

## Wallingford Public Schools - HIGH SCHOOL COURSE OUTLINE

<b>Course Title:</b> Animal Technology / Food Science 4	<b>Course Number:</b> 8203
<b>Department:</b> Agriculture Education	<b>Grade(s):</b> 12
<b>Level(s):</b> Academic	<b>Credit(s):</b> 2
<b>Course Description</b> Senior course work continues to build a foundation for students interested in animal technology/food science. Topics studied include: animal advocacy, clinical skills, current trends in agriculture, and reproduction and genetics. Students will continue to participate in the Lyman Hall Chapter of the national organization, FFA. Students will complete the development of their portfolio and further develop skills to prepare for future careers in animal technology.	
<b>Required Instructional Materials</b> Sufficient Hands-on Materials	<b>Completion/Revision Date</b> Approved by Board of Education October 15, 2007

### Mission Statement of the Curriculum Management Team

The mission of the Career and Technical Education Curriculum Management Team is to ensure that students, as a result of their experiences in K-12, will demonstrate transferable skills, knowledge, and attributes for successful life management, employment, career development, post-secondary educational opportunities, and life long learning.

### Enduring Understandings for the Course

- Self-reflection of learning experiences, in and out of school, fosters the development of a life long learner. Life long learners are able to apply and refine skills as they prepare for their post-high school endeavors.
- Care and concern for animal welfare varies greatly and can be influenced by policy makers, money and public interest groups.
- Critical examination and evaluation of data is essential to making informed decisions.
- The relationship between organisms and their eco-system affects their ability to survive.
- Human impact on a habitat (perceived as positive or negative) affects the chemical, biological and physical elements in a multi-faceted manner.
- Veterinarians/pet owners make health related decisions based upon internal and external examinations.
- In emergency situations, immediate identification of the nature of the illness/injury can increase chances of survival.
- The research process requires the use of a variety of resources to ensure validity.
- Organization is critical to the acquisition, application, and evaluation of information.
- Critical examination and evaluation of data is essential to making informed decisions.
- Recognizing a diversity of viewpoints benefits all.
- Writing is a tool used for thinking & learning.

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| <ul style="list-style-type: none"><li>• Animals should be bred purposely to select for those attributes that are desirable.</li></ul>  |
| <ul style="list-style-type: none"><li>• A thorough understanding of reproductive systems and genetics will help ensure successful breeding choices and delivery processes.</li></ul> |

**LEARNING STRAND**

1.0 Transferable Skills

**ENDURING UNDERSTANDING(S)**

- Self-reflection of learning experiences, in and out of school, fosters the development of a life long learner. Life long learners are able to apply and refine skills as they prepare for their post-high school endeavors.

**ESSENTIAL QUESTION(S)**

- What is the importance of maintaining a portfolio?
- What are the qualities of an effective oral presentation?
- What safety precautions do I have to follow?
- What can I do differently next time?
- What does a cooperative group require to function successfully?
- How can I assess the situation and implement change?
- What are the characteristics of an organized person? What do I need to do to be more organized?
- How can I manage informational research, organize the information, and present it professionally?
- What is a leader?

**LEARNING OBJECTIVES** The students will:

- 1.1 Demonstrate public speaking skills using appropriate visuals and tailoring the presentation to specific audiences.
- 1.2 Communicate in writing about a topic using different formats applying relevant vocabulary, supporting evidence and clear logic.
- 1.3 Self-assess transferable skills and reflect on areas of strengths and improvement.
- 1.4 Identify and use the appropriate tools and equipment safely.
- 1.5 Work cooperatively with fellow peers, teachers, and employers to complete a task.
- 1.6 Apply problem solving skills to critically approach a situation and work through the steps to solve the problem.
- 1.7 Develop organizational skills that assist with data collection, data analysis and synthesis.
- 1.8 Apply research skills to collect information, summarize the findings and to cite the sources used.
- 1.9 Recognize leadership skills such as: motivating others, negotiating,

**INSTRUCTIONAL SUPPORT MATERIALS**

- See other learning strands for integration

**SUGGESTED INSTRUCTIONAL STRATEGIES**

- See other learning strands for integration

**SUGGESTED ASSESSMENT METHODS**

- See other learning strands for integration

participating in meetings, gaining confidence, and gaining self-awareness, etc.

- 1.10 Apply computer-based tools such as PowerPoint, Word, Excel, and Access, to organize and present information.
- 1.11 Demonstrate self expression and creativity through different projects.
- 1.12 Develop a positive attitude and become an independent learner in order to prepare for the future.
- 1.13 Organize and maintain a four year portfolio including a compilation of student products and reflections.
- 1.14 Document SAE (Supervised Agricultural Experience) monthly. This includes recording hours, expenses, income, tasks and applied skills.

<b><u>LEARNING STRAND</u></b>	
2.0 Advocates for Animals <ul style="list-style-type: none"> <li>Approximately 4 weeks</li> </ul>	
<b><u>ENDURING UNDERSTANDING(S)</u></b> <ul style="list-style-type: none"> <li>Care and concern for animal welfare varies greatly and can be influenced by policy makers, money and public interest groups.</li> <li>Critical examination and evaluation of data is essential to making informed decisions.</li> <li>The relationship between organisms and their eco-system affects their ability to survive.</li> <li>Human impact on a habitat (perceived as positive or negative) affects the chemical, biological and physical elements in a multi-faceted manner.</li> </ul>	<b><u>ESSENTIAL QUESTION(S)</u></b> <ul style="list-style-type: none"> <li>What is the status of wildlife?</li> <li>What is the status of captive animals?</li> <li>What resources are helping/hindering animal welfare?</li> <li>How are humans impacting animals?</li> <li>How are policy makers influencing animal welfare?</li> <li>How can individuals and organizations improve animal welfare?</li> </ul>
<b><u>LEARNING OBJECTIVES</u></b> The students will: <p>2.1 Examine the status of animals</p> <ul style="list-style-type: none"> <li>Zoos</li> <li>Humane Societies</li> <li>Entertainment industry-Circus</li> <li>Lab animals</li> <li>Endangered Species</li> </ul> <p>2.2 Examine cause of species endangerment</p> <ul style="list-style-type: none"> <li>Fragmentation of habitat</li> <li>Habitat destruction</li> <li>Collection of Species</li> <li>Poaching/hunting</li> <li>Human encroachment</li> </ul> <p>2.3 Discuss the effectiveness of animal welfare and preservation laws</p> <ul style="list-style-type: none"> <li>Endangered Species Act</li> <li>Marine Mammal Protection Act of 1972</li> <li>Lacey Act</li> <li>Animal Welfare Act</li> </ul> <p>2.4 Examine current trends in animal welfare and preservation</p> <ul style="list-style-type: none"> <li>Species Survival plans</li> <li>Habitat protection</li> <li>Captive breeding</li> <li>Reintroduction</li> <li>US Fish and Wildlife Service</li> </ul>	<b><u>INSTRUCTIONAL SUPPORT MATERIALS</u></b> <ul style="list-style-type: none"> <li>Videos</li> <li>Websites</li> </ul> <b><u>SUGGESTED INSTRUCTIONAL STRATEGIES</u></b> <ul style="list-style-type: none"> <li>Research current animal welfare issues and possible solutions</li> <li>Research a endangered species - causes, solutions, and interventions</li> <li>Operation Migration <ul style="list-style-type: none"> <li><a href="http://www.learner.org/inorth">www.learner.org/inorth</a></li> </ul> </li> <li>Discuss the need for conservation of species</li> <li>Compare changes to animal welfare after the implementation of new laws</li> <li>Participate in mock debate to support or eliminate funding for the Endangered Species Act</li> <li>View and discuss videos on endangered species</li> <li>Visit local zoo to observe animals and what is being done to meet their needs</li> <li>Analyze major zoos, their latest improvements, strengths and weaknesses, and recommend improvements</li> <li>Evaluate the credibility of animal welfare information and websites.</li> </ul> <b><u>SUGGESTED ASSESSMENT METHODS</u></b>

<ul style="list-style-type: none"><li>• Dept of Environmental Protection</li><li>• US Dept of Agriculture</li><li>• World Wildlife Fund</li></ul> <p>2.5 Advocate for the improvement of animal welfare</p> <ul style="list-style-type: none"><li>• Letters to public officials and media</li><li>• Educate the public on animal welfare issues</li></ul>	<ul style="list-style-type: none"><li>• Written and oral presentations</li><li>• Debate preparation and participation</li><li>• Zoo evaluation</li><li>• Portfolio items may include:<ul style="list-style-type: none"><li>○ Skill sheet</li><li>○ Work sample picture and caption</li><li>○ Letter to public official</li></ul></li></ul>
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**LEARNING STRAND**

3.0 Clinical Skills – Emergency Assessment and Management

- Approximately 8 weeks

**ENDURING UNDERSTANDING(S)**

- Veterinarians/pet owners make health related decisions based upon internal and external examinations.
- In emergency situations, immediate identification of the nature of the illness/injury can increase chances of survival.

**ESSENTIAL QUESTION(S)**

- How do veterinarians identify emergency situations and act appropriately?
- What characterizes a veterinary medical emergency?

**LEARNING OBJECTIVES** The students will:

- 3.1 Define veterinary terminology including anatomical terms and medical abbreviations.
- 3.2 Demonstrate restraint and transport methods for animals.
- 3.3 Explain the purpose of drugs commonly used in veterinary medicine such as:
  - Antibiotics
  - Tranquilizers
  - Analgesics
- 3.4 Calculate drug dosages for various animals using standard formulas.
- 3.5 Explain classes of controlled drugs and regulations regarding them.
- 3.6 Demonstrate and describe bandaging and splinting techniques for common injuries.
- 3.7 Describe, classify and define treatment for the five common types of wounds.
- 3.8 Describe the appearance of the five varieties of shock and treatment for each.
- 3.9 Identify signs of poisoning and treatment for each.
- 3.10 Demonstrate aseptic wound care.
- 3.11 Perform triage demonstrations on mock emergency patients.
- 3.12 Perform surgery prep activities including:
  - Pre-op tests
  - Preliminary blood work
  - “Night before” procedures
  - Animal preparation

**INSTRUCTIONAL SUPPORT MATERIALS**

- Stethoscopes, thermometer, bandaging and splinting materials,
- Drug information/labels to analyze
- Videos: Emergency Vets; AVMA training videos
- Stuffed animal models
- Online research and practice:
  - <http://caltest.vet.upenn.edu>
  - <http://www.cvmbc.colostate.edu/clinsci>

**SUGGESTED INSTRUCTIONAL STRATEGIES**

- Work through case histories and case studies
- Mock patient chicken lab to demonstrate sterile wound care
- Practice and demonstrate techniques on stuffed animals before using live models
- Hands-on activities with “mock” injuries and accidents

**SUGGESTED ASSESSMENT METHODS**

- Conduct and evaluate “real life” scenarios / case studies
- Mock patient chicken lab report
- Portfolio products may include:
  - Work sample picture and caption
  - Writing assignment
  - Skill sheet

<b><u>LEARNING STRAND</u></b>	
4.0 Current Trends in Agriculture <ul style="list-style-type: none"> <li>• Approximately 4 weeks</li> </ul>	
<b><u>ENDURING UNDERSTANDING(S)</u></b> <ul style="list-style-type: none"> <li>• The research process requires the use of a variety of resources to ensure validity.</li> <li>• Organization is critical to the acquisition, application, and evaluation of information.</li> <li>• Critical examination and evaluation of data is essential to making informed decisions.</li> <li>• Recognizing a diversity of viewpoints benefits all.</li> <li>• Writing is a tool used for thinking &amp; learning.</li> </ul>	<b><u>ESSENTIAL QUESTION(S)</u></b> <ul style="list-style-type: none"> <li>• Why do I research?</li> <li>• What is the best way to persuade an audience?</li> <li>• What are the benefits of using multiple media to locate information?</li> <li>• How do I know my information is reliable (accurate, unbiased, current, and appropriate)?</li> <li>• How does organizing the results of my research help me to use it?</li> <li>• How does the consideration of different viewpoints influence how I think &amp; act?</li> <li>• What am I trying to achieve through my writing? Presentation?</li> <li>• What are the qualities of an effective oral presentation?</li> <li>• How can a visual enhance an oral presentation?</li> </ul>
<b><u>LEARNING OBJECTIVES</u></b> – The students will: <p>4.1 Develop a central research position related to a current trend in agriculture.</p> <p>4.2 Generate questions related to the topic.</p> <p>4.3 Locate &amp; retrieve information that is stored in print (books, magazines, etc.) as well as in digital forms (Internet, databases, videos, etc.) to support the position presented as well as the opposing view.</p> <p>4.4 Evaluate validity of sources to authenticate research.</p> <p>4.5 Organize ideas and information logically and effectively using note cards and outlining.</p> <p>4.6 Use the writing process to compose a research position paper that is focused, organized, elaborated, supported and edited for standard English conventions.</p> <p>4.7 Revise written pieces to demonstrate improvement.</p> <p>4.8 Use MLA citation for textual support.</p> <p>4.9 Persuade audience during an oral presentation with accompanying visuals.</p>	<b><u>INSTRUCTIONAL SUPPORT MATERIALS</u></b> <ul style="list-style-type: none"> <li>• Access to print and non-print sources</li> <li>• Assorted trade magazines and journals</li> <li>• Presentation materials</li> </ul> <b><u>SUGGESTED INSTRUCTIONAL STRATEGIES</u></b> <ul style="list-style-type: none"> <li>• Collaborate with library media specialists to help assist with research</li> <li>• Create a PowerPoint presentation or design a tri-fold board as a visual aid for the oral presentation</li> <li>• Create an informational hand-out to “call to action” information for the audience</li> <li>• After student presentations, students select one topic to write “a letter to the editor” by agreeing or disagreeing with the position presented</li> <li>• Model and assist students through the research process</li> <li>• Model appropriate Internet searching techniques</li> <li>• Peer review and feedback</li> <li>• Provide due dates of individual parts (note</li> </ul>



cards, outline, rough draft, etc.) of research project

- Conferencing with teacher

**SUGGESTED ASSESSMENT METHODS**

- Rubrics for presentation, paper, and visual
- Checklist for research process
- Self and peer assessments
- Portfolio products may include:
  - Skill sheet
  - Persuasive research paper and outline
  - Photo of visual and student
  - Informational “call to action” hand-out
  - Writing sample “letter to the editor”

<b><u>LEARNING STRAND</u></b>	
5.0 Reproduction and Genetics <ul style="list-style-type: none"> <li>• Approximately 8 weeks</li> </ul>	
<b><u>ENDURING UNDERSTANDING(S)</u></b> <ul style="list-style-type: none"> <li>• Animals should be bred purposely to select for those attributes that are desirable.</li> <li>• A thorough understanding of reproductive systems and genetics will help ensure successful breeding choices and delivery processes.</li> </ul>	<b><u>ESSENTIAL QUESTION(S)</u></b> <ul style="list-style-type: none"> <li>• How do animals breed?</li> <li>• What steps are required for safe and successful delivery and post-partum care?</li> <li>• How does one breed for specific traits?</li> </ul>
<b><u>LEARNING OBJECTIVES</u></b> The students will: <ol style="list-style-type: none"> <li>5.1 Identify the anatomy and function of male and female mammal reproductive systems.</li> <li>5.2 Compare and contrast mammal, reptile and bird reproduction.</li> <li>5.3 Compare three types of mammal reproduction.</li> <li>5.4 Explain the processes associated with heat cycles in female animals.</li> <li>5.5 Identify common signs of mating behavior in males and females.</li> <li>5.6 Explain labor and delivery process.</li> <li>5.7 Evaluate correct procedures for successful parturition.</li> <li>5.8 Identify potential birthing difficulties and model corrections.</li> <li>5.9 Demonstrate care of newborn animals and the parturient mother.</li> <li>5.10 Describe inherited and congenital conditions in mammals.</li> <li>5.11 Identify genetic traits and their impact on successful breeding programs.</li> <li>5.12 Make sire and dam selection recommendations for successful animal breeding.</li> <li>5.13 Predict the possible genetic results of a cross.</li> <li>5.14 Describe the genetic transfer of traits from the parents to the offspring.</li> <li>5.15 Explore emerging reproductive technologies.</li> </ol>	<b><u>INSTRUCTIONAL SUPPORT MATERIALS</u></b> <ul style="list-style-type: none"> <li>• Preserved specimens of mammal reproductive systems</li> <li>• Manipulative mammal reproduction models</li> <li>• Videos on labor and delivery</li> <li>• Access to pre-parturient animals</li> <li>• Golf balls and permanent markers</li> <li>• “Cat Lab” computer software</li> </ul> <b><u>SUGGESTED INSTRUCTIONAL STRATEGIES</u></b> <ul style="list-style-type: none"> <li>• Examine anatomy and physiology of preserved reproductive systems</li> <li>• Participate in live birth activity</li> <li>• Care for newborn animals</li> <li>• Use hands on mammal reproductive models to demonstrate birth process</li> <li>• Research different animal breeds and their respective inherited and congenital conditions</li> <li>• Create model of ovarian cycles using a golf ball</li> <li>• Online interactive diagnosis and treatment of reproductive problems</li> <li>• Computer simulation on genetics</li> <li>• Analyze case studies of different breeding programs</li> <li>• Select sires and dams based on desirable traits</li> <li>• Research emerging reproductive technologies</li> </ul> <b><u>SUGGESTED ASSESSMENT METHODS</u></b> <ul style="list-style-type: none"> <li>• Portfolio products may include: <ul style="list-style-type: none"> <li>○ Work sample pictures and captions</li> <li>○ Writing assignment - Emerging Reproductive Technologies</li> </ul> </li> </ul>

- Skill sheet
- Tests and quizzes
- Teacher observations and demonstration of skills
- Performance based assessment
- Personal pedigree research and documentation