

Advanced Crop Science

Curriculum Guide: *Advanced Crop Science*

Unit: IV. Identifying and Selecting Crops and Seeds

Unit Objective:

Students will demonstrate an understanding of basic principles of plant identification by collecting common crop and grassland plants, identifying them by their leaf characteristics, and presenting them on a poster or in another format, as determined by the instructor.

Show-Me Standards: 1.3, CA1

References:

Advanced Crop Science. University of Missouri-Columbia, Instructional Materials Laboratory, 2000.

Crop and Grassland Plant Identification Manual. University of Missouri-Columbia, Instructional Materials Laboratory, 1997.

Forage Identification Pages. Purdue University. Accessed November 11, 2003, from <http://www.agry.purdue.edu/ext/forages/forageid.htm>.

Kallenbach, R. L., & Bishop-Hurley, G. J. *A Guide to the Common Forages and Weeds of Pastures*. MU Extension. University of Missouri-Columbia. Accessed October 15, 2003, from <http://muextension.missouri.edu/explore/manuals/m00169.htm>.

Leaf Terms. MBG Net. Missouri Botanical Garden. Accessed October 27, 2003, from <http://mbgnet.mobot.org/sets/temp/lftypes.htm>.

Missouri CDE Handbook. Accessed March 12, 2004, from http://www.dese.mo.gov/divcareered/ag_cde_guidelines.htm.

Plants of Missouri. Missouri Department of Conservation. Accessed October 14, 2003, from <http://www.conservation.state.mo.us/>.

Students may use additional outside sources to complete this activity.

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Instructional Strategies/Activities:

- Students will engage in study questions in lessons 1 through 3.
- Students will complete AS 3.2, Identify Plant Seeds.
- Additional activities that relate to the unit objective can be found under the heading “Other Activities” in the following locations: p. IV-6 (2) and p. IV-45 (2).

Performance-Based Assessment:

Students will work in groups to identify common crop and grassland plants by their leaf characteristics. The groups will locate and identify samples that illustrate characteristics discussed in the unit – leaf and bud arrangement, leaf venation, leaf type, leaf shape, and leaf margin. They will present their collection on a poster or in another format, as determined by the instructor.

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

Unit IV—Identifying and Selecting Crops and Seeds 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. Divide the class into groups.
2. Have each group collect and identify samples of common crop and grassland plants. Indicate how many samples students should collect.
 - a. Students may use outside sources to help them in the identification process. For example, information regarding Missouri plants can be found on the Missouri Department of Conservation web site at <http://www.conservation.state.mo.us/>. An ID manual, the *Crop and Grassland Plant Identification Manual*, is available from the University of Missouri-Columbia, Instructional Materials Laboratory.
 - b. For a list of common crop and grassland plants, see the Crop Plant and Weed Plant list that accompanies the Agronomy Career Development Event. The *Missouri CDE Handbook* is available from the Missouri Department of Elementary and Secondary Education at http://www.dese.mo.gov/divcareered/ag_cde_guidelines.htm.
 - c. If students do use web sites or other sources to help identify plants, they must turn in a list of these sources along with their completed project.
3. Have students classify the samples by their leaf characteristics and present the collection on a poster. Students should classify each sample according to each of the characteristics listed below.
 - Leaf and bud arrangement
 - Venation
 - Margin
 - Leaf type
 - Leaf shape
 - Base shape
 - Tip shape
4. If preferred, have students assemble their collection in a different format, such as in a binder or as a presentation using presentation software. Tell students what format is preferable. Adjust the student handout and scoring guide accordingly as needed.

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5. Use TM 1.1, Leaf Characteristics, to explain or review the different physical characteristics of leaves. NOTE: Because the leaf characteristic illustrations in the TM are not included in the Student Reference, it might be useful to post the illustrations in class.
6. Display completed posters in class.
7. The final assessment score will be based on the overall content and presentation of the collection.

**Unit IV—Identifying and Selecting Crops and Seeds
Student Handout**

1. The instructor will divide the class into groups.
2. Collect and identify samples of common crop and grassland plants.
3. Classify the samples by their leaf characteristics. Classify each sample according to each of the characteristics listed below.
 - Leaf and bud arrangement
 - Venation
 - Margin
 - Leaf type
 - Leaf shape
 - Base shape
 - Tip shape
4. Assemble and present your collection as directed by the instructor.
5. You may use outside sources to help identify the crops and plants. Turn in a list of any sources you used to identify plants along with your completed collection.
6. Your final assessment score will be based on the overall content and presentation of your collection.

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Unit IV—Identifying and Selecting Crops and Seeds Scoring Guide

Name _____

Assessment Area	Criteria	0 Points	1 Point	2 Points	3 Points	4 Points	Weight	Total
Information and Content	Collection includes a representative sample of crop and grassland plants in which plants and leaf characteristics are correctly identified	Failed	Poor	Fair	Good	Excellent	X 17.5	
Presentation	Collection is well organized and eye-appealing	Failed	Poor	Fair	Good	Excellent	X 5	
Technical Considerations	Spelling, grammar, and punctuation are correct	Failed	Poor	Fair	Good	Excellent	X 2.5	
TOTAL								

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Final Assessment Total _____/100 pts.

Comments:

