
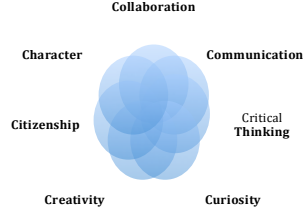


	Course: Agriscience 2 Horse Management	Grade Level: 10
	R14 The Seven Cs of Learning 	
Unit Titles	Length of Unit	
• <i>Equine Health and Wellness</i>	4 - 6 weeks	
• <i>Nutrition and Feeding Practices</i>	4 - 6 weeks	
• <i>Safety and Handling Horses</i>	3- 5 weeks	
• <i>Identification of the Horse</i>	3 - 5 weeks	



Strands	Course Level Expectations
Skills	<ul style="list-style-type: none">• Horse handling and care, identification, management practices
Inquiry	<ul style="list-style-type: none">• Determine why and how to use the information for the well being of the horse.
Safety	<ul style="list-style-type: none">• Safe handling of horse, behavior patterns of horses, safe use of equipment
Maintenance	<ul style="list-style-type: none">• Management practices that are essential to the daily care of the horse.
Careers	<ul style="list-style-type: none">• Explore various equine related careers

Unit Title	Equine Health and Wellness	Length of Unit	4 - 6 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How can I tell when my horse is sick? • Why is it important to keep our horses healthy?
Standards*	<p>Animal Systems (AS):</p> <p>AS.02.02.06.b: Research and evaluate programs to assure the safety of animal products for consumption. AS.03.01.01.b: Differentiate between nutritional needs of animals in different growth stages and production systems (e.g., maintenance, gestation, natural, organic, etc.). , AS.03.01.02.a: Differentiate between nutritional needs of animal species. , AS.03.01.03.b: Utilize tools and equipment to perform animal nutrition tasks.</p>
Unit Strands & Concepts	Vital signs, systemic conditions, decision making, research, Skills, inquiry, safety, maintenance, careers
Key Vocabulary	Vitality, internal parasites, diseases, systemic, stethoscope, thermometer, wellness, chiropractor, veterinarian, dentist, farrier,

* The agriculture, food and natural resources (AFNR) industry standards

Unit Title	Equine Health and Wellness	Length of Unit	6 -8 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • the characteristics of a healthy horse • the normal vital signs of the horse • how to protect the horse against diseases through vaccination • how to prevent systemic conditions • common equine internal parasites • careers in equine health 	<ul style="list-style-type: none"> • perform vital signs check on a live horse • develop a barn chart for normal vital signs • research common infectious and systemic diseases and conditions of the horse • develop a vaccine schedule for a horse • draw/explain the life cycles of internal parasites • explore equine health careers

Assessments:	<ul style="list-style-type: none"> • Formatives - Disease Research, Parasite Life Cycles • Performance - Vital signs lab, Disease Presentation
Teacher Resources:	<ul style="list-style-type: none"> ❖ Equine Science, Jean T. Griffiths, Equine Network, 2008 ❖ Various industry sources

Unit Title	Nutrition and Feeding Practices	Length of Unit	4 - 6 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What do horses eat that is different from other animals? • How does nutrition contribute to the horse's well being? 		
Standards	<p>Animal Systems (AS):</p> <p>AS.03.02.01.b. Determine the relative nutritional value of feedstuffs by evaluating their general quality and condition.</p> <p>AS.03.03.01.b. Utilize tools and equipment to perform animal nutrition tasks.</p> <p>AS.03.03.02.b. Analyze and apply information from a feed label and feeding directions to feed animals.</p> <p>AS.03.02.01.c. for animals based on a variety of factors (e.g., economics, digestive system and nutritional needs, etc.).</p>		
Unit Strands & Concepts	The Structure of a Digestive Tract, Various Feedstuffs, Digesting, essential nutrients, managing, evaluating		
Key Vocabulary	Digestion, absorption, digestive tract, roughages, concentrates, supplements, management practices		

Unit Title	Nutrition and Feeding Practices	Length of Unit	4 - 6 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> the structures of the equine digestive tract the different feedstuffs that horses need best management practices for feeding horses careers in nutrition 	<ul style="list-style-type: none"> make a model of the equine digestive tract identify common concentrates evaluate roughages select supplements for a specific need identify nutrition guidelines for horses explore nutrition related careers

Assessments:	<ul style="list-style-type: none"> Performance Assessment- Hay judging, grains study guide, supplement selection, feeding practices
Teacher Resources:	❖ Equine Science, Jean T. Griffiths, Equine Network, 2008

Unit Title	Safety and Handling Horses	Length of Unit	3 -5 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How can I stay safe when working around horses? • How are prey species different from predators? • How can I develop a relationship with a horse?
Standards	<p>Animal Science (AS):</p> <p>AS.06.01.01.c. Assess taxonomic characteristics and classify animals according to the taxonomic classification system.</p> <p>AS.07.01.02.c. Determine when an animal health concern needs to be referred to an animal health professional.</p> <p>AS.07.01.01.c. Select and use tools and technology to meet specific animal health management goals.</p>
Unit Strands & Concepts	<p>Safety, inquiry, maintenance, skills, careers</p> <p>Hands on skills, identifying, maintaining, relationship</p>
Key Vocabulary	<p>Quick release knot, prey species, predator species, blind zones, western tack and bits, English tack and bits, pleasure driving harness</p>

Unit Title	Safety and Handling Horses	Length of Unit	3 -5 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • blind zones and behavior patterns of horses • grooming tools and their uses • parts of tack, equipment and bits • how to tack up a horse for riding or driving 	<ul style="list-style-type: none"> • safely tie a horse • identify parts of saddles, bridles, bits, harness • tack up horse for riding/driving • demonstrate grooming techniques • practice safety in handling horses

Assessments:	<ul style="list-style-type: none"> • Performance based - grooming “contest”, clean and maintain tack, visit a tack shop
Teacher Resources:	<ul style="list-style-type: none"> ❖ Equine Science, Jean T. Griffiths, Equine Network, 2008


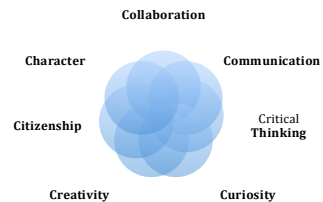
Unit Title	Identification of the Horse	Length of Unit	3 - 5 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How can I tell the difference between breeds of equines? • Why are there so many breeds of equines? • How can I use the parts of the horse's body to help with identification?
Standards	<p>Animal Systems (AS):</p> <p>AS.01.01.01.b. Evaluate and describe characteristics of animals that developed in re- to their domestication.</p> <p>AS.01.01.02.a. Research and summarize major components of animal systems (e.g., livestock, companion animal, etc.).</p>
Unit Strands & Concepts	Inquiry, skill sets, careers, decision making, evaluating, research, identifying
Vocabulary	Light, draft, pony, warmblood, points of the horse, basic coat colors, variations of coat colors, leg and face markings, external anatomy

Unit Title	Identification of the Horse	Length of Unit	3 - 5 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • parts of the external anatomy of the horse • how to tell the difference between coat colors • common leg and face marking • different breeds of equines (draft, light, pony and warmblood) • how to evaluate basic aspects of conformation 	<ul style="list-style-type: none"> • identify the external anatomy of a horse • recognize different coat colors and markings • identify many breeds of equines • evaluate the conformation of the horse

Assessments:	<ul style="list-style-type: none"> • Interim - unit content, breed project • Performance - identification of external anatomy, field trip to see coat colors, markings, breed presentation
Teacher Resources:	❖ Equine Science, Jean T. Griffiths, Equine Network, 2008

Content Area Agriscience	Course: Aquaculture	Grade Level: 10
	R14 The Seven Cs of Learning 	
Unit Titles	Length of Unit	
• <i>Industry Overview</i>	2-3 Weeks	
• <i>Introduction to Aquatic Ecosystems</i>	2-3 Weeks	
• <i>Types of Aquatic Organisms</i>	4-6 Weeks	
• <i>Water Chemistry</i>	4-6 Weeks	
• <i>Aquaponics</i>	3-5 Weeks	
• <i>Careers</i>	1-2 Weeks	



Strands	Course Level Expectations
Maintenance and Safety	Students will be responsible for managing the greenhouses where they will use basic woodworking, plumbing, and hand tools. In addition, students need to come physically prepared to perform fieldwork in all weather conditions. They will manage the greenhouse in hot conditions, monitor fish systems where they will get wet and dirty, manage aquariums in the classroom, and walk through the woods and Nonnewaug River.
Water	Water management is a constant throughout this course. Knowing how to manage water parameters will ensure aquatic species health and production, as well as maximize crop yields
Aquatic Biology	Aquatic species are a key component of this course. Understanding their anatomy and physiology will help in their management and preservation.
Food Production	Ultimately the goal of aquaculture is to produce food. Knowing what types of facilities, their operating components, and environmental concepts can help students pursue careers in aquaculture and fisheries.

Unit Title	Industry Overview	Length of Unit	2-3 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What is aquaculture's role in agriculture worldwide? • What types of facilities are used to raise fish?
Standards*	<p>Aquaponics (AQ):</p> <p>AQ.01. Examine the components, historical development, global implications and future trends of the aquaculture industry.</p> <p>AQ.01.01. Evaluate the development and implications of aquatic species origin, domestication and distribution.</p> <p>AQ.05.01.01.a. Compare and contrast common types of feedstuffs and the roles they play in the diets of aquatic animals.</p> <p>AQ.01.01.03 Identify and describe aquaculture intensive and extensive enhancement strategies</p>
Unit Strands & Concepts	Intensive vs. Extensive Aquaculture, growth and importance of aquaculture industry, fish compared to terrestrial livestock
Key Vocabulary	Recirculating aquaculture systems, raceways, grow-out facility, nursery, broodstock

* CT State Agricultural Science and Technology Education Standards

Unit Title	Industry Overview	Length of Unit	2-3 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • the importance of the aquaculture industry and its development as related to agriculture • the types of facilities in which aquatic organisms are raised • terminology and trends related to the global aquaculture industry • important components of fish feeds 	<ul style="list-style-type: none"> • describe the difference between extensive and intensive aquaculture • describe why aquaculture is the fastest growing area of agriculture • calculate feed ratios • describe optimal living conditions for various fish growouts

Assessments:	<ul style="list-style-type: none"> • Formative assessment on Aquaculture Industry • Unit Test
Teacher Resources:	❖ Various Primary Resources

Unit Title	Introduction to Aquatic Ecosystems	Length of Unit	2-3 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What are the components of aquatic ecosystems? • What are common fish species in the freshwater aquaculture and fisheries industries? • How can benthic macroinvertebrates be used to evaluate stream health?
Standards	<p>Aquaponics (AQ):</p> <p>CT-AQ.08.02.01.a. Identify optimal environmental conditions for aquatic species.</p> <p>ESS.03.03.02.a. Examine and summarize how chemistry affects water quality and function (e.g., oxygen saturation, pH, biomagnification, etc.).</p> <p>CT-AQ.01.01.01.a. Identify the origin, significance, distribution and commercial importance of aquatic species.</p>
Unit Strands & Concepts	Stream Studies, Aquatic Food Chain, Energy Transfer in Aquatic Ecosystems
Key Vocabulary	Phytoplankton, zooplankton, nekton, benthic macroinvertebrates, riffle, dichotomous key

Unit Title	Introduction to Aquatic Ecosystems	Length of Unit	2-3 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • factors that influence the population of organisms in watersheds • preferential habitats for important aquatic species • why benthic macroinvertebrates are important to ecosystems 	<ul style="list-style-type: none"> • use a dichotomous key to identify aquatic organisms • identify which benthic macroinvertebrates are indicative of healthy watersheds • describe the components of aquatic ecosystems and how they affect one another

Assessments:	<ul style="list-style-type: none"> • Formative assessment on Aquatic Biology vocabulary • Performance assessments • Unit Test
Teacher Resources:	<ul style="list-style-type: none"> ❖ Various Primary Resources ❖ Parker, Rick. <u>Aquaculture Science</u>. 2nd Edition. Delmar Publishers Inc. 2002

Unit Title	Types of Aquatic Organisms	Length of Unit	4-6 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How do we maintain and harvest fish? • What are the anatomies of finfish and shellfish? • What evolutionary adaptations do fish utilize? • How are fish anatomies related to habitat? 		
Standards	<p>Aquaponics (AQ):</p> <p>CT-AQ.03.01.01.a. Identify the following external morphological features of a finfish: dorsal, pectoral, pelvic, anal, caudal and adipose fins, lateral line, and operculum.</p> <p>CT-AQ.03.01.01.b. Identify the following external morphologic features of a crustacean: carapace, abdomen, walking legs, and claws.</p> <p>CT-AQ.02.02.01.a. Identify morphological features of finfish and shellfish.</p> <p>CT-AQ.03.01.01.c. Explain how the components and systems of aquatic species anatomy and physiology relate to the production and use of aquatic species.</p> <p>CT-AQ.02.01.02.a Identify major aquatic species by common and scientific names.</p>		
Unit Strands & Concepts	Aquatic anatomy and physiology, fish species, classification of fish		
Key Vocabulary	Finfish, shellfish, crustacean		

Unit Title	Types of Aquatic Organisms	Length of Unit	4-6
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • how fishes' body type relate to their habitat • internal and external features of finfish and shellfish and their functions geographic areas where common fish species are native 	<ul style="list-style-type: none"> • identify external and internal features of finfish and shellfish • describe the functions of internal and external parts of finfish and shellfish • identify common species of finfish on site

Assessments:	<ul style="list-style-type: none"> • Formative assessment on Fish Anatomy • Quiz on shellfish anatomy • Unit Test on Aquatic Organisms
Teacher Resources:	❖ Various Primary Resources

Unit Title	Water Chemistry	Length of Unit	4-6 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How does water chemistry affect aquaculture production? • What parameters can be measured in water? • How can water quality parameters be manipulated? • How do we maintain and use the aquaculture systems at Nonnewaug? 		
Standards	Aquaponics (AQ): AQ.03. Provide for the proper health care of aquatic species. AQ.03.01. Prescribe and implement a prevention and treatment program for aquatic species diseases, parasites and other disorders. AQ.08. Analyze environmental factors associated with aquaculture. AQ.08.01.: Reduce the effects of aquaculture on the environment.		
Unit Strands & Concepts	Nitrogen Cycle, effects of aquatic plants and carbon dioxide, pH interactions, effects of total dissolved solids in water, dissolved gases in water		
Key Vocabulary	Ammonia, Nitrite, Nitrate, Nitrification, oxidation, ammonification, anaerobic, turbidity, alkalinity, hardness		

Unit Title	Water Chemistry	Length of Unit	4-6 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • each water quality parameter that must be measured in aquaculture • interactions between each water quality parameter • ideal levels for each water quality parameter • why aquatic solutions change chemically 	<ul style="list-style-type: none"> • perform water quality test using industry test kits and tools • discuss the importance of oxygen in water quality management • describe the importance of nitrogen compounds in water quality management

Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Unit Test • Performance Assessment
Teacher Resources:	❖ Various Primary and Industry Resources

Unit Title	Aquaponics	Length of Unit	3-5 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How can aquaponics be used as a method of sustainable food production? • What important management factors apply to aquaculture and hydroponics? • What types of equipment are used in aquaponics compared with aquaculture? 		
Standards	<p>Aquaponics (AQ):</p> <p>AQ.07.03.03.a Identify and describe the following parts of a recirculating aquaculture system (RAS): tank, sump or reservoir, pump, solid waste filter, U/V sterilizer, heat exchanger, bio-filter, and aeration.</p> <p>AQ.07.03.03.b. Explain the basic electrical, plumbing and mechanical components of aquaponic systems. ESS.03.03.02.a. Examine and summarize how chemistry affects water quality and function (e.g., oxygen saturation, pH, biomagnification, etc.).</p> <p>AQ.12.01.05.b. Explain how aquaponics can be utilized to enhance sustainable aquaculture practices by reducing water consumption and waste production</p>		
Unit Strands & Concepts	Aquaculture and hydroponics, sustainability, grow beds and media, build your own system		
Vocabulary	Sustainability, anaerobic zone, mineralization, degassing, deep water culture, media beds, nutrient film technique		

Unit Title	Aquaponics	Length of Unit	3-5 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> ways to grow beds and tools principles of crop production and fish health components of recirculating aquaculture systems the definition of sustainable agriculture 	<ul style="list-style-type: none"> design and construct individual aquaponic systems identify and maintain optimum water quality conditions for fish and plant production explain how aquaponics can be used to address global food shortages troubleshoot and maintain recirculating aquaculture systems troubleshoot and maintain hydroponic systems



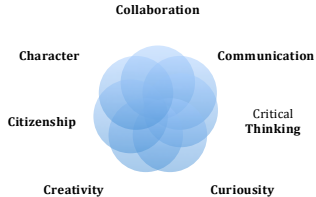
Assessments:	<ul style="list-style-type: none"> Formative Assessments Performance Assessment Unit Test
Teacher Resources:	❖ Various Primary Resources

Unit Title	Careers	Length of Unit	1-2 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What types of careers are available in aquaculture and sustainability? • What types of educational options are available to pursue careers in aquaculture and sustainability? 		
Standards	Animal Systems (AS): AS.02.01.02.a. Research and summarize the challenges involved in working with animals and resources available to overcome them (e.g., tools, technology, equipment, facilities, animal behavior signals, etc.). AS.05.02.01.a. Identify and summarize the general standards that must be met in facilities for animal production (e.g., environmental, zoning, etc.)		
Unit Strands & Concepts	Career multimedia presentation, Career Pathways, educational options, graduate research		
Vocabulary	Aquaculture, Sustainability, Associate's degree, Bachelor's degree, Master's Degree, Ph.D		

Unit Title	Careers	Length of Unit	1-2 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • what types of degrees are required to attain certain employment • what pathways they can choose in the fields of aquaculture and sustainability • jobs available regionally in the United States and world 	<ul style="list-style-type: none"> • create a multimedia presentation describing the field they choose • describe the kinds of jobs in the United States and world related to aquaculture

Assessments:	<ul style="list-style-type: none"> • Career Presentation
Teacher Resources:	❖ Various Primary Resources

Content Area	Ag Engineering Grade 10
 	<p>R14 The Seven Cs of Learning</p> 
Unit Titles	Length of Unit
<ul style="list-style-type: none"> • <i>Shop Safety and Precision Measurement</i> 	2-4 weeks
<ul style="list-style-type: none"> • <i>Outdoor Construction</i> 	2-4 weeks
<ul style="list-style-type: none"> • <i>Machinery Maintenance and Operation</i> 	1-2 Weeks
<ul style="list-style-type: none"> • <i>Small Engines</i> 	2-4 weeks
<ul style="list-style-type: none"> • <i>Introduction to Welding</i> 	2-4 weeks
<ul style="list-style-type: none"> • <i>Ag Electrical Utilities</i> 	2-4 weeks



Strands	Course Level Expectations
Maintenance and Safety	Design, operate and maintain mechanical equipment, structures, biological systems, land treatment, power and technology
Measurement	Precise and accurate measurement allows students to carefully calculate clearances and distances to increase efficiency and performance of agricultural machines.
Planning and Fabrication	Creating sketches and plans provides direction, minimizes the amount of waste produced and the formation of building materials needed to complete the desired product. Engineering and efficiency of a product saves increased the function of a product with lowing cost over time.
Construction	Mathematical applications are used to calculate dimensions that will accurately construct an agricultural structure that will possess stability and architectural strength. Creating sketches and plans provides direction, minimizes the amount of waste produced and the formation of building materials needed to complete the desired product.

Unit Title	<i>Shop Safety and Precision Measurement</i>	Length of Unit	2-4 weeks
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Inquiry Questions (Engaging & Debatable)	<ol style="list-style-type: none"> 1. Why is shop maintenance and organization important? 2. How does precision measurement relate to engine mechanics?
Standards	<p>Power, Structural and Technical Systems Standards (PST):</p> <p>PST.01 Use physical science principles and engineering applications with power, structural and technical systems to solve problems and improve performance.</p> <p>PST.01.0 Apply physical science laws and principles to identify, classify, and use lubricants.</p> <p>PST: Identify and use hand and power tools and equipment for service, construction and fabrication.</p>
Unit Strands & Concepts	Reviewing Shop Rules, Reviewing Safety Precautions, Shop Maintenance, Facility Review and Repair Organization and reasoning, shop rules, identification processes, local, state and federal regulations, Land measurement, precision measurement
Key Vocabulary	Caliper, Hypotenuse, Area, Vernier scale, micrometer , Tap, Die, Bolt length, Thread length, Body length, Fine thread coarse thread, Root, Crest, Thread count, Torque

Unit Title	<i>Shop Safety Precision Measurement</i>	Length of Unit	1-2 weeks
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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • why is shop maintenance and organization important? • how does precision measurement relate to engine mechanics? 	<ul style="list-style-type: none"> • explain shop rules and safety precautions to another. • conduct a facility review and shop tour • identification of equipment and tools essential to task. • organize and cleaning of shop equipment and facility • operate a micrometer • measure to 1/1000 of an inch • tap and die a threaded hole for a particular bolt.

Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Unit Test: Terminology, content knowledge, diagrams, measurement. • Performance Assessment – Tap and Die Project
Teacher Resources:	❖ Various Primary and Industry Resources

Unit Title	Outdoor Construction	Length of Unit	2-4 weeks
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Inquiry Questions (Engaging Debatable):	<ul style="list-style-type: none"> • How can mathematical principles be applied to construction? • Why is leveling and squaring important to building layout?
Standards	<p>Power, Structural and Technical Systems Standards (PST):</p> <p>PST.01. Use physical science principles and engineering applications with power, structural and technical systems to solve problems and improve performance.</p> <p>PST.01.02. Identify and use hand and power tools and equipment for service, construction and fabrication.</p> <p>PST.02. Design, operate and maintain mechanical equipment, structures, biological systems, land treatment, power and technology.</p> <p>PST.02.02. Operate, service and diagnose the condition of power units and equipment.</p> <p>PST.04. Follow architectural and mechanical plans to construct agricultural buildings and facilities.</p> <p>PST.04.02. Apply structural plans, specifications and building codes.</p>
Unit Strands and Concepts	surveying, height of instrument, assessing performance, determining distance and slope, construction layout, construction codes
Vocabulary	Transit, survey staff, batter-board, plumb bob, acre, leveling, squaring, benchmark, kerf

Unit Title	Outdoor Construction	Length of Unit	2-4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> ways to identify survey equipment and functions how to create an accurate data log mathematical theories for leveling and squaring mathematical principles for determining area 	<ul style="list-style-type: none"> maintain and repair tools used in agriculture mechanics ensure the presence and function of safety systems and hardware on tools and equipment. understand agricultural plans/drawings and measure accurately. identify and operation basic land surveying equipment calculate area of a triangle, quadrilateral, and circle complete a building state-out based on both Pythagorean Theorem and by using a transit install batter-boards on a foundation state-out

Assessments:	<ul style="list-style-type: none"> Formative and Interim Assessments Unit Test: Terminology, content knowledge, diagrams, measurement. Performance Assessment: Batterboard Project
Teacher Resources:	<ul style="list-style-type: none"> ❖ Various Primary and Industry Resources

Unit Title	Machinery Maintenance and Operation	Length of Unit	1-2 weeks
Inquiry Questions (Engaging Debatable):	<ul style="list-style-type: none"> • Why is preventative maintenance important? 		
Standards	<p>Power, Structural and Technical Systems Standards (PST):</p> <p>PST.01- Use physical science principles and engineering applications with power, structural and technical systems to solve problems and improve performance.</p> <p>PST.01.0 Apply physical science laws and principles to identify, classify, and use lubricants.</p> <p>PST.02. Design, operate and maintain mechanical equipment, structures, biological systems, land treatment, power and technology.</p> <p>PST.02.01. Perform service routines to maintain power units and equipment</p> <p>PST.02.02. Operate service and diagnose the condition of power units and equipment.</p>		
Unit Strands and Concepts	Engine design, winterization, lubrication, preventative		
Key Vocabulary	Radiator, Coolant, Hydraulic oil, Engine oil, Drain plug, Load tester, SMV, Zerk, Pre-operational Check, Voltage meter, Tachometer		

Unit Title	Machinery Maintenance and Operation	Length of Unit	1-2 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • classify lubricants by source, sustainability and equipment compatibility. • classify lubricants by SAE viscosity and API service classifications. • identify and schedule power unit and equipment lubrication. 	<ul style="list-style-type: none"> • operate and maintain agricultural machinery and power systems • use operator/service/technical manuals utilized in agriculture mechanics • ensure the presence and function of safety systems and hardware on tools and equipment. • complete 100 hours preventative maintenance on a tractor

Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Performance Assessment: 100- hour Factory Preventive Maintenance Check Sheet
Teacher Resources:	❖ Various Primary and Industry Resources

Unit Title	Small Engine	Length of Unit	2-4 weeks
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Inquiry Questions (Engaging Debatable):	<ul style="list-style-type: none"> Why is four-stroke theory important to understanding preventative maintenance?
Standards	<p>Power, Structural and Technical Systems Standards (PST):</p> <p>PST.01. Use physical science principles and engineering applications with power, structural and technical systems to solve problems and improve performance.</p> <p>PST.01.0. Apply physical science laws and principles to identify, classify, and use lubricants.</p> <p>PST.01.02. Identify and use hand and power tools and equipment for service, construction and fabrication.</p> <p>Design, operate and maintain mechanical equipment, structures, biological systems, land treatment, power and technology. PST.02.02. Operate service and diagnose the condition of power units and equipment.</p> <p>PST.03. Service and repair agricultural, mechanical equipment and power systems.</p> <p>PST.03.01. Troubleshoot and repair internal combustion engines.</p>
Strands and Concepts	Engine theory, measurement precision, machine efficiency
Key Vocabulary	Carburetor, Fuel Tank, Governor, Compression, Air Filter, Valves, Piston & Rings, Crankshaft & Connecting Rod, Muffler, Ignition, Coil/Armature, Spark Plug, Cam-Shaft, Shut-Off Switch(s), Crankcase, Oil, Oil Filter, Flywheel Fan, Cooling Fins, Torque, Lapping

Unit Title	Small Engine	Length of Unit	2-4 weeks
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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • classify lubricants by source, sustainability and equipment compatibility. • classify lubricants by SAE viscosity and API service classifications. • Identify and explain the appropriate use of tools used in agriculture mechanics • use operator/service/technical manuals utilized in agriculture mechanics • explain the safe operation of agricultural tractors and related agricultural equipment • identify components and systems of internal combustion engines. 	<ul style="list-style-type: none"> • utilize technical manuals and computer-based diagnostics in engine analysis and repair. • operate and maintain agricultural machinery and power systems • maintain and repair tools used in agriculture mechanics

Assessments:	<ul style="list-style-type: none"> • Unit Test: Terminology, content knowledge, diagrams, measurement. • Performance Assessment: Small Engine Disassembly (rubric)
Teacher Resources:	❖ Various Primary and Industry Resources

Unit Title	Introduction to Welding	Length of Unit	2-4 weeks
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Inquiry Questions (Engaging Debatable):	<ol style="list-style-type: none"> 1. How is understanding safe protocol important when using welding equipment? 2. How does understanding of individual welding processes increase welding technique?
Standards	<p>Power, Structural and Technical Systems Standards (PST):</p> <p>PST.01. Use physical science principles and engineering applications with power, structural and technical systems to solve problems and improve performance.</p> <p>PST.01.02. Identify and use hand and power tools and equipment for service, construction and fabrication.</p> <p>PST.02. Design, operate and maintain mechanical equipment, structures, biological systems, land treatment, power and technology.</p> <p>PST.02.02. Operate service and diagnose the condition of power units and equipment.</p> <p>PST.05. Welding</p> <p>PST.05.01. Follow agricultural and mechanical plans to construct and/or repair equipment, buildings and facilities.</p>
Unit Strands and Concepts	Properties of metal, fabrication, oxygen/acetylene gas welding, Stick welding, wire feed welding
Key Vocabulary	Melting point, Molten puddle, Fusion, Gas Shield, Inner cone, Neutral flame, Oxygenizing flame, Reducing, Flame, GMAW, FCAW, Acetylene, Arc length, Electrode, Flux, AC/DC

Unit Title	<i>Introduction to Welding</i>	Length of Unit	2-4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> maintain and repair tools used in agriculture mechanics assess the performance of self and/or peers in use of hand and power tools to safely and efficiently service, construct and fabricate quality products. identify kinds and characteristics of metal materials. understand welding procedures for ferrous metals 	<ul style="list-style-type: none"> perform basic welding strategies with Oxygen/ Acetylene torches perform basic Arc (stick) welding methods we a variety of welding rods perform basic FCAW and GMAW Arc (wire-feed) welding


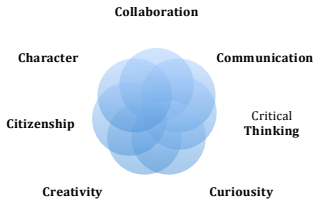
Assessments:	<ul style="list-style-type: none"> Summative: Final Submission of Proficiency Application. Grades with the National FFA rubric Performance Assessment: Welding Project (rubric)
Teacher Resources:	❖ Various Primary and Industry Resources

Unit Title	Ag Electrical Utilities	Length of Unit	2-4 weeks
Inquiry Questions (Engaging Debatable):	<ol style="list-style-type: none"> 1. Why is safety during electrical work important? 2. Why is it important to read and understand electrical diagrams? 3. Why should you be able to quantify electricity? 		
Strands and Standards	<p>Power, Structural and Technical Systems Standards (PST):</p> <p>PST.01. Use physical science principles and engineering applications with power, structural and technical systems to solve problems and improve performance. PST.01.02. Identify and use hand and power tools and equipment for service, construction and fabrication. PST.02. Design, operate and maintain mechanical equipment, structures, biological systems, land treatment, power and technology. PST.02.02. Operate service and diagnose the condition of power units and equipment. Service and repair agricultural mechanical equipment and power systems. PST.03.04. Install maintains and troubleshoots agricultural electrical systems. PST.04. Follow architectural and mechanical plans to construct agricultural buildings and facilities. PST.04.01. Create sketches and plans of agricultural structures. PST.04.02. Apply structural plans, specifications and building codes. PST.04.03. Examine structural requirements for materials and procedures and estimate construction cost. PST.04.04. Follow architectural and mechanical plans to construct and/or repair equipment, buildings and facilities.</p>		
Strands and Concepts	Electrical theory, wiring, building codes, Types of equipment		
Vocabulary	Voltage, Amperage, Electrical potential, Watt, Ohm, AC- Alternate Current, DC- Direct Current, NM- Non-metallic "Romex", UF- underground feed, MC- metallic cable- armored cable, load		

Unit Title	<i>Ag Electrical Utilities</i>	Length of Unit	5-7 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> maintain and repair tools used in agriculture mechanics operate and maintain agricultural machinery and power systems identify the kinds and applications of electricity, including direct and alternating current. identify basic electrical motor specifications based on the manufacturer's tag. 	<ul style="list-style-type: none"> apply the meaning and measurement of electricity, including amperage, voltage and wattage. interpret electrical system symbols and diagrams. wire and series of electrical switches

Assessments:	<ul style="list-style-type: none"> Unit Test: Terminology, content knowledge, diagrams, measurement. Performance Assessment: Demonstration of ability in vertical and overhead welding Performance Assessment: Wiring Board Project (Rubric)
Teacher Resources:	❖ Various Primary and Industry Resources

Content Area: Agriscience	Sophomore Greenhouse Plant Production	Grade Level: 10
		<p>R14 The Seven Cs of Learning</p> 
Unit Titles		Length of Unit
● <i>Career Exploration</i>		2-3 weeks
● <i>Greenhouse Crop Production</i>		3-4 weeks
● <i>Pest Management</i>		3-4 weeks
● <i>Floral Design</i>		3-4 weeks
● <i>Interior Landscaping</i>		2-3 weeks



Strands	Course Level Expectations
Careers in the Floriculture Industry	We need to know career opportunities and the characteristics and requirements for each in order to plan for smooth and successful transition into the selected career. That includes the skills needed, educational requirements, salary, working environment, etc...
Plant Production and Management	Having an understanding of how water, light, temperature and air affect plant growth is important to produce a healthy plant.
Designing with plants and flowers	Knowing certain design principles and elements of will help to create aesthetically pleasing and functional landscape and floral designs.
Pest Management	Pests have to be managed in order to reduce damage to plants and facilities that can cause a decrease in the aesthetic and monetary value.

Unit Title	Career Exploration	Length of Unit	2-3 Weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> What types of careers are available to me? 		
Standards	<p>Pathway Content Standard: The student will demonstrate competence in the application of leadership, personal growth and career success skills necessary for a chosen profession while effectively contributing to society.</p> <p>LS.02.03. Performance Element: Professional Growth: Develop awareness and apply skills necessary for achieving career success.</p>		
Unit Strands & Concepts	Career Exploration, Assessing Strengths and Weaknesses, Available Educational Opportunities		
Vocabulary	Floral Designer, Floral Assistant, Florist/Shop Owner, Greenhouse Grower, Greenhouse Manager, Propagator, Plant Breeder, IPM Specialist, Interior Plantscaper, Specialist, Certificate Program, Associate Degree, Bachelor Degree, Masters Degree, Doctorate Degree		

Unit Title	Career Exploration	Length of Unit	2-3 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • what programs and different levels of education are available for post secondary training. 	<ul style="list-style-type: none"> • research various career interests and options. • identify and explore careers based on personal likes, dislikes, characteristics and wants

Assessments:	<ul style="list-style-type: none"> • Various formative and interim assessments throughout the unit.
Teacher Resources:	<ul style="list-style-type: none"> ❖ A variety of Primary in Industry Resources are used.

Unit Title	Greenhouse Crop Production	Length of Unit	3-4 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> Why do we have to have an understanding of plant growth requirements?
Standards	<p>Plant Systems (PS):</p> <p>PS. 02 Performance Element: Prepare and implement a plant management plan that addresses the influence of environmental factors, nutrients and soil on plant growth. PS.02.01. Determine the influence of environmental factors on plant growth. PS.02.02. Evaluate soil/growth media for use in plant systems. PS.02.03. Develop and implement a fertilizer plant for specific plants or crops. PS. 03 Propagate culture and harvest plants. PS.03.01 Performance Indicator: Demonstrate plant propagation techniques. PS.03.02 Performance Indicator: Develop and implement a plant management plan for crop production.</p>
Unit Strands & Concepts	Plant Growth and Development, Cultural Practices, Fertilizer selection and calculations,
Key Vocabulary	Photosynthesis, Phototropism, Short-Day Plants, Long-Day Plants, Day-Neutral Plants, Supplemental Lighting, DIF, Respiration, CO2 burner, CO2 Injection, Peat moss, Perlite, Bark, Rock Wool, Coconut Fiber, Vermiculite, Soil Texture, Aeration, Watering Wand, Water Breaker, Drip Irrigation, Sub Irrigation

Unit Title	Greenhouse Crop Production	Length of Unit	3-4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • The effects air, water and temperature have on plant metabolism and growth • Plant life cycles and sexual vs asexual plant propagation • What a hybrid plant is and its advantages over non-hybrids. 	<ul style="list-style-type: none"> • Manipulate the environment in the greenhouse using the Link4 computer program and controls • Describe the physical characteristics of soil/growing media and explain the influences they have on plant growth • Maintain a commercially grown plant throughout the unit • Perform basic methods of propagating commercial crop

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments - Floral Arrangements and student portfolios • Various formative and interim assessments throughout the unit.
Teacher Resources:	❖ A variety of Primary in Industry Resources are used.

Unit Title	Pest Management	Length of Unit	3-4 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why do pests have to be managed? • Can pests be controlled safely? 		
Standards	<p>Plant Systems (PS):</p> <p>PS. 01 Apply knowledge of plant classification, plant anatomy and plant physiology to the production and management of plants. PS.01.02 Performance Indicator: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.</p> <p>PS. 03 Propagate, culture and harvest plants. PS.03.03 Develop and implement a plan for integrated pest management.</p>		
Unit Strands & Concepts	Pesticide Hazards, Pesticide Resistance, Scouting and Monitoring, IPM, Economic Threshold		
Vocabulary	IPM, Economic Threshold, Scouting, Monitoring, Infectious, Non-infectious, Plant Pathogens, Larva, Pupa, Nymph, Parasite, Nematodes, Protectants, Eradicants, Pesticide, Herbicide, Insecticide, Fungicide, Biological Methods, Cultural Methods, Banker Plants, Soaps		

Unit Title	Pest Management	Length of Unit	3-4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> the process of translocation the risks and benefits of chemical control what information can be found on a pesticide label 	<ul style="list-style-type: none"> identify various pests and disorders monitor for pests in the greenhouse keep accurate records of pest management strategies read a pesticide label plan IPM strategies to control a specific pest on selected crops

Assessments:	<ul style="list-style-type: none"> Ongoing Performance Assessments - Floral Arrangements and student portfolios
Teacher Resources:	<ul style="list-style-type: none"> ❖ A variety of Primary in Industry Resources are used.

Unit Title	Floral Design	Length of Unit	3-4 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why is it important to know how to handle flowers? • What is the appropriate technique for constructing flowers to wear? • What do I need to know to make a basic arrangement?
Standards	<p>Plant Systems (PS):</p> <p>PS. 01 Apply knowledge of plant classification, plant anatomy and plant physiology to the production and management of plants.</p> <p>PS.01.03 Apply knowledge of plant physiology and energy conversion to plant systems.</p> <p>PS.04 Employ elements of design to enhance the environment.</p> <p>PS.04.01 Create Designs using plants.</p>
Unit Strands & Concepts	The value of flowers and arrangements, Conditions affecting longevity, basic construction techniques, basic tools and supplies, Bow Construction,
Key Vocabulary	Primary Flowers, Secondary Flowers, Filler Flowers, Greens, Mound Arrangement, Corsage, Boutonniere, Vase Life, Ethylene Gas, Conditioning, Focal Point, Tulle, Curling Ribbon, Corsage Stem, Stephanotis Stem, Flock Wire, Sheer Ribbon

Unit Title	Floral Design	Length of Unit	3-4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • what effects vase life • a few basic floral design techniques • what habits to avoid when arranging with flowers • what tools are needed to prepare and use cut flowers and greens 	<ul style="list-style-type: none"> • make a long and low centerpiece • make a Mound Arrangement • make a Corsage and Boutonniere • make a Bow • condition greens and flowers properly • properly package a corsage and Boutonniere

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments - Floral Arrangements and student portfolios
Teacher Resources:	<ul style="list-style-type: none"> ❖ A variety of Primary in Industry Resources

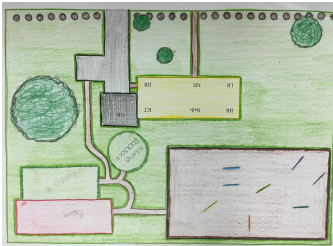
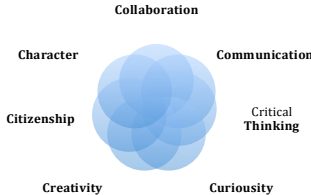
Unit Title	Interior Landscaping	Length of Unit	2 - 3 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How does Interior Landscaping enhance a building or area? • Why is it important to know your environment? 		
Standards	Plant Systems (PS): PS.01 Apply knowledge of plant classification, plant anatomy and plant physiology to the production and management of plants. PS.02 Performance Element: Prepare and implement a plant management plan that addresses the influence of environmental factors, nutrients and soil on plant growth. PS.04 Employ elements of design to enhance the environment.		
Unit Strands & Concepts	Limiting factors (water, nutrients, light), Relationship between Interior Landscapers and Architects, The Process (Design, Installation, and Maintenance), Cultural Conditions, Interior Plant Care		
Key Vocabulary	Acclimatization, Tropical Foliage Plants, Potted Flowering Plants, Plantscaping, Light Intensity, Light Duration, Light Quality		

Unit Title	Interior Landscaping	Length of Unit	2-3 weeks
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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • what limits the growth of plants indoors • the benefits of using plants indoors • what tasks are commonly used to maintain healthy plants • the characteristics of good growing media 	<ul style="list-style-type: none"> • repot interior plants • prune interior plants • maintain the interior plants around the school and in the conservatory • identify common plants used indoors • design an interior landscape and select plants for the same • use a light meter to measure light quantity

Assessments:	<ul style="list-style-type: none"> • Ongoing Performance Assessments - Floral Arrangements and student portfolios
Teacher Resources:	<ul style="list-style-type: none"> ❖ A variety of Primary in Industry Resources are used.



Content Area: Agriscience	Sophomore Nursery/Landscape	Grade Level: 10
	R14 The Seven Cs of Learning 	
Unit Titles	Length of Unit	
● <i>Safe Power Equipment Operation and Maintenance</i>	6-8 Weeks	
● <i>Woody Plant Identification</i>	4-6 Weeks	
● <i>Landscape Design</i>	3-5 Weeks	
● <i>Landscape Construction</i>	2-3 Weeks	



Strands	Course Level Expectations
Safety	<ul style="list-style-type: none"> • Design, operate and maintain landscape equipment, tools, hardscapes, and plantscapes in a safe and efficient manner
Design	<ul style="list-style-type: none"> • Analyze, plan, outline, and create landscape concepts through the use of hand sketches and computer drawings
Build	<ul style="list-style-type: none"> • Determine the proper use and amount of materials to be use to construct both plantscapes and hardscapes.
Maintain	<ul style="list-style-type: none"> • Troubleshoot and use the proper equipment to keep a landscape performing at the highest level of aesthetics and beautification

Unit Title	Power Equipment Operation & Maintenance	Length of Unit	6-8 Weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why is power equipment used in landscaping? • Why is safe operation important? 		
Standards	<p>Power, Structural and Technical Systems (PST):</p> <p>PST.01.02.02.a. Identify the tools, machines fabricate a project in AFNR.</p> <p>PST.01.02.02.c. Devise and document processes to safely implement and evaluate the safe use of AFNR related tools, machinery and equipment.</p> <p>PST.01.02.03.c. Conduct a safety inspection of tools, machines and equipment used in</p> <p>PST.02.02. Operate machinery and equipment while observing all safety precautions in AFNR settings.</p> <p>PST.03.03. Utilize manufacturers' guidelines to diagnose and troubleshoot malfunctions in machinery, equipment and power source systems (e.g., hydraulic, pneumatic, transmission, steering, suspension, etc.).</p>		
Unit Strands & Concepts	Pre-operations checks, fuel types and uses, starting procedures, operation and safety, equipment maintenance		
Key Vocabulary	Turf grass, cool season grass, warm season grass, aeration, dethatch , 2 cycle fuel, 4 cycle fuel		

Unit Title	Power Equipment Operation & Maintenance	Length of Unit	6-8 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • how to determine the correct mowing height based on use, season, and species • how to utilize technical manuals for equipment analysis and repair 	<ul style="list-style-type: none"> • evaluate the tools and supplies that are needed to perform a landscape job • adjust equipment for safe and efficient operation

Assessments:	<ul style="list-style-type: none"> ● Performance Assessment - Equipment Skill Demonstration
Teacher Resources:	<ul style="list-style-type: none"> ❖ Local Sales and Repair Dealers – Chainsaws Unlimited, Dave Blersch; Woodbury Saw and Mower ❖ Equipment operation and owner’s manuals ❖ Various Primary and Industry Resources

Unit Title	Woody Plant Identification	Length of Unit	4-6 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How are plant identified? • Why do plants have to be identified/known?
Standards	<p>Plant Systems (PS):</p> <p>PS.02. Apply principles of classification, plant anatomy, and plant physiology to plant production and management.</p> <p>PS.02.01. Classify plants according to taxonomic systems.</p>
Unit Strands & Concepts	How plants are named, plant parts and functions, common landscape trees, shrubs, and vines
Key Vocabulary	Genus, species, varieties and cultivars, tree, shrub, ground cover, vine, evergreen, deciduous, broadleaf, needleleaf, hardiness zone

Unit Title	Woody Plant Identification	Length of Unit	4-6 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • apply knowledge of basic plant physiology to landscape techniques and principles. • evaluate the effects of proper care and handling of selected landscape plants. 	<ul style="list-style-type: none"> • identify the different types and forms of woody plants based on their botanical structure. • identify woody plants foliage and classify each as either a tree, shrub, groundcover or vine.

Assessments:	<ul style="list-style-type: none"> • Performance Assessment - Plant ID Collection Project
Teacher Resources:	❖ Various Primary and Industry Resources

Unit Title	Landscape Design	Length of Unit	3-5 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How does design enhance a landscape? • Why is it important to know your client?
Standards	Plant Systems (PS): PS.04.01. Evaluating, identifying and preparing plants to enhance an environment PS.04.02. Create designs using plants. PS.04.02.02.c. Choose and properly use appropriate tools to create a desired design.
Unit Strands & Concepts	Drawing tools and scale, outdoor room concept, principles of design, plant selection
Key Vocabulary	Scale, plan view, outdoor room concept, hardscape materials, symbols, principles of design, circle template, t-square,

Unit Title	Landscape Design	Length of Unit	3-5 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • When to apply the Outdoor Room Concept in a drawing • How to Evaluate a design based on the principles of design 	<ul style="list-style-type: none"> • Identify and use basic drawing tools including the scale • Create a landscape drawing using drawing tools • Identify common plant and hardscape landscape symbols • Select appropriate plants for a design


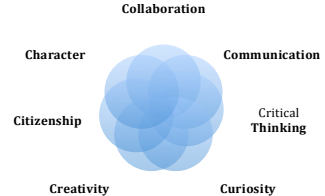
Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Performance Assessment - Simple hand drawn design, graded using a rubric
Teacher Resources:	<ul style="list-style-type: none"> ❖ Ingels, Jack E. <u>Landscaping: Principles and Practices</u>. 6th Edition. Thomson Delmar Learning, Inc. 2004 ❖ Various primary and industry resources

Unit Title	Landscape Construction	Length of Unit	2-3 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What can be done to reduce plant stress • How can enrichment items affect the landscape? 		
Standards	Power, Structural and Technical Systems (PST): PST.04.01. Create sketches and plans for AFNR structures PST.04.02.01.c. Create a project cost estimate, including materials, labor and management for an AFNR structure. PST.04.03.01.a. Examine the criteria in selecting materials for constructing, maintaining,		
Unit Strands & Concepts	Installing landscape plants, enrichment items to the landscape (ex: water gardening, irrigation, landscape lighting)		
Vocabulary	Bare root, balled and burlapped, containerized, transplanting, pavers, Hardscape, Water Features, Nightscaping		

Unit Title	Landscape Construction	Length of Unit	2-3 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • how to identify the containers that nursery stock is grown in. • the affects air, temperature, and water have on plant growth. 	<ul style="list-style-type: none"> • properly plant landscape plants by properly preparing plants and site for planting, install and backfill, and provide post-planting care.

Assessments:	<ul style="list-style-type: none"> • Performance Assessment
Teacher Resources:	<ul style="list-style-type: none"> ❖ Ingels, Jack E. <u>Landscaping: Principles and Practices</u>. 6th Edition. Thomson Delmar Learning, Inc. 2004 ❖ Various Primary and Industry Resources

Content Area: Agriscience	Sophomore Local Food Production	Grade Level: 10
	R14 The Seven Cs of Learning 	
Unit Titles	Length of Unit	
● <i>Local Food</i>	2-4 Weeks	
● <i>Soil Science</i>	2-4 Weeks	
● <i>Crop Production</i>	3-5 Weeks	
● <i>Harvest, Processing, and Preservation</i>	3-5 Weeks	
● <i>Hydroponic Food Production</i>	2-4 Weeks	



Strands	Course Level Expectations
Local Food	<ul style="list-style-type: none"> Understanding of where food comes from, what is local, regulations, labeling, food system, careers in food production
Food safety	<ul style="list-style-type: none"> Production of food crops by following good agricultural practices to assure the highest quality of food and prevent foodborne illnesses
Hydroponics	<ul style="list-style-type: none"> Understanding of soilless growing systems using commercial level growing methods in a modern greenhouse set up.
Field production	<ul style="list-style-type: none"> Producing food crops in a traditional method similar to both a commercial style grower and utilizing backyard vegetable garden techniques. All crops grown in the garden are grown using organic practices

Unit Title	Local Food	Length of Unit	2-4 Weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What does “local” mean? • What type of local food systems exist? • How do local food systems fit into Connecticut and American agriculture? 		
Standards*	Foundational Skills (FS) & Plant Science (PS): CT-FS.01. Examine the importance of health, s management systems in organizations and their importance to performance and regulatory safety, and environmental compliance. CT-PS.03.04.02.c. Evaluate environmental effects and consumer attitudes regarding different production strategies. CT-PS.03.03.02.c. Evaluate cost/benefits of locally grown and marketed products.		
Unit Strands & Concepts	Benefits to consumer, environment, community and farmer, current model of global food production, careers, Local Food systems operation, industry terminology		
Vocabulary	All-natural, certified organic, Connecticut grown, CSA, GMO, Local, organic, wholesale		

* CT Agricultural Science and Technology Education Standards

Unit Title	Local Food	Length of Unit	2-4 Weeks
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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • what “local” mean in relation to food production • a process to evaluate environmental effects and consumer attitudes regarding different production strategies. • a process to evaluate cost/benefits of locally grown and marketed products. 	<ul style="list-style-type: none"> • identify benefits of local food system • name examples of local agricultural businesses • evaluate environmental effects and consumer attitudes regarding different production strategies. • evaluate cost/benefits of locally grown and marketed products.

Assessments:	<ul style="list-style-type: none"> • Performance Assessment
Teacher Resources:	<ul style="list-style-type: none"> • www.buyctgrown.com • Local food retailers (i.e. La Bonne’s, New Morning, and Good News Café...) • Various Primary and Industry Resources

Unit Title	Soils	Length of Unit	2-4weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why is soil important for plant growth? • What are different ways that soil fertility can be improved?
Standards	<p>Plant Systems (PS):</p> <p>CT-PS.01.01. Classify agricultural plants according to taxonomy systems.</p> <p>CT-PS.01.02. Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.</p> <p>CT-PS.01.03. Apply knowledge of plant physiology and energy conversion to plant systems.</p>
Unit Strands & Concepts	Components of soil, types, and importance to plant growth, soil testing, methods of improving soil fertility, cultural practices
Key Vocabulary	Compost, cover crop, crop rotation, fertility, nutrients, pH, soil structure

Unit Title	Soils	Length of Unit	2-4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • what major components of soil are • the different types of soil • the difference between organic and inorganic fertilizer • how we meet the needs of plants in the hydroponic system that is absence of soil. 	<ul style="list-style-type: none"> • assess your soil for the type of texture it is • make amendments to the soil on an as needed basis • collect soil samples properly and then perform an at home soil test

Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Performance Assessment
Teacher Resources:	<ul style="list-style-type: none"> • Various Primary and Industry Resources

Unit Title	Crop Production	Length of Unit	3-5 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • Why is it important to plan ahead when preparing to plant crops? • What methods can be use to plan vegetables outdoors • Why are some crops cool season crops versus warm season crops 		
Standards	<p>Plant Systems (PS):</p> <p>CT-PS.03. Performance Element: Propagate culture and harvest plants. PS.03.02. Performance Indicator: Develop and implement a plant management plan for crop production. CT-PS.03.04. Performance Indicator: Apply principles and practices of various plant production methods to meet the needs of the market.</p>		
Unit Strands & Concepts	Planning, planting, maintaining crops, warm season vs. cool season crops, methods of production		
Vocabulary	Cool season crop, disease resistance, hybrid, hardiness Zone, propagation, sow, warm season crops		

Unit Title	Crop Production	Length of Unit	3-5 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • when the importance of proper planning as it relates to planting a garden. • what considerations to take when planning a garden for success • a process to interpret information from a seed packet and seed catalog. 	<ul style="list-style-type: none"> • start plants in a variety of ways including direct seeding in the soil and starting seedlings in the greenhouse. • select appropriate crops to plant at various times of the year. • how to interpret information from a seed packet and seed catalog.

Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Performance Assessment
Teacher Resources:	❖ Various primary and industry resources

Unit Title	Harvest, Processing and Preservation	Length of Unit	3-5 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What is the best way minimize contaminated food? • What is a storage crop? • What are different methods of crop preservation 		
Unit Strands & Standards	Food Products and Processing (FPP): FPP.01. Develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities. FPP.01.02. Apply food safety and sanitation procedures in the h products to ensure food quality. FPP.01.03. Apply food safety procedures when storing food products to ensure food quality.		
Unit Strands & Concepts	Good Agricultural Practices, storage crops vs. perishable crops, methods of food preservation, methods of food processing, harvest, wash, and pack produce.		
Vocabulary	Bacteria, canning, food borne illness, GAP, sanitations, storage crop		

Unit Title	Harvest, Processing and Preservation	Length of Unit	3-5 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • strategies to identify a variety of ways in which produce can be preserved. • processes to prepare a meal using locally grown ingredients 	<ul style="list-style-type: none"> • demonstrate proper produce handling in accordance with Good Agricultural Practices. • properly weigh and pack produce for further processing or sale. • how to prepare a meal using locally grown ingredients • identify a variety of ways in which produce can be preserved.

Assessments:	<ul style="list-style-type: none"> • Formative and Interim Assessments • Performance Assessment
Teacher Resources:	<ul style="list-style-type: none"> • Local farmers • Various Primary and Industry Resources

Unit Title	Hydroponic Food Production	Length of Unit	2-4 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What does it mean to grow plant hydroponically? • What are the essential components of any hydroponic system? • How does growing hydroponic benefit the farmers, the consumer, and environment? 		
Standards	Plant Systems (PS): PS.01 Develop and implement a crop management plan for a given production goal that accounts for environmental factors. PS. 01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.		
Unit Strands & Concepts	Types of systems, parts and functions, growing media, planting, maintenance, and harvest of crops, troubleshooting/problem solving of systems		
Key Vocabulary	Bato/Dutch bucks, drip emitter, ebb and flood bench, hydroponic tower, hydroponic, media, NFT, raft culture		

Unit Title	Harvest, Processing and Preservation	Length of Unit	2-4 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> strategies to troubleshoot the hydroponic systems Identify three common hydroponic growing systems 	<ul style="list-style-type: none"> troubleshoot the hydroponic systems Be able to safely and properly harvest and pack produce from the hydroponic systems.

Assessments:	<ul style="list-style-type: none"> Formative and Interim Assessments Performance Assessment
Teacher Resources:	❖ Various Primary and Industry Resources