

Applied Veterinary Science

Grades 10-12

Units of Credit: Choice of One Year Career & Technical Education (CTE) Elective
OR One Year of Science

Prerequisites: Two successful years of science, can run concurrent with second year of science, 1 year of math and Introduction to Animal & Plant Science preferred.

Course Description:

In this advanced Agriculture Science course, students will explore the fields of veterinary and medical science. Students will study the role of a veterinarian and veterinary technician in the diagnosis and treatment of animal diseases. This class will provide a realistic preview of both medical work and the academic rigor needed to achieve success in the profession. Students will engage in research, perform a variety of dissections, carry out real laboratory tests, and conduct surgical and medical treatments on livestock. Students will also perform a field externship experience. This is an applied medical science course and is therefore useful for any student pursuing a career in medicine.

Topics:

- Introduction to the FFA
- SAE – Field Externship Requirements
- Safety
- Medical Terminology
- Anatomy and Physiology
- Artificial Breeding Technology
- Animal Breeds and Genetics
- Laboratory Analysis and Procedures
- Examination and Treatment of Animals
- Surgical and Sterilization Procedures
- Disease Classification
- Resume Writing and Career Development

NOTE: Throughout this document, learning target types are identified as knowledge (“K”), reasoning (“R”), skill (“S”), or product (“P”).

STANDARD 1: Students experience various career opportunities and assess personal career pathways.

Benchmark 1:

Explore and identify personal interests, aptitudes, and abilities and develop strategies to achieve tentative career goals.

Learning Targets (Type):

1. I can use Montana Career Information Systems (MCIS) and/or other systems or web resources to investigate and evaluate my personal interests, aptitudes and abilities. (S)

2. I can formulate tentative career goals. (R)
3. I can evaluate approaches for meeting my goals. (R)

Benchmark 2:

Utilize local resources to research career plans.

Learning Targets (Type):

1. I can identify local resources to develop career plans. (K)
2. I can contact my school career counselor or teacher to pursue career pathways. (S)

Benchmark 3:

Recognize the interrelationships of family, community, career, and leisure roles.

Learning Targets (Type):

1. I can describe the importance of balance between family and community in regards to career and leisure activities. (K)
2. I can compare and contrast the needs of career and leisure activities and how they relate to and/or affect family and community. (R)

STANDARD 2: Students demonstrate an understanding and apply principles of Resource Management (i.e., financial, time, personal management)

Benchmark 1:

Prepare a budget and keep financial records.

Learning Targets (Type):

1. I can research and report cost of materials and time. (R,S)
2. I can document financial inputs and outputs. (S)
3. I can identify the necessity to maintain accurate financial records. (S)
4. I can stay within a fixed budget. (S,P)

Benchmark 2:

Prioritize, allocate time, prepare and follow schedules to complete a project.

Learning Targets (Type):

1. I can estimate the required time to complete a project. (R)
2. I can prioritize resources, equipment and tasks. (R)
3. I can reflect upon completion. (K)

Benchmark 3:

Apply appropriate time to task.

Learning Targets (Type):

1. I can implement a time schedule for task completion. (S)

Benchmark 4:

Use physical resources wisely to accomplish a goal.

Learning Targets (Type):

1. I can identify the resources necessary to accomplish the task. (K)
2. I can maintain the tools of the trade. (S)
3. I can maximize the use of my resources. (S)

STANDARD 3: Students acquire and utilize personal and leadership skills to become successful, productive citizens.

Benchmark 1:

Demonstrate active leadership skills by participation in group activities and projects.

Learning Targets (Type):

1. I can investigate various leadership styles. (R)
2. I can apply leadership styles in group activities and projects. (R)

Benchmark 2:

Demonstrate positive personal and work ethics.

Learning Targets (Type):

1. I can show up for class and work on time. (S)
2. I can develop personal and work related goals. (K,P)
3. I can describe ethical behavior in the workplace. (K)

Benchmark 3:

Demonstrate skills to be a productive citizen.

Learning Targets (Type):

1. I can develop professional relationships with community members. (S)
2. I can contribute to my community in a positive manner. (S,P)

Benchmark 4:

Apply self-esteem building practices.

Learning Targets (Type):

1. I can define and provide evidence of my strengths in my career interest areas. (K,S)
2. I can persevere through set backs and stay focused on my goals. (S)

Benchmark 5:

Demonstrate appreciation for diverse perspective needs and characteristics.

Learning Targets (Type):

1. I can develop a working relationship with diverse populations. (K,S)
2. I can demonstrate communication skills that contribute to positive relationships. (S)
3. I can work to understand diverse points of view. (R)

Benchmark 6:

Practice several methods of effective communication.

Learning Targets (Type):

1. I can demonstrate good listening skills. (S)
2. I can effectively communicate verbally through collaborative projects. (S,P)
3. I can develop quality written professional communications. (P)

STANDARD 4: Students acquire and demonstrate current technical skills leading to an occupation.

Benchmark 1:

Practice technical skills and procedures required for an occupation.

Learning Targets (Type):

1. I can obtain excellent professional work habits, work skills, and professional contacts during the 20 hour externship experience. (K,S,R)
2. I can artificially synchronize the heat cycle of livestock. (K,S)
3. I can artificially inseminate livestock. (K,S)
4. I can collect blood and perform genetic testing on livestock. (K,S,P)
5. I can demonstrate an understanding of the concepts and the ability to perform skills related to microbiology, including sensitivity tests and isolating cultures. (K,S)
6. I can demonstrate an understanding and the ability to perform skills related to hematology including drawing and processing blood from livestock. (K,S)
7. I can demonstrate an understanding the ability to perform skills related to parasitology

including fecal cultures. (K,S)

8. I can demonstrate and understanding and the ability to perform skills related to urinalysis and other lab tests. (K,S)
9. I can correctly demonstrate preparation for surgical procedures, to include preparing and sterilizing instruments and preparing the patient for surgery. (K,S,R)
10. I can demonstrate how to maintain a sterile work zone during surgery. (K,S)
11. I can demonstrate the ability to conduct common surgical procedures like lancing abscesses, castration, docking, notching, caponizing, debeaking and others. (K,S)
12. I can demonstrate the ability to perform basic suture patterns on live animals as well as a purse string suture. (K,S)

Benchmark 2:

Practice safe and appropriate use of technology.

Learning Targets (Type):

1. I can demonstrate procedures and use equipment for the safe handling/restraint of animals. (K,S)
2. I can correctly demonstrate infectious control practices, such as hand washing, gowning, gloving, and masking. (K)
3. I can demonstrate appropriate handling and disposal of biohazardous waste. (K)
4. I can demonstrate the appropriate use and disposal of needles and sharps. (K)

Benchmark 3:

Select the appropriate tools, equipment, and procedures for the task.

Learning Targets (Type):

1. I can dissect specimens in order to understand anatomy and physiology. (K,S)
2. I can properly use equipment necessary for a physical examination. (K,S,R)
3. I can properly fill, read, and administer medicine through a syringe. (K,S,R)
4. I can apply the proper bandages and splints to various parts of the animal's body. (K,S,R)
5. I can assist with the parturition of livestock. (K,S)
6. I can demonstrate proper preparation for surgery including gowning and hand washing. (K)

Benchmark 4:

Manage and maintain technological tools and follow troubleshooting protocol.

Learning Targets (Type):

1. I can return medical and veterinary equipment to its proper place, cleaned and ready for reuse. (K)

Benchmark 5:

Apply technical information to a variety of sources.

Learning Targets (Type):

1. I can prepare for an externship opportunity by developing skills that will be used by members of the medical profession. (K,R,S)
2. I can detect the estrus and anestrus cycle of livestock. (K,S,R)
3. I can select sires to improve the school's livestock herds. (K,R,S)
4. I can research medical career opportunities and the requirements for those careers. (K,S)

STANDARD 5: Students know and demonstrate the requirements of the workplace through authentic application.

Benchmark 1:

Practice and demonstrate academic and technical skills to a workplace setting.

Learning Targets (Type):

1. I can practice, and demonstrate my technical workplace skills in my school lab. (*S*)
2. I can research, write and present on the technical content utilizing academic skills found in workplace settings. (*R,S,P*)

Benchmark 2:

Apply the concepts of entrepreneurship.

Learning Targets (Type):

1. I can explain the concepts of entrepreneurship. (*K*)
2. I can demonstrate the concepts of entrepreneurship through a unique project. (*R,S*)
3. I can present my unique project to an authentic audience. (*S,P*)

Benchmark 3:

Identify possible outcomes and consequences of decisions.

Learning Targets (Type):

1. I can identify possible consequences of carelessness and horseplay. (*K*)
2. I can explain potential outcomes of not following directions, (i.e. safety, guidelines, rubrics). (*R*)

Benchmark 4:

Use acceptable industry standard equipment in a school setting.

Learning Targets (Type):

1. I can successfully use acceptable industry standard equipment to produce an authentic product within budget constraints. (*S,R,P*)