

Middle School Agriculture Education Courses

Agribusiness & Production Systems Pathway (A0)

| Course Number | Course Title | Course Length | Course Sequence |
|---------------|---|------------------------------------|-----------------|
| 010105 | Agriculture, Food, and Natural Resources ¹ | 120 Hours ³ or 60 Hours | 7-8 |
| 010910 | Animal Science and Technology ² | 120 Hours | 8 |
| 010155 | Plant and Horticultural Science ² | 120 Hours | 8 |
| 012010 | Animal & Plant Biotechnology ² | 120 Hours | 8 |
| 010110 | Communications & Leadership ⁴ | 120 Hours | 8 |
| 010710 | Natural Resources ² | 120 Hours | 8 |
| 011010 | Science & Technology of Food ² | 120 Hours | 8 |

Note: To receive funding for Middle School Agriculture Education Courses, students must be offered continuous courses for Grades 7 through 12. Middle school courses offered in buildings other than the high school must complete a CTE-26 identifying the building of instruction and Program of Study. State licensure rules apply and all students must take end of course assessment.

¹Note that this is the first course in the career field to either 7th or 8th Grade students.

²Note this course should be offered to 8th Grade students only. First course in the Pathway.

³Note this course could be offered to 7th Grade students as a semester course. Students enrolled as 7th Graders must complete the course and test their 8th Grade year for course completion.

⁴This elective course can be taken by 8th Grade students, but only at the discretion of the instructor.

Agriculture, Food and Natural Resources

Subject Code: 010105

This is the first course in the Agricultural and Environmental Systems career field. It introduces students to the pathways that are offered in the Agricultural and Environmental Systems career field. As such, learners will obtain fundamental knowledge and skills in food science, natural resource management, animal science & management, plant & horticultural science, power technology and biotechnology. Students will be introduced to the FFA organization and begin development of their leadership ability.

Animal Science and Technology

Subject Code: 010910

Learners will develop business leadership, problem-solving and communication skills in relation to the science and technology of animals. Students will learn responsible animal management principles and routine husbandry practices in relation to animal welfare and behavior. Learners will identify and describe the anatomy and physiology of monogastric and ruminant organisms as it applies to nutrition, reproduction, and animal health. Learners will investigate animal genetics and how it impacts principles of animal improvement, selection and marketing.

Plant and Horticultural Science

Subject Code: 010155

This first course in the pathway focuses on the broad knowledge and skills required to research, develop, produce and market agricultural, horticultural, and native plants and plant products. Students will apply principals and practices of plant physiology and anatomy, plant protection and health, reproductive biology in plants, influences in bioengineering, plant nutrition and disorders. Environmental aspects of irrigation, chemical application, soils, and pest management will be studied and applied. Projects and activities will enable students to develop communication, leadership, and business management skills.

Animal and Plant Biotechnology

Subject Code: 012010

Learners will apply principles of chemistry, microbiology and genetics to plant and animal research and product development. They will describe the importance of biotechnology in society, and analyze the issues that have affected agricultural biotechnology. Students will apply genetic principals to determine genotypes and phenotypes. Students will describe the parts and functions of animal and plant cells and their importance in biochemistry.

Communications and Leadership

Subject Code: 010110

Students will analyze attributes and capabilities of those in leadership positions and develop their communication and leadership skills in authentic situations. The course prepares students to apply journalistic, communication and broadcasting principles to the development, production, and transmittal of agricultural and environmental systems information.

Natural Resources

Subject Code: 010710

Learners will apply science principles and management practices to the protection of renewable and non-renewable natural resources. Students will learn fundamentals of land use as well as watershed, wildlife, fishery and forest management. Students will be introduced to management practices related to managing air and water quality along with requirements for managing solid and liquid waste. Communications, business principles and leadership skill development are essential to the program.

Science and Technology of Food

Subject Code: 011010

This first course in the pathway examines the research, marketing, processing and packaging techniques applied to the development of food products. Learners will examine principles of food preservation techniques and determine correlations to food sensory, shelf life and food stability. Learners will examine and develop food safety, sanitation, and quality assurance protocol. Government regulations and food legislation will be examined and the implications to food science and technology will be identified.