Agricultural Structures

Curriculum Guide: *Agricultural Structures*

Unit: I. Working With Plans

Unit Objective:

Students will demonstrate an understanding of the importance planning has on effective work procedure by drawing a construction plan and developing a plan of procedure, a cutting bill of materials, and a purchasing bill of materials.

Show-Me Standards: 1.8, MA2

References:

Agricultural Construction Volume I. University of Missouri-Columbia, Instructional Materials Laboratory, 1989.

Agricultural Structures. University of Missouri-Columbia, Instructional Materials Laboratory, 1999.

Computer Applications in Agriculture. University of Missouri-Columbia, Instructional Materials Laboratory, 2001.

Instructional Strategies/Activities:

- Students will engage in study questions in lessons 1 and 2.
- Students will complete AS 1.1, Reading a Plan; AS 1.2, Drawing a Plan; and AS 2.1, Preparing a Plan of Procedure.
- Additional activities that relate to the unit objective can be found under the heading "Other Activities" in the following locations: p. I-5 and p. I-32.

Performance-Based Assessment:

Students will develop a construction plan for a project by making three scale drawings—one each for the top, front, and side of the project. Students must also devise a plan of procedure, a cutting bill of materials, and a purchasing bill of materials for a project.

Assessment will be based on the completeness, accuracy, and appearance of the drawings and the overall thoroughness and accuracy of the plan of procedure and bills of materials.

Unit I—Working With Plans
Instructor Guide

The instructor should distribute the student handouts at the beginning of the unit and assign the performance-based assessment activities in conjunction with the relevant lesson material as indicated in the instructor guide. Students will complete the activities as they progress through the unit lessons.

1. Use AS 1.2 (Student), Drawing a Plan, to assess student competency at preparing a construction plan. Students will use computer-aided drafting (CAD) equipment or pencils and paper to make three elevation drawings of a storage building.
   a. For a complete description of the activity, see AS 1.2 (Instructor), p. I-25.
   b. Answers for the activity are located on p. I-6.

2. Use AS 2.1, Preparing a Plan of Procedure, to assess student competency at developing a plan of procedure and preparing a cutting bill of materials and purchasing bill of materials. Students will use elevation drawings of a pine workbench to develop a plan of procedure and bills of materials for the project.
   a. For a complete description of the activity, see AS 2.1, pp. I-37–I-38.
   b. Answers for the activity are located on p. I-32.

3. For additional practice in working with plans and developing bills of materials, see Unit VI, Project Construction, in *Agricultural Construction Volume I* and AS 18, Electronic Bill of Materials, in *Computer Applications in Agriculture*. Both are available from the Instructional Materials Laboratory, University of Missouri-Columbia, accessed December 1, 2003, at http://www.iml.coe.missouri.edu/.

4. The student handout includes checklists based on these activity sheets that students can use to evaluate their work.

5. The student handout and scoring guide can also be adapted for use with students' class projects, if desired.

6. The final assessment score will be based on the completeness, accuracy, and appearance of the drawings and the overall thoroughness and accuracy of the plan of procedure and bills of materials.

7. ADDITIONAL ACTIVITY: Have students determine the time frame for the completion of a project. For a work sheet that could be used for this activity, see WS 5.1, Time Estimation Sheet, p. VI-53 of *Agricultural Construction Volume I*.

Unit I—Working With Plans
Student Handout

Complete the activities below; use the checklists to evaluate your work.

AS 1.2, Drawing a Plan

1. Use the procedure outlined in AS 1.2 to draw a construction plan.
2. Check your work and make any necessary changes.
   - ❑ Scale is appropriate and all dimensions are to scale.
   - ❑ Plan includes all necessary dimensions and specifications.
   - ❑ Drawings are correctly labeled.
   - ❑ Lines and symbols are used correctly.
   - ❑ Plan includes front, side, and top elevations.
3. Turn in your completed activity sheet. Due date _____.
4. Your final assessment score will be based on the completeness, accuracy, and appearance of your drawings.

AS 2.1, Preparing a Plan of Procedure

1. Complete AS 2.1, Preparing a Plan of Procedure.
2. Check your work and make any necessary changes.
   - ❑ Plan includes all steps needed to complete the project.
   - ❑ Cutting bill of materials includes materials needed for the project in their final dimensions.
   - ❑ Purchasing bill of materials includes all materials in standard sizes, as well as any fasteners, hinges, etc., if needed.
3. Turn in your completed activity sheet. Due date _____.
4. Your final assessment score will be based on the overall thoroughness and accuracy of the plan of procedure and bills of materials.

Agricultural Structures

Unit I—Working With Plans
Scoring Guide

Name _____

Activity	Criteria	Points Possible	Points Earned	Comments
Drawing a Plan	❑ Scale is appropriate and all dimensions are to scale ❑ Plan includes all necessary dimensions and specifications ❑ Drawings are correctly labeled ❑ Lines and symbols are used correctly ❑ Plan includes front, side, and top elevations			
Preparing a Plan of Procedure	❑ Plan includes all steps needed to complete the project ❑ Cutting bill of materials includes materials in their final dimensions ❑ Purchasing bill of materials includes all materials in standard sizes, as well as any fasteners, hinges, etc.			

Total Points Earned _____