

Unit: Book 2 Projects

Title: Shed with Gable Roof

Skill(s) and Knowledge: Students will be able to: identify the tools and materials and processes needed to complete the shed project, while maintaining a safe working environment. New vocabulary: Studs, plates, header, trimmer, cripple, rafter, ridge, etc.

Tasks: Perform each of the following lead-up exercises: wall layout, checking for square, constructing a header, common rafter.

Performance objective: Create a cut list, identify materials and fasteners, follow directions, read working drawings, use and maintain hand and power tools, work as a team to assemble the shed.

Tools, supplies and reference materials:

Shed Materials: Floor system: (2) $\frac{3}{4}$ " 4 x 8 plywood, (2) 2x6x8 rim joists, (4) 2x6x10 floor joists, Wall system: (6) 2x4x8 plates, (3) 2x4x10 plates, (36) 2x4x8 studs/headers, scrap $\frac{1}{2}$ " for headers. Roof system: (1) 2x6x8 ridge, (7) 2x4x8 rafters Temporary Braces: (6) 2x4x10, Fasteners; 12d sinkers and 6d common

Tools: Circular Saw, Hand saw, utility knife, 8' step ladders, chalk line, PPE, Pencil, tape measure, framing square, speed square, framing hammer, 4' level, plumb bob, sawhorses. Career Connection Book 2 Chapter 6 pages: 238-288.

Methods of instruction: Provide students with the materials to and tools to complete the project and allow students to work in small groups at their own pace referencing the Career Connections Book 2 Chapter 6 and following the instructions.

Estimated time: 30 hrs. **Number of students:** 15-20

Task analysis or activities: Students will work in small groups at shop tables, with all the previously mentioned power tools, working together to complete all activities and helping each other as they progress at their own pace.

Evaluation: Students will be graded on their use of time, safety methods, quality of work, cleaning and organization of their work area, interaction with other students, and vocational employability skills grading rubric. Shed project evaluation on page 322.

Performance Notes:

Vocational Frameworks References

- 2.E.01.01 Demonstrate use and maintenance of layout, marking and measuring tools
- 2.F.01.01 Demonstrate use and maintenance of portable circular saw.
- 2.G.01.03 Demonstrate the use and maintenance of step ladders.
- 2.H.02 Demonstrate practices related to framing exterior walls.

English/Strand 3 Frameworks References:

RST Grades 9-10 #4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases in a technical context.

Frameworks References: Math

N-Q3 Identify significant figures in recorded measures and computed values based on the context given and the precision of the tools used.

Common Core References:

- Read and listen critically for information understanding and enjoyment
- Set goals and achieve them by organizing time, workspace, and resources effectively
- Work both independently and in groups

SCANS references:**Foundation Skills:**

1. Basic skills— reading, writing, mathematics, speaking, and listening.
2. Thinking Skills-- thinking creatively, making decisions, solving problems, visualizing, knowing how to learn, and reasoning
3. Personal qualities--individual responsibility, self-esteem, sociability, self management, and integrity

Work Place Competencies

1. Resources--allocating time, money, material, space, and staff.
2. Interpersonal skills--working in teams, teaching others, serving customers, leading negotiating, and working well with culturally diverse populations.
3. Information--acquiring and evaluating data, organizing and maintaining files, interpreting & communicating, and using computer to process information
4. Systems--understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems.
5. Technology--selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies

CAREER CONNECTIONS: PROJECT BOOK 2

Lesson Plan: Chapter 6, Shed with Gable Roof

Time Required: 18–28 class periods (28 periods are outlined below to perform the practice exercises and construct the shed with gable roof)

- The chapter also includes instructions to construct a garden tool shed and a wishing well as alternative or additional projects, if needed.
- Allow time to check out students on safety and operation of tools to be used in the project if they have not already demonstrated safety and operation competency.
- Allow time, depending on the complexity of the project, for students to make up the cut list (1-2 hours).
- Allow time before the shop period ends for cleaning up the shop.

Goal:

Learn more advanced carpentry techniques that require greater attention to detail by building a standalone structure.

Objectives:

At the end of this chapter, students should be able to:

- Describe new terminology related to standalone structures
- Layout and cut rafters
- Frame floors, door, and roofs
- Frame rough openings for a door and windows

Cooperative Learning:

This project requires procedures that may require more than one person. Have students work in pairs or in teams. In this case, both students in the pair or all members of the team will receive the same grade in evaluations. Working in pairs or in teams will shorten the time required to complete the projects if time in the shop is an issue. This method of building projects will also cut down on the amount of material used.

Procedures:

The following provides a summary of instructional and assessment procedures.

Teach

Hours	Activity
Class Period 1	
1 hour	<p><i>Chapter 6 Introduction</i></p> <p>Review the lesson goal and objectives with students. Discuss expectations and how the project will be evaluated. Students will do practice exercises before building the actual project.</p> <p><i>Section 1</i></p> <p>Discuss the process of layout of framing members. Have students do Lead Up Exercise: Marking a 16" On-Center Layout.</p>

Class Period 2	
1 hour	Have students do Lead Up Exercise: Adjusting the Layout for Wall Thickness.
Class Period 3	
1 hour	<i>Section 2</i> Discuss the process of floor framing. Have students do Lead Up Exercise: Checking for Square Using the Diagonal Method.
Class Period 4	
1 hour	<i>Section 3</i> Discuss the process of wall framing. Have students do Lead Up Exercise: Constructing a Built-Up Header Using Plywood for Standard 2 x 4 Construction.
Class Period 5	
1 hour	<i>Section 4</i> Discuss the process of roof framing. Have students do Lead Up Exercise: Cutting a Common Rafter Pattern.
Class Period 6	
1 hour	<i>Section 5</i> Have students prepare the cut list for the shed with gable roof.
Class Periods 7-9	
3 hours	Have students frame the floor system for the shed.
Class Periods 10–12	
3 hours	Have students frame the side wall without the window.
Class Periods 13–16	
4 hours	Have students frame the side wall with the window.
Class Periods 17–19	
3 hours	Have students frame the front wall with the door.
Class Periods 20–21	
2 hours	Have students frame the back wall.
Class Periods 22–28	
7 hours	Have students complete the construction of the gable roof.

Assess

Assessment Activity	Assessment Method and Criteria
Shed with Gable Roof, Garden Tool Shed, Wishing Well	See rubrics and evaluation sheets. Additionally, a skills matrix will be provided.