

Pathway: Horticulture

Course: General Horticulture/Plant Science

Unit #	Unit Title	Unit Question	Unit Objective	Agriculture Standards	Labs/Activities/Content Topics	Time
1	Agriculture Education Program	<p>What are the parts of the total program and where do I fit as a student?</p> <p>What opportunities are available for me in FFA?</p> <p>What is an SAE and which SAE is for me?</p>	Students shall become oriented to the comprehensive program of agricultural education, learn to work safely in the agriculture lab and work sites, demonstrate selected competencies in leadership through the FFA and agricultural industry organizations, and develop plans for a supervised agricultural experience program.	AG-GH/PS-1. The student becomes oriented to the comprehensive program of agricultural education, learns to work safely in the agriculture lab and work sites, demonstrates selected competencies in leadership through the FFA and agricultural industry organizations, and develops plans for a supervised agricultural experience program (SAEP).	<p>Introduction Syllabus Course overview Icebreakers Personality profile/learning styles</p> <p>Overview of Program Parts of the program Definitions of each part</p> <p>FFA FFA History- timeline</p> <p>FFA Basics- Creed, colors, salute, official dress, motto, mission</p> <p>Leadership Qualities of leadership, examples of good leaders</p> <p>SAE Benefits Types, examples, ideas unlimited SAE profiles Record keeping Personal SAE planning</p>	1 Week
2	Horticulture Industry	<p>What are the major segments of the horticulture industry?</p> <p>How do I stay safe in the horticulture lab and class?</p>	Students will obtain an overview of the horticulture industry and jobs available in the field for career options choices.	AG-GH/PS-12. Students will explore plant science and horticulture careers and opportunities.	<p>Introductory Homework: Have students bring in an item that represents horticulture, use the objects to initiate a discussion about the areas of horticulture</p> <p>Complete a graphic organizer over the areas of horticulture</p> <p>Students will use magazines to create a collage that represents each area of horticulture</p> <p>Overview of the history of horticulture Discuss safety in horticulture Complete safety quiz</p>	1 Week

3	Horticulture and the Environment	How does horticulture impact the environment?	Students will describe the relationship of horticulture and the environment.	AG-GH/PS-12. Students will explore plant science and horticulture careers and opportunities.	<p>Define environment, plant environment, and macro- and micro- environment</p> <p>Discuss issues associated with the environment</p> <p>Discuss benefits of plants Have students create a drawing that represents one of the benefits of plants and include a explanation with the drawing, display</p> <p>Explore the water cycle and infiltration</p> <p>Explore the nitrogen cycle and the impact of pesticides in the environment</p>	1 Week
4	Plant Classification, Structure, and Function	What are the major plant structures and their functions?	Students will identify plant structures and functions.	AG-GH/PS-2. Students will identify plant parts, growth, and reproduction processes.	<p>Discuss classification of plants</p> <p>Identify life cycles among plants</p> <p>Plant Processes Discuss photosynthesis and respiration Lab: Respiration in geraniums Tropisms labs: corn seed in Petri dish to demonstrate gravitropism and seed in cup to demonstrate phototropism Have students design a lab to demonstrate thigmotropism Osmosis/diffusion lab</p> <p>Wandering Jew stomata viewing lab using microscope</p> <p>Plant Parts and Growth Identify and explain the functions of plant parts Plant dissection</p> <p>Leaf types: Explore and identify</p> <p>Explore the reproduction organs of plants Diagram the parts of a complete flower</p> <p>Seed parts and germination CO2 lab: production by seeds</p>	2 Week

5	Plant Reproduction and Propagation	What are the methods and techniques of plant reproduction?	Students will reproduce plants using various propagation techniques.	AG-GH/PS-3. Students will discuss the importance of sexual reproduction in plants. AG-GH/PS-4. Students will demonstrate an understanding the importance of asexual reproduction.	Discuss plant propagation Sexual versus asexual propagation Labs: sexual and asexual propagation labs Pothos, snake plant, jade, wandering jew, etc	2 Week
6	Media, Nutrients, and Fertilizer	What is the role of media, nutrients, and fertilizers in plant growth and development?	Students will describe the role of media, nutrients and fertilizers in proper plant growth and development.	AG-GH/PS-5. Students will explore the basic principles and uses of soil and plant growth media. AG-GH/PS-6. Students will identify important plant nutrients. AG-GH/PS-7. The student will explore the use of fertilization materials and methods.	Describe ideal soil, create soil diagram Discuss texture and soil particles -Soil ribbon lab -Soil texture lab in a jar Identify the major nutrients and explain their function in plants Identify deficiency symptoms of major nutrients Describe the importance of soil pH and its relationship to plant growth and nutrients -test soil pH in greenhouse -explore pH levels for plants Define and explain the importance of fertilizer -Explore how soil and fertilizer react with each other -Discuss methods of fertilizer applications -Fertilizer calculations	1 Week
7	Plant Growth Regulators	What are plant growth regulators and what is their value in the commercial horticulture industry?	Students will describe the importance and use of plant growth regulators to plant growth and the commercial horticulture industry.	AG-GH/PS-11. Students will identify plant growth processes and factors that affect plant development and growth.	Explore Plant Growth Regulators and major plant hormones -Ethylene lab: have students design a lab to test the effects of ethylene on plants -Phototropism: students design a lab to demonstrate phototropism	1 Week
8	Pest Management	What are common horticulture pests and what techniques are used to control each?	Students will identify common horticultural pests and prescribe control techniques for each.	AG-GH/PS-8. Students will define the damage caused to plants by insects, weeds, diseases and physiological disorders.	Discover the definition of pests and the major groups of pests Diagram insect anatomy and life cycles Beneficial versus harmful insects Explore weeds, diseases, and other organisms and find their damage and control methods	1 Week

					Biological, chemical, mechanical, and genetic pest control Reading and understanding pesticide labels and safety measures	
9	Plant Growing Structures	What facilities are used for growing plants and how are the facilities designed and operated?	Students will identify growing facilities, their design and operation.	AG-GH/PS-9. Students will compare and contrast the use of various plant growing containers. AG-GH/PS-10. Students will describe the use of various plant irrigation methods.	Mini-greenhouse project: Students will design a miniature greenhouse following a rubric Daily discussions over parts of the greenhouse: Irrigation Heating Cooling Bench arrangement Lighting Identify containers and materials used for producing plants	2 Week
10	Growing Ornamental Crops in the Greenhouse	What are the procedures for producing ornamental crops in the greenhouse? How are greenhouse crops managed? What jobs are available?	Students will identify the procedure and products used in producing an ornamental crop in the greenhouse.	AG-GH/PS-12. Students will explore plant science and horticulture careers and opportunities.	Combine knowledge of growing media, plant growth regulators, greenhouse environment, containers, scheduling, and management practices to explore how all systems and items work together to produce a healthy plant	1 Week
11	Nursery Facilities	How are nursery facilities selected and managed? What jobs are available?	Students will demonstrate skills in the selection and management of nursery facilities.	AG-GH/PS-12. Students will explore plant science and horticulture careers and opportunities.	Look at different nursery facilities and their layouts Look at the US plant hardiness map	1 Week
12	Floral Design	What skills are needed to design, condition, and arrange flowers?	Students will perform the fundamentals of arranging flowers, including design, conditioning and construction.	AG-GH/PS-12. Students will explore plant science and horticulture careers and opportunities.	Introduce students to floral design and the importance of the industry Practice bow making and complete a corsage/boutonniere lab	1 Week

13	Interiorscaping	What are the principles of interiorscaping?	Students will describe the principles of interiorscaping including plant environments, plant care and species characteristics.	AG-GH/PS-12. Students will explore plant science and horticulture careers and opportunities.	<p>Define Interiorscaping</p> <p>Describe the difference between plant growth and plant maintenance</p> <p>Project: create an interior design for a room at home, school, or other location</p>	1 Week
14	Ag Careers & SAE	What career opportunities are available in agriculture?	Students will explore in depth careers related to agriculture that they are interested in.	AG-GH/PS-12. Students will explore plant science and horticulture careers and opportunities.	<p>Students will complete a career profile and share their chosen career with the class. Will find:</p> <ul style="list-style-type: none"> -education -salary -job duties and responsibilities -environment -how to prepare for this career -present to class <p>Complete and present SAE project</p>	2 Week