Advanced Principles of Agricultural Sciences

Course Description: Advanced Principles of Agricultural Sciences includes standards that challenge students to plan for one of the five career clusters in agriculture. Understanding the skills necessary to be successful in an agriculture career is important for students as they enter the agricultural industry in the 21st century.

Recommended Prerequisites: Agriscience or Principles of Agricultural Sciences

Recommended Credit: 1

Recommended Grade Level: 10th or 11th

Course Codes: **(2009-2010)** A10 – **5105** or A12 – **5155**
  (2010-2015) A12 – **5155**

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Advanced Principles of Agricultural Sciences

Standard 1.0

Analyze the career opportunities available in the agriculture industry and develop plans for entry into the area of personal interest.

Standard 2.0

Demonstrate skills needed for career planning, keeping records and leadership in the agriculture industry.

Standard 3.0

Relate the basic principles of animal science to livestock selection, health and maintenance.

Standard 4.0

Relate the principles of soil formation, management and capability to crop production and construction uses.

Standard 5.0

Demonstrate the basic principles of agricultural mechanics, including metalworking, plumbing, electricity, land leveling and land measuring.

Standard 6.

Implement the integration of academic competencies in Advanced Principles of Agricultural Sciences.

Standard 7.0

Demonstrate premier leadership and personal growth in the area of Advanced Principles of Agricultural Sciences.

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Standard 1.0
Analyze the career opportunities available in the agriculture industry and develop plans for entry into the area of personal interest.
Learning Expectations and Performance Indicators:
1.1   Specify and explain career opportunity requirements in the area of agriculture at the local, regional, state, national and international levels.
1.2   Prepare categories of employment in non-agricultural careers that may have resulted from instruction or training in agriculture.
1.3   Determine and explain the role of agencies that lend support to the agriculture industry.

Standard 2.0
Demonstrate skills needed for career planning, keeping records and leadership in the agriculture industry.
Learning Expectations and Performance Indicators:
2.1   Plan, conduct and maintain records on an SAEP, supervised agricultural experience program.
2.2   Relate the knowledge and skills learned in the SAEP to an agriculture career.
2.3   Assess skills that may be developed by individuals in leadership roles.
2.4   Demonstrate public speaking skills.
2.5   Demonstrate methods and techniques of parliamentary procedure.
2.6   Conduct and facilitate group discussions and planning committees.

Standard 3.0
Relate the basic principles of animal science to livestock selection, health and maintenance.
Learning Expectations and Performance Indicators:
3.1   Determine the function of the anatomical parts of an animal.
3.2   Evaluate the digestive processes of ruminant and nonruminant animals and the terminology associated with these processes.
3.3   Explain terminology, ration formulation, and feeding techniques necessary for maximizing livestock gains and cost efficiency.
3.4   Recognize symptoms of disease and parasites and determine what treatment and control method is to be used.
3.5   Relate terminology associated with livestock selection and evaluation.

Standard 4.0
Relate the principles of soil formation, management and capability to crop production and construction uses.
Learning Expectations and Performance Indicators:
4.1   Relate the basic principles of soils to plant science and crop production.
4.2   Determine the physical properties of soil necessary for selecting crops and determining conservation techniques.
4.3   Determine the factors that influence the rate of soil erosion.
4.4   Recommend soil management practices necessary for proper soil conservation.
4.5   Specify the land capability classes.
4.6   Prescribe the procedures for taking a soil sample.

Standard 5.0
Demonstrate the basic principles of agricultural mechanics, including metalworking, plumbing, electricity, land leveling and land measuring.
Learning Expectations and Performance Indicators:
5.1   Demonstrate safety precautions used in agricultural mechanics.
5.2   Complete a safety test with 100 percent accuracy.
5.3   Demonstrate a working knowledge of metalwork necessary for the basic maintenance of an agricultural enterprise.
5.4   Discuss the use of plumbing tools and equipment necessary for agricultural maintenance.
5.5   Demonstrate various techniques used to measure and calculate a plot of land.
5.6   Demonstrate techniques of profile and differential leveling in determining land elevation.
5.7   Specify and explain a working knowledge of electricity.

Standard 6.0
Implement the integration of academic competencies in Advanced Principles of Agricultural Sciences.
Learning Expectations and Performance Indicators:
6.1   Calculate square footage to determine acreage in a plot of ground.
6.2   Properly use a measurement device to determine length and width.
6.3   Calculate cost per unit in a bill of materials.
6.4   Convert from the metric measurements to English measurements and the reverse conversion.
6.5   Assess chemical properties related to soil productivity.
6.6   Analyze soil fertility and composition.
6.7   Examine chemical properties used in fusing metal.
6.8   Analyze anatomy and physiology of animals.
6.9   Determine nutritional needs of animals, based on energy needs.
6.10   Compare the effects of diseases and pests on animal health.

Standard 7.0

Demonstrate premier leadership and personal growth in the area of Advanced Principles of Agricultural Sciences.

Learning Expectations and Performance Indicators:

7.1   Explain the importance of a positive work ethic and attitude.

7.2   Develop problem-solving skills associated with a supervised agriculture experience program.

7.3   Demonstrate the ability to conduct meetings in accordance with Robert's Rules of Order.

7.4   Prepare speeches to communicate the needs, concerns and challenges of the agricultural community.