

Unit: Book 2 Projects

Title: Picnic Table- Chapter 4

Skill(s) and Knowledge: Students will be able to: identify the tools and materials and processes needed to complete the Picnic Table project, while maintaining a safe working environment. New vocabulary: carriage bolt, countersink, deck screw, round-over router bit, and strap hinge.

Tasks: Fabricate the parts and assemble a tote box.

Performance objective: Create a cut list, identify materials and fasteners, follow written directions, read working drawings, use and maintain hand and power tools to complete the picnic table.

Tools, supplies and reference materials:

Materials: (9) 2x4x8 cedar, (1) 2x6x10 cedar, (6) 5/4x6x 12 cedar deck boards, (1) 1x2x8 pine, (1) 1x4x8 pine, (36) $\frac{3}{8}$ x 3" galvanized carriage bolts with washers and nuts, (5lbs.) 2 $\frac{1}{2}$ " deck screws, (1 lb) 1 $\frac{1}{4}$ " construction screws.

Tools: Circular saw, clamps, compass, orbit sander, straightedge, tape measure, 3/16" roundover router bit, router, saber saw, sanding block, sandpaper, #120 and #220, sawhorses, screw gun, sliding T-bevel, 1" spade bit, speed square, socket wrench and sockets, electric drill and drill index. Career Connection Book 2 Chapter 4 pages: 105-146.

Methods of instruction: Provide each student with the materials and tools to complete the project. Allow students to work at their own pace referencing the Career Connections Book 2 Chapter 4 and following the instructions.

Estimated time: 50 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. Curved Picnic Table project evaluation on page 181.

Performance Notes:

Vocational Frameworks References

- 2.E.01.01 Demonstrate use and maintenance of layout, marking and measuring tools
- 2.E.01.02 Demonstrate use and maintenance of fastening, clamping and dismantling tools.
- 2.F.01.01 Demonstrate use and maintenance of portable circular saw.
- 2.F.02.01 Demonstrate use and maintenance of portable drills.

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 4, Picnic Table

Time Required: 47–57 class periods (57 periods are outlined below to construct the curved picnic table)

- The chapter also includes instructions to construct a folding picnic table and an octagonal picnic table 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:

Build on knowledge and skills by learning how to use new procedures, tools, and fasteners to construct a picnic table.

Objectives:

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

- Demonstrate layout and cutting skills
- Create a jig to duplicated curved parts
- Work with weather-resistant materials on a large object
- Demonstrate how to countersink screws and bolts

Cooperative Learning:

For more complex projects, students can 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 7 Introduction</i></p> <p>Review the lesson goal and objectives with students. Discuss expectations and how the project will be evaluated.</p> <p>Review with students the illustrations shown of the curved picnic table. Have students prepare the cut list for this project.</p>
Class Period 2	

1 hour	Have students complete the cut list and then begin cutting the table top boards and seats to length.
Class Period 3	
1 hour	Guide students as they complete cutting the tabletop boards and seats.
Class Periods 4–7	
4 hours	Lead students through shaping the two outside boards and tabletop bench seats.
Class Periods 8–10	
3 hours	Have students make the concave cut for bench tops.
Class Periods 11–13	
3 hours	Guide students as they cut tabletop supports.
Class Periods 14–17	
4 hours	Have students cut legs for the table.
Class Periods 18–19	
2 hours	Have students cut the table angle braces.
Class Periods 20–21	
2 hours	Have students cut the spreaders for the legs.
Class Periods 22–27	
6 hours	Show students how to assemble the legs.
Class Periods 28–29	
2 hours	Show students how to assemble the tabletop.
Class Periods 30–32	
3 hours	Have students attach the braces and legs.
Class Periods 33–36	
4 hours	Guide students as they cut parts for the benches.
Class Periods 37–39	
3 hours	Show students how to assemble the upper frame of the benches.
Class Periods 40–41	
2 hours	Show students how to assemble the bench legs.
Class Periods 42–46	
5 hours	Have students attach the bench legs to the bench frames.
Class Periods 47–49	
3 hours	Have students attach the bench seats to the bench frames.
Class Periods 50–57	
8 hours	(Optional) Have students sand and finish, as desired.

Assess

Assessment Activity	Assessment Method and Criteria
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Curved Picnic Table, Folding Picnic Table, Octagonal Picnic Table	See rubrics and evaluation sheets. Additionally, a skills matrix will be provided.
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