Agriscience Exploration

Agriscience Exploration is an exploratory course that provides Grade 8 students the opportunity to gain knowledge and acquire skills relating to the agricultural industry. Topics include career opportunities, safety, aquaculture, animal science, plant science, soil science, ecology, conservation, impact of agriculture, and agrimarketing. Instruction also focuses on agriscience technologies in the areas of woodworking, electricity, and power mechanics.

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, 4, 5, 6, 8, 12, 13, 14, and 15 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. Describe career opportunities in the agricultural industry.
   - Evaluating factors for selecting an agriscience career
     Examples: personal interests, abilities, preparation, salary
   - Describing desirable work habits for the agricultural industry
     Examples: reporting to work on time, wearing appropriate clothing, following directions, cooperating with coworkers

Safety

2. Describe safety rules and regulations that apply to the agricultural industry.
   - Demonstrating safe use of hand tools
   - Demonstrating safe use of power tools
   - Demonstrating safe techniques for small engine maintenance
Impact of Agriculture

3. Explain the impact of agriculture on a county’s economy, utilizing National Agricultural Statistics Service (NASS) information.
   - Describing the impact of an abundant, inexpensive, and safe food supply
     Examples: abundant—Independence from foreign food imports
              inexpensive—Less income spent on food
              safe—Better overall health of populations
   - Comparing United States and world agricultural practices

Supervised Agricultural Experience

4. Identify types of SAEs, including exploratory, research, placement, and entrepreneurship.
   - Describing criteria for selecting an appropriate SAE
     Examples: years in program, career interests, career advantages

Leadership Development

5. Demonstrate communication skills utilized within an agribusiness.
   Examples: public speaking, letter writing
   - Demonstrating qualities of leadership, cooperation, and good citizenship within an agricultural organization
   - Demonstrating parliamentary procedures used to conduct agribusiness meetings

Animal Science

6. Identify major body parts of cattle, swine, sheep, equine, and poultry.
   - Describing the impact of selective breeding and cloning on livestock breeds
   - Evaluating selected groups of animals according to confirmation, frame size, muscling, grade, and breed characteristics

Aquaculture

7. Describe methods and facilities used in the production of various aquatic species.
Plant Science

8. Describe structures and functions of major parts of a plant.
   - Comparing photosynthesis and respiration
   - Identifying sexual methods of plant reproduction
   - Illustrating important techniques of asexual plant propagation
     Examples: cuttings, division, grafting, layering, tissue culture

Soil Science

9. Identify major components of soil.
   - Comparing soil horizons
   - Relating soil characteristics to uses
     Examples: texture, drainage, permeability, organic compression, class capabilities
   - Explaining the importance of soil to agriculture

Ecology and Conservation

10. Relate populations within a habitat to communities, ecosystems, and biomes.
    - Comparing biotic and abiotic components of an ecosystem
    - Identifying limiting factors that affect plant and animal populations in an ecosystem
      Examples: food, shelter, water, climate, nutrients, physical space, disease, pollution, natural disasters

11. Evaluate agricultural and nonagricultural sources of pollution.
    - Describing the potential impact of climate change on plants, animals, and land
    - Explaining effective methods of reducing pollution

Woodworking

12. Develop a bill of materials and plan of procedure for a woodworking project.
    - Selecting the hardware required for a woodworking project
    - Calculating the number of board feet required for a woodworking project

13. Construct a woodworking project.

Electricity

    - Explaining the electron theory and its relevance to electrical circuitry
    - Explaining the relationship between electricity and magnetism
    - Describing electrical terms, units, and symbols
    - Applying techniques for making electrical splices
Power Mechanics

15. Perform routine care and maintenance on small engines.

Technology

16. Describe computer skills used in the agricultural industry.
   Examples: researching electronic reference sources, managing data, analyzing data, communicating information

17. Explain uses of the geographic information system (GIS) and global positioning system (GPS) as they relate to agriculture.

Agrimarketing

18. Explain ways agricultural products and services are marketed.
   - Describing the role of communication in agricultural marketing