



# **Ledyard Agri-Science & Technology Program**



## **Unified Agriculture Curriculum**

# Unified Agriculture

Students enrolled in this one credit course will learn the basic agricultural life skills needed to assist them in gaining employability skills for an entry level position as well as applying the skills at home. This course will provide students with agricultural life skills from an Agri-Science teacher, a special education teacher and student peer mentors. Agri-Science students who benefit from additional support in the agricultural classroom & laboratory setting are encouraged to enroll. This course will be in place of Agri-Science I, II, III and IV.

**CCTC Career Ready Practices (CRP)** – encompasses fundamental skills and practices that all students should acquire to be career ready such as: responsibility, productivity, healthy choices, maintaining personal finances, communication, decision-making, creativity and innovation, critical-thinking, problem solving, integrity, ethical leadership, management, career planning, technology use and cultural/global competency.

**AFNR Cluster Skills (CS)** – encompasses the study of fundamental knowledge and skills related to all AFNR professions. Students completing a program of study in any AFNR career pathway will demonstrate fundamental knowledge of the nature, scope and relationships of AFNR systems and the skills necessary for analysis of current and historical issues and trends; application of technologies; safety, health and environmental practices; stewardship of natural resources; and exploration of career opportunities.

Students will develop a Supervised Agricultural Experience (SAE) with the assistance of the SAE advisors and classroom teachers. Students will have opportunities to further develop leadership skills through participation in the National FFA Organization. Students are encouraged to participate in FFA Career Development Events (CDEs) in order to further develop skills.

<b>Course Title</b>	<b>UNIFIED AGRICULTURE</b>
<b>Agriculture Pathway</b>	Agriculture, Food and Natural Resources Career Clusters
<b>Length of Course</b>	One credit
<b>Ledyard High School Vision of the Graduate</b>	Demonstrate an ability to communicate information clearly and effectively through a variety of media, including written, oral, visual, musical, and/or video productions Demonstrate critical thinking skills to find solutions, support arguments, and overcome challenges in a variety of content areas Demonstrate an ability to solve problems of varying complexity across a variety of content areas
<b>Course Overview</b>	Students enrolled in this course will learn the basic agricultural life skills to assist them in gaining employability skills for an entry level position as well as skills that will be helpful at home.
<b>Units of Study</b>	<ol style="list-style-type: none"> <li>1. Agricultural Business</li> <li>2. Horticulture</li> <li>3. Food Science</li> <li>4. Woodworking</li> <li>5. Lawn Care</li> <li>6. Animal Science</li> <li>7. Workplace Safety</li> <li>8. Natural Resources</li> <li>9. Aquaculture</li> <li>10. Supervised Agricultural Experience (SAE)</li> </ol>

<b>Unit 1</b>	Agricultural Business
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. How do agricultural businesses affect our daily lives?</li> <li>2. How can the agriculture industry meet the needs of the consumer?</li> </ol>

<b>Priority Standards Assessed in Learning</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>CRP.01.01.01.a. Define personal responsibility and distinguish how it applies in the workplace and community (e.g., make educated choices, listen and follow directions, ask for help when needed, meet expected standards, etc.)</p> <p>CRP.01.02.01.a. Classify the near- and long-term impacts of personal decisions on self and others (e.g., decisions involving health, relationships, money, perceptions, education, etc.)</p> <p>CRP.03.02.02.a. Examine and categorize personal financial practices (e.g., earning, spending, use of management tools, credit, etc.).</p> <p>CRP.08.02.01.a. Investigate and summarize potential tools and resources used to solve problems in the workplace and community.</p> <p>CRP.09.02.01.a. Identify and summarize personal management skills necessary to function effectively in the workplace (e.g., time management, planning, prioritizing, etc.).</p> <p>ABS.01.02.02.b. Prepare short-term, intermediate and long-term goals and objectives that are consistent with the statements of purpose for an AFNR business.</p> <p>ABS.02.01.03.a. Research and examine the implications of applicable laws and regulations related to recording, tracking and auditing AFNR business transactions (e.g., Generally Accepted Accounting Principles, data security, etc.).</p> <p>ABS.02.02.01.a. Compare and contrast the different types of financial reports (e.g., income statements, cash flow statements, equity statements, etc.) and their frequency of use (e.g., daily, weekly, monthly, quarterly, annual) for monitoring AFNR business performance.</p> <p>ABS.02.02.03.a. Define and classify different types of taxes that may be paid by AFNR businesses (e.g., income, property, sales, employment, estate, etc.).</p> <p>ABS.05.03.01.a. Identify and explain marketing principles used in AFNR businesses (e.g., 4 P's product, place, price, promotion; attention, interest, desire, action, etc.).</p>
<b>Common Core State Standards</b>	<p>WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience</p> <p>RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text</p>

<b>Supporting Standards</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	CRP.04.02.01.a. Research and summarize the purpose of different forms of written and visual communication in formal and informal settings (e.g., letters, emails, reports, social media, graphics, diagrams, etc.) CRP.06.03.01.a. Examine workplace and community situations to identify opportunities for improvement through the introduction of new ideas and innovations.
<b>Common Core State Standards</b>	SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task MP.4 Model with mathematics

<b>Learning Objectives</b>	<b>Activities</b>	<b>CT AFNR, NGSS, CCSS</b>
Assess the impact of agribusiness on the local and global economy	<ul style="list-style-type: none"> <li>● Research agriculture products from producer to market</li> <li>● List the steps that are involved in a decision making process</li> <li>● Develop short and long term goals for an agricultural enterprise</li> </ul>	CRP.01.01.01.a. CRP.01.02.01.a. ABS.01.02.02.b. WHST 11-12.4 RST.11-12.4 SL. 11-12.4
Identify the role of record keeping in making sound business decisions	<ul style="list-style-type: none"> <li>● Demonstrate skills used to comply with <a href="#">income tax</a> reporting</li> <li>● Identify ways to assist in planning and managing taxes</li> <li>● Identify cash receipts and expenditures</li> <li>● Calculate cash receipts and expenditures</li> </ul>	CRP.03.02.02.a. ABS.02.02.03.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4 MP.4
Recognize the impact of financial analysis on the management of an agribusiness	<ul style="list-style-type: none"> <li>● Differentiate between kinds of <a href="#">financial analysis</a> and the use of each</li> <li>● Describe the components of a net worth statement</li> <li>● Identify the components of a net farm income</li> <li>● Explain the role of budgets in the decision making process</li> <li>● Analyze the costs associated with agribusiness</li> <li>● Formulate a cash flow projection</li> </ul>	CRP.09.02.01.a ABS.02.01.03.a. ABS.02.02.01.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4 MP.4

	<ul style="list-style-type: none"> <li>Identify government regulations pertaining to agriculture/agribusiness</li> </ul>	
Differentiate between marketing concepts and strategies	<ul style="list-style-type: none"> <li>Identify marketing concepts</li> <li>List factors affecting supply and demand</li> <li>Research the effect of marketing strategies on income</li> <li>Create a marketing brand for an agricultural product</li> <li>Sell items in the School Ag Store</li> </ul>	CRP.08.02.01.a CRP.04.02.01.a. CRP.06.03.01.a. ABS.05.03.01.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4

<b>Unit 2</b>	Horticulture
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>How does the horticulture industry impact Connecticut agriculture?</li> <li>What careers can be obtained working in the horticulture industry?</li> </ol>

**Priority Standards Assessed in Learning**

<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	PS.01.02.01.a. Identify the major components of growing media and describe how growing media support plant growth PS.01.03.01.a. Describe the role of N, P, and K in regards to vegetative growth, root development, seed production, and plant stress PS.01.03.02.a. Identify the following from a label of a fertilizer container: percentage of N, P, and K, and calculate the actual amount of the nutrient(s) in the container PS.02.01.01.a. Identify and summarize systems used to classify plants based on specific characteristics PS.02.01.03.a. Explain the life cycle of annuals, biennials, and perennial plants PS.03.01.02.a. Demonstrate sowing techniques for providing favorable conditions to meet the factors of seed germination PS.03.02.02.a. List and summarize the reasons for preparing growing media before planting. PS.03.02.04.a. Observe and record environmental conditions during the germination, growth and development of a crop PS.03.02.05.a. Summarize the stages of plant growth and the reasons for controlling plant growth PS.03.03.01.a. Identify and categorize plant pests, diseases and disorders
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	<p>PS.04.01.02.b. Create a design utilizing plants in their proper environments</p> <p>PS.04.02.01.b. Demonstrate appropriate conditioning and storage of cut flowers</p> <p>PS.04.02.02.b. Apply principles and elements of design that form the basis of artistic impression</p> <p>PS.04.02.03.b. Demonstrate the use of tools used for creating designs</p> <p>CS.03.01.01.a. Research and explain the implications of regulatory, safety and health standards on AFNR systems (e.g., SDS, bioterrorism, etc.).</p> <p>CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.).</p>
<b>Common Core State Standards</b>	<p>WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience</p> <p>RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text</p>

<b>Supporting Standards</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>PS.03.04.03.a. Identify and summarize impacts of environmental conditions on plants</p> <p>PS.04.01.01.a. Identify and categorize plants by their purpose (e.g., floral plants, landscape plants, house plants, etc.)</p> <p>PS.05.02.01.a. Demonstrate effective methods to meet water requirements for healthy plant growth. Examine and explain how water pH influences plant growth. Research from multiple technical texts the function and operating principles of greenhouse irrigation systems (such as misting, drip, and overhead systems) to meet watering requirements for the purposes of maintaining optimum moisture level for a variety of plants</p>
<b>Common Core State Standards</b>	<p>SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task</p> <p>MP.4 Model with mathematics</p>

<b>Objectives</b>	<b>Activities</b>	<b>CT AFNR, NGSS, CCSS</b>
Apply knowledge of plant anatomy and functions of plant structures	<ul style="list-style-type: none"> <li>Identify plant parts and their functions</li> <li>Research the life cycle for annuals, biennials and perennials</li> <li>Transplant seedlings and mature plants using the appropriate containers and media</li> </ul>	<p>PS.01.02.01.a.</p> <p>PS.02.01.01.a.</p> <p>PS.02.01.03.a</p> <p>PS.03.01.02.a.</p>

	<ul style="list-style-type: none"> <li>● Transplant seedlings and plugs and label appropriately</li> <li>● Space potted plant to ensure full access to sun and allow for full lateral branch development</li> <li>● Identify insect pests common to greenhouse plants</li> <li>● Determine a course of action for preventing disease and insect infestation in the greenhouse without the use of chemicals</li> <li>● Track plant growth and compile data</li> </ul>	PS.03.02.02.a. PS.03.02.04.a PS.03.03.01.a. PS.04.01.01.a PS.05.02.01.a WHST 11-12.4 RST.11-12.4 SL. 11-12.4 MP.4
Interpret information provided on a Safety Data Sheet or chemical warning label and draw appropriate conclusions for safe handling, storage, and disposal	<ul style="list-style-type: none"> <li>● Work safely and efficiently in greenhouse, potting room, and in the lab when using fertilizers and soil test kits</li> <li>● Read and interpret an SDS sheet for a commonly used greenhouse chemical</li> </ul>	CS.03.01.01.a CS.03.04.01.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4
Demonstrate basic floral design techniques by creating floral designs in various styles	<ul style="list-style-type: none"> <li>● Create a bud vase, mug arrangement, and round mound arrangement</li> <li>● Demonstrate proper wiring and taping techniques for creating corsages and boutonnieres</li> <li>● Create a monochromatic arrangement, corsage, or boutonniere</li> <li>● Determine the wholesale and retail cost of the arrangements</li> </ul>	PS.04.01.02.b PS.04.02.01.b. PS.04.02.02.b. PS.04.02.03.b. SL. 11-12.4 MP.4
Determine soil quality based on soil test results and suggest appropriate amendments	<ul style="list-style-type: none"> <li>● Correctly sample soil to test for pH, N, P, K, and texture</li> <li>● Read and interpret a fertilizer label</li> <li>● Interpret soil test results in terms of nutrient content and make fertilizer recommendations</li> <li>● Develop a plan for protection and maintenance of healthy soil</li> <li>● Determine the soil texture class of a sample using the soil texture triangle</li> <li>● Identify, describe, and explain the importance of soil horizons</li> </ul>	PS.01.03.01.a. PS.01.03.02.a. PS.03.04.03.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4 MP.4



<b>Unit 3</b>	Food Science
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. What are the implications of foodborne illnesses?</li> <li>2. How can we maintain safe food surfaces before, during and after cooking?</li> </ol>

<b>Priority Standards Assessed in Learning</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>FPP.01.01.02.a. Research and categorize types of equipment used in food products and processing systems.</p> <p>FPP.01.02.01.a. Examine and identify contamination hazards associated with food products and processing (e.g., physical, chemical and biological).</p> <p>FPP.01.02.04.a. Describe the effects food-borne pathogens have on food products and humans.</p> <p>FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).</p> <p>FPP.02.01.02.a. Research and report methods of nutritional planning to meet essential needs for the human diet (e.g., MyPlate)</p> <p>FPP.02.02.02.a. Identify common food additives and identify their properties (e.g., preservatives, antioxidants, buffers, stabilizers, colors, flavors, etc.).</p> <p>FPP.02.03.01.a. Examine and explain the importance of food labeling to the consumer.</p> <p>FPP.03.01.04.a. Identify and describe foods derived from different classifications of food products (e.g., meat, egg, poultry, fish, dairy, fruits, vegetables, grains, legumes, oilseeds, etc.).</p> <p>FPP.03.02.04.a. Summarize types of materials and methods used in food packaging and presentation.</p> <p>FPP.03.03.02.a. Examine the various paths food products take to get from food processing centers to consumers.</p> <p>FPP.04.02.02.a. Identify and explain environmental and safety concerns about the food supply.</p>
<b>Common Core State Standards</b>	<p>WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience</p> <p>RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text</p>

<b>Supporting Standards</b>
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<b>Connecticut</b>	FPP.01.02.02.a. Research and summarize procedures of safe handling protocols (e.g., Hazard Analysis and Critical Control
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<b>Agriculture, Food, and Natural Resources Standards</b>	Points Plan (HACCP); Critical Control Point procedures (CCP); Good Agricultural Practices Plan (GAP), etc.). FPP.01.02.03.a. Research and summarize the purposes and objectives of quality assurance tests on food products (e.g., produce safety regulation, safe food transport, food contaminants, etc.). FPP.03.02.01.a. Identify and explain English and metric measurements used in the food products and processing industry
<b>Common Core State Standards</b>	SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task MP.4 Model with mathematics

<b>Objectives</b>	<b>Activities</b>	<b>CT AFNR, NGSS, CCSS</b>
Outline the guidelines for safe handling of food and raw materials.	<ul style="list-style-type: none"> <li>● Categorize <a href="#">food borne pathogens</a> as causing food infection or food intoxication</li> <li>● Examine and identify contamination hazards</li> <li>● Describe the effects food-borne pathogens have on food products and humans</li> <li>● Complete the requirements to earn the <a href="#">ServSafe certification</a></li> </ul>	FPP.01.02.01.a FPP.01.02.02.a FPP.01.02.03.a FPP.01.02.04.a WHST 11-12.4 RST.11-12.4 SL. 11-12.4
Apply methods of food preservation (i.e. - freezing, drying, fermenting, pickling, etc.)	<ul style="list-style-type: none"> <li>● Make butter, yogurt, ice cream, mozzarella, pickles</li> <li>● <a href="#">Dehydrate fruit</a></li> <li>● Make (dried meat) jerky</li> <li>● Cook eggs, meat and vegetables</li> <li>● Identify methods used in <a href="#">food packaging</a></li> </ul>	FPP.01.03.01.a FPP.02.03.01.a FPP.03.01.04.a FPP.03.02.01.a FPP.03.02.04.a RST.11-12.4 SL. 11-12.4 MP.4
Research, categorize and use food science equipment	<ul style="list-style-type: none"> <li>● Safely and properly maintain and <a href="#">sanitize food science equipment</a> according to manufacturer specifications</li> <li>● Use, organize and store food science equipment</li> <li>● Determine the cost of food science equipment</li> </ul>	FPP.01.01.02.a WHST 11-12.4 RST.11-12.4 SL. 11-12.4 MP.4
Analyze the properties of food products	<ul style="list-style-type: none"> <li>● Research and summarize properties of <a href="#">common food</a></li> </ul>	FPP.02.01.02.a.

	<p><a href="#">constituents</a> (6 basic nutrients)</p> <ul style="list-style-type: none"> <li>• Compare and contrast the food product qualities (taste, appearance, etc)</li> <li>• Conduct experiments to determine the chemical and physical properties of food products</li> <li>• Identify <a href="#">common food additives</a> and discuss how they influence our food choices</li> <li>• Explain the path that food products take to get to the consumer</li> </ul>	<p>FPP.02.02.02.a.  FPP.03.03.02.a.  FPP.04.02.02.a  WHST 11-12.4  RST.11-12.4  SL. 11-12.4</p>
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<b>Unit 4</b>	Woodworking
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. What skills and knowledge is needed for a career working in construction?</li> <li>2. What safety hazards are associated with woodworking and how do you remain safe?</li> </ol>

**Priority Standards Assessed in Learning**

<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>PST.01.02.02.a. Identify and explain the uses of the following woodworking tools used in agricultural construction: circular saw, drill press, jig/sabre saw, reciprocating saw, table saw, orbital sander, belt sander, router, portable drill, and miter saw</p> <p>PST.01.02.03.a. Examine owner’s manuals to classify the types of safety hazards associated with different mechanical systems used in AFNR (e.g., caution, warning, danger, etc.)</p> <p>PST.02.01.01.a. Maintain the cleanliness and appearance of equipment, machinery and power units used in AFNR power, structural and technical systems to assure proper functionality</p> <p>PST.02.02.02.a. Examine and identify safety hazards associated with equipment, machinery and power units used in AFNR power, structural, and technical systems (e.g., caution, warning, danger, etc.)</p> <p>CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.).</p> <p>CS.03.04.03.a. Read and interpret operating instructions related to operation, storage and maintenance of tools and equipment related AFNR tasks.</p>
<b>Common Core State Standards</b>	<p>RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text</p> <p>MP.4 Model with mathematics</p>

<b>Supporting Standards</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	PST.01.02.01.a Compare and contrast applications of simple machines in AFNR related mechanical systems PST.04.03.03.a. Compare and contrast the characteristics of wood and/or metal products used in AFNR structures CS.03.01.01.a. Research and explain the implications of regulatory, safety and health standards on AFNR systems (e.g., SDS, bioterrorism, etc.). CS.03.04.02.a. Identify standard tools, equipment and safety procedures related to AFNR tasks.
<b>Common Core State Standards</b>	SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience

Objectives	Activities	CT AFNR, NGSS, CCSS
Work safely and efficiently in an agricultural shop environment.	<ul style="list-style-type: none"> <li>● Maintain a clean and safe shop environment</li> <li>● Identify the chemical, safety, physical and biological hazards in the shop</li> <li>● Demonstrate procedures for maintaining a safe shop such as cleaning equipment and surroundings to prevent accidents</li> </ul>	PST.02.01.01.a PST.02.02.02.a. SL. 11-12.4
Apply knowledge of project planning principles to agricultural construction projects.	<ul style="list-style-type: none"> <li>● Design, select materials and construct a small wooden project</li> <li>● Wear appropriate personal protective equipment (PPE) while working</li> <li>● Select and use the appropriate tools/machinery to construct a project</li> <li>● Develop a <a href="#">bill of materials</a> and cost estimate for a small wooden project</li> </ul>	PST.01.02.01.a PST.01.02.02.a. PST.04.03.03.a. CS.03.04.01.a. CS.03.04.02.a. RST.11-12.4 MP.4 SL. 11-12.4 WHST 11-12.4

Paint or protect with coatings.	<ul style="list-style-type: none"> <li>● Identify and describe the differences among various types of finishes and solvents</li> <li>● Use manufacturer’s information to estimate the amount of a coating required to cover a structure</li> <li>● Read and interpret Safety Data Sheets (SDS) for the types of stain, paint or varnish</li> <li>● Apply <a href="#">stain</a>, <a href="#">paint</a> or varnish to a wooden project</li> <li>● Clean equipment/tools used to apply paint or varnish</li> </ul>	PST.01.02.03.a. PST.02.01.01.a CS.03.01.01.a CS.03.04.03.a. RST.11-12.4 MP.4 SL. 11-12.4 WHST 11-12.4
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<b>Unit 5</b>	Lawn Care
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. When is the best time to use a weedwacker when caring for a lawn?</li> <li>2. What safety controls are set on lawn equipment to prevent injuries?</li> </ol>

<b>Priority Standards Assessed in Learning</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	PS.06.01.01.a. Select and safely use the following hand tools and equipment in the landscape industry: garden rake, leaf rake, shovel, spade, hand shears, loppers, rotary spreader, and drop spreader PS.08.01.01.a. List the benefits that turf provides individuals and the environment PS.09.01.01.a. Make a list of steps in order to prepare a site for establishing a lawn PS.09.01.02.a. Identify various methods of planting turf grass seed PS.10.03.01.a. Explain the need to mow, aerate and thatch control lawns PST.02.01.01.a. Maintain the cleanliness and appearance of equipment, machinery and power units used in AFNR power, structural and technical systems to assure proper functionality PST.02.02.02.a. Examine and identify safety hazards associated with equipment, machinery and power units used in AFNR power, structural, and technical systems (e.g., caution, warning, danger, etc.) PST.03.01.03.a. Compare and contrast two-stroke and four stroke engines CS.03.01.01.a. Research and explain the implications of regulatory, safety and health standards on AFNR systems (e.g., SDS, bioterrorism, etc.). CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.).
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<b>Common Core State Standards</b>	WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text
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<b>Supporting Standards</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	PS.09.01.03.a. List the advantages for using sod vs planting seeds when establishing a lawn PS.10.01.01.a. Identify irrigation methods for lawns CS.03.04.02.a. Identify standard tools, equipment and safety procedures related to AFNR tasks. CS.03.04.03.a. Read and interpret operating instructions related to operation, storage and maintenance of tools and equipment related AFNR tasks.
<b>Common Core State Standards</b>	SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task MP.4 Model with mathematics

<b>Objectives</b>	<b>Activities</b>	<b>CT AFNR, NGSS, CCSS</b>
Work safely and efficiently with small lawn equipment.	<ul style="list-style-type: none"> <li>Maintain a clean and safe environment</li> <li>Demonstrate procedures for maintaining a safe working area to eliminate safety hazards and injuries</li> <li>Describe the causes, symptoms and appropriate response to CO exposure (<a href="#">Preventing Carbon Monoxide Poisoning from Small Gasoline-Powered Engines &amp; Tools (96-118)   NIOSH   CDC</a>) <a href="#">Carbon Monoxide Poisoning: Garages (AEN-207) - Department of Agricultural and Biosystems Engineering</a></li> <li>Read and interpret Safety Data Sheets (SDS) for lawn equipment</li> </ul>	PST.02.01.01.a PST.02.02.02.a CS.03.01.01.a. CS.03.04.03.a WHST 11-12.4 RST.11-12.4 SL. 11-12.4
Explain the operation of internal combustion	<ul style="list-style-type: none"> <li>Describe each step in the diesel, 2-stroke and 4-stroke cycles</li> </ul>	PST.03.01.03.a

<p>engines, differentiating between diesel, 4-stroke spark and 2-stroke spark ignition engines.</p>	<p>(<a href="http://animatedengines.com">animatedengines.com</a>, Example: <a href="#">4-stroke cycle events</a>)</p> <ul style="list-style-type: none"> <li>● Identify the components of small engines and describe their functions (Example: <a href="#">Parts Catalog Graphic Organizer</a>)</li> <li>● Mount an engine on an appropriate base, evaluate it for compression, spark and presence of fuel and lubricant. Start the engine and adjust it for smooth operation.</li> </ul>	<p>CS.03.04.02.a. CS.03.04.03.a WHST 11-12.4 RST.11-12.4 SL. 11-12.4</p>
<p>Demonstrate procedures for establishing and maintaining turf.</p>	<ul style="list-style-type: none"> <li>● Determine the best type of grass mixture for a specific purpose</li> <li>● Prepare land, seed and maintain turf</li> <li>● Demonstrate the <a href="#">proper procedures for cutting a lawn</a> with a push or rider mower.</li> <li>● Apply lime or fertilizer to turf.</li> <li>● Wear personal protective equipment (PPE) while working</li> </ul>	<p>PS.06.01.01.a. PS.08.01.01.a PS.09.01.01.a PS.09.01.02.a. CS.03.04.01.a. CS.03.04.03.a RST.11-12.4 SL. 11-12.4 MP.4</p>
<p>Demonstrate procedures for gardening, pruning trees and ornamental shrubs.</p>	<ul style="list-style-type: none"> <li>● Identify the various reasons for pruning</li> <li>● Discriminate between pruning and shearing and describe when each would be used</li> <li>● Demonstrate proper pruning techniques on landscape trees and shrubs</li> <li>● Demonstrate how to weed and maintain a garden</li> <li>● Complete the requirements for the Greenius certification</li> </ul>	<p>PS.06.01.01.a. PS.10.03.01.a CS.03.04.02.a. CS.03.04.03.a WHST 11-12.4 RST.11-12.4 SL. 11-12.4</p>

<b>Unit 6</b>	Animal Science
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. How do you properly care for a variety of animal species?</li> <li>2. What animal careers are available for an entry level position?</li> </ol>

<b>Priority Standards Assessed in Learning</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>AS.01.01.01.a. Identify and summarize the origin, significance, distribution and domestication of different animal species.</p> <p>AS.01.02.03.a. Summarize the types, purposes, and characteristics of effective record keeping and documentation practices for animal systems enterprises (e.g., managing records for animal identification, feeding, breeding, treatment, income/expense, etc.).</p> <p>AS.02.01.01.a. Explain the implications of animal welfare and animal rights for animal systems.</p> <p>AS.02.01.04.a. Identify domestic livestock and companion animal behaviors and list safety procedures for working with those species</p> <p>AS.02.01.05.a. Define biosecurity in relation to domestic livestock, poultry, and companion animals</p> <p>AS.03.01.02.a. Differentiate between nutritional needs of animal species.</p> <p>AS.03.03.02.a. Examine and summarize the meaning of various components of feed labels and feeding directions.</p> <p>AS.05.01.01.a. Differentiate between the types of facilities needed to house and produce animal species safely and efficiently</p> <p>AS.05.01.03.a. Recognize illnesses and disorders based on symptoms and problems caused by disease, parasites, and disorders among companion, lab and/or domestic animals</p> <p>AS.06.01.03.a. Identify and summarize common classification terms utilized in animal systems (e.g., external and internal body parts, maturity, mature male, immature female, animal products, breeds, etc.).</p> <p>AS.07.01.03.a. List and summarize the characteristics of wounds, common diseases, parasites and physiological disorders that affect animals.</p> <p>AS.07.02.02.a. Identify and describe zoonotic diseases including their historical significance and potential future implications</p> <p>CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.).</p>
<b>Common Core State Standards</b>	<p>WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience</p> <p>RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text</p>



## Supporting Standards

<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>AS.01.01.02.a. Research and summarize major components of animal systems (e.g., livestock, poultry, companion animals, etc.).</p> <p>AS.01.03.01.a. Distinguish between the types of laws pertaining to animal systems.</p> <p>AS.02.02.03.a. Identify and describe animal tracking systems used in animal systems (e.g., livestock, poultry, companion animal, exotics, etc.).</p> <p>AS.04.02.04.a. Identify and summarize different needs of breeding animals based on their growth stages (e.g., newborn, parturition, gestation, gestation lengths, etc.).</p>
<b>Common Core State Standards</b>	<p>SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task</p> <p>MP.4 Model with mathematics</p>

Objectives	Activities	CT AFNR, NGSS, CCSS
Utilize proper animal handling skills such as using appropriate equipment, humanely leading the animal and wearing appropriate footwear/clothing.	<ul style="list-style-type: none"> <li>● Demonstrate <a href="#">safe handling</a> skills with small animals and livestock</li> <li>● Select the appropriate <a href="#">animal restraint</a> when leading an animal outside or removing an animal from a cage</li> <li>● <a href="#">Observe</a> and interpret animal behaviors</li> </ul>	<p>AS.02.01.04.a.</p> <p>AS.02.02.03.a</p> <p>CS.03.04.01.a.</p> <p>WHST 11-12.4</p> <p>RST.11-12.4</p> <p>SL. 11-12.4</p>
Distinguish between optimal living conditions for a variety of animal species.	<ul style="list-style-type: none"> <li>● Research the origin and domestication of an animal species and discuss the difference in living conditions</li> <li>● Distinguish between animal welfare and animal rights as they pertain to their living conditions</li> <li>● Create an appropriate stall or cage for school animals.</li> <li>● Clean animal stalls, cages and pastures as needed.</li> <li>● Maintain <a href="#">biosecurity</a> with the school animals</li> </ul>	<p>AS.01.01.01.a</p> <p>AS.01.03.01.a</p> <p>AS.02.01.01.a.</p> <p>AS.02.01.05.a</p> <p>AS.02.01.05.a.</p> <p>AS.05.01.01.a</p> <p>CS.03.04.01.a.</p> <p>WHST 11-12.4</p> <p>RST.11-12.4</p> <p>SL. 11-12.4</p>

<p>Demonstrate proper feeding and watering of school animals.</p>	<ul style="list-style-type: none"> <li>● <a href="#">Feed and water</a> school animals according to the feed chart</li> <li>● Calculate feed costs and nutritional requirements</li> <li>● Describe and evaluate the ruminant, nonruminant and cecal fermenter digestive tracts</li> <li>● Evaluate a <a href="#">feed label</a> for its effectiveness and use</li> <li>● Identify and describe the <a href="#">six basic food nutrients</a> including the composition and their function.</li> </ul>	<p>AS.01.02.03.a  AS.03.01.02.a  AS.03.03.02.a.  AS.04.02.04.a  CS.03.04.01.a.  WHST 11-12.4  RST.11-12.4  SL. 11-12.4  MP.4</p>
<p>Demonstrate knowledge of the anatomy and physiology of animals</p>	<ul style="list-style-type: none"> <li>● Describe the functions of the animal body systems and system components</li> <li>● Recognize the indicators of <a href="#">health and disease in animals</a></li> <li>● Research <a href="#">common zoonotic diseases</a> and list the ways to prevent contracting a disease</li> <li>● Outline and explain the <a href="#">emergency action steps</a> for animal emergencies</li> <li>● Assess animal health through a physical examination.</li> </ul>	<p>AS.01.01.02.a.  AS.01.02.03.a  AS.05.01.03.a.  AS.06.01.03.a.  AS.07.01.03.a  AS.07.02.02.a.  CS.03.04.01.a.  WHST 11-12.4  RST.11-12.4  SL. 11-12.4  MP.4</p>

<b>Unit 7</b>	Workplace Safety
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. What are the implications of unsafe working conditions?</li> <li>2. What are the required personal protective equipment needed for working in the agricultural industry?</li> </ol>

<b>Priority Standards Assessed in Learning</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>CS.03.01.01.a. Research and explain the implications of regulatory, safety and health standards on AFNR systems (e.g., SDS, bioterrorism, etc.).</p> <p>CS.03.01.02.a. Summarize the importance of safety, health and environmental management in the workplace.</p> <p>CS.03.03.02.a. Identify emergency response procedures for health and safety issues at AFNR workplaces</p> <p>CS.03.03.03.a. Examine and categorize examples of how to avoid health or safety risks in AFNR workplaces</p> <p>CS.03.03.04.a. Examine and categorize the risk level of contamination or injury as associated with AFNR tasks in the workplace.</p> <p>CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.)</p> <p>CS.03.04.02.a. Identify standard tools, equipment and safety procedures related to AFNR tasks.</p> <p>CS.03.04.03.a. Read and interpret operating instructions related to operation, storage and maintenance of tools and equipment related AFNR tasks</p> <p>CS.05.01.01.c. Evaluate progress toward AFNR career goals and identify opportunities for improvement and necessary adjustments to one's plan of action.</p>
<b>Common Core State Standards</b>	<p>WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience</p> <p>RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text</p>

<b>Supporting Standards</b>
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<b>Connecticut Agriculture, Food, and</b>	<p>CS.03.02.02.a. Examine and categorize examples of environmental compliance plans from AFNR workplace</p> <p>CS.05.02.02.a. Research and describe careers in each of the AFNR pathways and choose potential careers connecting to</p>
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<b>Natural Resources Standards</b>	<p>personal interests and skills.</p> <p>CRP.09.01.01.a. Identify and summarize the characteristics of ethical and effective leaders in workplace and community settings.</p> <p>CRP.09.02.01.a. Identify and summarize personal management skills necessary to function effectively in the workplace (e.g., time management, planning, prioritizing, etc.).</p>
<b>Common Core State Standards</b>	<p>SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task</p>

<b>Objectives</b>	<b>Activities</b>	<b>CT AFNR, NGSS, CCSS</b>
Identify workplace hazards	<ul style="list-style-type: none"> <li>● <a href="#">Identify safety hazards, chemical hazards, biological hazards and zoonotic hazards in an agricultural workplace</a></li> <li>● Discuss how to control hazards on the job to promote a safe workplace</li> <li>● <a href="#">Read a workplace scenario</a> and discuss the steps necessary to avoid a workplace emergency</li> </ul>	<p>CS.03.01.01.a.            CS.03.01.02.a.            CS.03.02.02.a.            CS.03.03.03.a.            CS.03.04.01.a.            WHST 11-12.4            RST.11-12.4            SL. 11-12.4</p>
Identify the government agencies that enforce labor and job safety laws	<ul style="list-style-type: none"> <li>● Read and discuss the <a href="#">Child Labor Laws</a> and how they apply to high school workers</li> <li>● Read given workplace scenarios and categorize them as ethical or unethical behaviors</li> <li>● Read the <a href="#">OSHA regulations</a> for safety, health and the environment for the workplace</li> <li>● Discuss the importance of worker’s compensation and how to obtain the insurance</li> <li>● Compare and contrast OSHA regulations and the Child Labor Laws</li> </ul>	<p>CS.03.01.01.a.            CS.03.04.01.a.            CRP.09.01.01.a.            CRP.09.02.01.a.            WHST 11-12.4            RST.11-12.4            SL. 11-12.4</p>
Interpret a Safety Data Sheet	<ul style="list-style-type: none"> <li>● <a href="#">Read a Safety Data Sheet (SDS)</a> and discuss how to work safely around/with the chemical</li> <li>● Discuss the importance of each section of an SDS and how it</li> </ul>	<p>CS.03.01.01.a.            CS.03.01.02.a.            CS.03.02.02.a.</p>

	<p>applies to their health and safety</p> <ul style="list-style-type: none"> <li>• Locate the signal words and determine the level of toxicity</li> <li>• Explain how to properly dispose of the chemical container and how to manage a spill</li> <li>• Locate and explain first aid procedures while handling the product</li> </ul>	<p>CS.03.03.02.a          CS.03.03.03.a          CS.03.03.04.a.          WHST 11-12.4          RST.11-12.4          SL. 11-12.4</p>
Earn the OSHA 10 Certification	<ul style="list-style-type: none"> <li>• Complete the requirements to obtain the <a href="#">OSHA 10 certification</a></li> </ul>	<p>CS.03.04.01.a.          CS.03.04.02.a.          CS.03.04.03.a.          CS.05.01.01.c.          CS.05.02.02.a.          WHST 11-12.4          RST.11-12.4          SL. 11-12.4</p>

<b>Unit 8</b>	Natural Resources
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. Why is it important to understand natural resources in Connecticut?</li> <li>2. What impact does Connecticut natural resources have on the agricultural industry?</li> </ol>

**Priority Standards Assessed in Learning**

<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>NRS.01.01.01.a. Summarize and classify the different kinds of natural resources using common classification schemes (e.g., living versus nonliving, renewable versus nonrenewable, native versus introduced, etc.).</p> <p>NRS.01.01.02.a. Summarize the components that comprise all ecosystems</p> <p>NRS.01.01.03.a. Summarize and classify different kinds of living species based on evolutionary traits.</p> <p>NRS.01.02.01.a. Explain the purpose of classifying organisms and using dichotomous keys.</p> <p>NRS.01.02.02.a. Research and examine the characteristics used to identify trees and woody plants</p> <p>NRS.01.02.03.a. Research and examine the characteristics used to identify herbaceous plants</p> <p>NRS.01.02.04.a. Research and examine the characteristics used to identify wildlife and insects</p> <p>NRS.01.03.02.a. Research and summarize how climate factors influence natural resource systems</p> <p>NRS.01.05.02.a. Compare and contrast the impact of habitat disturbances and habitat resilience</p>
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	NRS.02.01.01.a. Distinguish between the types of laws associated with natural resources systems.
<b>Common Core State Standards</b>	WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text

<b>Supporting Standards</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	NRS.01.02.05.a. Research and examine the characteristics used to identify aquatic species NRS.01.04.01.a. Summarize the roles and properties of watersheds NRS.01.05.03.a. Compare and contrast techniques associated with sustainable forestry (e.g., timber stand improvement, diversity improvement, reforestation, etc.)
<b>Common Core State Standards</b>	SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task MP.4 Model with mathematics

<b>Objectives</b>	<b>Activities</b>	<b>CT AFNR, NGSS, CCSS</b>
Demonstrate forestry biometric skills	<ul style="list-style-type: none"> <li>Measure height and diameter to <a href="#">determine tree volume</a> of a standing tree</li> <li>Utilize <a href="#">standard volume table</a> to determine volume of measured trees</li> <li>Research <a href="#">careers</a> as a forestry biometrician and explain the job description and skills necessary</li> </ul>	NRS.01.02.01.a NRS.01.02.02.a. NRS.01.05.02.a. NRS.01.05.03.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4 MP.4
Describe the interrelationships of biotic and abiotic components within ecosystems	<ul style="list-style-type: none"> <li>Compare and contrast softwood and hardwood including the types of trees yielding them</li> <li>Describe basic food requirements of common wildlife</li> <li>Compare and contrast carnivores, herbivores and omnivores</li> </ul>	NRS.01.01.01.a. NRS.01.01.02.a. NRS.01.01.03.a. NRS.01.02.01.a

	<ul style="list-style-type: none"> <li>• Compare and contrast ruminant and nonruminants</li> <li>• Compare and contrast generalists and specialists</li> <li>• Identify various sources of food for wild animals in Connecticut</li> <li>• Research a Connecticut mammal and explain the taxonomy, range, habitat, territory, cover, food, and water needs, and identifying tracks and scat</li> </ul>	<p>NRS.01.02.02.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4</p>
<p>Explain the importance of environmental stewardship</p>	<ul style="list-style-type: none"> <li>• Research and select a Southeastern CT environmental concern and discuss a possible solution</li> <li>• Participate in an environmental project to protect and sustain our environment in Southeastern CT</li> <li>• Describe the role of habitat destruction on wildlife populations</li> <li>• Plan and execute a wildlife habitat improvement project - <a href="#">birdhouses</a>, plantings, feeding</li> </ul>	<p>NRS.01.02.04.a. NRS.01.02.05.a. NRS.01.03.02.a. NRS.01.04.01.a. NRS.01.05.02.a. NRS.02.01.01.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4</p>
<p>Identify and differentiate five native Connecticut tree species by fruit, flower, leaf, bark and bud</p>	<ul style="list-style-type: none"> <li>• Research common Connecticut trees</li> <li>• <a href="#">Identify tree species</a> while on a hike</li> <li>• Complete in-the-field notes on five native trees including leaf, bark and flower/cone</li> <li>• Identify and remove <a href="#">invasive species</a> around the school (oriental bittersweet, japanese knotweed)</li> <li>• Study the impact of <a href="#">emerald ash borer</a> on the ash trees here on campus</li> </ul>	<p>NRS.01.01.02.a. NRS.01.02.01.a NRS.01.02.02.a. NRS.01.02.03.a. NRS.01.02.05.a. WHST 11-12.4 RST.11-12.4 SL. 11-12.4</p>

<b>Unit 9</b>	Aquaculture
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. How does the aquaculture industry impact Connecticut agriculture?</li> <li>2. What is the best method for maintaining a fish tank?</li> </ol>

<b>Priority Standards Assessed in Learning</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>AQ.01.01.01.a. Identify and summarize the origin, significance, distribution and commercial importance of different aquatic species</p> <p>AQ.01.01.02.a. List and describe how the following species are detrimental to aquaculture production: sea stars, oyster drills, zebra mussels, lice, parasitic copepods, and worms</p> <p>AQ.01.01.03.a. Research and summarize major components of aquaculture (e.g., oyster farming, and commercial kelp beds, etc.)</p> <p>AQ.01.02.01.a. Identify and categorize terms and methods related to aquaculture production (e.g., sustainable, conventional, humanely raised, natural, organic, etc.)</p> <p>AQ.02.01.01.a. Explain the implications of animal welfare and animal rights for aquaculture production</p> <p>AQ.03.01.02.a. Classify species of aquatic organisms as fresh water, marine, or diadromous, and by their genus and species</p> <p>AQ.04.01.01.a. Identify the following external morphological features of a finfish: dorsal, pectoral, pelvic, anal, caudal and adipose fins, lateral line, and operculum</p> <p>AQ.04.02.01.a. Identify ways aquatic species' health can be affected by anatomical and physiological disorders</p> <p>AQ.04.02.03.a. Describe the life cycle of aquaculture species</p> <p>AQ.04.02.04.a. Evaluate an aquatic animal against its optimal anatomical and physiological characteristics</p> <p>AQ.05.01.02.a. Identify common diseases, parasites and physiological disorders that affect aquatic species</p> <p>AQ.05.02.01.a. Explain the importance of biosecurity to the aquaculture industry</p> <p>AQ.08.01.05.a. Identify and describe how the following environmental factors impact aquaculture production: temperature, salinity, ammonia, nitrate, nitrite, dissolve oxygen, and pH</p> <p>AQ.11.01.01.a. Compare and contrast common types of feedstuffs and the roles they play in the diets of aquatic animals and their proper storage</p> <p>AQ.11.01.03.a. Describe free access feeding with demand feeders, versus schedule feeding by hand or automatic feeder</p> <p>AQ.14.01.02.a. Distinguish between freshwater, saltwater, and brackish water</p> <p>AQ.14.03.03.a. Explain the importance of water temperature in aquaculture systems</p> <p>CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.).</p>
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<b>Common Core State Standards</b>	WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text
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<b>Supporting Standards</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	AQ.01.03.01.a. Distinguish between the types of laws pertaining to aquaculture systems AQ.02.01.02.a. Research and summarize the challenges involved in working with aquatic animals and resources available to overcome them (e.g., tools, technology, equipment, facilities, animal behavior signals, etc.) AQ.06.01.02.a. Explain how age, size, life cycle, maturity level and health status affect the reproductive efficiency of male and female aquatic animals AQ.07.01.01.a. List and describe various hatchery systems; ponds, raceways, tanks, etc
<b>Common Core State Standards</b>	SL. 11-12.4 Present information findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task MP.4 Model with mathematics

Learning Objectives	Activities	CT AFNR, NGSS, CCSS
Demonstrate the proper care, maintenance and the role of aquatic species has on the environment	<ul style="list-style-type: none"> <li>● Identify and describe the role and uses of aquaculture production species</li> <li>● Identify common <a href="#">aquaculture species</a> by their common and scientific name</li> <li>● Explain the life stages of production fish based on size, weight, and age</li> <li>● Weigh, track and graph the fish weights</li> <li>● Determine feed amounts per day based on crop size.</li> <li>● Discuss environmentally responsible methods for production aquaculture</li> </ul>	AQ.01.01.01.a. AQ.01.01.03.a. AQ.01.02.01.a. AQ.04.02.03.a. AQ.06.01.02.a AQ.11.01.01.a AQ.11.01.03.a WHST 11-12.4 RST.11-12.4 SL. 11-12.4 MP.4

<p>Safely and accurately test and analyze various water parameters using water tests and visual inspection to determine water quality and the impact on fish health</p>	<ul style="list-style-type: none"> <li>• Safely perform water tests according to instructions and classroom guidelines</li> <li>• Sample and test water parameters such as Ammonia, Nitrite, pH, and Dissolved Oxygen using water test kits</li> <li>• Track and record specific chemical levels based on water test results</li> <li>• Describe and draw the Nitrogen cycle and discuss the role it plays in <a href="#">biological filtration</a></li> <li>• Observe fish for signs of ill health and record the results</li> </ul>	<p>AQ.02.01.01.a  AQ.04.02.04.a  AQ.07.01.01.a  AQ.08.01.05.a  AQ.14.01.02.a  AQ.14.03.03.a  WHST 11-12.4  RST.11-12.4  SL. 11-12.4  MP.4</p>
<p>Demonstrate the proper care and sanitation of aquaculture equipment</p>	<ul style="list-style-type: none"> <li>• Safely use aquaculture equipment using appropriate personal protective equipment (PPE)</li> <li>• Demonstrate safe practices in the lab and classroom while working with equipment, tools and production systems</li> <li>• Discuss the importance of biosecurity and adhere to the safety guidelines</li> </ul>	<p>AQ.01.01.02.a  AQ.01.03.01.a  AQ.02.01.02.a  AQ.05.02.01.a  CS.03.04.01.a  WHST 11-12.4  RST.11-12.4  SL. 11-12.4</p>
<p>Demonstrate knowledge of the anatomy and physiology of finfish</p>	<ul style="list-style-type: none"> <li>• Label the <a href="#">external anatomy</a> of a finfish</li> <li>• Define the external anatomical functions of a finfish</li> <li>• Use differences in morphological features of finfish to identify and differentiate among species</li> <li>• Identify common diseases and discuss the ways to treat and prevent the diseases</li> <li>• Demonstrate proper and safe handling techniques of finfish</li> </ul>	<p>AQ.03.01.02.a.  AQ.04.01.01.a  AQ.04.02.01.a.  AQ.05.01.02.a.  WHST 11-12.4  RST.11-12.4  SL. 11-12.4</p>

<b>Unit 10</b>	Supervised Agricultural Experience (SAE)
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. What is an SAE and why is it important?</li> <li>2. What are the benefits of gaining employability skills for career growth?</li> </ol>

<b>Priority Standards Assessed in Learning</b>
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<b>Connecticut Agriculture, Food, and Natural Resources Standards</b>	<p>CRP.03.02.01.a. Research and examine components in a personal financial management plan (e.g., income, expense, budgeting, savings, credit, etc.).</p> <p>CRP.08.02.02.b. Apply decision-making processes to generate possible solutions to solve workplace and community problems.</p> <p>CRP.09.02.01.a. Identify and summarize personal management skills necessary to function effectively in the workplace (e.g., time management, planning, prioritizing, etc.).</p> <p>CRP.09.03.02.c. Model respectful and purposeful behaviors that contribute to positive morale and culture in the workplace and community (e.g., effectively communicating, recognizing accomplishments of others, etc.).</p> <p>CRP.10.01.02.c. Match potential career opportunities in career clusters with personal interests, talents, goals and preferences.</p> <p>CRP.10.02.02.a. Identify methods for setting goals for personal improvement and continuous growth in a career area (e.g., SMART goals, training, professional development, etc.).</p> <p>CRP.10.03.02.a. Identify trusted individuals to consult with on setting and achieving career and personal goals (e.g., counselors, teachers, mentors, coaches, community leaders, etc.).</p> <p>CRP.13.03.01.c. Apply for a chapter, state and national proficiency award that corresponds with an SAE program.</p> <p>CS.03.01.02.a. Summarize the importance of safety, health and environmental management in the workplace.</p> <p>CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.).</p> <p>CS.03.04.02.a. Identify standard tools, equipment and safety procedures related to AFNR tasks.</p> <p>CS.03.04.03.a. Read and interpret operating instructions related to operation, storage and maintenance of tools and equipment related AFNR tasks.</p> <p>CS.05.01.03.a. Research and summarize specific tools (e.g., resumes, portfolios, cover letters, etc.) and processes (e.g., interviews, applications, etc.) needed to pursue a career in an AFNR pathway.</p>
<b>Common Core State Standards</b>	WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience

	<p>SL.11-12.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.</p> <p>MP4 Model with mathematics</p>
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<b>Supporting Standards</b>
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<p><b>Connecticut Agriculture, Food, and Natural Resources Standards</b></p>	<p>CRP.01.01.02.a. Distinguish personal levels of responsibility, which can be applied in the workplace and community.</p> <p>CRP.04.02.01.a. Research and summarize the purpose of different forms of written and visual communication in formal and informal settings (e.g., letters, emails, reports, social media, graphics, diagrams, etc.).</p> <p>CRP.10.02.01.a. Categorize career advancement requirements for potential careers (e.g., degrees, certification, training, etc.).</p> <p>CRP.10.03.01.a. Summarize ways that input and/or advice from career area experts could assist in planning personal career goals.</p> <p>CS.03.03.04.c. Create a plan to mitigate the level of contamination or injury identified as a risk in the workplace.</p> <p>CS.05.01.01.b. Create a personal plan outlining goals and steps to obtain a career in an AFNR pathway.</p> <p>ABS.02.02.01.a. Compare and contrast the different types of financial reports (e.g., income statements, cash flow statements, equity statements, etc.) and their frequency of use (e.g., daily, weekly, monthly, quarterly, annual) for monitoring AFNR business performance.</p>
<p><b>Common Core State Standards</b></p>	<p>RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text.</p> <p>MP6 Attend to precision</p>

<b>Learning Objectives</b>	<b>Activities</b>	<b>CT AFNR, NGSS, CCSS</b>
Identify local agricultural work experiences	<ul style="list-style-type: none"> <li>• Research and identify local 501(c)3 non profit organizations</li> <li>• Locate local agricultural businesses</li> <li>• Determine qualifications needed for employment</li> <li>• Call to inquire about an agricultural position</li> </ul>	<p>CRP.04.02.01.a.</p> <p>CRP.10.02.01.a.</p> <p>CRP.10.03.02.a.</p> <p>SL.11-12.4</p> <p>RST.11-12.4</p>
Develop an appropriate SAE work experience	<ul style="list-style-type: none"> <li>• Identify agricultural interests</li> <li>• Develop work experience activities/projects in line with career goals</li> </ul>	<p>CRP.10.01.02.c.</p> <p>CRP.10.02.02.a.</p> <p>CS.03.03.04.c.</p>

	<ul style="list-style-type: none"> <li>• Write <a href="#">SMART goals for SAE</a> growth and improvement</li> <li>• Obtain approval from parents/guardians and SAE advisor</li> <li>• <a href="#">Meet with SAE advisor</a> during the school year and at least once during the summer</li> </ul>	WHST.11-12.4 RST.11-12.4 SL.11-12.4
Complete appropriate work experience forms utilizing AFNR standards	<ul style="list-style-type: none"> <li>• Identify key skills necessary to complete the Structured Work-Based Learning Form</li> <li>• Complete appropriate <a href="#">CT Departments of Labor and Education forms</a> for student <a href="#">work experience</a></li> </ul>	CS.03.01.02.a. WHST.11-12.4 RST.11-12.4
Develop and maintain SAE records	<ul style="list-style-type: none"> <li>• Document time spent in SAE &amp; FFA activities, skills learned, income, and expenses</li> <li>• Utilize online record keeping program (<a href="#">AET</a>) to document records</li> <li>• Provide evidence of work using photographs, videos, and journals</li> </ul>	CRP.03.02.01.a. CRP.09.02.01.a. ABS.02.02.01.a. RST.11-12.4 WHST.11-12.4 MP4
Apply for SAE and FFA awards	<ul style="list-style-type: none"> <li>• Research <a href="#">SAE and FFA awards</a> applicable to SAE experiences</li> <li>• Calculate SAE hours worked, income and expenses</li> <li>• Complete local, state, and national degree and award applications as applicable</li> </ul>	CRP.13.03.01.c. RST.11-12.4 WHST.11-12.4 MP6
Demonstrate effective and appropriate agricultural employability skills	<ul style="list-style-type: none"> <li>• Work safely and effectively in an SAE experience</li> <li>• Select and use appropriate PPE for SAE experiences</li> <li>• Report broken, chipped or cracked PPE to manager</li> <li>• Select and use appropriate tools and equipment for SAE experiences according to manufacturer's directions</li> <li>• Model listening and problem solving skills and professionalism</li> </ul>	CRP.01.01.02.a. CRP.08.02.02.b. CRP.09.03.02.c. CS.03.04.01.a. CS.03.04.02.a. CS.03.04.03.a. WHST.11-12.4 RST.11-12.4 SL.11-12.4
Demonstrate improvement and growth in career skills	<ul style="list-style-type: none"> <li>• Provide evidence of work using photographs, videos, and journals</li> <li>• Write an annual summary of activities</li> <li>• Create quarterly and yearly SAE goals to grow or improve SAE experience</li> <li>• Share SAE experiences to educate others about additional</li> </ul>	CRP.08.02.02.b. CRP.09.03.02.c. CRP.10.03.01.a. CS.05.01.01.b. WHST.11-12.4 RST.11-12.4

	options for SAE projects	SL.11-12.4
Complete job application documents	<ul style="list-style-type: none"> <li>● Research agricultural job openings</li> <li>● Create a cover letter and a resume</li> <li>● Complete a <a href="#">job application</a></li> <li>● Participate in a <a href="#">mock job</a> interview</li> </ul>	CRP.09.03.02.c. CRP.10.03.01.a. CS.05.01.03.a. WHST.11-12.4 RST.11-12.4 SL.11-12.4

**Vocabulary:**  
The vocabulary will vary among each unit

**Assessments:**  
[Daily performance check](#)  
Industry certification assessments  
[SAE Rubric](#)

**Connections to College/Career Readiness:**  
[OSHA 10 certification](#)  
[ServSafe certification](#)  
[Kennel Maintenance certification](#)  
[Greenius certification](#)  
[Junior Master Gardener](#)

**Resources/Materials:**  
ServSafe Curriculum  
OSHA 10 Curriculum  
[Ag Mags from Farm Bureau](#)  
Variety of materials & supplies for each agricultural unit