

Greenhouse Operation and Management

Curriculum Guide: *Greenhouse Operation and Management*

Unit: III. Plant Science Basics

Unit Objective:

Students will demonstrate an understanding of plant science by creating a plant collection in which plants will be identified and labeled as to the type of root, leaf shape, leaf margin, leaf attachment, and venation.

Show-Me Standards: 1.3, SC3

References:

Greenhouse Operation and Management. University of Missouri-Columbia, Instructional Materials Laboratory, 2002.

Horticulture Publications. MU Extension. University of Missouri-Columbia. Accessed February 6, 2004, from <http://muextension.missouri.edu/explore/agguides/hort/index.htm>.

The National Arbor Day Foundation. Accessed December 11, 2003, from <http://www.arborday.org/>.

Plants of Missouri. Missouri Department of Conservation. Accessed December 11, 2003, from <http://www.conservation.state.mo.us/>.

Reiley, H. E., & Shry, C. L., Jr. *Introductory Horticulture*, 6th ed., Delmar Learning, 2000.

Instructional Strategies/Activities:

- Students will engage in study questions in lessons 1 through 3.
- Students will complete AS 3.2, Stem Poster; AS 3.3, Leaf Poster; AS 3.4, Identifying Monocot and Dicot Plants; AS 3.6, Plant Pictionary: Part I; and AS 3.7, Plant Pictionary: Part II.
- Additional activities that relate to the unit objective can be found under the heading "Other Activities and Strategies" in the following location: p. 161.

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Performance-Based Assessment:

Each student will create a plant collection that includes two types of roots, six types of leaf shapes, four types of leaf margins, four types of leaf attachments, and two types of venation. For examples of these plant types and shapes, students can refer to lesson 1 in the unit. Students will mount each specimen to a piece of paper in some manner. Each root or leaf should be labeled as to the category and the sample it represents (e.g., type of leaf shape, oval).

Assessment will be based on the overall content and presentation of the plant collection.

Unit III—Plant Science Basics Instructor Guide

The instructor should assign the performance-based assessment activity at the beginning of the unit. Students will work toward completing the activity as they progress through the unit lessons. The assessment activity will be due at the completion of the unit.

1. Students will work individually to collect plant specimens that represent the following categories:
 - Two types of roots
 - Six types of leaf shapes
 - Four types of leaf margins
 - Four types of leaf attachments
 - Two types of venation
2. Students can refer to lesson 1 in the unit to find examples of the different categories.
3. Have students create a plant collection from their specimens.
 - a. Students will mount each specimen to a piece of paper in some manner.
 - b. Each specimen will be labeled as to the category and sample it represents (e.g., type of leaf shape, oval).
4. The final assessment will be based on the overall content and presentation of the collection.

Unit III—Plant Science Basics Student Handout

1. You will work individually to collect plant specimens that represent the following categories:
 - Two types of roots
 - Six types of leaf shapes
 - Four types of leaf margins
 - Four types of leaf attachments
 - Two types of venation
2. You can refer to lesson 1 in the unit to find examples of the different categories.
3. Create a plant collection from your specimens.
 - a. Mount each specimen to a piece of paper in some manner.
 - b. Label each specimen as to the category and sample it represents (e.g., type of leaf shape, oval).
4. Your final assessment score will be based on the overall content and presentation of your collection.

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**Unit III—Plant Science Basics
Scoring Guide**

Name _____

Assessment Area	Criteria	0 Points	1 Point	2 Points	3 Points	4 Points	Weight	Total
Content of Collection	All the required mounts are present	Failed	Poor	Fair	Good	Excellent	X 5	
	Mounts are labeled correctly	Failed	Poor	Fair	Good	Excellent	X 5	
Presentation of Collection	Mounts are well organized and neat	Failed	Poor	Fair	Good	Excellent	X 15	
TOTAL								

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Final Assessment Total _____/100 pts.

Comments:

