

Horticulture

Unit Title: Exploring The Horticulture Industry (4 days)

Stage 1: Desired Results

Standards & Indicators:

New Jersey Student Learning Standard 9.3-Career and Technical Education.

9.3.12.AG-PL.1 Develop and implement a crop management plan for a given production goal that accounts for environmental factors.

9.3.12.AG-PL.2 Apply the principles of classification, plant anatomy and plant physiology to plant production and management.

9.3.12.AG-PL.3 Propagate, culture and harvest plants and plant products based on current industry standards.

9.3.12.AG-PL.4 Apply principles of design in plant systems to enhance an environment (e.g., floral, forest, landscape and farm).

9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.

9.3.12.AC-DES.2 Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.

NJSLS Science

HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

HS-LS4-4 Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

HS-ESS2-7 Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth

NJSLS for English Language Arts

RI.CI.11–12.2. Determine two or more central ideas of an informational text and analyze how they are developed and refined over the course of a text, including how they interact and build on one another to provide a complex account or analysis; provide an objective summary of the text.

W.IW.11–12.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

- Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
- Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

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<ul style="list-style-type: none"> Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. 		
Career Readiness, Life Literacies and Key Skills		
Standard	Performance Expectations	Core Ideas
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas	With a growth mindset, failure is an important part of success.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
Central Idea/Enduring Understanding: Exploring the Horticulture Field		Essential/Guiding Question: What is the scope, size, and economic importance of the horticulture industry in the United States? What are the career options in the horticulture industry, including working conditions and educational and personal requirements?
Content: Economic Importance of horticulture Horticulture career options Working conditions Educational and personal requirements, Interviewing techniques & resume writing Work Based Learning : Guest Speakers from Florist/Garden Center/Arborist		Skills(Objectives): To obtain an overview of the horticulture industry and jobs available in the field so that a career choice can be made.
Interdisciplinary Connections: The science and practice of Horticulture includes connections to mathematics, literacy, history, and art skills to include: Basic understanding of plant needs and growth <ul style="list-style-type: none"> Mechanical skills Marketing skills Administrative skills Legal skills 		
Stage 2: Assessment Evidence		
Performance Task(s): Define key terms & answer questions Self-Evaluation Practice Interview Create a resume		Other Evidence: Exit ticket Individual questioning & answers Quiz Unit assessment

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Stage 3: Learning Plan

Learning Opportunities/Strategies:

Demonstration
Individual activities

Resources:

CAERT, [Inc.-www.mychaert.com](http://www.mychaert.com)

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<p>Pair-sharing Cooperative learning activities</p>	<p><i>Introductory Horticulture. Sixth Edition, Reiley, Edward H. and Shry, Jr., Carroll L. Albany, NY: Delmar Thompson Learning</i></p> <p>LGBT and Disabilities Resources:</p> <ul style="list-style-type: none"> • LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth • LGBTQ+ Books <p>DEI Resources:</p> <ul style="list-style-type: none"> • Learning for Justice • GLSEN Educator Resources • Supporting LGBTQIA Youth Resource List • Respect Ability: Fighting Stigmas, Advancing Opportunities • NJDOE Diversity, Equity & Inclusion Educational Resources • Diversity Calendar
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Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized enrichment materials. An adaptive assessment that gets harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific for higher thinking challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can assist and challenge each other.</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized remediation or enrichment materials. An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other.</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized remediation or enrichment materials. An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other. Allow extra time on assessments</p>	<p>Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing</p> <p>ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries</p>

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		Provide study guides Weekly conference to set short term goals	
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Unit Title: Plant Taxonomy/ Parts of the Plant and Their Functions (16 days); Environmental Requirements for Good Plant Growth (5 days)

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9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.

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NJSLS Science

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HS-ESS2-7 Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth

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- Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
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Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas	With a growth mindset, failure is an important part of success.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
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Central Idea/Enduring Understanding:

It is important that we identify plants using their scientific, common, and family names to determine how they are grouped into units.

Plants provide contributions to the life cycle on earth.

Essential/Guiding Question:

Why is it important to identify plants by various names?

What is the purpose and uses of plant parts? How do plants contribute to the life cycle on Earth?

Content:

Hierarchy of specification
Differences between genus, species, and variety
Main parts and functions of a plant;
Uses and purposes of plants
Photosynthesis & Respiration
Pollination & Fertilization

Work Based Learning :

FFA Career Development Event
Field Trip Philadelphia Flower Show
Field Trip Longwood Gardens

Skills(Objectives):

To differentiate between scientific and common plant names and explain the binomial system of naming plants.

To recognize the main parts of a plant and describe the function of each

Interdisciplinary Connections:

The science and practice of Horticulture includes connections to mathematics, literacy, history, and art skills to include:

Basic understanding of plant needs and growth

- Mechanical skills

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- Marketing skills
- Administrative skills
- Legal skills

Stage 2: Assessment Evidence

Performance Task(s):

Define key terms & answer questions
 Self-Evaluation
 Create a plant catalog with business name and logo
 Create a bulletin board to display in detail three plant parts
 Outside activity to find specific plant parts

Other Evidence:

Exit ticket
 Individual questioning & answers
 Quiz
 Practicum

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Demonstration
 Individual activities
 Pair-sharing
 Cooperative learning activities

Resources:

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LGBT and Disabilities Resources:

- [LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth](#)
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DEI Resources:

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<p>depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific for higher thinking challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can assist and challenge each other.</p>	<p>enrichment materials. An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other.</p>	<p>An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other. Allow extra time on assessments Provide study guides Weekly conference to set short term goals</p>	<p>ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries</p>
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Unit Title: Propagation (5 days) Greenhouse management and crops (5 days) Integrated Pest Management (2 days) Pest Management & Plants in the Landscape (10 days)

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Horticulture

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Central Idea/Enduring Understanding:

Seed propagation is the method of plant propagation ,multiplying, reproducing, or breeding new plants, that is done through the use of seeds.The seed is made up of three parts: the outer seed coat, which protects the seed; the endosperm, which is a food reserve; and the embryo, which is the young plant itself.

Essential/Guiding Question:

- What types of plants produce seeds?
- What are the benefits of learning plant propagation?
- Why are growing procedures important?
- How and what insects negatively affect plants?

Horticulture

<p>To understand the control of plant pests through natural, biological means, and through the use of insecticides, pesticides, and herbicides</p> <p>Identification and cultural requirements of annual bedding plants, perennials, evergreen shrubs and trees, deciduous shrubs and trees, ground covers, bulbs, and ornamental grasses.</p>	
<p>Content: Parts and functions of seeds Types of seeds Propagation using multiple seed GMO's Softwood and semi-hardwood propagation Micropropagation Exploring the Horticulture Field Growing procedures for Chrysanthemums, poinsettias, and Easter lilies, fertilizers, cultural requirements, pests and diseases, Advertising and marketing for a marketable crop. Characteristics of a good growing site</p> <p>Work Based Learning: Field trip to local greenhouse Field Trip Philadelphia Flower Show Field Trip Longwood Gardens</p>	<p>Skills(Objectives): Identify the parts of a seed and the functions of each part; Differentiate between indirect and direct seeding methods; Prepare a medium for seeds, sow seeds, and provide the proper conditions for germination; • water, fertilize, and harden off seedlings before transplanting; Transplant seedlings into flats or pots. Select plants suitable for propagating through use of cuttings and determine if the maturity of wood is correct for optimum rooting; Propagate at least ten softwood or semi-hardwood plants from cuttings following procedures outlined in the unit (a minimum of nine of the cuttings should root for development of competency); Care for the cuttings after they are placed in the medium; write a brief description of the micropropagation (tissue culture) procedure. Outline a growing schedule for poinsettias; Identify four insects that affect poinsettias and the control measures for each; List the common names of three diseases that affect poinsettias and the control measures for each. Outline in writing a growing schedule for potted mums for a preselected market date; pot rooted cuttings; Regulate formation of chrysanthemum flower buds by control of night length; Determine the proper cultural requirements, such as fertilizing and watering, for production of a marketable chrysanthemum crop.</p>

Horticulture

Properly sterilize containers, mediums, and a planting area, demonstrated by either actually doing it or writing up the procedure;

Prepare or select the proper medium for growing lilies and explain the percentage of each material in it;
pot plant Easter lily bulbs to the proper two-inch depth, with properly filled pots;

Calculate the planting date for lilies to flower by Easter Sunday;

Outline in writing a fertilizer schedule for the crop;

Describe in writing what growth regulators are used and why;

Describe in writing the disease control methods needed to produce a clean crop.

Outline a pest control program, explaining when biological controls should be used and at what point chemicals must be used

List at least three insects that have been effectively controlled without man-made chemicals;

List at least one plant disease controlled by biological means;

List at least one weed and the biological method used to control it.

Identify the three main routes through which pesticides enter the body;

Examine five pesticide labels, identify the type of each and its degree of toxicity, and demonstrate the recommended precautions in the mixing and handling of each;

Explain the relationship between the life cycle of insects and the timing of insecticide application.

To identify and be able to explain the cultural requirements of annual bedding plants, perennials, evergreen shrubs and trees, deciduous shrubs and trees, ground covers, bulbs, and ornamental grasses.

Design a bed layout using annual flowers.

Demonstrate the proper procedure for planting narrowleaf evergreens;

Calculate fertilizer's three active ingredients of nitrogen, phosphorus, and potassium.

Horticulture

	<p>List the six functions of trees and shrubs in the landscape; select at least two specific trees and shrubs to fulfill each of these functions;</p> <p>Demonstrate the proper planting technique for bare-root, balled-and-burlapped, and containerized trees.</p> <p>Identify the three major types of ground covers;</p> <p>List three uses of ground covers;</p> <p>Describe the cultural requirements of ground covers;</p> <p>Identify five factors that must be considered when selecting ground covers.</p> <p>List four uses of bulbs in the landscape;</p> <p>Describe the soil and fertilizer used in the flowering of bulbs;</p> <p>Explain how planting depth and spacing of bulbs are determined; describe how to care for bulbs after they have flowered; list the steps in the forcing of bulbs.</p>
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Interdisciplinary Connections:

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- Mechanical skills
- Marketing skills
- Administrative skills
- Legal skills

Stage 2: Assessment Evidence

Performance Task(s):

Define key terms & answer questions
 Self-Evaluation
 Propagation of seeds and cuttings
 Create a marketing plan to sell a flowering crop for a specific holiday,
 Research project for a profitable plant crop of a student's choice.
 Create a pest management plan for three pests or diseases that could affect three different plants of student's choice
 Plant Log of 25 plants

Other Evidence:

Exit ticket
 Individual questioning & answers
 Quiz
 Rubric created by students
 Unit assessment
 Practicum

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Demonstration

Resources:

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Unit Title: Landscape Design (15 days); Lawn and Turfgrass Establishment and Maintenance (7 days)

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9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.

<p><u>Central Idea/Enduring Understanding:</u></p> <p>The principles of landscape design include the elements of unity, scale, balance, simplicity, variety, emphasis, and sequence as they apply to line, form, texture, and color. These elements are interconnected. Landscape design is a process of developing practical and pleasing outdoor living space.</p>	<p><u>Essential/Guiding Question:</u></p> <p>What are the principles of design?</p> <p>How do you explain and discuss the use of proper lawn establishment, lawn maintenance techniques, and renovation practice?</p>
<p><u>Content:</u></p> <p>Identification of landscape plants Drawing to scale Principles of design Proper lawn establishment Lawn maintenance techniques Renovation practices.</p> <p><u>Work Based Learning :</u></p> <p>FFA Career Development Event Landscaping Deborah Hospital Maintenance on school ground's gardens Field Trip Philadelphia Flower Show Field Trip Longwood Gardens</p>	<p><u>Skills(Objectives):</u></p> <p>Describe the three major career fields within the landscape profession;</p> <ul style="list-style-type: none"> • list the main objectives of good residential landscaping; • list the five principles of landscape design and examples of an application of each principle; • list three hard paving and three soft paving materials; • list the technical procedures for landscape maintenance; • calculate the volume of mulch needed to cover a landscape bed; • list the basic concepts of xeriscaping; • list ways the soil can be improved to conserve moisture; • identify plants that can be used in a xeriscape setting; • explain why mulches are important; • explain what a water garden is

Horticulture

	<ul style="list-style-type: none"> • client consultation questions and design <p>List three reasons for establishing and maintaining a lawn;</p> <p>Describe two methods of establishing proper drainage in a lawn;</p> <p>List three materials that are used to increase the organic matter in a new lawn; • name eight items that must be included on a seed label;</p> <p>Describe three ways turf grasses are started in the United States;</p> <p>Demonstrate the five steps in seeding a lawn. List the seven factors of good lawn maintenance and explain each orally; • describe the analysis of a good turf fertilizer;</p> <p>Determine the best time to apply fertilizer to a lawn;</p> <p>Demonstrate how to set the mowing height of a rotary mower;</p> <p>List the three causes of fungus disease in lawns.</p> <p>Inspect a lawn area and determine if it requires renovation; Determine which of the four methods of renovation should be used on the lawn; • use the step-by-step approach to renovate a lawn.</p>
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Interdisciplinary Connections:

The science and practice of Horticulture includes connections to mathematics, literacy, history, and art skills to include:

Basic understanding of plant needs and growth

- Mechanical skills
- Marketing skills
- Administrative skills
- Legal skills

Stage 2: Assessment Evidence

Performance Task(s):

Define key terms & answer questions
Self-Evaluation
Sketch the house and property where you live and describe the current plants and non plant features.
Client Landscape Design
Your Dream Home Landscape Design
Design a Lawn Maintenance program

Other Evidence:

Exit ticket
Individual questioning & answers
Quiz
Rubric created by students
Unit Assessment

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Demonstration

Resources:

CAERT, [Inc.-www.mycaert.com](http://www.mycaert.com)

Horticulture

<p>Individual activities Pair-sharing Cooperative learning activities</p>	<p><i>Introductory Horticulture. Sixth Edition, Reiley, Edward H. and Shry, Jr., Carroll L. Albany, NY: Delmar Thompson Learning</i></p> <p>LGBT and Disabilities Resources:</p> <ul style="list-style-type: none"> • LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth • LGBTQ+ Books <p>DEI Resources:</p> <ul style="list-style-type: none"> • Learning for Justice • GLSEN Educator Resources • Supporting LGBTQIA Youth Resource List • Respect Ability: Fighting Stigmas, Advancing Opportunities • NJDOE Diversity, Equity & Inclusion Educational Resources • Diversity Calendar
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Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized enrichment materials. An adaptive assessment that gets harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific for higher thinking challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can assist and challenge each other.</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized remediation or enrichment materials. An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other.</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized remediation or enrichment materials. An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other.</p>	<p>Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing</p> <p>ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries</p>

Horticulture

		Allow extra time on assessments Provide study guides Weekly conference to set short term goals	
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Unit Title: The Vegetable Garden (6 days)

Stage 1: Desired Results

Standards & Indicators:

New Jersey Student Learning Standard 9.3-Career and Technical Education.

9.3.12.AG-PL.1 Develop and implement a crop management plan for a given production goal that accounts for environmental factors.

9.3.12.AG-PL.2 Apply the principles of classification, plant anatomy and plant physiology to plant production and management.

9.3.12.AG-PL.3 Propagate, culture and harvest plants and plant products based on current industry standards.

9.3.12.AG-PL.4 Apply principles of design in plant systems to enhance an environment (e.g., floral, forest, landscape and farm).

9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.

9.3.12.AC-DES.2 Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.

NJSLS Science

HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

HS-LS4-4 Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

HS-ESS2-7 Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth

NJSLS for English Language Arts

RI.CI.11–12.2. Determine two or more central ideas of an informational text and analyze how they are developed and refined over the course of a text, including how they interact and build on one another to provide a complex account or analysis; provide an objective summary of the text.

W.IW.11–12.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

- Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Horticulture

- Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
- Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
- Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas	With a growth mindset, failure is an important part of success.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.

Central Idea/Enduring Understanding:

Gardening is about finding the right combination of sunlight, fertile soil, and water to make your plants thrive

Essential/Guiding Question:

What are the vegetables and herbs grown in your area?

What are the benefits of a home garden?

Content:

Planning and preparing garden site

Planting and caring for vegetable garden

Skills(Objectives):

List four items to consider when choosing the location of a vegetable garden;

Draw, to scale, a garden plan that includes at least four vegetables; also include plans for successive plantings of two vegetables that are planted early and harvested early, and two vegetables that are planted after earlier crops and harvested in the fall;

Explain the difference between preparing a heavy, clayey garden soil and a sandy garden soil;

List five vegetables that are direct-seeded in the garden and five that must be seeded indoors for transplanting; describe the steps in seeding vegetables for transplanting outdoors.

Determine the watering needs of vegetable plants and list three ways in which water is applied;

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	<p>Determine the type and amount of fertilizer for a specific crop by using a soil test recommendation; establish weed control programs using mulches, cultivation, and herbicides;</p> <p>List five vegetables grown in the area, a pest which commonly attacks each vegetable, and one method of control for each.</p> <p>List the requirements for planting, fertilizing, harvesting, and storing five garden vegetables that grow successfully in the local area;</p>
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Interdisciplinary Connections:

The science and practice of Horticulture includes connections to mathematics, literacy, history, and art skills to include:

Basic understanding of plant needs and growth

- Mechanical skills
- Marketing skills
- Administrative skills
- Legal skills

Stage 2: Assessment Evidence

Performance Task(s):

Define key terms & answer questions
Self-Evaluation
Select five locally grown vegetables, plant them, and grow them to marketable quality; Select and grow herbs for use to spice up your favorite garden vegetable
Design a Vegetable garden

Other Evidence:

Exit ticket
Individual questioning & answers
Quiz
Rubric created by students
Unit assessment
Practicum

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Demonstration
Individual activities
Pair-sharing
Cooperative learning activities

Work Based Learning :

Planting a vegetable garden on school grounds

Resources:

CAERT, [Inc.-www.mycaert.com](http://www.mycaert.com)

***Introductory Horticulture.* Sixth Edition, Reiley, Edward H. and Shry, Jr., Carroll L. Albany, NY: Delmar Thompson Learning**

LGBT and Disabilities Resources:

- [LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth](#)
- [LGBTQ+ Books](#)

DEI Resources:

- [Learning for Justice](#)
- [GLSEN Educator Resources](#)
- [Supporting LGBTQIA Youth Resource List](#)
- [Respect Ability: Fighting Stigmas, Advancing Opportunities](#)
- [NJDOE Diversity, Equity & Inclusion Educational Resources](#)
- [Diversity Calendar](#)

Horticulture

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation			
High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized enrichment materials. An adaptive assessment that gets harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific for higher thinking challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can assist and challenge each other.</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized remediation or enrichment materials. An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other.</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student). A personalized course packet with individualized remediation or enrichment materials. An adaptive assessment that gets easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other. Allow extra time on assessments Provide study guides Weekly conference to set short term goals</p>	<p>Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing</p> <p>ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries</p>

Unit Title: Floral Design (12 days)
Stage 1: Desired Results
Standards & Indicators:
<u>New Jersey Student Learning Standard 9.3-Career and Technical Education.</u>
9.3.12.AG-PL.1 Develop and implement a crop management plan for a given production goal that accounts for environmental factors.
9.3.12.AG-PL.2 Apply the principles of classification, plant anatomy and plant physiology to plant production and management.
9.3.12.AG-PL.3 Propagate, culture and harvest plants and plant products based on current industry standards.

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9.3.12.AG-PL.4 Apply principles of design in plant systems to enhance an environment (e.g., floral, forest, landscape and farm).

9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.

9.3.12.AC-DES.2 Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.

NJSLS Science

HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

HS-LS4-4 Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

HS-ESS2-7 Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth

NJSLS for English Language Arts

RI.CI.11–12.2. Determine two or more central ideas of an informational text and analyze how they are developed and refined over the course of a text, including how they interact and build on one another to provide a complex account or analysis; provide an objective summary of the text.

W.IW.11–12.2. Write informative/explanatory texts (including the narration of historical events, scientific procedures/ experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

- Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
- Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
- Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas	With a growth mindset, failure is an important part of success.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly

Horticulture

		for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
<p>Central Idea/Enduring Understanding: Floral design or flower arrangement is the art of using plant materials and flowers to create an eye-catching and balanced composition or display.</p>		<p>Essential/Guiding Question: How do you utilize the principles of design to create a floral arrangement? What is the purpose of floral arrangements?</p>
<p>Content: Principles of design & design styles Identification of flowers and greenery used in floral Flower processing Holiday arrangements (silk and fresh) Corsages and boutonnieres.</p> <p>Work Based Learning: FFA Career Development Event Field Trip Philadelphia Flower Show Field Trip Longwood Gardens</p>		<p>Skills(Objectives): Identify ten different plant materials used in holiday decorations; Construct an evergreen wreath Construct a holiday centerpiece; List ten plant materials that may be used for centerpieces; Describe the procedures for keeping a centerpiece fresh. Identify the types of flowers used in floral design; List and describe the six basic principles of floral design; Identify the six basic floral design shapes; Design a circular floral arrangement. List the various floral materials used to make corsages and boutonnieres; Demonstrate the four wiring procedures used with the appropriate flowers; • select the correct size ribbon for the construction of a corsage;</p>
<p>Interdisciplinary Connections: The science and practice of Horticulture includes connections to mathematics, literacy, history, and art skills to include: Basic understanding of plant needs and growth</p> <ul style="list-style-type: none"> ● Mechanical skills ● Marketing skills ● Administrative skills ● Legal skills 		
Stage 2: Assessment Evidence		
Performance Task(s):		Other Evidence: Exit ticket

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<p>Define key terms & answer questions</p> <p>Self-Evaluation</p> <p>Propagation of seeds and cuttings</p> <p>Create a marketing plan to sell a flowering crop for a specific holiday,</p> <p>Research project for a profitable plant crop of a student's choice.</p> <p>Create a pest management plan for three pests or diseases that could affect three different plants of student's choice</p> <p>Plant Log of 25 plants</p>	<p>Individual questioning & answers</p> <p>Quiz</p> <p>Rubric created by students</p> <p>Unit assessment</p> <p>Practicum</p>
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Stage 3: Learning Plan

<p><u>Learning Opportunities/Strategies:</u></p> <p>Demonstration</p> <p>Individual activities</p> <p>Pair-sharing</p> <p>Cooperative learning activities</p> <p>Create a fresh and silk floral arrangement</p> <p>Create a corsage and boutonniere.</p>	<p><u>Resources:</u></p> <p>CAERT, Inc.-www.mycaert.com</p> <p><i>Introductory Horticulture. Sixth Edition, Reiley, Edward H. and Shry, Jr., Carroll L. Albany, NY: Delmar Thompson Learning</i></p> <p>LGBT and Disabilities Resources:</p> <ul style="list-style-type: none"> • LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth • LGBTQ+ Books <p>DEI Resources:</p> <ul style="list-style-type: none"> • Learning for Justice • GLSEN Educator Resources • Supporting LGBTQIA Youth Resource List • Respect Ability: Fighting Stigmas, Advancing Opportunities • NJDOE Diversity, Equity & Inclusion Educational Resources • Diversity Calendar
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Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student).</p> <p>A personalized course packet with individualized enrichment materials.</p> <p>An adaptive assessment that gets harder depending on how a student is performing.</p> <p>One-on-one coaching with a student, designed</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student).</p> <p>A personalized course packet with individualized remediation or enrichment materials.</p> <p>An adaptive assessment that gets</p>	<p>Varying sets of reading comprehension questions to answer for a given chapter (either chosen by the teacher or student).</p> <p>A personalized course packet with individualized remediation or enrichment materials.</p> <p>An adaptive assessment that gets</p>	<p>Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing</p> <p>ELL supports should include, but are not limited to, the following::</p> <p>Extended time</p>

Horticulture

<p>around his/her specific for higher thinking challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can assist and challenge each other.</p>	<p>easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other.</p>	<p>easier or harder depending on how a student is performing. One-on-one coaching with a student, designed around his/her specific challenges. Students grouped into small groups, which are designed around their strengths and weaknesses so that they can tutor each other. Allow extra time on assessments Provide study guides Weekly conference to set short term goals</p>	<p>Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries</p>
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Unit Title: Leadership Development in Horticulture (5 days)

Stage 1: Desired Results

Standards & Indicators:

New Jersey Student Learning Standard 9.3-Career and Technical Education.

9.3.12.AG-PL.1 Develop and implement a crop management plan for a given production goal that accounts for environmental factors.

9.3.12.AG-PL.2 Apply the principles of classification, plant anatomy and plant physiology to plant production and management.

9.3.12.AG-PL.3 Propagate, culture and harvest plants and plant products based on current industry standards.

9.3.12.AG-PL.4 Apply principles of design in plant systems to enhance an environment (e.g., floral, forest, landscape and farm).

9.3.12.AC-DES.1 Justify design solutions through the use of research documentation and analysis of data.

9.3.12.AC-DES.2 Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.

NJSLS Science

HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

HS-LS4-4 Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

HS-ESS2-7 Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth

Horticulture

NJSLS for English Language Arts

RI.CI.11–12.2. Determine two or more central ideas of an informational text and analyze how they are developed and refined over the course of a text, including how they interact and build on one another to provide a complex account or analysis; provide an objective summary of the text.

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- Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas	With a growth mindset, failure is an important part of success.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a)	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.

Central Idea/Enduring Understanding:

To develop basic leadership skills utilized within the horticulture industry to include FFA; discuss various types of technologies used in the horticulture industry

Essential/Guiding Question:

Why is effective leadership needed in agriscience?

Content:

Exploring the Horticulture Field
Introduction of various types of technologies used in the horticulture industry
Basic leadership skills,
Parliamentary procedure
FFA

Skills(Objectives):

Define leader and leadership.

Explain why effective leadership is needed in agriscience.

List some characteristics of good leaders.

Horticulture

	<p>Describe the opportunities for leadership development in FFA.</p> <p>Demonstrate positive leadership skills. discuss the benefits and limitations of modern technology in the horticulture industry</p> <p>Explain the major types of computer programs currently being used in the industry</p>
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Interdisciplinary Connections:

The science and practice of Horticulture includes connections to mathematics, literacy, history, and art skills to include:

Basic understanding of plant needs and growth

- Mechanical skills
- Marketing skills
- Administrative skills
- Legal skills

Stage 2: Assessment Evidence

Performance Task(s):

Define key terms & answer questions
Self-Evaluation
Modern technology research project
Mock FFA meeting

Other Evidence:

Exit ticket
Individual questioning & answers
Quiz
Reflection on FFA meeting

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Demonstration
Individual activities
Pair-sharing
Cooperative learning activities

In small groups, describe the characteristics of a good leader. Produce examples of people who were/are good leaders and explain why. Present your ideas to the rest of the class; rubric for presentation of Modern technology project.

Resources:

CAERT, [Inc.-www.mycaert.com](http://www.mycaert.com)
Introductory Horticulture. Sixth Edition, Reiley, Edward H. and Shry, Jr., Carroll L. Albany, NY: Delmar Thompson Learning

LGBT and Disabilities Resources:

- [LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth](#)
- [LGBTQ+ Books](#)

DEI Resources:

- [Learning for Justice](#)
- [GLSEN Educator Resources](#)
- [Supporting LGBTQIA Youth Resource List](#)
- [Respect Ability: Fighting Stigmas, Advancing Opportunities](#)
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- [Diversity Calendar](#)

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
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Horticulture

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Pacing Guide

Horticulture

Horticulture	TextBook: Introductory Horticulture/ Chapters	CTE Standards
UNIT 1: (25 Days) Exploring the Horticulture Industry Plant Taxonomy Parts of the Plant and Their Functions Environmental Requirements for Plant Growth	1: (4 Days) 2: (8 Days) 3: (8 Days) 4: (5 Days)	9.3.12.AG-PL.1-4 9.3.12.AC-DES.1 -2
UNIT 2: (22 Days) Propagation Greenhouse Management and Crops Integrated Pest Management Plants in the Landscape	5: (5 Days) 6: (5 Days) 7: (4 Days) 8:(8 Days)	9.3.12.AG-PL.1-4 9.3.12.AC-DES.1 -2
UNIT 3: (22 Days) Landscape Design Lawn and Turfgrass Establishment and Management	9: (15 Days) 10: (7 Days)	9.3.12.AG-PL.1-4 9.3.12.AC-DES.1 -2
UNIT 4: (23 Days) Vegetable Garden Floral Design Leadership in Horticulture	11: (6 Days) 12: (12 Days) 13: (5 days)	9.3.12.AG-PL.1-4 9.3.12.AC-DES.1 -2