

Horticulture and Landscaping

Course Description:

- Suggested grade level: 9th – 12th
- Pre-requisite: None
- Text: *Introductory Horticulture, 6th Ed*; Delmar Learning
- Available Credit: ½ credit
- This course will explore the horticultural industry and the careers available. Topics such as plant parts and growth, soils, lawn care, houseplant care, hydroponics, floriculture and floral design, and management practices for greenhouse production will be covered. Basic landscaping principles will be covered and a landscaping project will be completed by the class. Lab time for this course will be extensive.

Core Technical Standards and Examples

Indicator #1: Distinguish different plant classifications.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Analysis	HORT 1.1 Determine plant classification.	<ul style="list-style-type: none"> • Classify and identify plants using botanical growth habits, landscape uses, culture requirement and a simple botanical key. • Demonstrate plant selection and identification for local landscape applications. 	<ul style="list-style-type: none"> • Landscaping Unit • Plant Taxonomy (Chp. 2)
Application	HORT 1.2 Identifying horticulture plants.	<ul style="list-style-type: none"> • Identify landscaping plants using Internet, samples, video id. • Identify vegetables and fruits using Internet, samples, video id. • Identify floriculture crops using Internet, samples, video id. • Identify plants and shrubs using Internet, samples, video id. 	<ul style="list-style-type: none"> • Landscaping Unit • Favorite Garden Vegetables and Herbs (Chp. 41) • Floriculture Unit • Interior Landscape: Houseplants and Plantscaping (Chp. 23)

Indicator #2: Define the basic principles of plant physiology and propagation of plants.

Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Analysis	HORT 2.1 Explain the basic principles of plant physiology and growth, including photosynthesis, osmosis, transpiration, respiration, plant structure and cell structure.	<ul style="list-style-type: none"> • Raise various plant materials under a variety of conditions and identify the factors affecting plant growth. • Label plant parts and identify their functions. • Identify potted foliage and flower parts. 	<ul style="list-style-type: none"> • Parts of the Plant (Chp. 3) • Environmental Requirements (Chp. 4)
	HORT 2.2 Demonstrate and perform the propagation of plants by seeds and cuttings.	<ul style="list-style-type: none"> • Maintain dormant plants. • Propagate plants by planting seeds in a growing flat. • Transplant seedlings at the appropriate two leaf stage. • Force and plant bulbs. • Force potted plants to bloom. • Propagate plants in a soilless media. • Plan planting schedules. • Apply rooting hormone to cuttings. • Propagate plants by taking cuttings. • Propagate plants by division of plant. 	<ul style="list-style-type: none"> • Growth Stimulants, Retardants, and Rooting Hormones (Chp. 5) • Hydroponics Unit • Plant Propagation Unit • Bulbs (Chp. 32)

Indicator #3: Describe pest management and how it relates to horticulture.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 3.1 Identify the principles of pest management.	<ul style="list-style-type: none"> • Identify common plant diseases by using picture examples. • Identify common horticulture insects by using pictures or insect examples. • Identify common horticulture weeds by weed sample. • Describe methods of pest control for a specific pest. • Identify the proper chemicals in a specific application. • Mix chemicals for proper applications. • List the steps in chemical application. • List and compare the biological pest control methods. • Develop an integrated pest management program. 	<ul style="list-style-type: none"> • Integrated Pest Management Unit

Indicator #4: Analyze soil and water properties as they affect plant growth.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Analysis	HORT 4.1 Identify water and soil (media) management practices.	<ul style="list-style-type: none"> • Understand the different types of soil: clay, loam, silt, sand. • Demonstrate an understanding of water and the different soil and how they affect plant growth. • Prepare and amend soils, implement methods of soil conservation and evaluate results. 	<ul style="list-style-type: none"> • Soils and Land Judging Unit • Environmental Requirements (Chp. 4)
Application	HORT 4.2 Prepare soils and planting media.	<ul style="list-style-type: none"> • Identify soil mix materials and characteristics. • Test soil pH. • Mix soil media. • Mix fertilizer into soil media. 	<ul style="list-style-type: none"> • Soils and Land Judging Unit • Environmental Requirements (Chp. 4)

Indicator #5: Identify plant nutrients and their affects on proper plant growth.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 5.1 Identify plant nutrition practices for ornamental plants as it relates to plant growth and health.	<ul style="list-style-type: none"> • Make fertilizer recommendations. • Identify primary plant nutrients: Nitrogen, Phosphorous, and Potassium. • Test soil mix for fertility by using a soil testing kit. • Read and interpret fertilizer labels and use proper application practices. 	<ul style="list-style-type: none"> • Annual Bedding Plants (Chp. 25) • Environmental Requirements (Chp. 4)

Indicator #6: Perform proper pruning methods.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 6.1 Demonstrate the correct basic principles of pruning and training horticulture plants.	<ul style="list-style-type: none"> • Evaluate various plant materials and safely prunes them according to plant and landscape requirement to manage growth and/or fruit and flower production. • Trim and prune hedges/shrubs. • Prune trees as outline by the arbor industry standards. 	<ul style="list-style-type: none"> • Techniques of Pruning (Chp. 33)

Indicator #7: Perform selection, installation and maintenance of turf.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 7.1 Perform selection, installation and maintenance of turf.	<ul style="list-style-type: none"> • Install and/or maintain a lawn area. • Seed lawns. • Describe methods of laying sod. • Maintain lawn/turf. • Maintain and operate lawn equipment; push mower, riding mower. • Safely operate and maintain selected hand and power equipment, clippers and hedgers. 	<ul style="list-style-type: none"> • Lawn and Turfgrass Establishment and Maintenance Unit

Indicator #8: Describe the principles of a nursery production.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 8.1 Understand the care and maintenance of nursery stock.	<ul style="list-style-type: none"> • Propagate and maintain a horticulture crop to the point of sale. • Identify procedures commonly used in nursery production. • Plant nursery stock in containers, 10" container, azalea pots. • Demonstrate and perform the correct procedure for planting of nursery stock. • Prune nursery stock as needed. 	<ul style="list-style-type: none"> • Plant Propagation Unit • Shrubs and Trees (Chp. 24)

Indicator #9: Describe the principles of producing vegetable/fruit crops.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 9.1 Explain the care and maintenance of vegetables/fruit crops.	<ul style="list-style-type: none"> • Draw a plan for planting a garden. • Prepare seedbed for garden seeds. • Analyze seeding practices (depth, temp, and spacing). • Maintain and operate garden equipment. • Identify the methods of weed control in garden. • Determine the maturity of fruits and vegetables. • Prepare fruit/vegetable produce for marketing. • Identify markets for fruit/vegetable produce. 	<ul style="list-style-type: none"> • The Vegetable Garden Unit

Indicator #10: Describe landscaping principles.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 10.1 Explain the basic principles of landscape planning, design, construction, and maintenance.	<ul style="list-style-type: none"> • Select landscape plants for a given plan. • Calculate cost of a landscape plan. • Identify principles of landscaping (simplicity, balance, rhythm, scale). • Design a landscaping plan. • Perform math calculations as it relates to the landscaping plan. • Plant trees and shrubs, ground cover. 	<ul style="list-style-type: none"> • Principles of Landscaping (Chp. 34)

Indicator #11: Describe the factors and principles of floriculture production.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Analysis	HORT 11.1 Apply the basic principles of floral design.	<ul style="list-style-type: none"> • Identify materials and tools, describe proper handling, safe preparation and the arrangement of cut flowers. • Design and construct a simple floral project. • Identify proper environmental conditions for floral production. 	<ul style="list-style-type: none"> • Floriculture Unit

Indicator #12: Examine the horticulture careers and industry.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Analysis	HORT 12.1 Study horticulture career paths and students will be aware of professional trade organizations within the horticulture industry.	<ul style="list-style-type: none"> • Demonstrate strategies for obtaining and employment. • Fill out a job application. • Develop an employment resume. 	<ul style="list-style-type: none"> • Careers Unit

Indicator #13: Develop horticulture record keeping.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 13.1 Describe the importance of keeping records of business transaction and production of records.	<ul style="list-style-type: none"> Maintain and complete record books, production records and other records as needed. Develop a marketing plan for specific crops. Create financial statement for a sample greenhouse. Maintain chemical application records. 	<ul style="list-style-type: none"> Integrated Pest Management Unit Greenhouse Management Unit

Indicator #14: Apply the principles of specialized growing procedures.			
Bloom's Taxonomy Level	Standard	Supporting Concepts/Skills	Assessment and Resources
Application	HORT 14.1 Explain the basics of hydroponics production	<ul style="list-style-type: none"> Discuss the history of hydroponics. Form conclusions as to why hydroponics is more prevalent in other countries than here in the United States. List basic hydroponics equipment and tools used in greenhouse. 	<ul style="list-style-type: none"> Hydroponics Unit
Application	HORT 14.2 Classify how different hydroponics systems operate.	<ul style="list-style-type: none"> List and compare different types of growth medium including rockwool, perlite bag culture, wood based, gravel and sand. List and evaluate the basic techniques used in growing tomatoes, cucumbers, lettuce, and peppers. Discuss the production of commercial crops using hydroponics. List the basic nutrients considered essential for growth. Describe the specific function for each of the specific nutrients in plant growth. Identify and diagnosis nutrient deficiencies in specific crops. Correctly determine and adjust pH in solutions. 	<ul style="list-style-type: none"> Hydroponics Unit