

**Unit:** Hand Tools

**Title:** Cutting, Shaping, Striking and Fastening Tools

**Skill(s) and Knowledge:** Students will be able to: identify cutting and shaping tools, describe the use and maintenance of each. Students will gain knowledge on why tools are so important for the trades.

**Tasks:** Lead-up exercises for each tool, pages: 60-85.

**Performance objective:** To become familiar with each Cutting, Shaping, Striking and Fastening tool by completing the lead up exercises and practicing using the tools and discussing with their peers and instructor.

**Tools, supplies and reference materials:** Handsaw, utility knife, hammer, chisel, block plane, claw hammer, nail set, clamps, sand paper, sanding blocks, pliers, rasp, adjustable wrench, socket wrench, Career Connection Book 1 Chapter 3 pages: 57-86. (Enough tools for each student or group of students)

**Methods of instruction:** Demonstration on use and maintenance of each tool, lecture on safe work habits and respect for tools, reference to the Career Connections Book 1 Chapter 3, Pages 57-86 and hands-on practice with each tool.

**Estimated time:** 6-8 hrs. **Number of students:** 10-15

**Task analysis or activities:** Students will work in small groups at shop tables, with all the previously mentioned Cutting, Shaping, Striking and Fastening Tool tools, working together to complete all the lead-up exercises and helping each other as they progress at their own pace. Have each student pick their favorite tool and explain to the class why it's their favorite.

**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. Manipulative skills assessments and written evaluations.

**Performance Notes:**

**Vocational Frameworks References**

2.E.01.02 Demonstrate use and maintenance of fastening, clamping, and dismantling tools.

2.E.01.03 Demonstrate use and maintenance of sawing tools.

2.E.01.05 Demonstrate use and maintenance of planing, smoothing, and shaping tools.

**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**

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

**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 1**

**Lesson Plan:** Chapter 3, Basic Carpentry Hand Tools

**Time Required:** Three to five 50-minute class periods (five class periods are outlined below; alternatively, present the information on each tool and check out students using the Tool Safety and Operation Checklist when students need to use the tool for a project)

**Goal:**

To demonstrate the purpose and proper use of basic hand tools.

**Objectives:**

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

1. Classify the basic types of hand tools used in carpentry.
2. Identify the purpose of and show how to use a handsaw.
3. Identify the purpose and parts of a utility knife.
4. Identify the purpose of and show how to use a hammer and chisel.
5. Identify the purpose of and show how to use a block plane.
6. Identify the purpose of and show how to use a claw hammer.
7. Identify the purpose of and show how to use a nail set.
8. Identify the purpose and parts of clamps.

**Instruction and Assessment:**

The following provides a summary of steps for instruction and assessment.

**Teach**

<b>Minutes</b>	<b>Activity</b>
Class Period 1	
5	<i>Chapter 3 Introduction</i> Review the lesson goal and objectives with students.
10	<i>Section 1</i> Provide a classroom introduction to basic carpentry hand tools. Discuss the four major categories (cutting, shaping, striking, fastening) and the need to develop skill and practice hand tool safety.
10	<i>Section 2</i> Introduce the handsaw. Point out the features and explain the applications.
25	<i>Activity</i> In the shop area, have students perform the following procedures: <ul style="list-style-type: none"> <li>● Making Crosscuts with a Handsaw</li> <li>● Cutting with a Crosscut Handsaw</li> </ul> Have students evaluate their cuts for accuracy.
Class Period 2	
5	<i>Review</i>

	Review chapter content previously taught.
10	<i>Section 3</i> Introduce the utility knife. Describe its uses and show how to change the blade.
10	<i>Section 4</i> Introduce the hammer and chisel. Describe their uses and talk about the chisel safety precautions.
25	<i>Activity</i> Have students perform the following procedure: <ul style="list-style-type: none"> <li>● Using a Chisel to Cut a Gain</li> </ul>
Class Period 3	
5	<i>Review</i> Review chapter content previously taught.
5	<i>Section 5</i> Introduce the block plane. Explain why and how it is used.
20	<i>Activity</i> Have students perform the following procedures: <ul style="list-style-type: none"> <li>● Adjusting the Depth of a Cut on a Block Plane</li> <li>● Planing with the Grain</li> <li>● Planing Across the End Grain</li> </ul>
10	<i>Section 6</i> Introduce the claw hammer. Describe the types, parts, and uses. Review the list of hammer safety rules and the proper method for using a hammer.
10	<i>Activity</i> Have students perform the following procedure (making sure they have the necessary tools and materials): <ul style="list-style-type: none"> <li>● Driving a Nail</li> </ul> Explain how to use a claw hammer to remove nails.
Class Period 4	
5	<i>Review</i> Review chapter content previously taught.
10	<i>Section 7</i> Introduce the nail set. Explain why and how it is used.
20	<i>Activity</i> Have students perform the following procedure (making sure they have the necessary tools and materials): <ul style="list-style-type: none"> <li>● Using a Nail Set</li> </ul>
15	<i>Section 8</i> Introduce clamps. Describe the various types, parts, and uses.
Class Period 5	
10	<i>Section 9</i>

	Introduce sandpaper and sanding blocks. Explain the grit classification of sandpaper and methods of use.
25	<p><i>Activity</i></p> <p>Have students perform the following procedure (making sure they have the necessary tools and materials):</p> <ul style="list-style-type: none"> <li>● Making a Sanding Block</li> </ul>
10	<p><i>Section 10</i></p> <p>Introduce additional tools: side cutting pliers, wood rasp, adjustable wrench, and socket wrench. Explain their parts and uses.</p>
5	<p><i>Chapter Review</i></p> <p>Answer any questions students have about this chapter.</p> <p>Ask students to review Chapter 4 for the next class.</p>

### Assess

Assessment Activity	Assessment Method and Criteria
Procedures	Use the Tool Safety and Operation Checklist to score student competency. Monitor students for safe and accurate results.