Animal Science

Animal Science is a course that provides students with instruction regarding this area of the agricultural industry. Students participate in activities related to the animal science field as they engage in the study of topics such as career opportunities, safety, importance of the livestock industry, breed identification and characteristics, nutrition, disease and parasite control, genetics and reproduction, animal rights versus animal welfare, and specialty animal production and animal products.

Content standards for this course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond the limits of these content standards to accommodate specific community interests and utilize local resources. This course encourages critical thinking, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions and problems. Safety concepts are integrated into instruction to the maximum extent possible.

This course may be taught as a one-credit or half-credit course. For a half-credit course, content standards 1, 2, 3, 4, 6, 8, and 11 must be included.

Career and technical student organizations are integral, cocurricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Career Opportunities

Students will:

1. Identify employment opportunities in the livestock industry.
   Examples: farm management, livestock production

Safety

2. Describe safety procedures for handling livestock.

Importance of Livestock Industry

3. Trace the domestication of livestock.

4. Identify livestock by common names.
   - Explaining the importance of binomial classification

5. Explain benefits of livestock production to society.
   Examples: medicine, food, clothing
Breed Identification and Characteristics

6. Trace the history of major large animal breeds.
   Examples: beef, swine, equine, goat, sheep, specialty animal breeds
   - Explaining the economic importance of major large animal breeds

7. Describe facilities used to manage livestock.
   Examples: corral, catch pen, head chute

Nutrition

8. Compare digestive systems of large animals.
   Examples: nonruminant, ruminant

9. Describe proper nutrition and balanced rations for animals.
   - Differentiating among nutrients affecting the health of livestock
     Examples: vitamins, minerals, proteins, fats, carbohydrates, roughages, concentrates, feed additives

Disease and Parasite Control

    Examples: parasite control, vaccination, sanitation

    - Categorizing symptoms of animal diseases for diagnostic purposes
      Example: black leg symptoms
    - Comparing drugs used to treat animal diseases
      Examples: antibiotics, wormers
    - Critiquing environmental factors affecting livestock operations
      Examples: soil loss, water quality, air quality

Genetics and Reproduction

11. Describe the structure and function of male and female reproductive systems in livestock.
    - Describing the process of genetic engineering, including the use of recombinant deoxyribonucleic acid (DNA)
    - Assessing the use of biotechnology in animal reproduction
      Examples: cloning, genetic engineering, embryo transfer
    - Describing how selective breeding has influenced the improvement of animals
      Examples: trimness, muscle expression, structure, size, scale
Animal Rights Versus Animal Welfare

12. Differentiate animal rights from animal welfare.
   - Describing responsible ownership of animals
   - Listing ways the use of animals in research has benefited humans and animals
   - Interpreting laws governing the use of animals for research

Specialty Animals and Animal Products

13. Identify economically important specialty animals and animal products.
    Examples: animals—alligators, cashmere goats, quail, ratites, pheasants
              animal products—specialty meats, cheeses

14. Compare requirements for specialty animal production with traditional animal production.
    Examples: care and feeding, management, marketing, sales