

Agricultural Science I

Curriculum Guide: *Agricultural Mechanics Unit for Agricultural Science I*

Unit: III. Woodworking

Unit Objective:

Students will apply basic woodworking skills by constructing an appropriate woodworking project.

Show-Me Standards: 2.5, CA3

References:

Agricultural Mechanics Building Plans. University of Missouri-Columbia, Instructional Materials Laboratory, 1994.

Agricultural Mechanics Plans (Set). University of Missouri-Columbia, Instructional Materials Laboratory.

Agricultural Mechanics Unit for Agricultural Science I. University of Missouri-Columbia, Instructional Materials Laboratory, 2002.

Woodworking for Wildlife. Missouri Department of Conservation. Accessed November 13, 2003, from

<http://www.conservations.state.mo.us/nathis/woodwork/>.

Instructional Strategies/Activities:

- Students will engage in study questions in lessons 1 through 4.
- Students will complete AS 1.1, Measurement Review; AS 1.2, Calculating Area and Board Feet; AS 2.1, Using a Crosscut Saw; AS 2.2, Using a Rip Saw; AS 2.3, Making a 45-Degree Miter Cut; AS 2.4, Making a Straight Cut With a Portable Circular Saw; AS 2.5, Making a Miter Cut With a Table Saw; AS 3.1, Using a Brace; and AS 3.2, Using a Portable Drill.
- Additional activities that relate to the unit objective can be found under the heading "Other Activities" in the following locations: p. III-5 and pp. III-102-III-103 (1, 2, 3).

Performance-Based Assessment:

Students will use common woodworking tools and procedures discussed in class to lay out and construct an appropriate woodworking project.

Assessment will be based on the overall quality of the work and the ability to safely and correctly complete the project within the available time.

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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. Use or adapt the activity sheets found in the unit to assess student competency at performing basic woodworking procedures. Review or supplement these activities as needed, based on student mastery of the procedures and the tools the students will be using. **NOTE: Students should only complete this performance-based activity if they have mastered all the relevant competencies and have the instructor's permission to perform the activity.**
2. For the performance-based assessment activity, have students apply the skills and procedures discussed in the unit to construct an appropriate woodworking project.
 - a. See the Unit III Activity, Woodworking Plans, pp. III-121-III-130, for a selection of project plans and additional details. Single-sheet plans are included for a boot jack, flower box, step stool, and tool box.
 - b. For additional project plans, see *Agricultural Mechanics Building Plans* and *Agricultural Mechanics Plans (Set)*, available from the Instructional Materials Laboratory, University of Missouri-Columbia, accessed November 13, 2003, at <http://www.iml.coe.missouri.edu/>.
 - c. Plans are also available from the Missouri Department of Conservation. See Woodworking for Wildlife, accessed November 14, 2003, at <http://www.conservations.state.mo.us/nathis/woodwork/>.
3. The student handout for this activity is a Project Completion Checklist and Project Evaluation Checklist. Students can use the checklists to track the progress of their project and evaluate their work. Supplement or modify the student handout to reflect actual projects as needed.
4. Have students turn in their completed projects.
5. The final assessment score will be based on the overall quality of the work and the ability to safely and correctly complete the project within the available time.

6. **ADDITIONAL ACTIVITY:** If all students are building the same project, a display board can be made as a teaching aid for the project. To make a display board, mount correctly made examples of each project piece on a board. Label each piece and indicate the number of pieces needed. Have students compare their project pieces with the correctly made examples. Students should make sure their pieces match the examples before proceeding.

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Student Handout**

Name _____

Use the Project Completion Checklist and Project Evaluation Checklist to track the progress of your project.

Project Completion Checklist

Procedure	Date Due
☐ Master all competencies necessary to complete the project.	
☐ Receive instructor approval to build the project.	
☐ Review safety precautions for the tools to be used. You can lose points for not following safety precautions and other assigned procedures.	
☐ Perform a quality control inspection of the project during construction. Use the Project Evaluation Checklist.	
☐ Complete project construction.	
☐ Perform a quality control inspection of the project following completion. Use the Project Evaluation Checklist.	
☐ Turn in the completed project. Your final assessment score will be based on the overall quality of the work and your ability to safely and correctly complete the project within the available time.	

Project Evaluation Checklist

Quality Control and Shop Procedures	Criteria
Quality of Work	☐ Fasteners are correct type and size. ☐ Holes, cut edges, and surfaces are smooth. ☐ Measurements are correct. ☐ Cuts are accurate. ☐ Parts fit well for optimum strength. ☐ Project is square and straight. ☐ Work was completed on time.
Design and Suitability	☐ Materials are well suited to the project. ☐ Project is well balanced, proportional, and pleasing to the eye. ☐ Project is the right size for its use. ☐ Project is suitable for its intended purpose. ☐ Project is good enough to sell.
Safety and Work Habits: Observe these safety procedures whenever you are in the shop.	☐ Know how to use the equipment before you attempt to use it. Only use tools and materials the instructor has approved you to use. ☐ Wear appropriate personal protective equipment. ☐ Follow safety guidelines from your instructor and safety information on labels, equipment, and signs in the work area. ☐ Follow assigned setup, shutdown, and cleanup procedures. ☐ Return equipment and materials to their assigned places. ☐ Do not use equipment that does not function properly. ☐ Tell the instructor about any damaged or malfunctioning equipment.

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Name _____

Assessment Area	Criteria	0 Points	1 Point	2 Points	3 Points	4 Points	Weight	Total
Quality of Work	☐ Fasteners are correct ☐ Holes, cuts, and surfaces are smooth ☐ Cuts and measurements are accurate ☐ Parts fit well ☐ Project is square and straight ☐ Work was completed on time	Failed	Poor	Fair	Good	Excellent	X 20	
Design and Suitability	☐ Materials are well suited to the project ☐ Project is well balanced and pleasing to the eye ☐ Project is the right size for its use ☐ Project is suitable for its intended purpose	Failed	Poor	Fair	Good	Excellent	X 5	
Safety and Work Habits	Student followed all safety precautions	Passed				Failed	X (-25)	Negative Points *
	Student followed all assigned procedures	Excellent	Good	Fair	Poor	Failed	X (-10)	Negative Points *
TOTAL								

Final Assessment Total _____/100 pts.
* Overall combined score cannot be lower than 0.

Comments:

