

Landscape and Horticulture

Scope and Sequence



Program / Hours: CIP 01.0601 – 2 Year Half Day Program

Course Description: Learn how to operate landscaping equipment as in push mowers, zero turns, skid-steer and how to use horticultural tools. Work with plants outdoors and in the greenhouse that meet industry standards. Students will learn how to identify ornamental, medicinal, and crop producing plants. Experience many career pathways and skills in horticulture and landscape through field trips, hands on experiences, and academics. In addition, be involved with the National FFA Organization to display horticultural and landscape skills during competitions against other PA FFA Students. FFA involvement could include PA Farm Show landscape displays, horticultural designs, and horticultural related equipment creations or renovating equipment.

Learning Activities / Modes of Assessment:

- Small Group
- Large Group
- Independent Work
- One-on-One
- Classwork Activities
- Portfolio
- Presentations
- Research Projects
- Research Paper
- Technology Use
- Tests and Quizzes

Individual Resources:

- Textbooks
- Online Resources
- PowerPoint Presentations
- Computer Applications
- Proprietary Landscape and Horticulture Software
- Landscape and Horticulture Equipment and Tools
- Landscape and Horticulture Lab Simulations

Year / MP	Task #	K - Know	U - Understand	D - Do
Yr 1 MP 1	1001	Identify career: role, function, obligations, and limitations of the dental care provider as a member of the dental team.	Understand roles and limitations of dental team members.	Create a visual diagram of a dental team with roles and responsibilities.
Yr 1 MP 1	101	Follow all general safety, laboratory safety and field-site safety practices and procedures in horticulture.	Practice appropriate procedures to follow all general safety, laboratory safety, and field-site safety practices in horticulture.	Complete Greenius certifications.
Yr 1 MP 1	105	Select the proper protective clothing and equipment.	Choose the proper protective clothing and equipment for various horticultural tasks.	Complete Greenius certifications.
Yr 1 MP 1	110	Identify and demonstrate basic first aid procedures	Demonstrate basic first aid procedures relevant to horticulture work environments.	Complete Greenius certifications.
Yr 1 MP 1	111	Identify and demonstrate fire extinguisher use and safety	Operate a fire extinguisher safely and effectively in horticultural settings.	Complete Greenius certifications.
Yr 1 MP 1	112	Identify landscape hand tools use and safety	Recognize the correct use and safety practices for landscape hand tools.	Complete Greenius certifications.
Yr 1 MP 1	153	Safely operate a trim push mower.	Use a trim push mower safely while performing landscape maintenance.	Complete push mower observation.
Yr 1 MP 1	154	Safely operate a leaf blower.	Use a leaf blower safely while performing landscape maintenance.	Complete leaf blower observation.
Yr 1 MP 1	155	Safely operate a string trimmer.	Use a string trimmer safely while performing landscape maintenance.	Complete string trimmer observation.
Yr 1 MP 1	201	Control weeds, insects, and plant diseases.	Explain what it means to control weeds, insects, and plant diseases.	Identify common pests and research how to control their population.
Yr 1 MP 1	1001	Describe careers and working conditions in the horticulture industry.	Describe careers and working conditions in the horticulture industry.	Research various careers in horticulture posted on Indeed.com.

Yr 1 MP 1	1003	Research horticulture industry certifications.	Identify key horticulture industry certifications and their benefits.	Describe the importance of obtaining the OSHA and Greenius certifications.
Yr 1 MP 1	1004	Explore postsecondary opportunities.	Compare different postsecondary opportunities available in horticulture.	Research postsecondary opportunities for careers in horticulture that interest the student.
Yr 1 MP 1	101	Follow all general safety, laboratory safety and field-site safety practices and procedures in horticulture.	Contrast general, laboratory, and field-site safety practices in horticulture.	Complete Greenius certifications.
Yr 1MP 1	902	Determine the impact of environmental factors on plant materials.	Follow steps to assess environmental impacts on plant materials.	Greenhouse management techniques explained and researched.
Yr 1 MP 1	512	Compare current issues regarding plant and soil management that impacts agronomic and horticultural practices.	Summarize current issues in plant and soil management affecting horticulture.	Research how current businesses enhance their customers' soil to make profit.
Yr 1 – MP 1	1105	Transplant various types of plant material.	Demonstrate how to transplant various types of plant material.	Transplant various plant materials in the greenhouse and during field trips.
Yr 1 MP 2	103	Follow procedures written in the Safety Data Sheet (SDS) information system.	Evaluate procedures outlined in the Safety Data Sheet (SDS) system.	Update SDS binder by finding SDS forms and reading them.
Yr 1 MP 2	604	Recycle horticultural waste.	Analyze methods for recycling horticultural waste effectively.	Research how current businesses enhance their customers' soil to make profit.
Yr 1 MP 2	804	Describe the role horticulture plays in the economy of the state and nation.	Investigate the economic impact of horticulture at the state and national level.	Create a PowerPoint on one specific industry in horticulture and describe the role it plays in the state and the nation.
Yr 1 MP 2	903	List the identifying characteristics of various plant categories including woody and herbaceous plants in the horticulture industry.	Interpret characteristics of woody and herbaceous plant categories.	Creating a poster that compares and contrasts plant systems and key ID points.

Yr 1MP 3	301	Describe the process of photosynthesis, respiration, translocation, and transpiration.	Develop an explanation of photosynthesis, respiration, translocation, and transpiration.	Creating a poster that compares and contrasts plant systems and key ID points.
Yr 1MP 3	302	Identify plant cell structure, organization, and function.	Outline the structure and function of plant cells.	Creating a poster that compares and contrasts plant systems and key ID points.
Yr 1MP 3	303	Identify plant structures and explain their functions.	Formulate a description of plant structures and their roles.	Creating a poster that compares and contrasts plant systems and key ID points.
Yr 1MP 3	304	Identify conditions essential for seed germination.	Estimate the conditions essential for successful seed germination.	Greenhouse management techniques explained and researched.
Yr 1MP 3	305	Explain the environmental factors that affect the growth and development of a plant.	Classify environmental factors that influence plant growth and development.	Greenhouse management techniques explained and researched.
Yr 1MP 3	306	Distinguish between sexual and asexual plant reproduction.	Distinguish between sexual and asexual reproduction in plants.	Greenhouse management techniques explained and researched.
Yr 1MP 3	307	Identify plant nutrient requirements.	Create a list of plant nutrient requirements.	Greenhouse management techniques explained and researched.
Yr 1MP 3	308	Describe the nutrient cycles.	Determine how nutrient cycles support plant health.	Greenhouse management techniques explained and researched.
Yr 1MP 3	309	Classify plants and use appropriate binomial taxonomic terminology.	List steps to classify plants using binomial taxonomic terminology.	Create a diagram that breaks down three plants into their binomial taxonomic terminology used in the plant kingdom.
Yr 1MP 4	310	Describe techniques used to control environmental factors.	Research techniques used to control environmental factors in horticulture.	Greenhouse management techniques explained and researched.
Yr 1MP 4	311	Describe how weather and climate impact growing conditions and plant selection.	Explore how weather and climate affect plant selection and growth.	Greenhouse management techniques explained and researched.

Yr 1 MP 4	902	Determine the impact of environmental factors on plant materials.	Follow steps to assess environmental impacts on plant materials.	Greenhouse management techniques explained and researched.
Yr 1 MP 4	401	Determine criteria for selecting a site for a horticulture business.	Operate tools to evaluate site selection for a horticulture business.	Create a business plan on a horticulture related business.
Yr 1 MP 4	402	Research state and local requirements for horticulture businesses.	Manage the process of researching local horticulture business regulations.	Create a business plan on a horticulture related business.
Yr 1 MP 4	403	Develop a horticultural business plan.	Test your ability to develop a horticultural business plan.	Create a business plan on a horticulture related business.
Yr 1 MP 4	901	Outline the proper use of plant material in various segments of the horticulture industry.	Conduct a review of proper plant use across horticulture segments.	Greenhouse management techniques explained and researched.
		Second Year Tasks in Order:		
Yr 2 MP 1	1106	Prune various types of plant material.	Prepare to prune different types of plant material.	Demonstrate the task through hands-on application.
Yr 2 MP 1	104	Operate horticulture equipment.	Operate horticulture equipment in a safe manner outlined in the owner's manual.	Demonstrate the task through hands-on application.
Yr 2 MP 1	501	Compare soil/media characteristics.	Examine soil/media characteristics by doing soil sample testing.	Identify soil media that is used in greenhouse management and how they differ.
Yr 2 MP 1	502	Analyze soil and/or plant nutrients.	Analyze soil and/or plant nutrients for proper plant production in landscape, greenhouse, ornamental, and agriculture.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 1	503	Describe soil management techniques.	Soil management techniques will be investigated and applied in the greenhouse.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 1	504	Conduct proper soil sampling techniques.	Incorporate soil management techniques into a care plan.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 1	505	Test soil for pH, texture, macronutrients, and soluble salts.	Describe how to test soil for pH, texture, nutrients, and salts.	Complete soil samples for two different locations

				and create a Penn State soil result paper.
Yr 2 MP 1	506	Interpret commercial soil test reports.	Identify how to interpret commercial soil test reports.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 1	507	Describe criteria for selecting fertilizers and soil amendments.	Compare criteria for selecting fertilizers and soil amendments.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 1	508	Describe factors influencing fertilizer application.	Contrast factors that influence fertilizer application.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 1	307	Analyze plant nutrient requirements.	Summarize plant nutrient analysis techniques.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 1	308	Describe the nutrient cycles.	Describe the nutrient cycle.	Complete soil samples for two different locations and create a Penn State soil result paper.
Yr 2 MP 2	203	Formulate quantities of horticultural products used in plant health care.	Demonstrate how to calculate quantities of horticultural products.	Using soil medium to create a NOCTI ratio soil mix.
Yr 2 MP 2	403	Develop a horticultural business plan.	Evaluate strategies for managing a landscape business.	Create a business plan on a horticulture related business.
Yr 2 MP 2	*1156	Managing the landscape business.	Investigate best practices with managing a landscape business.	Create a business plan on a horticulture related business.
Yr 2 MP 2	*1102	Create various horticulture designs.	Analyze the process of creating horticulture designs.	Create a large water feature scaled drawing for the project and create a professional level scaled drawing.
Yr 2 MP 2	406	Research vendors to obtain product information.	Investigate vendor options for horticulture products.	Create a business plan on a horticulture related business.
Yr 2 MP 2	*1153	Perform water garden maintenance.	Interpret procedures for maintaining water gardens.	Create a large water feature project.
Yr 2 MP 2	*1204	Determine drainage/elevations using appropriate layout and leveling devices.	Develop a method to determine drainage and elevation.	Create a large water feature project.
Yr 2 MP 2	*1206	Incorporating low-voltage lights into the landscape.	Outline how to incorporate low-voltage lighting into landscapes.	Create a large water feature project.

Yr 2 MP 3	*1156	Estimating costs of landscaping materials/plans.	Formulate cost estimates for landscaping materials and plans.	Create a large water feature project.
Yr 2 MP 3	404	Analyze pricing and mark-up techniques.	Estimate pricing and mark-up strategies in horticulture.	Create a large water feature project.
Yr 2 MP 3	1109	Prepare plant material for marketing or sales.	Classify plant materials for marketing and sales.	Greenhouse management.
Yr 2 MP 3	201	Control weeds, insects, and plant diseases.	Distinguish signs and symptoms of horticultural pests.	NOCTI insect, disease, and weed management practices.
Yr 2 MP 3	207	Analyze various horticultural pests including their signs and symptoms.	Distinguish signs and symptoms of horticultural pests.	Identify common pests and research how to control their population.
Yr 2 MP 3	407	Perform appropriate customer and client relationship attributes.	Demonstrate professional customer and client relationship skills.	NOCTI customer service observation.
Yr 2 MP 3	903	Analyze characteristics of various plant categories including woody and herbaceous plants in the horticulture industry.	Evaluate traits of woody and herbaceous plants.	NOCTI list of plants that ID characteristics.
Yr 2 MP 3	904	Identify 100 plants used in the horticulture industry by horticultural reference/botanical reference (70 to be deciduous, evergreen, annuals, perennials, and house plants)	Identify 100 horticulture plants using botanical references.	NOCTI list of plants that ID characteristics.
Yr 2 MP 3	306	Distinguish between sexual and asexual reproduction.	Differentiate between sexual and asexual reproduction in plants and provide examples of each.	NOCTI propagation station observation.
Yr 2 MP 3	203	Formulate quantities of horticultural products used in plant health care.	Interpret horticulture product labels accurately.	NOCTI soil amendment observation.
Yr 2 MP 3	501	Compare soil/media characteristics.	Analyze the differences in soil and media characteristics and their impact on plant growth.	NOCTI soil amendment observation.
Yr 2 MP 3	504	Conduct proper soil sampling techniques.	Perform proper soil sampling techniques to ensure accurate nutrient analysis.	NOCTI soil sampling observation.

Yr 2 MP 4	202	Interpret horticulture product labels.	Explain how to interpret horticulture product labels to ensure safe and effective usage.	Research various product labels.
Yr 2 MP 4	512	Compare current issues regarding plant and soil management that impacts agronomic and horticultural practices.	Compare sustainable vs. conventional watering and fertilizing techniques.	Research current events in soil management practices that are being discussed.
Yr 2 MP 4	701	Explain the uses of technologically altered plants.	Explain the role of genetically modified plants in horticulture.	Research plant development and its impact on humans.
Yr 2 MP 4	704	Research advanced and emerging technologies in horticulture.	Research emerging technologies in the horticulture industry.	Research plant development and its impact on humans.
Yr 2 MP 4	801	Describe major historical developments in the field of horticulture.	Describe major historical developments in horticulture.	Research plant development and its impact on humans.
Yr 2 MP 4	802	Compare/contrast the effect human beings have had on various plant species.	Compare human impacts on various plant species.	Research plant development and its impact on humans.
Yr 2 MP 4	803	Determine how development of certain plant species has affected cultural development.	Determine how plant species development influenced cultural growth.	Research plant development and its impact on humans.