

Florida Department of Education
Curriculum Framework

Course Title: Fundamentals of Agriculture, Food, and Natural Resource Systems
Course Type: Orientation/Exploratory
Career Cluster: Agriculture, Food, and Natural Resources

Secondary – Middle School

Course Number	8021300
CIP Number	148021300M
Grade Level	6-8
Standard Length	year
Teacher Certification	Refer to the Course Structure section.
CTSO	FFA
CTE Program Resources	http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml

Purpose

The purpose of this course is to assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the Agriculture, Food and Natural Resource career cluster. The content includes but is not limited to agricultural literacy, importance of agriculture, the role of science, math, reading, writing, geography, history, and technology in agriculture, plants and animals, and sources of consumer goods from agriculture. Reinforcement of academic skills occurs through classroom instruction and applied laboratory procedures.

Instruction and learning activities are provided in a laboratory setting using hands-on experiences with the equipment, materials and technology appropriate to the course content and in accordance with current practices.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Course Structure

The length of this course is one year. Planned and Supervised Agricultural Experiences (SAE) must be provided through one or more of the following: (1) foundational career exploration, (2) directed laboratory experience, (3) project ownership/entrepreneurship, (4) cooperative education/internship, (5) School Based Enterprise, or (6) Service Learning.

To teach the course(s) listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the course structure:

Course Number	Course Title	Teacher Certification	Length
8021300	Fundamentals of Agriculture, Food, and Natural Resource Systems	AGRICULTUR 1 @2 EXP AG @4	year

Standards

After successfully completing this course, the student will be able to perform the following:

- 01.0 Summarize the evolution of production agriculture.
- 02.0 Differentiate between animal welfare and ethical treatment of animals
- 03.0 Explain skills and principles used in dairy production.
- 04.0 Explain skills and principles used in livestock production.
- 05.0 Explain skills and principles used in poultry production.
- 06.0 Explain skills and principles used in aquaculture production
- 07.0 Explain skills and principles used in vegetable production.
- 08.0 Investigate and demonstrate skills and principles used in nursery production.
- 09.0 Apply scientific and technical skills in production agriculture.
- 10.0 Manage leadership and communication skills
- 11.0 Examine good work habits, and career planning in agriculture production.
- 12.0 Integrate the use of science, mathematics, reading, geography, history, writing, and communication in production agriculture.
- 13.0 Identify components of network systems.
- 14.0 Describe and use communication features of information technology.

**Florida Department of Education
Student Performance Standards**

Course Title: Fundamentals of Agriculture, Food, and Natural Resource Systems
Course Number: 8021300
Course Length: Semester

Course Description:

The next series in the world of the Agriculture, Food, and Natural Resources career cluster, students will be engaged in activities with terminology, careers, history, required skills, and technologies associated with each pathway in the Agriculture, Food, and Natural Resources career cluster. Additionally, they will be provided with opportunities to acquire and demonstrate beginning leadership skills.

CTE Standards and Benchmarks	
01.0	Summarize the evolution of production agriculture. The student will be able to:
01.01	Describe the importance of agriculture on a world, national, state and community scale.
01.02	Distinguish the major agricultural production areas of the United States.
01.03	Distinguish agriculture products produced in Florida.
01.04	Interpret how changes in production practices, population, and land use have influenced the agriculture economy.
01.05	Demonstrate how development of new technology has affected agriculture production.
01.06	Examine the changes in agriculture careers that reflect the changes in production methods.
02.0	Differentiate between animal welfare and ethical treatment of animals. The student will be able to:
02.01	Describe the proper handling of production animals.
02.02	Compare animal welfare and animal rights.
02.03	Explain how animal welfare and animal rights advocate groups impact production agriculture.
02.04	Summarize animal cruelty and the consequences of cruel treatment of animals.
03.0	Explain skills and principles used in dairy production. The student will be able to:
03.01	Explain the difference between breeds of dairy cattle.

CTE Standards and Benchmarks	
03.02	Demonstrate knowledge of proper health and nutrition for dairy animals.
03.03	Explain the safety procedures used for dairy products.
03.04	Compare different styles of dairies and milking parlors.
03.05	Identify the varieties of dairy products and the methods of processing.
03.06	Create a dairy product.
04.0	Explain skills and principles used in livestock production. The student will be able to:
04.01	Compare the different breeds of livestock.
04.02	Differentiate the different cuts and grading of meat.
04.03	Evaluate proper health and nutrition for livestock animals.
04.04	Demonstrate knowledge of terminology for animals based on species and condition (eg. age, sex, bred, etc...)
04.05	Determine different reproduction methods, and the process of selective breeding.
04.06	Explain how the use of biotechnology has impacted the livestock industry.
05.0	Explain skills and principles used in poultry production. The student will be able to:
05.01	Compare different types of poultry and their uses in production agriculture.
05.02	Differentiate proper techniques for classification and grading of poultry and poultry products.
05.03	Describe proper safe handling techniques for poultry products.
05.04	Evaluate knowledge of health and nutrition for poultry.
05.05	Explain how the use of biotechnology has impacted the poultry industry.
06.0	Explain skills and principles used in aquaculture production. The student will be able to:
06.01	Compare the different breeds of aquatic species.
06.02	Evaluate proper health and nutrition for aquatic species.
06.03	Demonstrate knowledge of terminology for aquatic species.

CTE Standards and Benchmarks	
06.04	Determine different reproduction methods.
06.05	Explain how the use of biotechnology has impacted the aquatic species industry.
07.0	Explain skills and principles used in vegetable production. The student will be able to:
07.01	Produce a vegetable crop.
07.02	Compare the components of soil.
07.03	Perform a soil test.
07.04	Describe how climate can affect crop production.
07.05	Compile knowledge of growing seasons for a geographic region.
07.06	Explain the use of Best Management Practices in crop production.
07.07	Investigate the impact of pests on crop yields.
07.08	Model the safety precautions on a pesticide and fertilizer label.
07.09	Assess proper irrigation methods for crops.
07.10	Analyze knowledge of harvesting techniques and equipment
07.11	Compare types of storage facilities.
07.12	Explain how the use of biotechnology has impacted vegetable crop production.
08.0	Explain skills and principles used in nursery production. The student will be able to:
08.01	Perform plant propagation.
08.02	Develop a growing schedule for nursery plants.
08.03	Model methods for Integrated Pest Management.
08.04	Compare types of growing media.
08.05	Identify nutrients necessary for plant growth from the periodic table and their functions.
08.06	Identify plants based on common and scientific names.

CTE Standards and Benchmarks	
08.07	Describe principles for plant growth.
08.08	Explain different methods of irrigation.
08.09	Explain how the use of biotechnology has impacted plant production.
09.0	Apply scientific and technical skills in production agriculture. The student will be able to:
09.01	Formulate scientifically investigable questions, construct investigations, collect and evaluate data, and develop scientific recommendations based on findings.
09.02	Employ technological tools to expedite workflow including word processing, databases, reports, spreadsheets, multimedia presentations, electronic calendar, contacts, email, and internet applications
10.0	Manage leadership and communication skills. The student will be able to:
10.01	Discuss the establishment and history of the FFA organization.
10.02	Compare the characteristics and responsibilities of organizational leaders.
10.03	Demonstrate parliamentary procedure skills during a meeting.
10.04	Participate on a committee which has an assigned task and report to the class.
10.05	Demonstrate effective communication skills through delivery of a speech or conducting a demonstration.
10.06	Use a computer to assist in the completion of an agricultural project.
11.0	Demonstrate good work habits, and career planning in agriculture production. The student will be able to:
11.01	Identify attitudes and habits necessary to achieve career success.
11.02	Describe personality aspects to consider when choosing a career.
11.03	Identify the basic steps in career planning.
11.04	Identify and research career opportunities in agriculture and its related fields through a Foundational SAE.
12.0	Integrate the use of science, mathematics, reading, geography, history, writing, and communication in production agriculture. The student will be able to:
12.01	Apply basic mathematics operations to solve agricultural problems.
12.02	Correctly use measuring devices and utilize measurements to solve agricultural problems.

CTE Standards and Benchmarks	
12.03	Prepare written and/or oral materials using correct English grammar.
12.04	Identify the main idea in oral presentations and/or written materials.
12.05	Locates, organizes, and interprets information from a variety of agricultural sources.
12.06	Describe the historical evolution of agriculture.
12.07	Select and study a problem that can be tested under controlled conditions to establish a hypothesis or to illustrate a known law.
13.0	Identify components of network systems. The student will be able to:
13.01	Identify structure to access internet, including hardware and software components.
13.02	Identify and configure user customization features in web browsers, including preferences, caching, and cookies.
13.03	Recognize essential database concepts.
13.04	Define and use additional networking and internet services.
14.0	Describe and use communication features of information technology. The student will be able to:
14.01	Define important internet communications protocols and their roles in delivering basic Internet services.
14.02	Identify basic principles of the Domain Name System (DNS).
14.03	Identify security issues related to Internet clients.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Florida Standards for English Language Development (ELD)

English language learners communicate for social and instructional purposes within the school setting. ELD.K12.ELL.SI.1

English Language Development (ELD) Standards Special Notes:

Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate for social and instructional purposes within the school setting. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL's need for communication and social skills. To access an ELL supporting document which delineates performance definitions and descriptors, please click on the following link: <http://www.cpalms.org/uploads/docs/standards/eld/SI.pdf>. For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition at sala@fldoe.org.

Extended Student Supervision

Because of the production and marketing cycle of the agriculture industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

Career and Technical Student Organization (CTSO)

FFA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's Individual Educational Plan (IEP) or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

In addition to accommodations, some secondary students with disabilities (students with an IEP served in Exceptional Student Education (ESE)) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Additional Resources

For additional information regarding articulation agreements, Bright Futures Scholarships, Fine Arts/Practical Arts Credit and Equivalent Mathematics and Equally Rigorous Science Courses please refer to:

<http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml>.