

**Unit:** Project Book 2 Projects

**Title:** Sawhorse- Chapter 3

**Skill(s) and Knowledge:** Students will be able to: identify the tools and materials and processes needed to complete the sawhorse project, while maintaining a safe working environment.

**Tasks:** Lead-up Exercise page 66-67, compound angles. Fabricate the parts and assemble a Sawhorse according to the working drawings and instructions in Project Book 2.

**Performance objective:** Create a cut list, identify materials and fasteners, follow directions, read working drawings, use and maintain hand and power tools, to complete a sawhorse within the time allowed.

**Tools, supplies and reference materials:** Tools: Tape measure, Combination square, sliding T-bevel, Framing square, stairgauges, circular saw. Career Connections Project Book 2 pages: 65-82. Materials ( one per student): 1 x 4 x 8', 2 x 6 x 4', 1 x 4 x 12', ½" plywood 12"x 24" Fasteners: (20) 1 ⅝ and (16) 1 ¼ construction screws.

**Methods of instruction:** Demonstration on how to cut compound angles with the circular saw. Students will work independently using the reference materials, and ask clarifying questions of the instructor as needed.

**Estimated time:** 12 hrs. **Number of students:** 15-20

**Task analysis or activities:** Students will work in small groups at shop tables, with all the previously mentioned measuring tools, working individually to complete all steps needed to build the sawhorse, 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. Students will be graded on their completed project using the rubric on page 102.

**Performance Notes:**

**Vocational Frameworks References**

- 2.D.04.01 Read a tape measure to 1/16th of an inch
- 2.E.01.01 Demonstrate use and maintenance of layout, marking, and measuring tools.
- 2.F.01.01 Demonstrate the use and maintenance of a portable circular saw.

**English/Strand 3 Frameworks References:**

RST Grades 9-10 #4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a technical context relevant to grades 9-10 texts and topics.

**Frameworks References: Math**

- G-CO12 Make formal geometric constructions with a variety of tools.

**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 3, Sawhorse**Time Required:** 5–10 class periods (10 periods are outlined below to construct the notch-top sawhorse)

- The chapter also includes instructions to construct an I-beam sawhorse and a beveled-top sawhorse 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 existing knowledge of print reading, measuring, lay out, cutting, and assembly and learn new skills to construct a sawhorse.

**Objectives:**

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

- Demonstrate how to perform compound angle cuts
- Use stair gauge clamps to repeat precise measuring and layout operations
- Use a handsaw and chisel to create precise gains

**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**

<b>Hours</b>	<b>Activity</b>
Class Period 1	
1 hour	<i>Chapter 7 Introduction</i> Review the lesson goal and objectives with students. Discuss expectations and how the project will be evaluated. Review with students the illustrations shown of the notched top sawhorse. Have students prepare the cut list for this project.
Class Period 2	
1 hour	Have students complete the cut list and begin to lay out and cut the legs.

Class Periods 3–4	
2 hours	Guide students as they complete laying out and cutting the legs.
Class Periods 5–7	
3 hours	Have students lay out and cut the top.
Class Periods 8–10	
3 hours	Show students how to attach the legs, gussets, and side spreaders. Have them check for wobble and adjust as needed.

**Assess**

<b>Assessment Activity</b>	<b>Assessment Method and Criteria</b>
Notched-Top Sawhorse, I-Beam Sawhorse, Beveled-Top Sawhorse	See rubrics and evaluation sheets. Additionally, a skills matrix will be provided.