

# Jefferson City Public Schools–High School Curriculum

**SUBJECT:** Grade 10-12

**COURSE:** Horticulture

Objectives	Assessment/Evaluation	Instructional Activities
<p>(A) <b>Greenhouse Operation and Management</b></p> <ul style="list-style-type: none"><li>• Recognize the scope and development of the greenhouse (floriculture) industry</li><li>• Recognize career opportunities in the greenhouse industry</li></ul> <p><b>Landscape and Turf Management</b> Evaluation Opportunities in the Landscaping and Turfgrass Industries</p> <ul style="list-style-type: none"><li>• Explain the importance</li><li>• Identify and describe landscape and turfgrass jobs</li></ul> <p><b>Floriculture</b> Floristry Industry</p> <ul style="list-style-type: none"><li>• Describe career opportunities in floristry</li></ul> <p><b>Performance: 2.1</b> <b>Knowledge: (CA) 4</b> <b>CACLE: LS.2.A</b> <b>NETS: 1b</b> <b>DOK: 1</b></p>	<p>Career poster – assessed using a teacher created scoring guide</p>	<ul style="list-style-type: none"><li>• The teacher will do an overview PowerPoint lecture on the horticulture industry and its sectors</li><li>• Students will utilize the Internet to create a poster about a horticulture related career and present it to the class</li></ul>

Objectives	Assessment/Evaluation	Instructional Activities
<p>(B) Describe and identify ways plants benefit:</p> <ul style="list-style-type: none"> <li>humans</li> <li>society</li> <li>the economy</li> </ul> <p><b>Performance: 2.1</b>  <b>Knowledge: (CA) 4 (SC) 3,8</b>  <b>SCCLE: SC4.1.A (Biology I)</b>  <b>NETS: 2,6</b>  <b>DOK: 2,3</b></p>	<p>Power of Plants project – assessed using the scoring guide provided by the Missouri Botanical Gardens as if the project were going to be entered and scored</p>	<ul style="list-style-type: none"> <li>The teacher will: <ul style="list-style-type: none"> <li>do an overview PowerPoint lecture</li> <li>lead a discussion on the benefits plants offer to the rest of the world</li> </ul> </li> <li>Students will create an entry for the Missouri Botanical Garden Power of Plants contest that will include: <ul style="list-style-type: none"> <li>selecting a plant</li> <li>conducting research</li> <li>creating a visual showing the many benefits or “powers” it offers</li> </ul> </li> </ul>
<p>(C) Identify floriculture plants</p> <p><b>Floriculture</b>  Plant Identification</p> <ul style="list-style-type: none"> <li>Describe the factors involved in identifying plants</li> <li>Identify plants and plant parts used in the floristry industry</li> </ul> <p><b>Performance: 1.5</b>  <b>Knowledge: (SC) 3</b>  <b>SCCLE: SC3.1.E (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 1</b></p>	<p>Students will take one or several teacher created identification:</p> <ul style="list-style-type: none"> <li>practicums</li> <li>quizzes</li> </ul>	<p>Using:</p> <ul style="list-style-type: none"> <li>internet resources</li> <li>slides</li> <li>live plants</li> <li>taxonomy keys</li> </ul> <p>students will learn the plants on the State of Mo. FFA Floriculture Career Development Event</p>

Objectives	Assessment/Evaluation	Instructional Activities
<p>(D) <b>Greenhouse Operation and Management</b></p> <ul style="list-style-type: none"> <li>Identify different greenhouse parts, structures, and coverings</li> <li>Describe the operation of environmental controls and equipment found in a greenhouse</li> <li>Analyze suitable interior layouts according to greenhouse purpose</li> <li>Describe different modifications and procedures used to conserve energy in greenhouses</li> </ul> <p><b>Performance: 1.10, 2.1</b>  <b>Knowledge: (CA) 6 (SC) 8</b>  <b>SCCLE: SC4.1.C (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 3,4</b></p>	<ul style="list-style-type: none"> <li>Students will be evaluated using IML quizzes at the conclusion of the lessons</li> <li>Greenhouse: <ul style="list-style-type: none"> <li>portfolio</li> <li>model</li> </ul> – assessed using a teacher created scoring guide </li> </ul>	<ul style="list-style-type: none"> <li>The teacher will do PowerPoint lectures on greenhouse: <ul style="list-style-type: none"> <li>materials</li> <li>layouts</li> <li>controls</li> <li>equipment</li> <li>conservation of resources</li> </ul> </li> <li>Students will create a Greenhouse portfolio where they will: <ul style="list-style-type: none"> <li>create their own greenhouse and identify factors discussed</li> <li>do a written piece outlining the components and a reasons for selections</li> <li>build a model greenhouse</li> </ul> </li> </ul>
<p>(E) Identify nursery plants</p> <p><b>Landscape and Turf Management</b>  Identification</p> <ul style="list-style-type: none"> <li>Identify selected trees</li> <li>Identify selected shrubs</li> <li>Identify ground covers, vines, and perennials</li> <li>Identify characteristics of grasses</li> <li>Identify the six major turfgrasses used in Missouri</li> </ul> <p><b>Performance: 1.5</b>  <b>Knowledge: (SC) 3</b>  <b>SCCLE: SC3.1.E (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 1</b></p>	<p>Students will take one or several teacher created identification:</p> <ul style="list-style-type: none"> <li>practicums</li> <li>quizzes</li> </ul>	<p>Using:</p> <ul style="list-style-type: none"> <li>internet resources</li> <li>slides</li> <li>live plants</li> <li>taxonomy keys</li> </ul> <p>students will learn the plants:</p> <ul style="list-style-type: none"> <li>on the State of Mo. FFA Nursery/ Landscape Career Development Event</li> <li>in the IML Nursery Plant ID Guide</li> </ul>

Objectives	Assessment/Evaluation	Instructional Activities
<p>(F) <b>Landscape and Turf Management</b> Site Analysis and Evaluation</p> <ul style="list-style-type: none"> <li>Analyze a landscape site</li> <li>Draw a base map to scale</li> <li>Effectively use design symbols in a landscape plan</li> </ul> <p><b>Performance: 1.2</b> <b>Knowledge: (CA) 6</b> <b>SCCLE: SC4.1.C (Biology I)</b> <b>NETS: 1a</b> <b>DOK: 3,4</b></p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>be evaluated using an IML quiz at the conclusion of the lesson</li> <li>conduct a site analysis for their chosen area to landscape and draw a rough sketch using proper symbols – assessed using a teacher created scoring guide</li> </ul>	<ul style="list-style-type: none"> <li>The teacher will do PowerPoint lectures on Site Analysis for a landscaped area including the use of necessary symbols for use in a plan</li> <li>Student will evaluate a preset site analysis and draw a rough design of a landscape for the given area</li> </ul>
<p>(G) <b>Landscape and Turf Management</b> Selecting and Using Plants in the Landscape</p> <ul style="list-style-type: none"> <li>Select trees for specific purposes in the landscape</li> <li>Select effective shrubs and hedges for landscape</li> <li>Describe the uses of vines and ground covers and select the species to suit the location to be planted</li> <li>Select a location and plants for a perennial bed or border</li> <li>Select a turfgrass for a specific growing site</li> </ul> <p><b>Performance: 4.1</b> <b>Knowledge: (CA) 6 (SC) 3</b> <b>SCCLE: SC4.1.C (Biology I)</b> <b>NETS: 1a</b> <b>DOK: 3,4</b></p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>be evaluated using IML quizzes at the conclusion of lessons</li> <li>select plants to use in the landscape area they had chosen – assessed using a teacher created scoring guide with final landscape design</li> </ul>	<ul style="list-style-type: none"> <li>The teacher will do a PowerPoint lecture on the selection of various plants for different uses in the landscape</li> <li>Students will: <ul style="list-style-type: none"> <li>analyze current plants in a given landscape</li> <li>determine if the plants are being used for the correct purpose</li> <li>create suggestions for improvements</li> </ul> </li> </ul>

Objectives	Assessment/Evaluation	Instructional Activities
<p>(H) <b>Landscape and Turf Management</b> Landscape Designing</p> <ul style="list-style-type: none"> <li>Identify and explain the four elements of landscape design</li> <li>Implement the use of natural and manufactured enrichments in a landscape plan</li> <li>Identify the five principles of design</li> <li>Apply both the principles and elements of design to create a landscape plan</li> </ul> <p><b>Performance: 3.4</b>  <b>Knowledge: (CA) 6 (SC) 3</b>  <b>SCCLE: SC4.1.C (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 3,4</b></p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>be evaluated using IML quizzes at the conclusion of lessons</li> <li>do an in-class practicum where they create a hand and/or computer generated design for their selected landscape area – assessed using a teacher created scoring guide</li> </ul>	<ul style="list-style-type: none"> <li>The teacher will do a PowerPoint lecture on elements of landscape:             <ul style="list-style-type: none"> <li>design</li> <li>enrichments</li> <li>design principles</li> </ul> </li> <li>Students will demonstrate elements and design principles on a given area to landscape</li> </ul>
<p>(I) <b>Greenhouse Operation and Management</b></p> <ul style="list-style-type: none"> <li>Identify plant parts, structures, and functions</li> <li>Describe the plant processes involved with plant growth</li> <li>Describe environmental effects on plant growth</li> </ul> <p><b>Performance: 1.2</b>  <b>Knowledge: (CA) 4 (SC) 3</b>  <b>SCCLE: SC3.2.B (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 2</b></p>	<ul style="list-style-type: none"> <li>Students will be evaluated using IML quizzes at the conclusion of lessons</li> <li>Labs – assessed using teacher:             <ul style="list-style-type: none"> <li>created scoring guides</li> <li>observation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Students will:             <ul style="list-style-type: none"> <li>read from teacher provided text and complete worksheets</li> <li>conduct a lab where plants are placed in varying conditions affecting plant growth where they track and record changes</li> </ul> </li> <li>The teacher will do an overview PowerPoint lecture on plant:             <ul style="list-style-type: none"> <li>parts</li> <li>processes</li> <li>environmental factors</li> </ul> </li> </ul>

Objectives	Assessment/Evaluation	Instructional Activities
<p><b>(J) Greenhouse Operation and Management</b></p> <ul style="list-style-type: none"> <li>• Prepare a soilless growing medium</li> <li>• Identify the basic types and sizes of containers used in the commercial greenhouses</li> <li>• Describe the factors involved in the proper watering of greenhouse plants</li> </ul> <p><b>Performance: 1.2, 4.1</b>  <b>Knowledge: (SC) 4</b>  <b>SCCLE: SC5.2.A (Earth &amp; Space Science)</b>  <b>NETS: 1a</b>  <b>DOK: 3</b></p>	<ul style="list-style-type: none"> <li>• Students will: <ul style="list-style-type: none"> <li>• take a teacher created quiz identifying different growing containers and soilless growing medium components and their purpose</li> <li>• demonstrate proper watering techniques and be graded by teacher observations</li> </ul> </li> <li>• Labs – assessed using teacher observation and comparisons of plant success</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher will do an overview PowerPoint lecture on: <ul style="list-style-type: none"> <li>• soilless growing media components</li> <li>• various containers and their purposes</li> <li>• proper watering</li> </ul> </li> <li>• Students will: <ul style="list-style-type: none"> <li>• mix various soilless growing mediums</li> <li>• determine the best combo for given plants</li> </ul> </li> </ul>
<p><b>(K) Greenhouse Operation and Management</b></p> <ul style="list-style-type: none"> <li>• Identify plants that are important to the Missouri floriculture industry</li> <li>• Start plants from seeds</li> </ul> <p><b>Performance: 3.2</b>  <b>Knowledge: (SC) 3</b>  <b>SCCLE: SC3.3.A (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 3</b></p>	<p>Techniques used by students will be assessed using teacher observation</p>	<ul style="list-style-type: none"> <li>• The teacher will do an overview PowerPoint lecture on: <ul style="list-style-type: none"> <li>• sexual plant reproduction (seeds)</li> <li>• asexual reproduction methods</li> </ul> </li> <li>• Students will: <ul style="list-style-type: none"> <li>• plant seeds</li> <li>• demonstrate asexual methods</li> </ul> </li> </ul>

Objectives	Assessment/Evaluation	Instructional Activities
<p>(L) <b>Greenhouse Operation and Management</b></p> <ul style="list-style-type: none"> <li>Describe the principles and techniques for proper fertilization of greenhouse crops</li> <li>Identify common pests and diseases found in Missouri greenhouses</li> <li>Describe control methods, chemical formulations, and equipment used to control pests in the greenhouse</li> </ul> <p><b>Performance: 3.4</b>  <b>Knowledge: (CA) 4,6 (SC) 3</b>  <b>SCCLE: SC4.1.C (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 4</b></p>	<ul style="list-style-type: none"> <li>Students will be evaluated using IML quizzes at the conclusion of lessons</li> <li>Pest management plan – assessed using a teacher created scoring guide</li> </ul>	<ul style="list-style-type: none"> <li>Students will: <ul style="list-style-type: none"> <li>read from teacher provided text and complete worksheets</li> <li>demonstrate ability to apply fertilizer properly on a greenhouse crop</li> <li>create a pest management plan for an assigned pest</li> </ul> </li> <li>The teacher will do an overview PowerPoint lecture on: <ul style="list-style-type: none"> <li>fertilization</li> <li>techniques for applying fertilizer</li> <li>greenhouse pests</li> <li>ways to control pests</li> </ul> </li> </ul>
<p>(M) <b>Greenhouse Operation and Management</b></p> <ul style="list-style-type: none"> <li>Prepare a plant for sale</li> </ul> <p><b>Performance: 1.10</b>  <b>Knowledge: (SC) 8</b>  <b>CACLE: LS.2.A</b>  <b>NETS: 1a</b>  <b>DOK: 2</b></p>	<p>Students will prepare greenhouse plants for “sale” leaving the greenhouse – assessed using a teacher created scoring guide checklist</p>	<ul style="list-style-type: none"> <li>Students will read from teacher provided text and complete worksheets</li> <li>The teacher will do an overview PowerPoint lecture on preparing plants for: <ul style="list-style-type: none"> <li>distribution</li> <li>sale</li> </ul> </li> </ul>
<p>(N) Maintain floriculture crops</p> <p><b>Performance: 1.10, 3.4</b>  <b>Knowledge: (SC) 8</b>  <b>SCCLE: SC4.1.C (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 2</b></p>	<p>Teacher observation and success of crops</p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>attempt to keep crops alive and thriving</li> <li>diagnose and correct any problems</li> </ul>

Objectives	Assessment/Evaluation	Instructional Activities
<p>(O) Maintain interior scraping crops</p> <p><b>Performance: 1.2</b>  <b>Knowledge: (SC) 8</b>  <b>SCCLE: SC4.1.C (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 2</b></p>	<p>Teacher observation and success of crops</p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• attempt to keep crops alive and thriving</li> <li>• diagnose and correct any problems</li> </ul>
<p>(P) <b>Floriculture</b>  Basic Principles of Floral Design</p> <ul style="list-style-type: none"> <li>• Identify basic principles of floral arranging and elements of design</li> <li>• Identify design shapes</li> </ul> <p>Mechanics of Floral Design</p> <ul style="list-style-type: none"> <li>• Select and prepare appropriate containers</li> <li>• Perform basic wiring and taping techniques</li> </ul> <p>Types of Designs</p> <ul style="list-style-type: none"> <li>• Construct flower wear</li> </ul> <p><b>Performance: 1.10, 3.4</b>  <b>Knowledge: (FA) 2</b>  <b>VACLE: PP.3.B (HS Level 4)</b>  <b>NETS: 1a</b>  <b>DOK: 4</b></p>	<ul style="list-style-type: none"> <li>• Steps will be assessed by the teacher to determine mastery</li> <li>• Student will construct a corsage and/or boutonnière using selected techniques and methods – assessed using a teacher created scoring guide</li> </ul>	<ul style="list-style-type: none"> <li>• Students will read from teacher provided text and complete worksheets</li> <li>• The teacher will: <ul style="list-style-type: none"> <li>• do an overview PowerPoint lecture on elements of floral design</li> <li>• demonstrate: <ul style="list-style-type: none"> <li>• taping</li> <li>• wiring</li> <li>• bow making</li> </ul> </li> </ul> </li> </ul> <p>with students demonstrating back</p>



Objectives	Assessment/Evaluation	Instructional Activities
<p>(Q) <b>Landscape and Turf Management</b>            Installation and Maintenance of Trees and Shrubs</p> <ul style="list-style-type: none"> <li>• Prune trees, shrubs, hedges, and roses</li> <li>• Fertilize trees and shrubs</li> <li>• Determine the best methods of irrigation in various situations</li> </ul> <p><b>Performance: 1.2</b>  <b>Knowledge: (SC) 8</b>  <b>SCCLE: SC4.1.C (Biology I)</b>  <b>NETS: 1a</b>  <b>DOK: 2</b></p>	<p>Students will demonstrate competence of the various techniques needed when caring for selected landscapes</p>	<p>The teacher will demonstrate techniques needed to care for a selected landscape area</p>