



# SCHOOL DISTRICT OF MONROE

*Preparing for the Future, One Child at a Time*

## Animal Science ES / TC

### Course Description:

The curriculum for this elective course is developed from [Wisconsin Standards for Agriculture, Food and Natural Resources](#). Animal Science ES is designed to give students an advanced knowledge of production animals and the science that is surrounding the industry. Students will learn about the structural functions of reproduction, digestion, nervous, muscular and endocrine systems. Students will gain an understanding of technical areas such as growth hormones, artificial insemination, embryo transfer, heat synchronization, and cloning to improve efficient livestock production. Hands-on laboratories activities will be included. This course is science equivalents and count for part of the three high school units of science required for admission to UW institutions and is articulated with Blackhawk Technical College. The information in this course overview outlines what students should understand and be able to do by the end of the trimester.

### Mastery Standards:

Students will examine the components, historical development, global implications and future trends of the animal systems industry. (AS1)

Students will classify, evaluate, select and manage animals based on anatomical and physiological characteristics. (AS2)

Students will provide the proper health care of animals. (AS3)

Students will prepare and implement animals handling procedures for the safety of animals, producers and consumers of animal products. (AS6)

Students will select animal facilities and equipment that provide for the safe and efficient production, housing and handling of animals. (AS7)

Unit	Description of Unit and Learning Targets
<p><b>Unit Title: 1. Classification of Animals</b></p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> <li>• How can you classify animals?</li> <li>• How can several classification categories be used on the same object?</li> <li>• How was binomial nomenclature developed?</li> <li>• Why were breeds developed?</li> <li>• How is a dichotomous key used to identify animals?</li> </ul>	<p>Students will.....</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> <li>• Classify objects based on their physical characteristics.</li> <li>• Apply the hierarchical organizational system to a food group.</li> <li>• Determine the classification of the animal chosen</li> <li>• Design a dichotomous key for five breeds of an animal species.</li> </ul>
<p><b>Unit Title: 2. Animal Terminology</b></p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> <li>• What are the benefits to humans by domesticating animals?</li> <li>• How have human lives changed through the domestication of animals?</li> <li>• Why were breeds developed?</li> </ul>	<p>Students will...</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> <li>• Design a timeline recording the history of an animal.</li> <li>• Examine the development and domestication of a common animal over time.</li> </ul>
<p><b>Unit Title: 3. Life Units</b></p>	<p>Students will...</p>

<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> <li>• Why are animal cells important to understanding animal systems?</li> <li>• How do cells contribute to the overall function of an animal?</li> </ul>	<p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> <li>• Identify and label animal cell organelles.</li> <li>• Develop a pictorial representation of cell function.</li> <li>• Examine and compare plant and animal cells and their structures under a microscope.</li> <li>• Collect and analyze data to provide evidence of cell metabolism.</li> <li>• Observe molecules moving across a membrane in a computer simulation.</li> <li>• Conduct an experiment to simulate the process of osmosis in animal cells.</li> </ul>
<p><b>Unit Title: 4. External Anatomy</b></p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> <li>• Why are external parts necessary to know?</li> <li>• What is the relationship between external body parts and internal systems?</li> </ul>	<p>Students will...</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> <li>• Identify common external animal parts and explain the purpose of each.</li> <li>• Identify unique external parts specific for livestock and poultry species and explain the purpose of each part.</li> <li>• Examine two types of muscle tissue and describe the differences.</li> </ul>
<p><b>Unit Title: 5. Internal Anatomy</b></p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> <li>• What roles do hormones released by the endocrine system play in the body?</li> <li>• How do the nervous, endocrine, and renal systems relate to other systems and reactions within an animal?</li> </ul>	<p>Students will...</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> <li>• Identify and explain the function of the parts of the respiratory and circulatory systems.</li> <li>• Describe the process of gas exchange in external respiration.</li> <li>• Determine the presence of carbon dioxide in exhaled air.</li> <li>• Design a travel brochure that highlights the flow of blood throughout the body.</li> <li>• Conduct an inquiry on the effects of external conditions on respiration rate, pulse, and blood pressure.</li> <li>• Map the functions of body systems, specifically the nervous, endocrine, and renal systems in order to demonstrate their connection to each other and other systems in the body.</li> </ul>
<p><b>Unit Title: 6. Production Animals</b></p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> <li>• How do evaluating breeding and market animals differ?</li> <li>• What criteria are used in evaluating a species of animal?</li> <li>• How does data complement visual selection?</li> </ul>	<p>Students will...</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> <li>• Make decisions based on given priorities and criteria, and analyze objects as they compare ideal criteria.</li> <li>• Research and identify the priorities for evaluating an animal most commonly used in that animal industry.</li> <li>• Write, illustrate, and publish a children's storybook on how to select an animal.</li> <li>• Determine and recommend most appropriate sires using Expected Progeny Differences.</li> </ul>