. All teams in each section will use the same main motion. This original main motion must be the first motion presented unless orders of the day, take from the table, reconsider or rescind are required.

7. Individual Member Recognition

A member may speak in debate on the main motion and conclude by offering a secondary motion. While it is discouraged, judges will award points accordingly for both the debate and the secondary motion.

8. Take from the Table

If the officials in charge designate Take from the Table as a motion to be demonstrated, you will be provided the motion to take from the table. Example: “I move to take from the table the motion that our chapter sells Christmas trees.” The original main motion, assigned on the card, cannot be taken from the table. The motion shall not be used unless it is a required motion.

9. Reconsider

If the officials in charge designate Reconsider as a motion to be demonstrated, you will be provided the motion to reconsider. Example: "I move to reconsider the motion passed earlier to sell Christmas trees." This motion shall not be used unless it is a required motion. Unrealistic or "canned" debate on the motion to reconsider may be penalized at the judge's discretion.

10. Rescind

If the officials in charge designate Rescind as a motion to be demonstrated, you will be provided the motion to rescind. Example: "I move to rescind the motion that was adopted at our last meeting to sell Christmas trees." This motion shall not be used unless it is a required motion. Unrealistic or "canned" debate on rescind may be penalized at the judge's discretion.

11. Call for the Orders of the Day

If the event officials designate Call for the Orders of the Day as a motion to be demonstrated, you are to assume that a motion was postponed at the last meeting and made a special order for a time during the current demonstration.

12. Number of Motions

There shall be no limitation to the number of subsidiary, incidental, privileged motions or a motion that brings a question again before the assembly demonstrated by the team. However, the team must demonstrate two subsidiary, two incidental and one privileged or a motion which brings a question again before the assembly designated by the officials in charge. The team may use more than one original main motion as long as it pertains to the assigned main motion. While acceptable, this practice is strongly discouraged.

13. Using a Motion Twice

A member's required motion will not be counted as an additional motion for another member. The person who makes the assigned main motion will be given credit for an additional motion (10 points). If an alternate main motion is used, the member will NOT be given credit for an additional motion. No motion may count for an additional motion for more than one member.

14. Debate

The top four debates per member will be tabulated in the presentation score. No more than two debates per member per motion will be tabulated, even if the subsidiary motion to Extend the Limits of Debate has been passed.

15. Time Limit and Deductions

A team shall be allowed ten minutes and thirty seconds in which to demonstrate knowledge of parliamentary law. A deduction of two points/second for every second over 10:30 will be assessed. Example: 10:35 = 10 point deduction. A timekeeper will furnish the time used by each team at the close of the event.

D. Oral Questions - 135 points**1. Individual Questions—90 points—(6 x 15 points)**

The team members (not including the Chair) will be asked a planned question, which may include 1-3 parts, relating to their assigned motion. No one may step forward to help another member answer their individual question. The Chair will be asked a question relating to presiding, debate, assigning the floor or other general parliamentary procedures.

2. General Questions—45 points

The judges will have four minutes to ask questions related to the team's demonstration. Questions may be directed to the team or an individual member. Team members may volunteer to answer the question for the team or to help another member.

E. Presentation of Minutes - 45 points

Each team in the preliminary round will have a Secretary take minutes of the presentation. A possible score of 50 points will be allowed for the minutes. Pencil and paper will be supplied to take notes during the presentation. **If paper and pencil are not present, it is the Secretary's responsibility to request these items from the judges or event officials. Following the presentation the Secretary, in consultation with the Chair, will have 20 minutes to prepare the official minutes.** Notes taken by the Secretary during the presentation must be turned in with the official copy of the minutes on Form 1. (The lowest possible score for the section is zero (0).) Event officials shall use Form 3 to score the official minutes of the presentation.

Instructions on Minutes

1. Use the example of proper minutes as illustrated in *Robert's Rules of Order Newly Revised*.
2. A dictionary will be provided for writing the official minutes of the presentation.
3. The minutes will begin by recording the first item of business presented. Example: "It was moved by John Smith to conduct a Food for America program during the month of April."
4. The Chair and the Secretary may consult in preparing the official minutes of the presentation. A total of 20 minutes will be allowed to prepare the minutes.
5. A judge will read, review and grade the official minutes of the presentation after completion of the preliminary round of the event. The scores will be provided to the presentation judges for use in computing final scores.

F. Team Problem Solving Activity - 45 points

Teams advancing to the semifinal and final rounds will complete a team problem solving activity in lieu of the minutes. Teams will be provided a short parliamentary procedure scenario outlining a practical problem. The team will have 30 minutes to research the problem and write a short solution with reference to specific page and line numbers in *Robert's Rules of Order Newly Revised*. All team members are required to provide their own copy of the most current edition of *Robert's Rules of Order Newly Revised*. See example problem solving activity and answers at the end of this chapter.

VI. Scoring

A. Guidelines for Scoring Discussion

1. It is essential that each judge observes and maintains consistent criteria in scoring debate for the duration of the event.
2. Judges must overlook personal opinions and beliefs and score debate in an unbiased manner. All debate should be scored at the time it is delivered.
3. Characteristics of effective debate include a) completeness of thought, b) logical reasoning, c) clear statement of speaker's position, d) conviction of delivery, e) concise and effective statement of debate.
4. A suggested grading scale is as follows:

Excellent	13-15 points
Good	9-12 points
Average	6-8 points
Poor	0-5 points
5. An excellent debate would be characterized by a truly stirring delivery and brilliant in terms of information provided and/or suggestions for action offered. Poor debate would be characterized by a lack of effective delivery, poor grammar, reasoning and substance. An example might be: "I think this is a good idea."

6. Most debate would fall in the range of 6-12 points. An example of a debate might be: “I think this is a very significant motion which should be adopted for the following reasons (new, informative and logically related).” Each debate should have a logical conclusion. Good debate would be characterized by effective delivery, substance, creative and visionary thought delivered in a convincing and compelling manner.
7. Each time a participant in the presentation discusses any motion, they may earn a score. However, an individual may never earn more than 50 points in a given presentation. The top four debates per member will be tabulated in the presentation score. No more than two debates per member per motion will be tabulated.

B. Guidelines for Scoring the Chair

1. Ability to preside: state motions correctly, follow rules of debate, keep members informed, put motions to a vote, announce results of vote, use of gavel, awareness of business on the floor. (80 points)

A suggested grading scale is as follows:

- | | |
|-----------|--------------|
| Excellent | 71-80 points |
| Good | 61-70 points |
| Average | 51-60 points |
| Poor | 0-50 points |
2. Leadership – stage presence, poise, self-confidence, politeness and voice. (20 points)

A suggested grading scale is as follows:

- | | |
|-----------|--------------|
| Excellent | 16–20 points |
| Good | 11–15 points |
| Average | 6–10 points |
| Poor | 0–5 points |

C. Guidelines for Scoring Team Effect

1. Conclusions reached by the team – Main motion was well analyzed which may include: Who, What, When, Where, How. (40 points)
2. Team Use of Debate – degree to which debate was convincing, logical, realistic, orderly and efficient, germane and free from repetition. (40 points)
3. Team Presence – voice, poise, expression, grammar, gestures and professionalism. (40 points)

SCORING

1. Written Exam (15%)	150
a. <i>Society for Agricultural Education Parliamentarians</i> Accreditation Exam	
b. 45 multiple-choice questions x 3 pts. each = 135	
c. 5 research questions x 3 pts. each = 15 pts.	
2. Presentation (67%)	670
a. Required motion = 20 pts. x 5 members = 100 pts. (10%)	
b. Additional motion = 10 pts. x 5 members = 50 pts. (5%)	
c. Debates = 300 pts. (30%)	
i. 15 pts max per debate	
ii. 4 debates/member included	
iii. 5 members	
d. Chair = 100 pts.(10%)	
i. Ability to Preside = 80 pts.	
ii. Leadership = 20 pts.	
e. Team Effect = 120 pts (12%).	
i. Conclusions Reached by Team = 40 pts.	
ii. Team Use of Debate = 40 pts.	
iii. Team Presence = 40 pts.	
3. Oral Questions (13.5%)	135
a. Individual Questions = 90 pts.	
i. 6 team members (including Chair)	
ii. 15 pts. max per question	
b. General Questions = 45 pts.	
i. 4 minutes allotted	
ii. 15 pts allotted per judge (15 x 3 = 45 pts.)	
4. Minutes or Team Problem Solving (4.5%)	45
a. Meeting Minutes (Preliminary Round) = 45 pts.	
b. Team Problem Solving (Semi-Final & Final Round) = 45 pts.	
5. TOTAL POINTS	1000

VII. Tiebreakers

Tiebreakers for teams will be:

1. Total presentation score.
2. Team average score on the written test.
3. Total score for questions.

VIII. Awards

Awards will be presented to teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

The first place national team will be presented a trophy plaque. Each member of the first place team will be presented an individual team member plaque. A national gold plaque and individual medals will be presented to the top 12 teams competing in the event; silver plaques and individual medals to the middle 18; and remaining teams and individuals competing will receive bronze. The top four teams will each receive a designated gold plaque. Specialty awards will be given for Outstanding Chair, Outstanding Secretary, High Average Team Exam Score and Perfect Exam Score.

IX. References

This list of references is not intended to be all-inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog

- CDE Q&A's: <http://shop.ffa.org/cde-qas-c1413.aspx>
- Additional parliamentary procedure resources, including those formally offered in the National FFA Education Resources Catalog can now be found on-line at <http://shop.ffa.org/parliamentary-procedure-c1412.aspx>
- The official text will be the most current of *Robert's Rules of Order Newly Revised*.
- Additional references may include *FFA New Horizons* magazine, the Official FFA Manual and the FFA Student Handbook.

**Parliamentary Procedure CDE
Chart of Permissible Motions**

Motion	Second Required	Debatable	Amendable	Vote Required	Reconsider
Privileged Motions					
Fix the Time to Which to Adjourn	Yes	No	Yes	Majority	Yes
Adjourn	Yes	No	No	Majority	No
Recess	Yes	No	Yes	Majority	No
Raise a Question of Privilege	No	No	No	Chair Grants	No
Call for the Orders of the Day	No	No	No	No vote, Demand	No
Subsidiary Motions					
Lay on the Table	Yes	No	No	Majority	Neg only (3)
Previous Question	Yes	No	No	2/3	Yes
Limit or Extend Limits of Debate	Yes	No	Yes	2/3	Yes
Postpone to a Certain Time (or Definitely)	Yes	Yes	Yes	Majority	Yes
Commit or Refer	Yes	Yes	Yes	Majority	Yes
Amend	Yes	Yes (1)	Yes	Majority	Yes
Postpone Indefinitely	Yes	Yes	No	Majority	Affirm. Only
Main Motion	Yes	Yes	Yes	Majority	Yes
Incidental Motions					
Appeal	Yes	Yes (1)	No	Majority	Yes
Division of the Assembly	No	No	No	No vote, demand	No
Division of a Question	Yes	No	Yes	Majority	No
Objection to the Consideration of a Question	No	No	No	2/3	Neg. Only
Parliamentary Inquiry	No	No	No	Chair answers	No
Point Of Order	No	No	No	Normally no vote Chair rules	No
Suspend the Rules	Yes	No	No	(2)	No
Withdraw a Motion	No (3)	No	No	Majority (3)	Neg. Only
Motions That Bring A Question Again Before The Assembly					
Reconsider (4)	Yes	Yes (1)	No	Majority	No
Rescind (4)	Yes	Yes	Yes	Maj. with notice, 2/3 or maj. of membership (3)	Neg. Only
Take From The Table (4)	Yes	No	No	Majority	No

- (1) If applied to a debatable motion
- (2) Rules of Order 2/3 vote, standing rules – majority vote
- (3) Refer to Robert’s Rules of Order Newly Revised (10th edition) for rule(s)
- (4) Refer to CDE rules #8-10 before using these motions in the demonstration

Parliamentary Procedure CDE – Form 1

Chapter: _____ Date: _____

State: _____ Place: _____

NATIONAL PARLIAMENTARY PROCEDURE EVENT
Official Minutes

Chair's Signature: _____ Secretary's Signature: _____

Add additional pages, if needed.

National FFA Parliamentary Procedure Career Development Event

Form 2 Team Score Sheet

FFA Chapter:													
Discussion (60 pts. max./member, 15 pts.max./item) Excellent 13-15 pts., Good 9-12 pts., Average 6-8 pts., Poor 0-5 pts.													
Required Motion													
Participant	20 pts/person	Pts	Main	PP Indef	Amend	Refer	PP Def	Bring Back	Total	Additional Motion	10 pts / person	Individual Questions 15 pts/ person	Total 105 pts/ person
1													
2													
3													
4													
5													
Chair	Ability to Preside (80 pts.)		Points			Leadership (20 pts.)			Points		Chair Questions (12 pts.)		
	State motions correctly, follow rules of debate, keep members informed, put motions to a vote, announce results of vote, use of gavel, awareness of business on the floor. Excellent = 71-80 pts., Good = 61-70 pts. Average = 51-60 pts., Poor = 0-50 pts.					Tactful, sensitive, firm, understanding, good voice, proper pace Excellent = 16-20 pts., Good = 11-15 pts. Average = 6-10 pts., Poor = 0-5 pts.							
Team Effect	Conclusions (40 pts.)		Points			Discussion (40 pts.)			Points		Team Voice (40 pts.)		Points
	Main motion was well analyzed. What, When, Where, Who, How was answered Excellent = 31-40 pts., Good = 21-30 pts., Average = 11-20 pts., Poor = 0-10 pts.		Convincing, logical, realistic, orderly and efficient, germane and free from repetition Excellent = 31-40 pts., Good = 21-30 pts., Average = 11-20 pts., Poor = 0-10 pts.			Voice: Volume, enunciation, pitch, pace, grammar Poise: confidence, professional, eye contact Expression: conviction, gestures Excellent = 31-40 pts., Good = 21-30 pts., Average = 11-20 pts., Poor = 0-10 pts.							
General Questions	General Clarification Questions (3 judges x 15 pts/each = 45 pts.)		Judge #2			Judge #3					Total Points for General Questions		
Exam	Average of all 6 individual exam scores (150 pts.)												
Minutes	Minutes taken from minutes scorecard (45 pts) (Preliminary Round)												
Research	Team Problem Solving Research (45 pts.) (Semi-Final & Final Rounds)												
Deductions (List mistakes 5-20 pts per mistake)													
Time	Omitting assigned motion - 50 pts Deduction for overtime. -2pts/second after 10:30												
Notes:	Total Deductions											Team Score	

**National FFA Parliamentary Procedure CDE
Form 3**

**Tabulation Sheet for Scoring Minutes
(Preliminary Round)**

STATE: _____

Scoring Criteria	Possible Points	Points Earned
<u>Completeness and Accuracy</u> Minutes accurately reflect all business transacted during demonstration. Kind of meeting (regular) Name of chapter Date and time of meeting President and Secretary were present? Minutes of the previous meeting read?	15	
<u>Format of Minutes</u> Separate paragraph for all items All main motions (including those withdrawn) All secondary motions (including those lost) All points of order and appeals Name of person making motion Name of seconder NOT included Vote count for motions requiring a 2/3 vote Signed by the President and Secretary	15	
<u>Grammar, Style and Legibility</u> Complete sentences Correct spelling (deduction of 1 pt./error) Correct punctuation (deduction of 1 pt./error) Legibility and clarity	15	
TOTAL POINTS	45	

Comments:

**National FFA Parliamentary Procedure CDE
Form 4**

**Team Problem Solving Activity Rubric
(Semi-Final & Final Rounds)**

STATE: _____

Scoring Criteria	Possible Points	Points Earned
<p><u>Reference</u> Team identified the correct page(s) and line number(s) in <i>Robert’s Rules of Order Newly Revised</i> (11th ed.) Team accurately wrote the complete quote(s) from <i>Robert’s Rules of Order Newly Revised</i> (11th ed.)</p>	10	
<p><u>Solution to the Problem</u> Team accurately solved the parliamentary procedure problem/issue.</p>	20	
<p><u>Grammar, Style and Legibility</u> Complete sentences Correct spelling (deduction of 1 pt./error) Correct punctuation (deduction of 1 pt./error) Legibility and clarity</p>	15	
TOTAL POINTS	45	

Comments:

SAMPLE TEAM PROBLEM SOLVING ACTIVITY

The following is a sample team problem similar to what a team might be asked to solve during the team portion of the National FFA Parliamentary Procedure CDE.

The Lakeville FFA Chapter is facing a parliamentary problem and needs advice. At its last meeting of the school year, the chapter planned to hold officer elections. The chapter president, Jason, was presiding at the elections meeting. The chapter vice president, Elizabeth, chose not to run for office again and served as chair of the nominating committee. Elizabeth will be a senior next year and decided to devote more of her time to career development events than to serving as a chapter officer. Elizabeth gave the nominating committee's report at the meeting. The nominating committee nominated Lisa for chapter president. No other nominees were offered and Lisa was elected by a voice vote. The nominating committee nominated David for vice president. Another member nominated Claire for vice president from the floor. Jason, the president, asked both David and Claire if they objected to taking the vote by voice. Neither objected and Jason took the vote by voice. Claire was the clear winner of the election and Jason declared Claire elected vice president. All other nominees suggested by the nominating committee were unopposed and were each elected by voice vote. At the conclusion of the election, Jason passed the gavel to Lisa, who declared the meeting adjourned. The next chapter meeting will take place when school resumes in the fall.

One week after the election, Lisa held the first meeting of the new officer team. She arrived at the meeting noticeably upset, and as soon as the meeting began Lisa announced that her father had taken a new job in a neighboring state, and she and her family would be moving away from Lakeville immediately. Lisa handed each officer a copy of her resignation as president and then handed a copy to the chapter advisor. To make matters worse, each officer had been instructed to bring copies of their last two report cards to the meeting so that the chapter advisor could verify the grade point average for each officer. All the officers had grade point averages above 3.0 except Claire, whose last two grade cards indicated a grade point average of 2.35.

The new officer team was clearly disappointed that Lisa would be leaving, and the remainder of the meeting became more of a farewell party for Lisa than an actual meeting. When the group left the meeting later that afternoon, the chapter advisor wished all the officers well and indicated that she would call another meeting for later in the summer. Several questions were lingering on her mind, however, and she has called your team for help.

1. Who is president of the Lakeville FFA Chapter?
2. What must be done now to complete the Lakeville FFA chapter officer team?
3. Was the election for vice president conducted properly?

The chapter bylaws only discuss chapter officers in Article IV. That article from the chapter bylaws appears below. The chapter's parliamentary authority is *Robert's Rules of Order Newly Revised (10th Edition)*. Please provide the Lakeville FFA chapter advisor with an answer to her questions, including appropriate citations, based on the chapter bylaws and the chapter's parliamentary authority.

ARTICLE IV – Officers

Section 1 – The officers of the chapter shall be a president, vice president, secretary, treasurer, reporter and sergeant-at-arms. All officers shall serve for a term of one year or until their successors are elected.

Section 2 – The president shall be a senior and must have been a chapter member for at least two full years prior to election. All other officers must have been a chapter member for at least one full year prior to election.

Section 3 – Any vacancy in any office other than that of president shall be filled by the other officers for the remainder of the unexpired term.

Section 4 – All elections shall be held by ballot, except in cases where only one nominee has been made, in which case a voice vote may be taken.

Section 5 – All officers shall have a minimum grade point average of 2.5 at the time of their election and shall maintain at least a 2.5 grade point average throughout their term of office.

SAMPLE TEAM PROBLEM SOLVING ANSWER

1. Who is president of the Lakeville FFA Chapter?

Elizabeth is president of the chapter. When Lisa was elected chapter president, Jason's term as president ended and Lisa became the duly elected president. Lisa's resignation means that the office of president would immediately be filled by the vice president. (Article IV, Section 3. RONR p. 442, ln. 2-7.) Claire was apparently elected vice president, but review of her grade point average after the election revealed that she was ineligible to be elected. (Article IV, Section 5.) The election for vice president actually never happened since Claire was ineligible at the time of the vote, so the election for vice president remains incomplete. (RONR p. 430, ln. 11-13 and p. 543, ln. 19-22.) Because Elizabeth was serving as vice president at the time of the election, and because her term of office does not expire until her successor is elected (Article IV, Section 1.), Elizabeth remained the actual vice president at the conclusion of the elections meeting. Elizabeth was also the actual sitting vice president at the time of Lisa's resignation from the office of president, meaning that Elizabeth became president of the Lakeville FFA Chapter upon Lisa's resignation.

2. What must be done now to complete the Lakeville FFA chapter officer team?

The chapter officers must select a new vice president to serve until the chapter meets again in the fall. (Article IV, Section 3.) When Elizabeth became president of the chapter following Lisa's resignation, a vacancy was created in the office of vice president. The chapter bylaws require the remaining officers to fill the vacancy for the remainder of the unexpired term. The person appointed by the chapter officers will fill the position of vice president until the chapter can meet to hold another election for vice president. (RONR p. 429-30.) The new election is necessary because the new vice president chosen by the officers will only be completing Elizabeth's term of office as vice president, which should have ended at the elections meeting, but because no election was completed, the newly chosen vice president will continue in office until his or her successor is elected by the chapter. Since there are no prohibitions against reelection, the person chosen by the officers can be elected to the office of vice president by the chapter for a complete term.

3. Was the election for vice president conducted properly?

No. The election for vice president should have been conducted by ballot. (Article IV, Section 4.) A requirement that a vote be taken by ballot cannot be suspended, even by unanimous consent. (RONR p. 398, ln. 28 – p. 399, ln. 1.) Claire should also not have been a candidate since she was ineligible for election to the office. (RONR, p. 543, ln. 19-22.)

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.			Social Studies: 4d and 4h
	CS.01.01.01.c. Work independently and in group settings to accomplish a task.	presentation	
	CS.01.01.03.c Implement an effective project plan.	presentation	
	CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	exam, problem solving	
	CS.01.01.05.a. Assess the physical, financial and professional risks associated with a particular task.	presentation	
	CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	presentation, problem solving	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.			Language Arts: 12 Social Studies: 4h
	CS.01.02.01.c. Demonstrate human relation skills including compassion, empathy, unselfishness, trustworthiness, reliability and being friendly to co-workers.	presentation	
	CS.01.02.02.c. Engage others in conversations to respond to an obstacle when completing a task.	presentation	
	CS.01.02.04.b. Establish team ground rules for expected individual behaviors on the team.	presentation	
CS.01.03. Performance Indicator: Vision: Establish a clear image of what the future should look like.			Social Studies: 4a, 4d and 4h
	CS.01.03.02.c. Create a plan of action to complete a task based on a conceptualized idea.	presentation	
	CS.01.03.05.c. Lead a meeting or activity that engages all participants in the process.	presentation	
CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtues.			Social Studies: 4c and 4f
	CS.01.04.03.b. Assess the alternative outcome of specific actions.	presentation	
	CS.01.04.04.c. Demonstrate respect for others.	presentation	
	CS.01.04.05.a. Practice self-discipline.	presentation	
	CS.01.04.06.a. Describe the benefits of serving others.	presentation	

CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.		Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
	CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	presentation
	CS.01.05.02.c. Perform leadership tasks associated with citizenship.	presentation
CS.01.06. Performance Indicator: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.		Science: A4 Language Arts: 8 Social Studies: 4h
	CS.01.06.03.c. Use problem solving strategies to solve a professional or personal issue.	presentation, problem solving
CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
	CS.02.02.02.a. Demonstrate proper conduct and appearances for various settings.	presentation
	CS.02.02.03.b. Exhibit the behaviors needed for developing and maintaining a professional relationship.	presentation
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.		Language Arts: 12 Social Studies: 4a
	CS.02.03.03.c. Demonstrate employability skills for a specific career.	presentation, exam
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.		Math: 6C Science: A4 Language Arts: 4 and 8
	CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	presentation, problem solving
	CS.02.04.02.c. Implement effective problem solving strategies.	problem solving
	CS.02.04.03.c. Demonstrate the skills needed to negotiate with others.	presentation
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
	CS.02.05.03.c. Exhibit self confidence while in the workplace.	presentation, questions
CS.02.06. Performance Indicator: Spiritual Growth: Reflect inner strength to allow one to define personal beliefs, values, principles and sense of balance.		Social Studies: 4c and 4f
	CS.02.06.02.c. Demonstrate respect and sensitivity to others' beliefs.	presentation

CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
	CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	minutes, problem solving
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.		Science: A1 and A5 Social Studies: 1c and 4h
	CS.03.02.01.c. Make decisions for a given situation by applying the decision-making process.	presentation, problem solving
	CS.03.02.02.c. Use problem-solving skills.	problem solving
	CS.03.02.03.b. Practice ethical behaviors.	presentation
CS.03.03. Performance Indicator: Flexibility / Adaptability: Describe traits that enable one to be capable and willing to accept change.		Science: A2, A6 and E2 Language Arts: 7 Social Studies: 8a
	CS.03.03.02.a. Select the appropriate process to initiate effective change for a given situation.	presentation, problem solving
	CS.03.03.03.c. Respond to feedback to improve a situation, skill or performance.	questions

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics**6. Standard and Expectations: Problem Solving**

6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science**A. Content Standard: Science as an Inquiry**

A1. Identify questions and concepts that guide scientific investigation.

A2. Design and conduct scientific investigations.

A4. Formulate and revise scientific explanations and models using logic and evidence.

A5. Recognize and analyze alternative explanations and models.

A6. Communicate and defend a scientific argument.

E. Content Standard: Science and Technology

E2. Understanding about science and technology.

English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture

1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;

1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;

4. Thematic Strand: Individual Development and Identity

4a. articulate personal connections to time, place and social/cultural systems;

4c. describe the ways family, religion, gender, ethnicity, nationality, socioeconomic status and other group and cultural influences contribute to the development of a sense of self;

4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;

4e. examine the interactions of ethnic, national or cultural influences in specific situations or events;

4f. analyze the role of perceptions, attitudes, values and beliefs in the development of personal identity;

4h. work independently and cooperatively within groups and institutions to accomplish goals;

8. Thematic Strand: Science, Technology and Society

8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;

10. Thematic Strand: Civic Ideals and Practices

10b. identify, analyze, interpret and evaluate sources and examples of citizens' rights and responsibilities;

10j. participate in activities to strengthen the "common good," based upon careful evaluation of possible options for citizen action.

National FFA Poultry Evaluation Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The National FFA Poultry Evaluation Career Development Event encourages learning through activities relative to production and management, processing, marketing and food safety and quality of poultry products.

II. Objectives

- A. The National FFA Poultry Evaluation Career Development Event provides opportunities for the participant to:
 1. make accurate observations and logical decisions.
 2. discuss and justify decisions (orally and written).
 3. communicate industry and product terminology.
 4. promote USDA standards of product quality.
 5. identify consumer preferences for products.
 6. recognize economic importance of value-added products.
 7. collaborate with others to analyze industry scenarios.
 8. demonstrate the use of appropriate information technology used in the poultry industry.
- B. Specifically, participants will:
 1. evaluate and select live meat-type chickens and orally defend the selection.
 2. evaluate and place live egg-type hens and orally defend the selection.
 3. evaluate and grade ready-to-cook carcasses and parts of chickens and turkeys.
 4. evaluate, grade and place ready-to-cook carcasses of chickens or turkeys and orally defend the placing.
 5. evaluate and grade individual shell eggs for interior quality.
 6. evaluate and grade individual shell eggs for exterior quality and indicate factors governing the grading.
 7. evaluate pre-cooked further processed poultry meat products and indicate factors governing the evaluation.
 8. identify poultry carcass parts.
 9. complete a written examination on poultry production, management and science.
 10. perform a team activity related to poultry science.

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Team Make-up: Teams may consist of three or four members. Team ranking is determined by combining the scores of the top three students from each team. Teams that have fewer than three members are not eligible for team awards, but students may receive individual awards.
- B. Humane Treatment of Live Animals: All live animals must be treated with the utmost care and respect. Violation of this rule will automatically disqualify an offending team member from the event. The supervision, interpretation and enforcement of this rule will be the responsibility of the event superintendent or his/her designee.
- C. Each team will report to the team orientation meeting for instructions at the specified time and place listed in the current year's team orientation packet. No participant, coach or advisor may enter the event area before the specified time.
- D. Each team will receive computer scan sheets during the National FFA Poultry Evaluation Career Development Event team orientation meeting.
- E. Participants will have ten minutes per class to complete Classes 1 through 12. An appropriate amount of time, as determined by the event officials, will be provided for Classes 13 and 14. A warning signal will inform the participants when time expires for each class. Participants will have approximately one minute to move from class to class.
- F. Any participant in possession of any electronic device is subject to disqualification.

V. Event Format

A. Equipment

1. **Materials provided by the participant:** Each participant must have two clean, sharpened No. 2 pencils and an electronic calculator. Calculators permissible for use in this event are those that are battery operated, non-programmable and silent. **A calculator may have the following functions: addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. Calculators that are capable of storing equations, definitions and/or terms are not permitted.** Participant use of unauthorized electronic devices will result in disqualification.
2. **Materials provided by the event officials:** Participants will be provided a clipboard for the purpose of providing storage of the scan sheet during the event. No other containers or devices (e.g. student provided clipboards, folders or envelopes) will be permitted for participant use during the event. In addition, participants will be provided a standard form ("Official Notes of National FFA Poultry Career Development Event Placings/ Grades") and clean sheets of paper for recording decisions made during the event. This document will serve as a participant's personal record of decisions made during the event.
3. **NO OTHER MATERIALS** will be permitted. Participants attempting to use unauthorized materials will be disqualified.

B. Individual Activities

Live Poultry

1. Each participant will place a class of four market broilers. Each participant will be permitted to "handle" the birds, as long as the birds are inspected in a professional and humane manner. Participants may not remove the broilers from the holding unit.
2. Each participant will place a class of four egg-type hens. The birds will be Single-Comb White Leghorns, or commercial strains of Leghorn-type (inbred cross). The birds may have trimmed beaks. Each participant will be permitted to "handle" the birds, as long as the birds are inspected in a professional and humane manner.

3. Each participant will present oral reasons for either the placing class of market broilers or for the class of egg-type hens. The class for which participants should develop oral reasons for presentation will be clearly identified during the event. Participants will have ten minutes to prepare and two minutes to present their oral reasons. Reasons should include current USDA and poultry industry terminology and standards.

Class #	Points
1. Market broilers	50
2. Egg-type hens	50
3. Oral reasons for Class 1 or 2	50

Ready-to-Cook Poultry

4. Each participant will grade a class of ten ready-to-cook chicken **and/or** turkey carcasses **and/or** parts. Criteria for grading will be derived from USDA standards for chicken carcasses weighing two pounds to six pounds and for turkey carcasses weighing six to sixteen pounds or carcasses weighing greater than sixteen pounds. Four categories may be used, including the USDA quality grades A, B, C and the category NG (nongradable). Participants may not touch any carcass or part; doing so will result in disqualification. If used, the shackle holding a carcass may be rotated to show the entire carcass.
5. Each participant will place a class of four ready-to-cook chicken or turkey carcasses. Criteria for placing will be derived from USDA standards relative to poultry weight classes. Participants may not touch any carcass; doing so will result in disqualification. If used, the shackle holding a carcass may be rotated to show the entire carcass.
6. Each participant will present oral reasons for their placing of the class of ready-to-cook chicken or turkey carcasses. Participants will have ten minutes to prepare and two minutes to present their reasons. Reasons should include current USDA and poultry industry terminology and standards.

Class #	Points
4. Ten chicken and/or turkey carcasses and/or parts for quality grading	50
5. Four RTC carcasses for placing	50
6. Oral reasons for Class 5	50

Shell Eggs

7. Each participant will grade a class of ten white (or white-tint) shell eggs. Criteria for grading will be derived from USDA standards for interior quality of market eggs. The USDA quality grades will be AA, A, B and Loss. Participants must candle the eggs to determine the appropriate USDA quality grade, but improper handling of eggs will result in disqualification.
8. Each participant will grade a class of fifteen shell eggs (white, brown or other). Criteria for grading will be derived from USDA standards for exterior quality of market eggs. The USDA quality grades will be AA/A, B and NG (nongradable). Criteria for grading may include decisions related to the following quality factors: **Soundness** (unbroken, check, dented check or leaker); **Stains** (slight/moderate stain or prominent stain); **Adhering Dirt or Foreign Material**; **Egg Shape** (approximately normal shape, unusual or decidedly misshapen); **Shell Texture** (large calcium deposits, body check or pronounced ridges); **Shell Thickness** (pronounced thin spots); **No Defect**.
9. Each participant will determine written factors for the grading of the exterior chicken eggs. The written factors will relate to the criteria used for grading exterior quality of eggs.

Class #	Points
7. Ten white-shell eggs for interior quality grading	50
8. Fifteen chicken eggs for exterior quality grading	50
9. Evaluation criteria for Class 8	50

Further Processed Poultry

- Each participant will determine written quality factors for a class of ten boneless further processed poultry meat products (e.g. precooked, poultry meat patties, tenders, nuggets or other boneless products). Criteria for evaluation will include coating defects, color defects, consistency of shape/size, broken and/or incomplete products, cluster/marriages and evidence of foreign material. Participants may not touch any product; doing so will result in disqualification.
- Each participant will determine written quality factors for a class of ten bone-in further processed poultry meat products (e.g., precooked, bone-in wings or other bone-in poultry meat products). Criteria for evaluation will include coating defects, color defects, consistency of size, broken products, miscut products, mixed products and evidence of foreign material. Participants may not touch any product; doing so will result in disqualification.
- Each participant will identify ten poultry parts. Poultry parts to be identified will be randomly selected and consistent with those used in the chicken processing and merchandising industries. The participant may not touch any part; doing so will result in disqualification.

Class #	Points
10. Boneless Further Processed Poultry Meat Products	50
11. Bone-In Further Processed Poultry Meat Products	50
12. Ten chicken carcass parts for identification	50

Poultry Management Written Exam

- Each participant will complete a 30 item written examination on poultry production, management, anatomy and physiology. Five or more items will require mathematical calculations. Examination items will be developed from information found in the references (see Section IX).

Class #	Points
13. Written Examination	150

C. Team Activity – 200 points

For the team activity, all members of a team will work collaboratively to perform an activity related to poultry science. Team members will observe **and/or** be provided information about a poultry industry situation or problem scenario(s). Then, team members will answer up to 25 questions related to the information gained from the situation/scenario and from reference material studied in preparation for the career development event. The team activity may require participants to use information technology that is appropriate for the poultry industry (e.g. computers, software applications, Internet resources and related technologies). Specific information about the team activity will be made available to coaches in the team orientation packet as needed.

VI. Scoring

	Individual	Team
Twelve Classes	600	1800
Written Exam	150	450
Total Individual Points Possible	750	2,250
Team Activity		200
Total Team Points Possible		2,450

VII. Tiebreakers

If ties occur, the following classes will be used in order to determine the ranking of award recipients:

1. Written Management Exam
2. Evaluation of Live Birds

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

IX. References

This list of references is not intended to be all-inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

Available from Instructional Materials Service (IMS), Texas A&M University, 2588 TAMUS, College Station, TX 77843-2588 (Phone: 979-845-6601; FAX: 979-845-6608; ims@tamu.edu; <http://www-ims.tamu.edu/>).

- Poultry Grading Manual - Agriculture Handbook Number 31 (latest USDA edition) (IMS Catalog #0414)
- Egg-Grading Manual - Agriculture Handbook Number 75 (latest USDA edition) (IMS Catalog #0417)

National FFA Core Catalog

- Poultry Science Manual for National FFA Career Development Events. (sixth edition) (IMS Catalog #0418-5) (or from the National FFA Core Catalog, product number PSM-06, online at <http://shop.ffa.org/poultry-science-manual-p38844.aspx>). All examination items will be derived from this reference.
- The Hormel Computing Slide is available through the National FFA Core Catalog, Item #HCSS, 888-332-2668 or online at <http://shop.ffa.org/hormel-computing-slide-p38052.aspx>
- Poultry Evaluation Scan Form—<http://shop.ffa.org/poultry-evaluation-scan-form-p38843.aspx>
- CDE Q&A's—<http://shop.ffa.org/cde-qas-c1413.aspx>

FFA Learn

- 2005 & 2006 CDE Q&A's —<https://ffa.learn.com/learncenter.asp?id=178409&page=31>

X. Examples - Scoring Format Summary

A. *Placing Classes*

Class 1, 2 and 5 are placing classes. Each class has a value of 50 points per participant.

The event superintendent obtains the “official placing” of the class and the “basis of grading” from the judge. The “basis of grading” is the numerical difference or “cut” between each of the three pairs—top, middle and bottom—in the placing class. The three “cuts” are totaled; the total cannot exceed 15 points. From the judge’s information and the directions printed on the Hormel Computing Slide, the correct scores are obtained for all (24) possible placings (refer to references section for the source of the computing slide). The computer scoring system uses the

Hormel Scoring format when calculating a participant's score for each placing class.

B. Oral Reasons Classes

Class 3 and Class 6 are oral reasons for Class 1 or 2 and Class 5, respectively. Each class has a value of 50 points per participant. The score is based on oral reasons scorecard (refer to the "Presenting Oral Reasons" section of the Poultry Science Manual for National FFA Career Development Events, sixth edition).

C. Grading Classes

Classes 4, 7 and 8 are grading classes. Each class has a value of 50 points per participant.

1. **Class 4 – Scoring for Parts and Carcass Grading**

Participant's Grade	Official Grade				
	A	B	C	NG	
	A	5	3	1	0
	B	3	5	3	0
	C	1	3	5	0
NG	0	0	0	5	

As shown above, Class 4 is scored based on the USDA quality grades A, B, C and the category NG. Each correct grade receives a score of five points. If the item is graded one quality grade below or above the correct grade, two points will be deducted to obtain a score of three points. If the item is graded two quality grades below or above the correct grade, four points are deducted to obtain a score of one point. However, if the "NG" line is "crossed" (i.e., an incorrect judgment), all five points are deducted to obtain a score of zero points. (Adapted from information provided by Don Sheets, Retired, Kansas Board of Agriculture, Topeka, Kansas.)

2.

Class 7 – Scoring for Interior Egg Quality Grading

Participant's Grade	Official Grade				
	AA	A	B	Loss	
	AA	5	3	1	0
	A	3	5	3	0
	B	1	3	5	0
Loss	0	0	0	5	

As shown above, Class 7 is scored based on the USDA quality grades AA, A, B and Loss. In the case of Class 7, each correct grade receives a score of five points. If the item is graded one quality grade below or above the correct grade, two points will be deducted to obtain a score of three points. If the item is graded two quality grades below or above the correct grade, four points are deducted to obtain a score of one point. However, if the "Loss" line is "crossed" (i.e., an incorrect judgment), all five points are deducted to obtain a score of zero points.

3. Class 8 – Scoring for Exterior Egg Quality Grading

Participant's Grade	Official Grade			
	AA/A	B	NG	
	AA/A	3	2	0
	B	2	3	0
NG	0	0	3	

As shown above Class 8 is scored based on the USDA quality grades AA/A, B and NG (nongradable). In the case of Class 8, each correct grade receives a score of three points. If the item is graded one quality grade below or above the correct grade, one point will be deducted to obtain a score of two points. However, if the “NG” line is “crossed” (i.e., an incorrect judgment), all three points are deducted to obtain a score of zero points.

Exterior Egg Quality Score Card

Egg Number	Class 8 Exterior Quality Grades		
	AA/A	B	NG
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

D. Written Factors Classes

Class 9 is written factors for Class 8 and has a value of 50 points per participant. Classes 10 and 11 are written factors for further processed poultry meat products and have a value of 50 points per class for each participant.

For Class 9 each item is evaluated for twelve different quality factors. For Class 10, each item is evaluated for seven different quality factors. For Class 11, each item is evaluated for eight different quality factors. Each item may be determined to have “no defect” or to have one or more defects.

For each correct match with the judge, zero points are deducted.

For each “defect” or “no defect” missed or added, two (2) points are deducted.

No score will be less than zero.

1. Class 9 – Egg Exterior Quality Written Factors

Defect	Class 9 Egg Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Checked															
Dented Checked															
Leaker															
Slight/Moderate Stain															
Prominent Stain															
Adhering Dirt/Foreign Material															
Decidedly Misshapen															
Large Calcium Deposits															
Body Check															
Pronounced Ridges															
Pronounced Thin Spots															
No Defect															

2. Class 10 – Boneless Further Processed Poultry Meat Products

Defect	Class 10 Product Number									
	1	2	3	4	5	6	7	8	9	10
Coating Void										
Inconsistent Color										
Inconsistent Shape/Size										
Broken/Incomplete										
Cluster/Marriages										
Foreign Material										
No Defect										

3. Class 11 – Bone-In Further Processed Poultry Meat Products

Defect	Class 11 Product Number									
	1	2	3	4	5	6	7	8	9	10
Coating Void										
Inconsistent Color										
Inconsistent Size										
Broken/Broken Bone										
Miscut										
Mixed Products										
Foreign Material										
No Defect										

E. Identification Class

Class 12 is an identification class consisting of ten poultry carcass parts. The class has a value of 50 points per participant. Each correct answer receives a score of five points.

F. Written Examination Class

Class 13 is an examination consisting of 30 multiple-choice items. The class has a value of 150 points per participant. Each correct answer receives a score of five points.

G. Team Activity Class

Class 14 is a team activity containing up to 25 questions. The class has a value of 200 points **per team**. Each correct answer receives a score of 10 points. (Note: This class does not apply to individual participant scores.)

SAMPLE SCORECARD FOR IDENTIFICATION OF PARTS

Directions: Darken the poultry carcass part that you consider correct for each of the ten items.										
Part No.	1	2	3	4	5	6	7	8	9	10
Half	0	0	0	0	0	0	0	0	0	0
Front Half	0	0	0	0	0	0	0	0	0	0
Rear Half	0	0	0	0	0	0	0	0	0	0
Whole breast with ribs	0	0	0	0	0	0	0	0	0	0
Bnls., skinless whole breast with rib meat	0	0	0	0	0	0	0	0	0	0
Whole breast	0	0	0	0	0	0	0	0	0	0
Bnls., skinless whole breast	0	0	0	0	0	0	0	0	0	0
Split breast with ribs	0	0	0	0	0	0	0	0	0	0
Bnls., skinless split breast with rib meat	0	0	0	0	0	0	0	0	0	0
Split breast	0	0	0	0	0	0	0	0	0	0
Bnls., skinless split breast	0	0	0	0	0	0	0	0	0	0
Breast quarter	0	0	0	0	0	0	0	0	0	0
Breast quarter without wing	0	0	0	0	0	0	0	0	0	0
Tenderloin	0	0	0	0	0	0	0	0	0	0
Wishbone	0	0	0	0	0	0	0	0	0	0
Leg quarter	0	0	0	0	0	0	0	0	0	0
Leg	0	0	0	0	0	0	0	0	0	0
Thigh w/ back portion	0	0	0	0	0	0	0	0	0	0
Thigh	0	0	0	0	0	0	0	0	0	0
Bnls., skinless thigh	0	0	0	0	0	0	0	0	0	0
Drumstick	0	0	0	0	0	0	0	0	0	0
Bnls., skinless drum	0	0	0	0	0	0	0	0	0	0
Wing	0	0	0	0	0	0	0	0	0	0
Drumette	0	0	0	0	0	0	0	0	0	0
Wing portion	0	0	0	0	0	0	0	0	0	0
Liver	0	0	0	0	0	0	0	0	0	0
Gizzard	0	0	0	0	0	0	0	0	0	0
Heart	0	0	0	0	0	0	0	0	0	0
Neck	0	0	0	0	0	0	0	0	0	0
Paws	0	0	0	0	0	0	0	0	0	0

Poultry Evaluation CDE
Sample Scorecard for Oral Reasons: Broiler or Egg-Type Hens and R-T-C Turkey Carcasses

* To be used as a scoring guide by the official judges.	Possible Points	Participant's Score
1. IMPORTANCE OF POINTS COVERED		
a. Did the participant actually tell why one bird/carcass was selected/placed over another, or did the participant only vaguely describe the birds/carcasses?	5	_____
b. Did the participant stress the crucial differences, or did he/she make stereotypic ("canned") comparisons of various factors?	8	_____
c. Did the participant tell all there was to tell of importance, or were there other significant reasons that should have been given for the selection/placing?	5	_____
TOTAL POINTS	18	_____
2. APPEARANCE AND DELIVERY		
a. Did the participant stand still on two feet and face the judge?	2	_____
b. Did the participant speak clearly, distinctly and loud enough to be heard?	2	_____
c. Did the participant have an appropriate opening and closing statement?	2	_____
d. Did the participant speak smoothly without long pauses?	2	_____
e. Was the participant confident? Was the participant convincing?	4	_____
TOTAL POINTS	12	_____
3. PROPER USE OF TERMS		
a. Did the participant use relevant terminology properly?	4	_____
b. Did the participant understand the terms used?	3	_____
c. Was the participant able to define the terms used? (Participants may be asked to define terms used.)	3	_____
TOTAL POINTS	10	_____
4. ACCURACY OF STATEMENTS		
a. Did the participant describe the birds/carcasses based on their actual visual appearance?	5	_____
b. Did the participant present accurate statements?	5	_____
TOTAL POINTS	10	_____
GRAND TOTAL OF POINTS	50	

Appendix A: AFNR Career Cluster Content Standards

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.		Social Studies: 7b and 7g
ABS.01.01.01.a. Recognize principles of capitalism as related to AFNR businesses.	exam	
ABS.01.02. Performance Indicator: Apply principles of entrepreneurship in businesses.		Social Studies: 7d
ABS.01.02.01.a. Describe the meaning, importance and economic impact of entrepreneurship.	exam	
ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.		Language Arts: 12 Social Studies: 7f
ABS.02.03.01.a. Identify organizational structures and chains of command in AFNR businesses.	exam	
ABS.02.03.02.a. Identify appropriate local, state, federal, international and industry regulations for AFNR businesses.	exam, USDA grading, parts ID	
ABS.03.01. Performance Indicator: Prepare and maintain all files needed to accomplish effective record keeping.		Math: 5A and 6B Language Arts: 8
ABS.03.01.01.b. Analyze records to improve efficiency and profitability of an AFNR business.	exam, team activity	
ABS.04.01. Performance Indicator: Use accounting fundamentals to accomplish dependable bookkeeping and fiscal management.		Math: 1C, 5A, 5C Social Studies: 7h
ABS.04.01.02.b. Use accounting information to estimate the cost of goods sold and margins on the goods.	exam, team activity	
ABS.05.01. Performance Indicator: Maintain and interpret financial information (income statements, balance sheets, inventory, purchase orders, accounts receivable and cash-flow analyses) for businesses.		Math: 1C, 5A and 5C Language Arts: 8
ABS.05.01.04.a. Calculate percentages, ratios and related business applications.	exam, team activity	
ABS.07.01. Performance Indicator: Prepare a step-by-step production plan that identifies needed resources.		Language Arts: 4, 5 and 8
ABS.07.01.01.b. Identify and assess alternative production systems and ways products can be produced.	exam, team activity	
AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution.		Science: C3 Social Studies: 7h
AS.01.01.01.b. Evaluate and describe characteristics of animals that developed in response to the animals' environment and led to their domestication.	exam	
AS.01.01.02.b. Outline the development of the animal industry and the resulting products, services and careers.	exam, team activity	

AS.02.01. Performance Indicator: Classify animals according to hierarchical taxonomy and agricultural use.		Science: C3
AS.02.01.01.c. Classify animals according to the taxonomical classification system.	exam	
AS.02.01.02.c. Appraise and evaluate the economic value of animals for various applications in the agriculture industry.	placing, grading, evaluation, exam, team activity	
AS.02.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.		Science: C1, C5 and F2
AS.02.02.01.c. Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.	exam, oral reasons	
AS.02.02.03.a. Describe the basic functions of animal cells in growth and reproduction.	exam	
AS.02.02.04.c. Explain the importance and uses made of animal tissues in the agriculture industry.	all classes	
AS.02.02.05.a. Describe the properties, locations, functions and types of animal organs.	exam	
AS.02.02.06.c. Explain the impact of animal body systems on performance, health, growth and reproduction.	exam, team activity, live bird classes	
AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.		Science: C5
AS.02.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.	live bird classes	
AS.02.03.02.b. Assess an animal to determine if it has reached its optimal performance level based on anatomical and physiological characteristics.	live bird classes	
AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders.		Science: C4, F1 and F5
AS.03.01.01.a. Explain methods of determining animal health and disorders.	exam, team activity	
AS.03.01.02.b. Diagnose illnesses and disorders of animals based on symptoms and problems caused by diseases, parasites and physiological disorders.	exam, team activity	
AS.03.01.03.b. Evaluate preventive measures for controlling and limiting the spread of diseases, parasites and disorders among animals.	exam, team activity	
AS.03.01.05.a. Identify and describe zoonotic diseases.	exam, team activity	
AS.03.02. Performance Indicator: Provide for the biosecurity of agricultural animals and production facilities.		Science: F5 and F6 Social Studies: 9d
AS.03.02.01.a. Explain the importance of biosecurity to the animal industry.	exam, team activity	

AS.04.01. Performance Indicator: Formulate feed rations to provide for the nutritional needs of animals.		Math: 1C and 6B Science: A4 and C5
AS.04.01.01.a. Compare and contrast common types of feedstuffs and the roles they play in the diets of animals.	exam, team activity	
AS.04.01.02.b. Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance.	exam	
AS.04.02. Performance Indicator: Prescribe and administer animal feed additives and growth promotants in animal production.		Science: C5
AS.04.02.01.a. Explain the purpose and benefits of feed additives and growth promotants in animal production.	exam	
AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals.		Science: C1 and C3
AS.05.01.01.b. Describe the functions of major organs in the male and female reproductive systems.	exam, live bird classes	
AS.05.02. Performance Indicator: Evaluate animals for breeding readiness and soundness.		Science: C6
AS.05.02.01.c. Evaluate and select animals for reproductive readiness.	live bird classes	
AS.05.02.02.a. Discuss the importance of efficient and economic reproduction in animals.	exam	
AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.		Math: 6C Science: A4, C2 and E2
AS.05.03.01.b. Explain the advantages of using genetically superior animals in the production of animals and animal products.	oral reasons, exam, live bird classes	
AS.05.03.02.a. Define natural and artificial breeding methods.	exam, team activity	
AS.05.03.05.a. Discuss the uses and advantages and disadvantages of natural breeding and artificial insemination.	exam, team activity	
AS.06.02. Performance Indicator: Implement procedures to ensure that animal products are safe.		Science: F1 and F5
AS.06.02.01.b. Discuss consumer concerns with animal production practices relative to human health.	exam, team activity	
AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.		Science: C6 and F6
AS.07.01.01.a. Identify facilities needed to house and produce each animal species safely and efficiently.	exam, team activity	
AS.07.01.02.b. Explain how modern equipment and handling facilities enhance the safe and economic production of animals.	live bird classes	

AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.		Science: C4 and F4
AS.08.01.01.a. Evaluate the effects of animal agriculture on the environment.	exam	
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.		Science: C6 and F4
AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	exam, team activity, live bird class reasons	
BS.01.01. Performance Indicator: Distinguish major innovators, historical developments and potential applications of biotechnology in agriculture.		Science: E2, F6 and G3 Language Arts: 8 Social Studies: 2b, 8a, 8c and 8e
BS.01.01.02.a. Investigate current applications of biotechnology in agriculture.	exam	
BS.01.01.03.c. Assess the future impact agricultural biotechnology could have on world populations.	exam	
ESS.04.01. Performance Indicator: Use pollution control measures to maintain a safe facility environment.		Science: F4 and F5
ESS.04.01.01.a. Identify types of pollution and distinguish between point source and nonpoint source pollution.	exam	
ESS.04.01.02.a. Describe ways in which pollution can be managed and prevented.	exam	
ESS.04.02. Performance Indicator: Manage safe disposal of all categories of solid waste.		Science: F1, F4 and F5
ESS.04.02.01.b. Evaluate environmental hazards created by different types of solid waste, solid waste accumulation and solid waste disposal.	exam	
ESS.04.05. Performance Indicator: Manage hazardous materials to assure a safe facility and to comply with applicable regulations.		Science: F4 and F5
ESS.04.05.01.b. Describe risks related to hazardous materials and describe health and safety practices to reduce risks from hazardous materials.	exam	
FPP.01.01. Performance Indicator: Evaluate the significance and implications of changes and trends in the food products and processing industry.		Science: F1 Language Arts: 7 and 8 Social Studies: 1g and 8c
FPP.01.01.01.a. Discuss the history and describe and explain the components (e.g., processing, distribution, byproducts) of the food products and processing industry.	exam	
FPP.01.01.02.a. Identify and explain environmental and safety concerns about the food supply.	exam	

FPP.01.02. Performance Indicator: Work effectively with industry organizations, groups and regulatory agencies affecting the food products and processing industry.		Language Arts: 12 Social Studies: 6c and 8f
FPP.01.02.01.a. Explain the purposes of organizations that are part of or regulate the food products and processing industry.	exam	
FPP.01.02.02.b. Discuss the application of industry standards in the food products and processing industry.	further processed and ready to cook classes, exam	
FPP.02.02. Performance Indicator: Implement Hazard Analysis and Critical Control Point (HACCP) procedures to establish operating parameters.		Science: F5 Language Arts: 8
FPP.02.02.01.a. Describe contamination hazards (physical, chemical and biological) associated with food products and processing.	exam	
FPP.02.03. Performance Indicator: Apply safety and sanitation procedures in the handling, processing and storing of food products.		Science: A2 and F5
FPP.02.03.01.a. Explain techniques and procedures for the safe handling of food products.	exam	
FPP.02.03.02.b. Perform quality-assurance tests on food products.	egg classes, further processed classes	
FPP.03.01. Performance Indicator: Apply principles of science to food processing to provide a safe, wholesome and nutritious food supply.		Science: A2, B3 and F1
FPP.03.01.04.a. Discuss common food constituents (e.g., proteins, carbohydrates, fats, vitamins, minerals).	exam	
FPP.04.01. Performance Indicator: Utilize harvesting, selection and inspection techniques to obtain quality food products for processing.		Science: F1 Language Arts: 12
FPP.04.01.01.c. Assign quality and yield grades to food products according to industry standards.	grading classes	
FPP.04.01.02.b. Perform quality-control inspections of raw food products for processing.	carcass classes, parts grading	
FPP.04.01.03.a. Identify and describe accepted animal treatment and harvesting techniques.	exam	
FPP.04.01.04.c. Conduct pre-mortem and post-mortem inspections of animals.	all placing classes, team activity	
FPP.04.02. Performance Indicator: Evaluate, grade and classify processed food products.		Science: F1 Language Arts: 8
FPP.04.02.01.c. Evaluate, grade and classify processed meat, egg, poultry, fish and dairy products.	all classes	
FPP.04.03. Performance Indicator: Process, preserve, package and present food and food products for sale and distribution.		Math: 1C, 4A and 4B Science: F1
FPP.04.03.02.c. Evaluate foods prepared for the fresh-food market based on factors such as shelf life, shrinkage, appearance and weight.	ready to cook classes, egg classes	
FPP.04.03.04.c. Evaluate ready-to-eat food products.	further processed classes	
FPP.04.03.06.a. Identify and explain storage conditions to preserve product quality.	exam	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
 - 1C. Compute fluently and make reasonable estimates.
4. Standard and Expectations: Measurement
 - 4A. Understand measurable attributes of objects and the units, systems and processes of measurement.
 - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
5. Standard and Expectations: Data Analysis and Probability
 - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
 - 5C. Develop and evaluate inferences and predictions that are based on data.
6. Standard and Expectations: Problem Solving
 - 6B. Solve problems that arise in mathematics in other contexts.
 - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

- A. Content Standard: Science as an Inquiry
 - A2. Design and conduct scientific investigations.
 - A4. Formulate and revise scientific explanations and models using logic and evidence.
- B. Content Standard: Physical Science
 - B3. Chemical reactions.
- C. Content Standard: Life Science
 - C1. The cell.
 - C2. Molecular basis of heredity.
 - C3. Biological evolution.
 - C4. Interdependence of organisms.
 - C5. Matter, energy and organization in living systems.
 - C6. Behavior of organisms.
- E. Content Standard: Science and Technology
 - E2. Understanding about science and technology.
- F. Content Standard: Science in Personal and Social Perspectives
 - F1. Personal and community health.
 - F2. Population growth.
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.
 - F6. Science and technology in local, national and global challenges.

G. Content Standard: History and Nature of Science
G3. Historical perspectives.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture
 - 1g. construct reasoned judgments about specific cultural responses to persistent human issues;
2. Thematic Strand: Time, Continuity and Change
 - 2b. apply key concepts such as time, chronology, causality, change, conflict and complexity to explain, analyze and show connections among patterns of historical change and continuity;
6. Thematic Strand: Power, Authority and Governance
 - 6c. analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security and balance competing conceptions of a just society;
7. Thematic Strand: Production, Distribution and Consumption
 - 7f. compare how values and beliefs influence economic decisions in different societies;
 - 7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;
 - 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;
 - 7d. describe relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions and corporations;
 - 7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;
8. Thematic Strand: Science, Technology and Society
 - 8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;
 - 8c. analyze how science and technology influence the core values, beliefs and attitudes of society, and how the core values, beliefs and attitudes of society shape scientific and technological change;

8e. recognize and interpret varied perspectives about human societies and the physical world using scientific knowledge, ethical standards and technologies from diverse world cultures;

8f. formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.

9. Thematic Strand: Global Connections

9d. analyze the causes, consequences, and possible solutions to persistent, contemporary and emerging global issues, such as health, security, resource allocation, economic development and environmental quality;

National FFA Prepared Public Speaking Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The National FFA Prepared Public Speaking Career Development Event is designed to develop agricultural leadership, communication skills and promote interest in leadership and citizenship by providing member participation in agricultural public speaking activities.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

III. Event Rules

- A. The National FFA Prepared Public Speaking Career Development Event will be limited to one participant from each state association.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Each participant's manuscript will be the result of his or her own efforts. It is expected that the participant will take advantage of all available training facilities at their local school in developing their speaking ability. Facts and working data may be secured from any source but must be appropriately documented.
- D. Participants will report to the orientation meeting for instructions at the time and place shown in the current year's schedule of events.
- E. Three to eight competent and impartial persons will be selected to judge the event. At least one judge should have an agricultural background. Each state with a speaker will provide a judge for preliminary and semifinal rounds of the national event. ***Any advisor who has a student competing in a speaking event may not serve as a judge for that respective speaking event.***

IV. Event Format

A. Materials to be submitted by August 15:

1. Fifteen double-spaced, typewritten copies of the speech on 8 1/2" x 11" white bond paper.
 - a. Cover page including the speech title, participant's name, state and year.
 - b. Body of the manuscript must have 1" margins.
 - c. Font size must be 12 point using Arial or other sans serif font.
 - d. Follow most current APA style guide for developing references and bibliography.**
 - e. Do not bind, but place a staple in upper left corner.
 - f. Manuscripts not meeting these guidelines will be penalized.

2. A complete and accurate bibliography should be included in manuscript. All participants in the National FFA Prepared Public Speaking Career Development Event should give credit to others where any direct quotes, phrases or special dates are used in the manuscript, in order not to be guilty of plagiarism. The National FFA Board of Directors at the October 1960 meeting in Kansas City, Missouri adopted the following:
“A bibliography MUST be included as part of the public speaker’s manuscript and direct quotes from any source of information must be marked in “quotes” on the manuscript and be identified in the bibliography. Failure to do so will automatically disqualify a participant. This applies to all events above the local level.”
3. Fifteen (15) copies of the manuscripts, per guidelines laid out in the handbook, must be sent to the National FFA Center postmarked by August 15. A penalty of 20 points (10% of available manuscript points) will be assessed by the judges scoring the manuscripts for any late submissions. Manuscripts received that are postmarked later than August 22 will not be entered into the event and the speaker will be disqualified from speaking in the event.

B. Subjects

Participants may choose any current subject of an agricultural nature for their speeches. This may include agriscience and technology, agribusiness, agrimarketing, international agricultural relations or agricultural communications. Official judges of the National FFA Prepared Public Speaking Career Development Event shall disqualify a participant if he or she speaks on a non-agricultural subject.

C. Time Limit

Each speech will be a minimum of six minutes in length and a maximum of eight minutes. Participants are to be penalized one point per second on each judge’s score sheet for being under six minutes or over eight minutes. Each participant will be allowed five additional minutes in which he or she will be asked questions relating to his or her speech. No time warnings will be given.

D. Judging

1. Prior to the event, the content and composition of all manuscripts will be judged and scored by qualified individuals using the manuscript score sheet. Manuscript scores will be averaged and supplied to the presentation judges after they have scored the oral presentation. Manuscript comment cards will be completed by manuscript judges and presented to the participants at the awards function.
2. Presentation judges will be furnished with typewritten copies of the participants’ manuscripts, which they will use to formulate questions. Questions shall pertain directly to the speaker’s subject. Questions containing two or more parts should be avoided.
3. Event officials will randomly determine the speaking order. The event superintendent will introduce each participant by name in order of the drawing. A participant will be permitted to use notes while speaking, but deductions in scoring may be made for this practice if it detracts from the effectiveness of the presentation. **No props are to be used.** Applause shall be withheld until all participants have spoken.
4. A designated timekeeper will record the time used by each participant in delivering his or her speech, noting under time or overtime, if any, for which deductions will be made.
5. At the time of the event, the judges will score each participant on the delivery of the speech using the score sheet provided. They will also complete a judge’s comment card which will be presented to the participant at the awards function.

6. Each judge will ask questions at the conclusion of the oral presentation of the speech. Judges will score each participant on the ability to answer all questions asked by judges. The full five minutes for questions should be used.
7. When all participants have finished speaking, each judge will total the score on composition, delivery and response to questions for each participant. The timekeeper(s) record will be used in computing the final score for each participant. Participants shall be ranked in numerical order on the basis of the final score to be determined by each judge. The judges' score sheets will then be submitted to event officials to determine final ratings of participants.
8. The judges' ranking of each participant then shall be added, and the winner will be that participant whose total ranking is the lowest. Other placings will be determined in the same manner (low rank method of selection).

V. Scoring

Manuscript Scorecard (200 points)

Manuscript Content – 100 points

1. Topic is important and appropriate (50 points)
 - a. Current topic of interest – 25 points
 - b. Topic is relevant and within the scope of identified subjects – 25 points
2. Suitability of material used (50 points)
 - a. Validity of resources – 25 points
 - b. Accuracy of content – 25 points

Manuscript Composition – 100 points

1. Organization and development of content (40 points)
 - a. Logical order and unity of thought – 20 points
 - b. Accomplishment of purpose – 20 points
2. Grammatical accuracy (35 points)
 - a. Spelling/grammar – 35 points
3. Manuscript written according to event format rule #1 (25 points)
 - a. Double-spaced, 8"x11" white bond paper, 1" margins in body of paper – 5 points
 - b. 12 point Arial or sans serif font; cover page with title, name, state and year – 5 points
 - c. APA style for references and bibliography – 15 points

Presentation Scorecard (500 points)

Oral Communication – 300 points

1. Examples – 50 points
2. Speaking without hesitation – 50 points
3. Tone – 50 points
4. Being detailed-oriented – 50 points
5. Command of audience – 50 points
6. Connecting and articulating facts and issues – 50 points

Non-verbal Communication – 200 points

1. Attention (eye contact) – 50 points
2. Mannerisms – 50 points
3. Gestures – 50 points
4. Well poised – 50 points

Response to Questions Scorecard – 300 points

1. Speaking unrehearsed – 50 points
2. Command of questions – 250 points

VI. Tiebreakers

Ties will be broken based on the greatest number of low ranks. Participants' low ranks will be counted and the participant with the greatest number of low ranks will be declared the winner. If a tie still exists, the event superintendent will rank the participants' response to questions. The participant with the lowest rank from the response to question will be declared the winner. If a tie still exists, the participants' raw scores will be totaled. The participant with the greatest total of raw points will be declared the winner.

VII. Awards

Awards will be presented to individuals based upon their rankings at the awards ceremony. Manuscript judges' comment cards and presentation judges' comment cards will be presented to the participants at that time. Awards are sponsored by a cooperating industry sponsor(s) as a special project and/or by the general fund of the National FFA Foundation.

VIII. References/Resources

This list of references is not intended to be all inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

National FFA Core Catalog:

- Figures of Speech* DVD—<http://shop.ffa.org/figures-of-speech-dvd-p37895.aspx>
- Great Speeches and Presentations—<http://shop.ffa.org/great-speeches-and-presentations-p37634.aspx>
- CDE Q&A's DVD (2007-2010)—<http://shop.ffa.org/cde-qas-c1413.aspx>
- FFA Learn—2005 & 2006 CDE Q&A's—<https://ffa.learn.com/learncenter.asp>

APA Style Guide (most current edition) – www.apastyle.org

Factual information pertaining to agriculture is available from:

1. United States Department of Agriculture, Washington, DC 20250
2. State colleges, research centers and/or experiment stations
3. The Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

Prepared Public Speaking CDE Manuscript Rubric – 200 points

Evaluation Criteria					200 possible points
	Very strong evidence skill is present	Moderate evidence skill is present	Strong evidence skill is not present	Weight	Total Score
	5-4	3-2	1-0		
Manuscript Content					100 possible points
Topic is important and appropriate					50 points
Current topic of interest	Topic is current or a strong evidence of personal involvement in the topic is expressed.	Topic is dated or some evidence of personal involvement has been expressed.	Topic is irrelevant for the times or unrelated to personal involvement.	X5	
Topic is relevant and within the scope of identified subjects in the CDE guide	Topic addresses an issue facing the industry of agriculture.	Topic addresses an issue that may show some relationship to the industry of agriculture.	Topic addresses an issue that is unrelated to the industry of agriculture.	X5	
Suitability of materials used					50 points
Validity of resources	Resources are from reputable sources.	Resources are from questionable sources.	Resources are from unreliable sources.	x5	
Accuracy of content	Manuscript reflects accurate statements from resources.	Manuscript reflects some misinterpretation of resource materials.	Manuscript does not reflect accurate statements based on the resources provided.	x5	
Total points for this section					
Manuscript Composition					100 possible points
Organization and development of content					40 points
Logical order and unity of thought	Clearly organized and concise by remaining on target; completely focused with obvious construction and strong introduction, body and conclusion layout.	Good organization with few statements out of place or lacking in clear construction.	Little to no organization is present; sometimes awkward and lacking construction.	x4	
Accomplishment of purpose	The style chosen has obviously been well thought out based on the specific audience.	Most language is appropriate for the intended audience.	Some language used might be confusing for some audiences.	x4	
Grammatical accuracy					35 points
Spelling/grammar (sentence structure, verb agreement, etc.)	Spelling and grammar are extremely high quality with 2 or less errors in the document.	Spelling and grammar are adequate with 3-5 errors in the document.	Spelling and grammar are less than adequate with 6 or more errors in the document.	X7	
Manuscript written according to event format rule #1	5 points		0 points		25 points
Double-spaced on 8½" x 11" white bond paper				x1	
12 point Arial or sans serif font					
1" margins in the body of the paper				x1	
Cover page with speech title, participant's name, state and year					
APA style for references and bibliography				X3	
Total points for this section					
Grand Total Points					

Prepared Public Speaking CDE Presentation Rubric – 500 points

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
Oral Communication						300 possible points
A. Examples	<i>Examples are vivid, precise and clearly explained.</i> Examples are original, logical and relevant.	<i>Examples are usually concrete, sometimes needs clarification.</i> Examples are effective, but need more originality or thought.	<i>Examples are abstract or not clearly defined.</i> Examples are sometimes confusing, leaving the listeners with questions.		x 10	
B. Speaking without hesitation	<i>Speaks very articulately without hesitation.</i> Never has the need for unnecessary pauses or hesitation when speaking.	<i>Speaks articulately, but sometimes hesitates.</i> Occasionally has the need for a long pause or moderate hesitation when speaking.	<i>Speaks articulately, but frequently hesitates.</i> Frequently hesitates or has long, awkward pauses while speaking.		x 10	
C. Tone	<i>Appropriate tone is consistent.</i> Speaks at the right pace to be clear. Pronunciation of words is very clear and intent is apparent.	<i>Appropriate tone is usually consistent.</i> Speaks at the right pace most of the time, but shows some nervousness. Pronunciation of words is usually clear, sometimes vague.	<i>Has difficulty using an appropriate tone.</i> Pace is too fast; nervous. Pronunciation of words is difficult to understand; unclear.		x 10	
D. Being detail oriented	<i>Is able to stay fully detail oriented.</i> Always provides details which support the issue; is well organized.	<i>Is mostly good at being detail oriented.</i> Usually provides details which are supportive of the issue; displays good organizational skills.	<i>Has difficulty being detail oriented.</i> Sometimes overlooks details that could be very beneficial to the issue; lacks organization.		x 10	
E. Command of Audience	Speaker uses power of presentation to engage and captivate the audience with the message of the speech.	Speaker presents speech as mere repeating of facts and speech comes across as a report	Speaker bores the audience with lack of enthusiasm and power to deliver the speech.		x 10	
F. Connect and articulate facts and issues	<i>Exemplary in connecting facts and issues and articulating how they impact the issue locally and globally.</i> Possesses a strong knowledge base and is able to effectively articulate information regarding related facts and current issues.	<i>Sufficient in connecting facts and issues and articulating how they impact the issue locally and globally.</i> Possesses a good knowledge base and is able to, for the most part, articulate information regarding related facts and current issues.	<i>Has difficulty with connecting facts and issues and articulating how they impact the issue locally and globally.</i> Possesses some knowledge base but is unable to articulate information regarding related facts and current issues.		x 10	
Non-verbal Communication						200 possible points
A. Attention (eye contact)	<i>Eye contact constantly used as an effective connection.</i> Constantly looks at the entire audience (90-100% of the time).	<i>Eye contact is mostly effective and consistent.</i> Mostly looks around the audience (60-80% of the time).	<i>Eye contact does not always allow connection with the speaker.</i> Occasionally looks at someone or some groups (less than 50% of the time).		x 10	
B. Mannerisms	<i>Does not have distracting mannerisms that affect effectiveness.</i> No nervous habits.	<i>Sometimes has distracting mannerisms that pull from the presentation.</i> Sometimes exhibits nervous habits or ticks.	<i>Have mannerisms that pull from the effectiveness of the presentation.</i> Displays some nervous habits – fidgets or anxious ticks.		x 10	
C. Gestures	<i>Gestures are purposeful and effective.</i> Hand motions are expressive and used to emphasize talking points. Great posture (confident) with positive body language.	<i>Usually uses purposeful gestures.</i> Hands are sometimes used to express or emphasize. Occasionally slumps; sometimes negative body language.	<i>Occasionally gestures are used effectively.</i> Hands are not used to emphasize talking points; hand motions are sometimes distracting. Lacks positive body language; slumps.		x 10	
D. Well-poised	<i>Is extremely well-poised.</i> Poised and in control at all times.	<i>Usually is well-poised.</i> Poised and in control most of the time; rarely loses composure.	<i>Isn't always well-poised.</i> Sometimes seems to lose composure.		x 10	
TOTAL						

Prepared Public Speaking CDE Response to Questions Rubric – 300 points

Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
Response to Questions						300 possible points
A. Speaking unrehearsed (question and answer)	<i>Speaks unrehearsed with comfort and ease.</i> Is able to speak quickly with organized thoughts and concise answers.	<i>Speaks unrehearsed mostly with comfort and ease, but sometimes seems nervous or unsure.</i> Is able to speak effectively, has to stop and think, and sometimes gets off focus.	<i>Shows nervousness or seems unprepared when speaking unrehearsed.</i> Seems to ramble or speaks before thinking.		x 10	
B. Demonstrates knowledge of topic	<i>Answer shows thorough knowledge of the subject of the speech.</i> Supports answer with strong evidence.	<i>Answer shows some knowledge of the subject.</i> Some evidence, but lacking in strength.	<i>Answer shows little knowledge of the subject.</i> Evidence is lacking to support the answer.		x 50	
			TOTAL			

National FFA Prepared Public Speaking CDE Official Scorecard

Evaluation Criteria	Maximum Points	Participant 1:	Participant 2:	Participant 3:	Participant 4:	Participant 5:	Participant 6:	Participant 7:	Participant 8:
A. Verbal Communication Skills (from rubric) - 300 possible points									
Use of examples	50								
Speaking without hesitation	50								
Tone	50								
Being detailed oriented	50								
Command of audience	50								
Connecting and articulating facts and issues	50								
B. Non-verbal Communication Skills (from rubric) - 200 possible points									
Attention (eye contact)	50								
Mannerisms	50								
Gestures	50								
Well poised	50								
C. Response to Questions (from rubric) - 300 possible points									
Speaking unrehearsed	50								
Command of questions	250								
Subtotal points									
	800								
Less time deductions	Provided by room coordinator								
Net communication skills score									
Manuscript Score	200								
Net Total Points	1000								
Participant Ranking									

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Activity	Related Academic Standards
	CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.		Social Studies: 4d and 4h
	CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	Presentation	
	CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	Presentation	
	CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a
	CS.02.05.03.c. Exhibit self confidence while in the workplace.	Presentation	
	CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.		Language Arts: 4, 5 and 12
	CS.03.01.03.c. Make effective business presentations.	Presentation	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

1. Thematic Strand: Culture
 - 1e. demonstrate the value of cultural diversity, as well as cohesion, within and across groups;
4. Thematic Strand: Individual Development and Identity
 - 4a. articulate personal connections to time, place and social/cultural systems;
 - 4e. examine the interactions of ethnic, national or cultural influences in specific situations or events;
10. Thematic Strand: Civic Ideals and Practices
 - 10b. identify, analyze, interpret and evaluate sources and examples of citizens' rights and responsibilities;
 - 10j. participate in activities to strengthen the "common good," based upon careful evaluation of possible options for citizen action.

National FFA Veterinary Science Career Development Event

A Special Project of the National FFA Foundation

Important Note

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. Purpose

The purpose of the veterinary science career development event is to promote college and career readiness by providing opportunities to develop technical knowledge and demonstrate practical skills in the field of veterinary science.

II. Objectives

- A. Participants will demonstrate professional ethics, decision-making, communication and problem-solving skills.
- B. Participants will demonstrate technical competency with small and large animals in the areas of:
 1. Anatomy and physiology
 2. Clinical procedures
 3. Identification
 4. Health and safety
 5. Medical terminology

III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this chapter of the handbook for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the CDE handbook.

IV. Event Rules

- A. Teams will consist of four members with all four members' scores counting toward total team score.
- B. Dress code:
 1. Day 1: It is highly recommended that participants wear FFA Official Dress for the written portion of the event.
 2. Day 2: All participants must wear either scrubs (top and bottoms; solid color) or polo with slacks. All participants must wear closed toe, closed heel and flat shoes (no clogs, sandals or flip-flops). No jewelry may be worn on the second day of this event. This includes rings, bracelets, earrings and exposed body piercing. Wrist watches are permitted.

3. Tools and Equipment:
 - a. Equipment provided: pencils, calculators, clipboards and paper.
 - b. National FFA will provide the specific tools and equipment needed to complete practicums.
 - c. Due to sanitation reasons, some items that may be needed in the event (such as stethoscopes) will need to be provided by the participant or their chapter. Teams will be provided a list of specific items needed for a specific year based on the event activities.
4. Any participant in possession of an electronic device in the event area is subject to disqualification.

V. Event Format

A. Individual Activities

1. Written Exam - 100 points

The objective, multiple-choice exam is designed to determine team members' broad understanding of the veterinary science field. The written exam will consist of 50 multiple-choice questions. See sample questions below. Sixty minutes will be given for the exam. Topics for the exam may include:

- Behavior
- Disease (causes and sources, signs and symptoms)
- Medical terminology
- Medical records
- Anatomy/physiology
- Regulations (federal OSHA, MSDS)
- Patient management
- Facility management
- Genetics

Sample Written Exam Questions

Which of the following is the intermediate host for the dog tapeworm?

- A. Mosquito
- B. Rodent
- C. **Flea**
- D. Tick

What is the primary body defense against bacteria that may cause disease?

- A. **Skin**
- B. Antibiotics
- C. Antigens
- D. Lymph nodes

What route of administration deposits a drug into the blood vessel?

- A. **Intravenous**
- B. Intracardiac
- C. Intraperitoneal
- D. Intradermal

2. Scenario Questions - 50 points per scenario (100 points total)
The questions associated with the scenarios will allow students to utilize critical thinking and problem-solving skills. Twenty minutes will be allowed for each scenario. Participants will be given two scenarios based on the topic rotation listed below.
- 2013 and 2017: Clinical/wellness
 - 2014: Communication/customer education
 - 2015: Behavior/husbandry
 - 2016: Future of veterinary profession and welfare/ethics

Sample Scenario Question

Write a persuasive letter on the issue below to portray your point of view using the provided resource.

In 2006 a nationwide ruling was established banning the slaughter of horses. Since the ruling there have been serious growing concerns with the welfare and high number of unwanted/neglected horses in the United States. Currently several states are considering reversing the 2006 ban. What are the pros and cons of the original ban and the proposal to reverse it?

Resource: http://www.avma.org/issues/animal_welfare/unwanted_horses_faq.asp

3. Identification - 100 points total
Participants will identify equipment, parasites and breeds/species for a total of 100 points. Thirty minutes will be given for this activity. Identification lists are located at the end of this handbook.
- a. Equipment – 50 points
Participants will identify pieces of equipment (actual equipment and photos). They will also need to have general knowledge about the use for each item.
 - b. Parasites – 30 points
Participants will identify parasites (photos) and explain the life cycles of selected parasites.
 - c. Breeds – 20 points
Participants will identify breeds of small and large animals (photos).
4. Practicums - 300 points total
- a. Math Applications Practicum – 100 points
The number of practicum questions will vary based on the type of activity that is assigned. Participants will have 30 minutes to complete the entire math application practicum. Questions may include conversions, dose calculations, dilutions, cost calculations and invoices.

Example:

Sophie, a golden retriever, and her owner have just moved from out-of-state and are reestablishing veterinarian relations at your clinic. Sophie's owner has provided you with her health records from their previous veterinarian. Sophie had been prescribed a diet plan by the previous veterinarian and had been coming into the clinic for weekly weight checks. Sophie's owner would like to continue the weekly checks with you. You weigh Sophie and record her weight as 19 kg. The owner would like you to tell her how much weight Sophie has lost. Sophie's last recorded weight was 43.2 lb. How many pounds did Sophie lose since the last weighing?

ANSWER: Sophie has lost 1.4 lb. since the last recorded weighing.

- b. Handling and Restraining Practicum – 100 points
Participants will be given four handling/restraint activities to complete (25 points each). Thirty minutes will be given for these activities. Participants are expected to talk through the handling and restraining steps to a judge as they are being scored. Judges may speak and ask questions to the participant at the end of each activity, if time allows. All handling and restraining scorecards can be found at the end of this handbook.
- c. Clinical Procedure Practicum – 100 points
Participants will be given four clinical procedure activities to complete (25 points each). Thirty minutes will be given for these activities. Participants are expected to talk through the clinical procedure steps to a judge as they are being scored. Judges may speak and ask questions to the participant at the end of each activity, if time allows. All clinical procedure scorecards can be found at the end of this handbook.

B. Team Activity - 600 points

Teams will conduct research using local veterinarians and veterinary resources based on the annual topic. In a 15 minute presentation, teams will demonstrate the different roles of the veterinary team, as well as explain steps and procedures for the veterinary process to the judges. The potential roles to be addressed in the team activity are listed below. Teams need to determine what roles are most important to demonstrate based on the annual topic. Veterinary team roles may include, but are not limited to:

- Veterinary technician
- Veterinarian
- Veterinary assistant
- Receptionist
- Farm manager
- Owner/client
- Kennel/stable assistant

The presentation can be creative in nature and teams may include props, but must be able to set up in 5 minutes and tear down in 3 minutes. PowerPoint presentations will not be utilized in the team activity. See team activity rubric at the end of this handbook.

Annual team activity topics:

- 2013: Adult feline wellness visit
- 2014: Horse with equine colic
- 2015: Senior dog wellness visit
- 2016: Cow with salmonellosis
- 2017: Dairy goat with caprine arthritis encephalitis (CAE)

VI. Event Scoring

Day 1 Events:	Individual Points	Team Points
Written Exam	100 (2 pts/question)	400
Scenario Questions	100 (50 pts/scenario)	400
Identification	100	400
Day 2 Events:		
Math Application Practicum	100	400
Handling and Restraining Practicum	100 (25 pts/activity)	400
Clinical Procedures Practicum	100 (25 pts/activity)	400
Team Activity		600
Maximum Total Points:	600	3,000

VII. Tiebreakers

- A. Team tiebreakers will be settled in the following order:
1. Combined individual practicum total score
 2. Combined individual written exam total score
- B. Individuals tiebreakers will be settled in the following order:
1. Combined practicum score
 2. Written exam score

VIII. Awards

Awards will be presented to individuals and teams based upon their rankings at the awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

IX. Resources

This list of references is not intended to be all inclusive. Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

Books

Veterinary Assisting: Fundamentals and Applications. Vanhorn, Clark. ISBN: 978-1-4354-5387-6

McCurnin's Clinical Textbook for Veterinary Technicians. McCurnin, Bassert. ISBN: 978-1416057000

Small Animal Surgical Nursing: Skills and Concepts. Busch. ISBN: 978-0323030632

Large Animal Clinical Procedures for Veterinary Technicians. Holtgrew-Bohling. ISBN: 978-0-323-07732-3

Manual of Clinical Procedures in Dogs, Cats, Rabbits & Rodents. Crow, Walshaw, Boyle. ISBN: 978-0813813042

Restraint and Handling for Veterinary Technicians and Assistants. Ballard, Rockett. ISBN: 978-1-4354-5358-6

Small Animal Care and Management. Warren. ISBN: 978-1-4180-4105-2

Exotic Animal Care and Management. Judah, Nuttall. ISBN: 978-1-4180-4198-4

An Illustrated Guide to Veterinary Medical Terminology. Romich. ISBN: 978-1-4354-2012-0

Veterinary Instruments and Equipment: A Pocket Guide. Sonsthagen. ISBN: 978-0323032032

Official Guide: Maintaining and Cleaning Surgical Instruments. Stow.

- Provided free of charge by the program or available on-line at:
<http://www.spectrumsurgical.com>

Veterinary Science: Preparatory Training for the Veterinary Assistant. Faries. ISBN: 978-0-9849115-0-9.

- Order online: https://agrilifebookstore.org/publications_browse2.cfm?keywordid=4

Websites

American Kennel Club – <http://www.akc.org/index.cfm>

Cat Fanciers' Association – <http://www.cfa.org/client/breeds.aspx>

American Rabbit Breeders Association – <http://www.arba.net/>

OSHA – <http://www.safetyvet.com/osha/oshamain.htm>

Equipment and Materials Identification List - Page 1

Ambubag	Disposable hypodermic needles
Anesthetic machines	Drench gun
Animal clippers	Ear notcher
Autoclave	Ear tags
Autoclave tape indicator	Ear tag pliers
Backhaus towel clamps	Elastrator
Balling gun	Elizabethian collar
Bands (castration or docking)	Emasculators
Bandaging material- Elasticon	Endotracheal tubes
Bandaging material– roll gauze	Fecal loop
Bandaging material– vet wrap	Fecalyzers
Basket muzzle	Feeding tube for small animals
Betadine	Fetal extractor
Brush - Body (soft bristle)	Fingertip toothbrush
Brush - Dandy (stiff bristle)	Forceps- Adson tissue
Brush - Slicker	Forceps - Alligator
Brush - Pin	Forceps- Allis tissue
Bulb syringe	Forceps- Babcock tissue
Cat bag	Forceps- Brown-Adson thumb
Carmalt	Forceps- Crile
Catch pole (dog snare)	Forceps- Halstead mosquito hemostatic
Catheter - IV	Forceps- Kelly
Catheter - butterfly	Forceps - Rat tooth thumb
Catheter - urine	Gag mouth speculum (small)
Centrifuge	Gag mouth speculum (large)
Chain twitch	Gavage needle
Chemical indicator strips	Gravity feeder / J tube
Clipper blades	Halter
Clipper comb	Head chute
Surgical drapes	Hog snare
Cold sterile tray	Hoof knife
Comb - Curry	Hoof nippers
Comb - Flea	Hoof pick
Comb - Scotch	Hoof rasp
Cover slips	Hoof trimmers
Dehorner - Barnes	Humane twitch
Dehorner - electric	Hydraulic chute
Dehorner - scoop or tube	Identification tag applicator
Dental floats	IV fluids
Dental retractor	IV administration
Dental scaler	Laryngoscopes

Equipment and Materials Identification List - Page 2

Lead rope	Shedding blade
Lead shank	Silver nitrate sticks
Lead gloves	Small animal oxygen cage
Needle holder - Mayo-Hegar	Snook ovariohysterectomy hook
Needle holder - Olsen-Hegar	Squeeze chute
Microscope slides	Staple remover
Muzzle- commercial	Steel lift table
Nail clippers - guillotine	Stethoscope
Nail clippers - plier	Surgical cap
Obstetrical chain and handle	Surgical gloves
Ophthalmoscope	Surgical gown
Otoscope	Surgical masks
Paste gun	Surgical tray
Pig tooth nippers	Suture materials
Pill counting tray	Suture needle
Radiology personal protective equipment	Suture wire cutting scissors
Rumen magnet	Syringe - leur lock
Scalpel blade	Syringe - slip tip
Scalpel handle	Syringe - automatic, multi-dose
Scissors- Bandage	Tattooing instruments - small & large
Scissors- Lister bandage	Tourniquet
Scissors- Littauer suture removal	Trocar & cannula
Scissors- Mayo dissecting	Weight tape
Scissors- Metzenbaum dissecting	

Parasite Identification List

- Blowfly** (Family Calliphoridae)
Blowfly Maggot (Family Calliphoridae)
Cat Warble (Genus *Cuterebra*)
Cattle Grub (Genus *Hypoderma*)
Coccidia (Genus *Isospora* or *Eimeria*)
Demodectic Mite (Genus *Demodex*)
Ear Mite (Family Ascaridae; Genus *Otodectes*)
Fleas* (Genus *Ctenocephalides*)
Flea Larva (Genus *Ctenocephalides*)
Flea Tapeworm (Genus *Dipylidium*)
Flea Tapeworm Egg (Genus *Dipylidium*)
Flea Tapeworm Segment (Genus *Dipylidium*)
Giardia (Genus *Giardia*)
Hard Tick (Family Ixodidae; Genus *Amblyomma* or *Dermacentor*)
Heartworm* (Genus *Dirofilaria*)
Heartworm Adult* (Genus *Dirofilaria*)
Heartworm Microfilaria* (Genus *Dirofilaria*)
Hookworm Adult* (Family Ancylostomatidae; Genus *Ancylostoma*, *Uncinaria*, *Bunostomum* or *Globocephalus*)
Hookworm Egg* (Family Ancylostomatidae; Genus *Ancylostoma*, *Uncinaria*, *Bunostomum* or *Globocephalus*)
Horse Bots* (Genus *Gasterophilus*)
Horse Strongyles* (Family Strongylidae; Genus *Strongylus*)
Lice - Biting (Order Mallophaga; Genus *Bovicola* or *Trichodectes*)
Lice - Sucking (Order Anoplura; Genus *Linognathus* or *Hematopinus*)
Liver Fluke (Class Trematoda; Genus *Fasciola*, *Fascioloides* or *Dicrocoelium*)
Lungworm (Family Metastrongylidae; Genus *Metastrongylus*, *Dictyocaulus* or *Aelurostrongylus*)
Mosquito Adult (Family Culicidae; Genus *Anopheles*, *Culex* or *Aedes*)
Mosquito Larva (Family Culicidae; Genus *Anopheles*, *Culex* or *Aedes*)
Pinworm (Genus *Oxyuris*)
Roundworm Adult* (Family Ascarididae or Toxocaridae; Genus *Toxocara*, *Toxascaris*, *Ascaris*, *Parascaris* or *Neoascaris*)
Roundworm Egg* (Family Ascarididae or Toxocaridae; Genus *Toxocara*, *Toxascaris*, *Ascaris*, *Parascaris* or *Neoascaris*)
Sarcoptic Mite (Family Ascaridae; Genus *Sarcoptes* or *Notoedres*)
Taenia Tapeworm* (Family Taeniidae; Genus *Taenia*)
Taenia Tapeworm Egg* (Family Taeniidae; Genus *Taenia*)
Taenia Tapeworm Segment* (Family Taeniidae; Genus *Taenia*)
Soft Tick (Family Argasidae; Genus *Otobius* or *Argas*)
Whipworm* (Genus *Trichuris*)
Whipworm Egg* (Genus *Trichuris*)

**Asterisk indicates which parasite life cycles could have questions.*

SPORTING GROUP

Brittany
Cocker Spaniel
English Setter
English Springer Spaniel
German Shorthaired Pointer
Golden Retriever
Irish Setter
Labrador Retriever
Weimaraner

NON-SPORTING GROUP

Bichon Frise
Boston Terrier
Bulldog
Chinese Shar-Pei
Chow Chow
Dalmatian
Lhasa Apso
Poodle

TERRIER GROUP

Bull Terrier
Cairn Terrier
Miniature Schnauzer
Parson Russell Terrier
Scottish Terrier
Smooth Fox Terrier
West Highland White Terrier
Wire Fox Terrier

HERDING GROUP

Australian Cattle Dog
Australian Shepherd
Border Collie
Cardigan Welsh Corgi
Collie
German Shepherd Dog
Old English Sheepdog
Pembroke Welsh Corgi
Shetland Sheepdog

WORKING GROUP

Akita
Alaskan Malamute
Bernese Mountain Dog
Boxer
Bullmastiff
Doberman Pinscher
Giant Schnauzer
Great Dane
Great Pyrenees
Mastiff
Newfoundland
Portuguese Water Dog
Rottweiler
Saint Bernard
Samoyed
Siberian Husky
Standard Schnauzer

TOY GROUP

Cavalier King Charles Spaniel
Chihuahua
Italian Greyhound
Maltese
Miniature Pinscher
Papillon
Pekingese
Pomeranian
Poodle
Pug
Shih Tzu
Silky Terrier
Toy Fox Terrier
Yorkshire Terrier

HOUND GROUP

Afghan Hound
American Foxhound
Basenji
Basset Hound
Beagle
Black and Tan Coonhound
Bloodhound
Dachshund
English Foxhound
Greyhound
Whippet

Cats

Abyssinian
American Shorthair
Burmese
Cornish Rex
Devon Rex
Exotic
Maine Coon
Manx
Persian
Ragdoll
Russian Blue
Siamese
Sphynx
Turkish Angora

Rabbits

American Fuzzy Lop
Angora
Californian
Dutch
Dwarf Hotot
English Spot
Flemish Giant
Jersey Wooly
Holland Lop
Netherland Dwarf
New Zealand
Polish
Mini-Rex
Satin

Birds

Cockatiel
Cockatoos
Love Birds
Parakeet
African Gray Parrot
Canary
Macaw
Mynah
Rainbow Lorikeet
Society Finch
Sun Conure
Zebra Finch

Small Mammals

Chinchilla
Degus
Ferret
Gerbils
Guinea Pig
Hamster
Hedgehog
Sugar Glider

Reptiles

Chameleon
Gecko
Iguana
Lizard
Bearded Dragon
Snake
Turtle
Frog
Toad

Poultry

Chicken- Cornish
Chicken- Leghorns
Chicken- Rhode Island Red
Chicken- Plymouth Rock
Duck
Geese
Quail
Turkey

Other

Potbellied Pig

Dairy Cattle

Ayrshire
Brown Swiss
Guernsey
Holstein
Jersey

Beef Cattle

Angus
Brahman
Charolais
Hereford
Simmental
Shorthorn

Swine

American Landrace
Berkshire
Chester White
Duroc
Hampshire
Yorkshire

Horse

Appaloosa
Arabian
Belgian
Clydesdale
Haflinger
Miniature
Morgan
Paint
Paso Fino
Percheron
Quarter Horse
Saddlebred
Standardbred (w/cart)
Tennessee Walking Horse
Thoroughbred
Donkey
Mule
Hinny

Goat

Alpine
Nubian
Angora
Boer
LaMancha
Oberhasli
Pygmy
Saanen
Toggenburg

Sheep

Angora
Cheviot
Columbia
Dorset
Hampshire
Jacob
Merino
Montendale
Rambouillet
Southdown
Suffolk

**Veterinary Science
Handling and Restraining Practicum**

Using a Cat Bag

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student obtains the cat bag and unzips the top all the way open.	4	
2. The student scruffs the cat and lifts it into the bag in one swift motion.	5	
3. The student wraps the Velcro strap around the cat's neck and immediately zips up the bag.	5	
4. The student uses the proper zippered opening to expose the front limb.	5	
5. To remove the cat, the student removes the Velcro strap first, then unzips the bag and removes the cat.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Carrying a Cat

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student ensures that the cat is calm and happy.	6	
2. The student places one hand on the front of the cat's body to control the head and front limbs.	7	
3. The student places his/her other hand under the abdomen and rump to control the rear limbs.	6	
4. The student pulls the cat close to their body for support.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of the Cat for Cephalic Venipuncture

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the cat in sternal recumbency on an examination table.	6	
2. The student scruffs the cat with his/her right hand and extends the left front limb forward, i.e., grasping the elbow in the palm of his/her hand with thumb on the top of the elbow joint.	7	
3. The student allows the judge to grasp the left front paw and extend the limb toward him/her.	6	
4. The student occludes the vein by pressing down on the top of the elbow joint with his/her thumb and then rotating his/her thumb laterally.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of the Cat for Jugular Venipuncture

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the cat in sternal recumbency with its chest close to the edge of the table.	5	
2. The student holds the head up, away from the chest; this can be achieved by cupping a hand underneath the jaw and pushing the head toward the ceiling.	5	
3. The student's other hand grasps the front legs and extends them down off the edge of the table.	5	
4. The student cradles the cat's body close to his/her chest.	5	
5. The student spoke to the patient in a calm and affectionate manner during the procedure.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Applying a Cat Muzzle

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the cat in sitting or sternal position on exam table.	4	
2. The student obtains a muzzle of appropriate size for the cat.	3	
3. The student positions the muzzle properly in his/her hands.	3	
4. The student approaches the cat from behind with the muzzle in both hands.	5	
5. The student brings the muzzle up to the cat's face in one swift motion.	5	
6. The student secures the muzzle.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Removing a Cat from a Cage

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student opens the cage door and calls the cat by name.	5	
2. The student scruffs the cat with one hand and lifts it up.	5	
3. The student cradles the cat's abdomen with their other hand and removes the cat from the cage.	5	
4. With the cat still scruffed, the student places the cat on their hip and closes the cage door with their free hand.	5	
5. The student carries the cat close to their body to its destination.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

**“Cat Stretch”
(Restraint of the Cat in Lateral Recumbency)**

Participant Name: _____ State: _____

Criteria	Points Possible	Points Earned
1. The student places the cat on an examination table.	6	
2. The student scruffs the cat with one hand and lifts it off of the table enough to grasp both hind legs with his/her other hand.	7	
3. The student lays the cat on its side with the hind legs stretched rearward.	6	
4. The student spoke to the patient in a calm and affectionate manner during the procedure.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of the Dog for Cephalic Venipuncture

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places a noose leash on the dog.	4	
2. The student restrains the dog in sternal recumbency.	4	
3. The student stands on the dog's right side; wrapping his/her right arm around the dog's neck.	4	
4. The student holds the dog's left forelimb with elbow in the palm of his/her hand; extend the limb forward toward the person performing the procedure.	4	
5. With the elbow of the dog in his/her palm, the student rotates his/her thumb up so it is on top of the limb at the bend of the elbow.	5	
6. The student occludes the vessel with the thumb, rotates the thumb laterally.	4	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Applying a Commercial Dog Muzzle

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the dog in sitting or sternal position on exam table or floor.	5	
2. The student comes from behind the dog's head with the muzzle in one hand.	5	
3. The student brings the muzzle up to the dog's face and slips it on while grasping the strap with the other hand.	5	
4. The student secures the muzzle.	5	
5. The student checks for proper fit (one finger inserted under the strap).	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Applying a Gauze Dog Muzzle

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the dog in sitting or sternal position on exam table or floor.	4	
2. The student obtains a roll of 1 inch or 2 inch gauze.	2	
3. The student makes a loop in the gauze and approaches the dog from behind.	4	
4. The student places the loop on the dog's face with the tie on top.	5	
5. The student quickly tightens the loop, and then crosses the ends under the dog's face.	5	
6. The student brings the ends back behind the dog's head under the ears and ties in a quick-release bow.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of the Dog for Jugular Venipuncture

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places a noose leash on the dog.	6	
2. The student places dog in sternal position.	6	
3. The student holds the head up under the jaw, away from the chest (can be achieved by cupping hand underneath the muzzle and by pushing the head up toward the ceiling.)	7	
4. The student's other hand grasps the front legs and extends them over the end of the table.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of a Small Dog in Lateral Recumbency

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student puts a noose leash on the dog.	4	
2. The student places the dog in the standing position.	4	
3. The student places his/her right arm across the dog's neck and reaches between the front legs to grasp the dog's right forelimb in right hand.	4	
4. The student places left arm over the dog's back and reaches for the dog's right rear limb; just proximal to the hock.	4	
5. With the dog's body close, the student gently lifts the limbs while allowing the dog's body to move to the table; the dog should be on its right side.	5	
6. The student allows the dog to relax for a couple seconds, not releasing the grasp on the limbs.	4	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Removing a Dog from a Cage or Kennel

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places a leash in one hand with a large loop open and ready to place over the dog's head.	5	
2. The student opens the cage door enough to slip the hand holding the leash into the cage.	5	
3. The student slips the leash over the neck of the dog and gently tightens the leash around the neck.	5	
4. The student opens the door and allows the dog to exit the cage.	5	
5. The student keeps the dog to their side while maintaining a slight tension on the leash.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of the Dog for Venipuncture of the Lateral Saphenous Vein

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places a noose leash on the dog.	6	
2. The student restrains the dog in lateral recumbency.	6	
3. The student uses left hand to hold the limb tightly in the area just distal to the stifle, which will occlude the vein.	7	
4. The student holds the dog where the vein is visualized; venipuncture can now begin.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of the Dog in Sternal Recumbency

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student puts a noose leash on the dog.	5	
2. The student begins with the dog sitting.	5	
3. The student places one arm around the dog's neck and places the other arm around the dog's back to grasp the forelimbs.	5	
4. The student pushes the dog's back with his/her body to encourage the dog to lie down.	5	
5. The student positions the dog so that head can be examined.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Haltering Cattle

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places crown piece of halter over ears, then slips nose through nosepiece.	6	
2. The student properly adjusts the halter such that the nose band crosses over bridge of nose halfway between the nostrils and eyes.	7	
3. The student ensures that the adjustable portion of the nose band is under the chin, not across the bridge of the nose.	6	
4. The student keeps the standing end or lead rope portion on the left side of the cow.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Haltering a Horse

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. Without quick movements and loud noises, the student properly approaches the patient at a 45 degree angle to the patient's left shoulder.	4	
2. The student places end of the lead rope over the horse's neck and passes sufficient length of lead to form a handheld loop around the horse's neck.	4	
3. Holding the handheld loop in their right hand, with their left hand, the student slipped the nose-band of the halter over the nose.	4	
4. With their right hand under the horse's neck, the student passes the crown strap over the head and behind the ears and attaches the end to the appropriate place on the halter.	4	
5. The student snaps the end of the lead to the lead ring of the halter and undrapes the lead rope from the horse's neck.	4	
6. The student adjusts the halter so it is snug enough that the nose piece could not fall over the end of the nose, but not so tight that the halter cut or rubbed the horse or restricted jaw movement or breathing.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Tying a Bowline Knot

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student makes a loop in the long end of the rope such that the short end of the rope overlaps the long end.	5	
2. The student passes the short end of the rope up through the loop.	5	
3. The student reaches under the long end of the rope and grasps the short end such that it wraps around the long end.	5	
4. The student passes the short end of the rope back through the loop in the opposite direction of the first pass.	5	
5. The student tightens the knot by pulling on both long and short ends.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Tying a Double Half Hitch Knot

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student passes the rope around the post.	4	
2. The student passes the short end over and under the long end.	4	
3. The student passes the short end through the loop.	4	
4. The student pulls the rope tight.	4	
5. The student passes the short end over and under the long end, forming a loop.	5	
6. The student passes the short end up through the loop and pulls it tight.	4	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Tying a Half Hitch

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the rope over a pole or tie area.	6	
2. The student passes the short end of the rope over and under the long end.	7	
3. The student passes the short end through the loop.	6	
4. The student pulls the loop tight.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Tying a Reefer's Knot

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the rope over a pole or tie area.	6	
2. The student passes the short end over and under the long end.	7	
3. The student makes a fold or bight in the short end and passes it over and under the long end.	6	
4. The student pulls securely on the long end and loop of the short end.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Tying a Square Knot

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student takes one piece of rope and passes the right end over and under the left end.	6	
2. The student passes the “new” right end under and over the “new” left end; or the student passes the “new” left end over and under the “new” right end.	7	
3. The student pulls securely on both ends.	6	
4. The student unties the knot by pushing the opposite ends together.	6	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Placing a Tail Tie

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student lays the rope over the tail at the tip of the tail bone.	5	
2. The student folds all the tail hairs up over the rope.	5	
3. The student passes the short end of the rope behind the tail, and makes a fold or bight in it.	5	
4. The student passes the fold or bight over the folded tail and under the rope, which is looped around the tail.	5	
5. The student pulls tight.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Building a Temporary Rope Halter for a Cow

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student loops the rope around the cow's neck.	5	
2. The student ties a bowline to secure the loop.	5	
3. The student folds the long end of the rope through the neck loop.	5	
4. The student passes the bight or loop over the bridge of the cow's nose.	5	
5. The student secures the second loop by tying a second knot at the throat latch.	5	
TOTAL POINTS	25	

**Veterinary Science
Handling and Restraining Practicum**

Restraint of a Rabbit

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student approaches the rabbit calmly and quietly.	5	
2. The student scruffs the rabbit with one hand while gently lifting the front end.	5	
3. The student's other hand immediately reaches under the hind limbs and holds them (not allowing the hind limbs to dangle).	5	
4. The student rests the rabbit's body on the arm with the hand holding the hind limbs.	5	
5. The scruffing hold is released and the hand is moved to hold the elbow of the opposite arm..	5	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Administering Aural Medication

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student applies gloves.	2	
2. The student cleans ears.	3	
3. The student successfully administered the medication into the ear canal without contamination of the applicator tip.	4	
4. The student applies proper amount of medication into the ear as noted by the veterinarian.	3	
5. The student removes the dispenser from the ear.	3	
6. The student massages the base of the outside of the ear canal causing a swishing sound from the medication moving around in the ear canal.	4	
7. The student wipes any solution that may have leaked onto the outside of the ear flap or hair.	3	
8. The student disinfects the medication dispenser with alcohol and places in appropriate area.	3	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Administering an Intramuscular Injection

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places one hand with the fingers located medially along the middle of the femur. The thumb is placed on the lateral aspect of the mid-thigh.	4	
2. The student rubs an alcohol saturated cotton ball over the injection site.	4	
3. The student inserts the needle cranially and behind the femur between the stifle and hip joint.	4	
4. The student directs the needle through the skin and in to muscle mass.	4	
5. The student aspirates the plunger on the syringe; if no blood is noted, inject the substance slowly.	3	
6. The student withdraws the needle and places in the sharps container.	3	
7. The student massages the area where the injection was given and praises the patient.	3	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Administering Ophthalmic Medication

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student wipes any discharges from the patient's eye using a gauze sponge.	3	
2. The student opens the end of the ophthalmic medicine and holds in one hand.	3	
3. The student, using the free hand, uses the index finger and thumb to pull the upper and lower lids apart to open the eye. a. The student's thumb pulls the lower lid down and the index finger pulls the upper lid upward. b. The student's other finger may rest on the head of the animal.	4	
4. The student gently tilts the head upward.	3	
5. The student applies the drops or ointment gently into the eye, counting each drop and applying the proper amount.	3	
6. The student applies the ointment over a thin layer on the lower lid.	3	
7. The student releases the eyelids.	3	
8. The student allows the animal to blink to move the medication throughout the eye.	3	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Administering a Subcutaneous Injection

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student lifts the skin between the shoulder blades using the thumb and forefinger of one hand. Form a triangle or tent with the skin.	4	
2. The student wipes the area with an alcohol-soaked cotton ball.	3	
3. The student uses the other hand to insert the needle into the skin at the base of the tent or triangle parallel to the body.	3	
4. The student releases the skin once the needle is placed.	3	
5. The student uses their free hand to palpate the needle below the skin to check for accurate placement, noting the needle is not through the skin.	4	
6. The student aspirates the end of the plunger, looking for any signs of blood entering the syringe; if no blood enters the syringe, administer the injection.	3	
7. The student withdraws the needle and places in the sharps container.	3	
8. The student rubs the injection site with one hand and praises the patient.	2	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Administering Topical Medication

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student cleans area as necessary.	4	
2. The student uses a tongue depressor to transfer an amount of topical medication if the container is for multiple doses.	4	
3. The student applies the ointment onto the area in a circular motion, starting at the center of the wound and gently working outward.	5	
4. The student does not contaminate the medication by touching items that touched the animal.	4	
5. The student separates hair from skin and applies as directed.	4	
6. The student cleans the area and puts items away.	4	
TOTAL POINTS	25	

Veterinary Science Clinical Procedures Practicum

Bandage Application

Participant Name: _____ State: _____

Criteria	Points Possible	Points Earned
1. The student applies a strip of 1" or 2" tape along the cranial aspect of a limb and one strip on the caudal aspect of a limb to prevent slipping; tape extends beyond the end of the limb.	2	
2. The student applies gauze pad on wound.	1	
3. The student applies primary layer using cotton roll by applying distally to the end of the area and then proximally to cover the entire surface; apply cotton at slight 45-degree angle. Wrap is not too tight, cutting off circulation.	2	
4. The student applies the cotton roll smoothly and evenly; preventing wrinkling.	1	
5. The student applies each layer of cotton so that it overlaps the previous layer.	1	
6. The student applies gauze roll as secondary later distally to the end of the area and then proximally to cover the entire surface; gauze is not too tight, cutting off circulation.	2	
7. The student applies the gauze at a slight 45-degree angle.	1	
8. The student applies the gauze layer smoothly and evenly, preventing wrinkling.	1	
9. The student applies each layer of gauze so that it overlaps the previous layer.	1	
10. The student applies desired amount with a slight extension beyond the end of the primary layers.	1	
11. The student applies the vet wrap tertiary layer by applying distally to the end of the area and then proximally to cover the entire area.	2	
12. The student applies the vet wrap at a slight 45-degree angle.	1	
13. The student applies the vet wrap smoothly and evenly, preventing wrinkling.	1	
14. The student applies each layer of vet wrap so that it overlaps the previous layer.	1	
15. The student applies to desired amount with the edges of the bandages extending slightly beyond the secondary layer.	1	
16. The student applies 1" or 2" adhesive tape to the proximal end and the distal end of the bandage edges; half of the tape layer is attached to the bandage and half of the tape layer is attached to the hair.	2	
17. The student places a small amount of tape along the last edge of the vet wrap at the end of the bandage opening.	2	
18. The student checks the patient's toes for swelling and temperature.	2	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Bandage Removal

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student works from the proximal end to the distal end of the bandage.	3	
2. The student places the long, blunt blade of the bandage scissors against the skin and slightly under the bandage edge.	3	
3. The student keeps the blade flat against the skin and at end raised slightly upward in contact with bandage.	3	
4. The student places bandage layers between scissor blades.	3	
5. The student begins cutting proximally; peeling the bandage layers away from patient using a firm motion.	3	
6. The student unpeels or cuts layers moving toward the distal portion of the bandage.	3	
7. The student gently removes each layer of bandage.	3	
8. The student notifies the veterinarian when bandage has been removed.	2	
9. The student cleans up work area.	2	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Fecal Flotation

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student selected about ¼ teaspoon of feces and placed it into a vial.	3	
2. The student added enough flotation solution to fill the vial about half full.	3	
3. The student mixed the feces into solution with an applicator stick (or equivalent) until no large fecal particles remained and strained the mixture into a second vial.	3	
4. The student filled the vial with more solution until there was a visible meniscus at the top.	3	
5. The student placed a cover slip on top of the vial.	3	
6. The student allowed the vial to sit undisturbed for 10-15 minutes.	3	
7. The student carefully removed the cover slip without tilting it and placed it on a microscope slide.	3	
8. The student placed the slide on a microscope and examined the area of the slide under the cover slip and noted and recorded any parasitic material found.	4	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Filling a Syringe

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student determines the drug or vaccine and amount to be placed in the syringe.	2	
2. The student selects the proper-sized syringe, needle length and gauge.	2	
3. The student prepares a label with the drug or vaccine name, amount to be withdrawn, date, patient name and veterinary assistant's initial.	2	
4. The student places the label on the distal barrel of the syringe.	2	
5. The student prepares a cotton ball saturated with alcohol.	2	
6. The student places the cotton ball on the top of the vial and wipes the rubber stopper area.	2	
7. The student places the vial upside down in one hand with the fingers curling around the vial securely.	2	
8. The student uncaps the needle and inserts the needle into the rubber top of the vial.	2	
9. The student withdraws the proper volume.	3	
10. The student removes the needle from the vial.	2	
11. The student gently taps or snaps the edge of the syringe to remove an air bubbles, or slightly expel the air by pushing the end of the plunger.	2	
12. The student recaps the needle.	2	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Prepare a Gram-Stained Slide

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student selected a bacterial sample by touching a sterile wire or loop to one colony on an agar plate.	2	
2. The student mixed the sample on a microscope slide with a drop of water or saline.	2	
3. The student circled the sample droplet on the slide with a wax pencil to help identify the area after staining.	2	
4. The student allowed the slide to air dry.	2	
5. The student heat fixed the slide by passing it through a flame 2-3 times, specimen side up.	2	
6. The student held the slide over the sink or placed it on a rack over the sink, flooded the smear with crystal violet, and let stand for one minute.	2	
7. The student rinsed the smear briefly with water.	1	
8. The student held the slide over the sink and flooded the smear with Gram's iodine solution and let stand for one minute.	2	
9. The student rinsed the smear briefly with water.	1	
10. The student washed the smear with decolorizer until no more purple color washed off (5-10 seconds).	2	
11. The student held the slide over the sink and flooded the smear with safranin and let stand for one minute.	2	
12. The student rinsed the smear briefly with water.	1	
13. The student allowed the slide to air dry or gently blotted it dry between paper towels.	2	
14. The student mounted the slide on the microscope and focused on the smear using the oil immersion lens.	2	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Use of a Microscope

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student removes the plastic cover from the microscope; the arm of the microscope should face the user.	2	
2. The student plugs in the microscope and turns on the power source including the light.	2	
3. The student places a slide on the stage of the microscope, securing it in place.	2	
4. The student places the projection lens on a low power.	2	
5. The student uses the adjustment knob to lower the objective power while looking through the eyepiece.	2	
6. The student looks at the stage through the eyepiece while focusing the slide; adjusts the focus accordingly; raises the objective arm away from the slide when complete.	3	
7. The student applies a drop of immersion oil into the center of the slide specimen if using the oil immersion objective lens.	2	
8. Lower the immersion objective slowly into the immersion oil.	2	
9. The student slowly adjusts the focus knob while looking in the eyepiece.	2	
10. When complete, the student raises the objective arm away from the slide.	2	
11. The student removes the slide from the microscope stage.	2	
12. The student uses a kim wipe or lens paper piece to gently cleanse the objective.	2	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Open a Gown and Gloves

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student selected the appropriate gown size.	3	
2. The student selected the appropriate glove size.	3	
3. The area where the gown and gloves were placed was dry and level.	3	
4. The gown is opened without contamination and the flaps are opened in the correct order.	4	
5. The student checked the chemical indicator to ensure sterility.	4	
6. The gloves are opened without contamination.	4	
7. The student tied or assisted with tying the surgery gown aseptically.	4	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Opening a Surgery Pack

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student placed the surgery pack on a clean, dry surface.	5	
2. The student removed or tore the tape securing the package.	5	
3. The student opened the flaps in the correct order.	5	
4. The student opened the pack without contamination.	5	
5. The student stepped away so the surgeon or scrub nurse could complete the opening of the pack.	5	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Prepare a Surgical Pack for Sterilization

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student gathered the appropriate instruments and instrument pan if applicable.	4	
2. The student gathered the appropriate linen supplies if applicable.	4	
3. The student selected the appropriate packaging material and chemical indicator.	4	
4. The student assembled the pack correctly by following the instructions on the checklist or recipe.	5	
5. The student appropriately selected and placed the chemical indicator.	4	
6. The student appropriately selected and utilized packaging material.	4	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Pill Counting Tray Procedure

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student places the pill counting tray on the pharmacy counter with the channel to the left and the open plate in front of him/her.	2	
2. The student pours the medication tablets or capsules onto the tray plate.	2	
3. The student opens the channel cover.	2	
4. The student uses a spatula or tongue depressor to push groups of five tablets or capsules into the channel.	3	
5. When the student has counted the desired amount of medication, he/she closes the channel cover and lift tray to place the channel spout into the medicine vial or container.	3	
6. The student tilts the tray to pour the medicine into the vial or container.	3	
7. The student places the vial on the counter.	2	
8. The student places the medicine bottle on the pharmacy shelf.	2	
9. The student cleans the pill tray using water.	3	
10. The student properly interprets given prescription.	3	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Removal of Sutures

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student clearly visualized and inspected the incision site.	5	
2. If there were problems with the incision site, the student informed the veterinarian.	5	
3. If there were no problems with the incision, the student removed the sutures.	5	
4. The student used the correct tool to remove the sutures.	5	
5. The student did not cause unnecessary harm or discomfort to the patient.	5	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Collect a Sample for Dermatophyte Culture and Inoculate Dermatophyte Culture Media

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student identified a suspected dermatophyte lesion.	4	
2. The student cleansed the area with 70% alcohol on a cotton ball.	4	
3. The student obtained a small scraping of superficial debris and hair from the margin of the lesion using a sterile scalpel blade and forceps, or plucked a sample of hair from the margin of the lesion using hemostats.	5	
4. The student inoculated the culture media by placing the sample slightly below the surface of the media.	4	
5. The student left the lid to the tube slightly open.	4	
6. The student allowed the culture to incubate at room temperature.	4	
TOTAL POINTS	25	

**Veterinary Science
Clinical Procedures Practicum**

Surgical Preparation

Participant Name: _____ **State:** _____

Criteria	Points Possible	Points Earned
1. The student applied antiseptic scrub to the site.	4	
2. The student prepped the site with a clean surgical sponge beginning at the incision site and worked toward the edges.	4	
3. The student discarded the sponge once it reached the edge of the clipped area.	4	
4. The student did not bring the sponge back to the incision site once it was moved away from the incision site.	4	
5. The student wiped the site with a rinse solution using a clean surgical sponge following the same pattern as when scrubbing with the antiseptic.	4	
6. The student repeated the scrub and rinse a minimum of 3 times or until the final rinse sponge was clean.	5	
TOTAL POINTS	25	

Veterinary Science Team Activity Rubric 600 points

Non-verbal – 100 points						
Indicators	Very strong evidence skill is present 5-4	Moderate evidence skill is present 3-2	Strong evidence skill is not present 1-0	Points Earned	Weight	Total Score
A. Attention (eye contact)	<i>Eye contact constantly used as an effective connection.</i> Constantly looks at the entire audience (90-100% of the time).	<i>Eye contact is mostly effective and consistent.</i> Mostly looks around the audience (60-80% of the time).	<i>Eye contact does not always allow connection with the speaker.</i> Occasionally looks at someone or some groups (less than 50% of the time).		X 10	
B. Mannerisms	<i>Does not have distracting mannerisms that affect effectiveness.</i>	<i>Sometimes has distracting mannerisms that pull from the presentation.</i>	<i>Has mannerisms that pull from the effectiveness of the presentation.</i>		X 5	
C. Gestures	<i>Gestures are purposeful and effective.</i> Hand motions are expressive, and used to emphasize talking points. Great posture (confident) with positive body language.	<i>Usually uses purposeful gestures.</i> Hands are sometimes used to express or emphasize. Occasionally slumps; sometimes negative body language.	<i>Occasionally gestures are used effectively.</i> Hands are not used to emphasize talking points; hand motions are sometimes distracting. Lacks positive body language; slumps.		X 5	
Oral – 200 points						
A. Speaking without hesitation	<i>Speaks very articulately without hesitation.</i> Never has the need for unnecessary pauses or hesitation when speaking.	<i>Speaks articulately, but sometimes hesitates.</i> Occasionally has the need for a long pause or moderate hesitation when speaking.	<i>Speaks articulately, but frequently hesitates.</i> Frequently hesitates or has long, awkward pauses while speaking.		X 10	
B. Tone	<i>Appropriate tone is consistent.</i> Speaks at the right pace to be clear. Pronunciation of words is very clear and intent is apparent.	<i>Appropriate tone is usually consistent.</i> Speaks at the right pace most of the time, but shows some nervousness. Pronunciation of words is usually clear, sometimes vague.	<i>Has difficulty using an appropriate tone.</i> Pace is too fast; nervous. Pronunciation of words is difficult to understand; unclear.		X 10	
C. All team members participated	<i>All team members took an active role in the presentation.</i>	<i>Three team members took an active role in the presentation.</i>	<i>Two or less team members took an active role in the presentation.</i>		X 20	
Content – 300 points						
A. Role accuracy	<i>Fully accurate in defining roles of the veterinary team.</i>	<i>Somewhat accurate in defining roles of the veterinary team.</i>	<i>Inaccurately defines the roles of the veterinary team.</i>		X 20	
B. Veterinary process research	<i>Demonstrates researched knowledge of the veterinary process.</i>	<i>Demonstrates somewhat researched knowledge of the veterinary process.</i>	<i>Does not demonstrate researched knowledge of the veterinary process.</i>		X 20	
C. Q&A: Demonstrates knowledge of topic	<i>Answer shows thorough knowledge of the subject of the speech.</i> Supports answer with strong evidence.	<i>Answer shows some knowledge of the subject.</i> Some evidence, but lacking in strength.	<i>Answer shows little knowledge of the subject.</i> Evidence is lacking to support the answer.		X 10	
D. Q&A: Speaking unrehearsed	<i>Speaks unrehearsed with comfort and ease.</i> Is able to speak quickly with organized thoughts and concise answers.	<i>Speaks unrehearsed mostly with comfort and ease, but sometimes seems nervous or unsure.</i> Is able to speak effectively, has to stop and think, and sometimes gets off focus.	<i>Shows nervousness or seems unprepared when speaking unrehearsed.</i> Seems to ramble or speaks before thinking.		X 10	
TOTAL						

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CS.02.03. Performance Indicator: Professional Growth: Develop awareness and apply skills necessary for achieving career success.			Language Arts: 12 Social Studies: 4a
	CS.02.03.01.a. Explore various career interests/options.	Scenario Questions; Team Activity	
	CS.02.03.03.a. Identify the skills required for various careers.	Scenario Questions; Team Activity	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.			Math: 6C Science: A4 Language Arts: 4 and 8
	CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	Team Activity	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.			Language Arts: 4, 5 and 12
	CS.03.01.03.c. Make effective business presentations.	Team Activity	
CS.06.02. Performance Indicator: Develop a plan to maintain and improve health, safety and environmental compliance and performance.			Science: F1, F4 and F5 Social Studies: 9d
	CS.06.02.01.a. Use proper safety practices/personal protective equipment.	Handling and Restraining Practicum; Clinical Procedure Practicum	
CS.07.01. Performance Indicator: Apply safety/health practices to AFNR worksites.			Science: F1 and F5
	CS.07.01.01.b. Use appropriate personal protective equipment for a given task.	Handling and Restraining Practicum; Clinical Procedure Practicum	
CS.07.04. Performance Indicator: Assess workplace safety.			Science: F5
	CS.07.04.01.a. Research applicable regulatory and safety standards (e.g., MSDS, bioterrorism).	Written Exam	
	CS.07.04.02.a. Handle chemicals and equipment in a safe and appropriate manner.	Clinical Procedure Practicum	

CS.08.01. Performance Indicator: Evaluate and select the appropriate tool to perform a given task.			
	CS.08.01.01.c. Use tools and equipment appropriately to complete a specific task.	Identification; Handling and Re- straining Practicum; Clinical Procedures Practicum	
ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.			Language Arts: 12 Social Studies: 7f
	ABS.02.03.02.a. Identify appropriate local, state, federal, international and industry regulations for AFNR businesses.	Written Exam; Scenario Questions	
	ABS.02.04.03.a. Explain the meaning and importance of employee relations, including communication.	Scenario Questions; Team Activity	
AS.02.01. Performance Indicator: Classify animals according to hierarchical taxonomy and agricultural use.			Science: C3
	AS.02.01.02.a. Identify major animal species by common and scientific names.	Identification	
	AS.02.02.06.c. Explain the impact of animal body systems on performance, health, growth and reproduction.	Written Exam; Scenario Questions	
AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.			Science: C5
	AS.02.03.01.a. Identify ways an animal's health can be affected by anatomical and physiological disorders.	Written Exam; Scenario Questions	
AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders.			Science: C4, F1 and F5
	AS.03.01.01.b. Perform simple health-check evaluations on animals.	Clinical Procedures Practicum; Team Activity	
	AS.03.01.02.a. Identify common diseases, parasites and physiological disorders that affect animals.	Identification	
	AS.03.01.03.a. Explain characteristics of causative agents and vectors of diseases and disorders in animals.	Written Exam; Scenario Questions	
	AS.03.01.04.b. Prepare animals, facilities and equipment for surgical and nonsurgical veterinary treatments and procedures.	Clinical Procedures Practicum	

AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals.		Science: C1 and C3
AS.05.01.01.a. Explain the male and female reproductive organs of the major animal species.	Written Exam; Scenario Questions	
AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.		Math: 6C Science: A4, C2 and E2
AS.05.03.01.a. Explain genetic inheritance in agricultural animals.	Written Exam; Scenario Questions	
AS.05.03.02.a. Define natural and artificial breeding methods.	Written Exam; Scenario Questions	
AS.06.01. Performance Indicator: Demonstrate safe animal handling and management techniques.		Science: C6
AS.06.01.01.c. Interpret animal behaviors and execute protocols for safe handling of animals.	Handling and Restraining Practicum	
AS.06.01.02.a. Explain the implications of animal welfare and animal rights for animal agriculture.	Scenario Questions	
AS.06.02. Performance Indicator: Implement procedures to ensure that animal products are safe.		Science: F1 and F5
AS.06.02.01.a. Identify animal production practices that could pose health risks or are considered to pose risks by some.	Scenario Questions	
AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.		Science: C6 and F6
AS.07.01.02.a. Identify equipment and handling facilities used in modern animal production.	Identification	
AS.07.02. Performance Indicator: Comply with government regulations and safety standards for facilities used in animal production.		Science: F5
AS.07.02.01.a. List the general standards (e.g., environmental, zoning, construction) that must be met in facilities for animal production.	Written Exam; Scenario Questions	
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.		Science: C6 and F4
AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	Written Exam; Scenario Questions	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

6. Standard and Expectations: Problem Solving

6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

A. Content Standard: Science as an Inquiry

A4. Formulate and revise scientific explanations and models using logic and evidence.

C. Content Standard: Life Science

C1. The cell

C2. Molecular basis of heredity

C3. Biological evolution

C4. Interdependence of organisms

C5. Matter, energy and organization in living systems

C6. Behavior of organisms

E. Content Standard: Science and Technology

E2. Understanding about science and technology

F. Content Standard: Science in Personal and Social Perspectives

F1. Personal and community health

F4. Environmental quality

F5. Natural and human-induced hazards

F6. Science and technology in local, national and global challenges

English Language Arts

4. Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

4. Thematic Strand: Individual Development and Identity
 - 4a. articulate personal connections to time, place and social/cultural systems;
7. Thematic Strand: Production, Distribution and Consumption
 - 7f. compare how values and beliefs influence economic decisions in different societies;
9. Thematic Strand: Global Connections
 - 9d. analyze the causes, consequences and possible solutions to persistent, contemporary and emerging global issues, such as health, security, resource allocation, economic development and environmental quality;