Agricultural Science II

Curriculum Guide: *Introduction to Grassland Management*

Unit: II. Soil Management

Unit Objective:

Students will demonstrate an understanding of basic principles of soil management by analyzing the results of a soil test and presenting their findings to the class in a chart and oral report.

Show-Me Standards: 1.3, SC7

References:

"How to Take a Soil Sample." Missouri Department of Conservation. Accessed January 15, 2003, from http://www.conservation.state.mo.us/landown/wild/landmgmt/practices.htm.

Introduction to Grassland Management. University of Missouri-Columbia, Instructional Materials Laboratory, 1997.

Lory, J. A. *Interpreting Missouri Soil Test Reports*. University of Missouri-Columbia Extension. Accessed January 15, 2003, from http://muextension.missouri.edu/explore/agguides/soils/g09112.htm.

Instructional Strategies/Activities:

- Students will engage in study questions in lessons 1 through 2.
- Students will complete AS 1.1, Word Search; and AS 1.2, Taking a Soil Sample.
- Additional activities that relate to the unit objective can be found under the heading "Other Activities" in the following locations: p. II-5 and p. II-17 (1, 2).

Performance-Based Assessment:

Students will work in groups to collect soil samples from different locations within an assigned area. They will have the soil tested, analyze the results, and present their findings to the class in a chart and oral report.

Assessment will be based on the accuracy of the interpretation of the soil analysis results and the overall content and presentation of the chart and report. At the instructor's discretion, students will contribute to the assessment process by providing a brief evaluation of the performance of the other members of their group.

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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 and assign each group a different area from which to collect soil samples, such as a yard, conservation area, football or softball field, or farm.

2. Have each group collect soil samples to create a composite sample. Use AS 1.2, Taking a Soil Sample, p. II-11 of the Instructor Guide.

3. Have students submit their composite sample to a University of Missouri Outreach & Extension office for testing. Samples could also be tested in class.
   a. Extension offices can be located by searching the University of Missouri Outreach & Extension web site at http://outreach.missouri.edu/regions/index.html, accessed January 15, 2003.
   b. If samples are tested in class, provide testing equipment and explain how to use it properly.
   c. If students test the samples, verify the accuracy of their results by retesting the samples.

4. Have students compile their results and present their findings to the class as a chart and oral report.

5. Indicate what information students must provide for their samples in their chart and report. Topics could include the following:
   - Description of topography
   - Physical properties of the sample
   - Interpretation of physical properties
   - Soil test results
   - Interpretation of soil analysis
   - Recommendations

6. Students should be prepared to answer questions about their interpretations and recommendations.

7. If desired, have students contribute to the assessment process by completing a short evaluation of their teammates' performance in completing the project. A peer evaluation form is included following the scoring guide.
   a. Have students complete the peer evaluation form by following the instructions listed at the top. Students should base their assessment on how much each person contributed to the project.
   b. If tasks are divided so that students do only one type of task to contribute to the project, have students adjust their peer evaluation form by disregarding the category that does not apply to a particular teammate. Instead of assessing teammates on two categories worth 0 to 3 points, students will assess teammates on one category worth 0 to 6 points.
   c. To determine the final peer evaluation score, add up the scores that a student receives from the other members of the group and divide the total by the number of scores received. The maximum number of points possible for each student is 6.

8. Assessment will be based on the accuracy of the interpretations of the soil analysis results and the overall content and presentation of the chart and report.

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Student Handout

1. The instructor will divide the class into groups.

2. Your group will collect soil samples from an assigned area using the procedure indicated by your instructor.

3. Submit your composite sample for testing.

4. Compile your observations and test results and present your findings to the class as a chart and an oral report.
   a. Keep in mind questions such as the following:
      - What is the topography of the sample area like?
      - What are the physical characteristics of the soil?
      - What do the physical characteristics indicate about the sample?
      - What does the soil test indicate about the sample?
      - Based on the results of the soil analysis, what recommendations would I make?
   b. Your instructor will provide specific topic headings to be addressed.
   c. Be prepared to answer questions from your instructor and classmates about your interpretations and recommendations.

5. Turn in your completed chart, along with your soil sample, following your presentation.

6. If requested, you will contribute to the assessment process by completing a short evaluation of your teammates' performance in analyzing the soil sample and preparing your presentation.
   a. When the project is complete, fill out the peer evaluation score sheet.
   b. Give the completed score sheet to your instructor.

7. Your final assessment score will be a combination of your completed project score and your final peer evaluation score.

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Scoring Guide

Name _____

Assessment Area	Criteria	0 Points	1 Point	2 Points	3 Points	4 Points	Weight	Total
Information and Content of Chart and Oral Report	❑ Information is complete ❑ Facts are accurate ❑ Well organized ❑ No spelling, grammar, or punctuation errors ❑ Answers questions from the instructor and students correctly	0 criteria met	1-2 criteria met	3 criteria met	4 criteria met	All 5 criteria met	X 20	
Presentation of Oral Report	❑ Holds audience interest ❑ Speaks clearly ❑ Good posture ❑ Maintains eye contact	0 criteria met	1 criterion met	2 criteria met	3 criteria met	All 4 criteria met	X 3.5	
Peer Evaluation						6 pts. maximum		
TOTAL								

Final Assessment Total _____/100 pts.

Comments:

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Peer Evaluation **Name**_____

Write your name on the line above. Fill in the names of your teammates in the spaces provided below. For each category listed below, give each teammate a score from 0 to 3 based on his or her contribution to the project. Use the following guide.

- 0—no contribution
- 1—minimal contribution
- 2—average contribution
- 3—excellent contribution

Add the person's score in each category and place the total in the column at the right. Give the completed score sheet to your instructor.

Project development includes tasks such as preparation and research. Project completion includes writing, assembling, or presenting the project. If tasks are divided so that you or your teammates do only one type of task to contribute to the project, consult the instructor about how to adjust your evaluation form.

Name of Teammate	Project Development 0-3 Points	Project Completion 0-3 Points	Total (6 Points Max.)