

# Agriscience 18310

## **Rationale Statement:**

Agriscience is designed to provide students with an introduction to careers and agricultural science in Agriculture, Food and Natural Resources Cluster. Classroom and laboratory content will be enhanced by utilizing appropriate equipment and technology. Mathematics, science (physical, chemistry, physics and biology), English and human relations skills will be reinforced in the course. Instruction includes not only agriculture education standards but many academic standards are included through the use of “hands-on” problem-solving activities. Work-based learning opportunities appropriate for this course are school-based enterprise and field trips. Opportunities for application of clinical and leadership skills are provided by participation in FFA through activities, conferences and skills competitions. Each student will be expected to complete a Supervised Agricultural Experience program and/or Internship Project.

## **Suggested grade level: 9-12**

## **Topics covered:**

- Agricultural literacy and history
- Employability skills
- Agricultural career opportunities
- Plant science
- Soil science
- Animal science – Large and Small Animal
- Animal management

**Indicator #1: Examine agriculture industries of the past, present and future.**

<b>Bloom's Taxonomy Level</b>	<b>Standard and Examples</b>
Analyzing	<p><b>AS1.1 Appraise the fundamentals of the agriculture industry and its impact in the world.</b></p> <p>Examples:</p> <ul style="list-style-type: none"><li>• Investigate the development of today's agriculture industry as related to the development of technology.</li><li>• Analyze the influence and impact of agriculture on the development of nations around the world.</li><li>• Examine the history of organizations that have made a significant contribution to agriculture.</li><li>• Compare the major sciences that support agriscience.</li><li>• Examine basic and applied sciences that relate to agriscience.</li></ul>
Analyzing	<p><b>AS1.2 Compare personal skills for success in agricultural careers.</b></p> <p>Examples:</p> <ul style="list-style-type: none"><li>• Examine leadership development opportunities related to pursuing a career in agriculture.</li><li>• Distinguish traits of good leaders.</li><li>• Differentiate professional oral/written communication skills as related to gainful employment in the agriculture industry.</li><li>• Demonstrate employability skills in work-based learning and career planning activities in order to understand the needs of today's agricultural workplace.</li><li>• Write a resume with a letter of application.</li></ul>

**Indicator #2: Demonstrate the methods to control the plant environment, plant selection and plant culture techniques.**

Bloom's Taxonomy Level	Standard and Examples
Applying	<p><b>AS2.1 Demonstrate basic methods for controlling the plant environment.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Manipulate the growth rate of plants.</li> <li>• Formulate fertilizer recommendations from soil testing.</li> <li>• Interpret the functions and affects of nutrients on plants.</li> <li>• Use a test kit to test soil pH.</li> <li>• Utilize chemicals using proper application procedures.</li> </ul>
Applying	<p><b>AS2.2 Demonstrate plant cultural procedures.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Select seedbed preparation method.</li> <li>• Employ seedbed preparation procedures.</li> <li>• Select method of seeding.</li> <li>• Demonstrate proper seeding practices.</li> <li>• Inoculate legume seeds.</li> </ul>

**Indicator #3: Differentiate the classification of plants, plants parts and plant functions.**

Bloom's Taxonomy Level	Standard and Examples
Analyzing	<p><b>AS3.1 Examine the major parts of a plant and their important functions.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Illustrate the major parts of plants.</li> <li>• Distinguish the major functions of roots, stems, fruit and leaves.</li> <li>• Examine the parts of a typical root, stem, flower, fruit and leaf.</li> <li>• Differentiate the variations found in the structures of root systems, stems, flowers, fruits and leaves.</li> </ul>

Applying	<p><b>AS3.2 Demonstrate the cycle of food production in a plant.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Illustrate how plants make food.</li> <li>• Describe the roles of air, soil, water, light and media in relation to plant growth.</li> <li>• Trace the movement of minerals, water, and nutrients in plants.</li> <li>• Describe the ways that various plants store food for future use.</li> <li>• Compare the activity in a plant during exposure to light and periods of darkness.</li> <li>• Test ways in which plants protect themselves from diseases, insects, etc.</li> </ul>
Analyzing	<p><b>AS3.3 Compare the methods used by plants to reproduce.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Differentiate between sexual and asexual reproduction.</li> <li>• Compare the relationship between reproduction and plant improvement.</li> <li>• Examine the reproductive parts of flowers and seeds.</li> <li>• Experiment with the primary methods of asexual reproduction.</li> <li>• Propagate plants using tissue culture.</li> </ul>
Analyzing	<p><b>AS3.4 Compare the approved practices recommended for grain, oil and specialty field-crop production.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Compare major crops grown for grain, oil and special purposes.</li> <li>• Examine how to select field crops, varieties and seed.</li> <li>• Differentiate the pests in field crops.</li> <li>• Compare how field crops are planted.</li> <li>• Distinguish how field crops are harvested and stored.</li> </ul>

**Indicator #4: Investigate animal science in the agricultural industry.**

<b>Bloom's Taxonomy Level</b>	<b>Standard and Examples</b>
Understanding	<p><b>AS4.1 Explore the animal science industry for both large and small animals.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Explain the differences between the beef, swine, sheep, horse, dairy and poultry industries as related to their impact on the agricultural economy.</li> <li>• Investigate careers related to the field of animal science.</li> <li>• Classify tools used in the industry according to type of animal.</li> </ul>
Analyzing	<p><b>AS4.2 Examine the uses, care and management of animals, both large and small.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Examine the domestication and history of animals.</li> <li>• Distinguish the economic importance of the various classes of small animals.</li> <li>• Compare the use small animals in various countries.</li> <li>• Demonstrate the approved practices in feeding and caring for animals.</li> </ul>

**Indicator #5: Compare animal anatomy, physiology and nutrition.**

<b>Bloom's Taxonomy Level</b>	<b>Standard and Examples</b>
Analyzing	<p><b>AS5.1 Distinguish the anatomy and physiology of animals.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Compare animal skeletons.</li> <li>• Differentiate the muscular structures of animals.</li> <li>• Examine the unique adaptations of different animals.</li> </ul>

Understanding	<p><b>AS5.2 Recognize the nutritional requirements of specific animals and how to satisfy those requirements.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Examine how nutrients are used by animals.</li> <li>• Identify classes and sources of nutrients.</li> <li>• Identify symptoms of nutrients deficiencies.</li> <li>• Explain the role of feed nutrient deficiencies.</li> <li>• Compare the composition of various feedstuffs.</li> </ul>
<p><b>Indicator #6: Examine the factors that determine animal health and sound reproductive practices.</b></p>	
<p><b>Bloom's Taxonomy Level</b></p>	<p><b>Standard and Examples</b></p>
Applying	<p><b>AS6.1 Demonstrate how to best maintain animal health.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Identify signs of good and poor animal health.</li> <li>• Identify symptoms of animal diseases and parasites.</li> <li>• Understand how to prevent animal health problems.</li> <li>• Explain various methods of treating health problems.</li> </ul>
Analyzing	<p><b>AS6.2 Examine the role of genetics, and reproduction in animal health agriscience today.</b></p> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Define terms associated with genetics and reproduction.</li> <li>• Understand the principles of genetics.</li> <li>• Identify parts of the reproduction system.</li> <li>• Understand new technology in animal reproduction.</li> <li>• Appraise animals for type and production as related to genetics.</li> </ul>

**Indicator #7: Examine the factors in specialty livestock and horse management.**

<b>Bloom's Taxonomy Level</b>	<b>Standard and Examples</b>
Analyzing	<p><b>AS7.1 Investigate the history, types, uses, care and management of dairy cattle.</b></p> <p>Examples:</p> <ul style="list-style-type: none"><li>• Examine the history and economic importance of dairy cattle.</li><li>• Compare the major uses of dairy cattle.</li><li>• Demonstrate the basic approved practices in the care and management of dairy cattle.</li></ul>
Applying	<p><b>AS7.2 Interpret the role of horses in our society, how to care for and manage them.</b></p> <p>Examples:</p> <ul style="list-style-type: none"><li>• Explain the origins and history of the horse.</li><li>• Illustrate the various types and horse breeds.</li><li>• Choose approved practices for the care and management of a horse.</li><li>• Distinguish the styles of English and western riding.</li><li>• Use the vocabulary generally associated with horses.</li></ul>