

Merced County ROP: Standards-Based Lesson Plan

LESSON PLAN INFORMATION:

Course Name	Teacher Designer	Time Allocation
Automotive and Transportation Services	Phil Jenkins & Rod McCombs	1 class session

Lesson Title	Unit Title and Number
Basic Hand Tools	Introduction to Automotive Technology

CONTENT AND ACADEMIC STANDARDS

Career Technical Standard(s) for Transportation Industry Sector	<ul style="list-style-type: none">• C1.0, C1.1, C1.2, C1.5• C2.0, C2.1, 2.2, 2.3
Physics/Science Standard(s)	<ul style="list-style-type: none">• Motion and Forces 1b: Newton's First Law• Investigation and Experimentation 1a: select and use appropriate tools

LESSON PLAN COMPETENCIES (FROM COURSE OUTLINE)

<ul style="list-style-type: none">• Identify common automotive hand tools.• Hand tool safety.• Select the right tool for a given job.• Maintain and store tools properly.
--

LESSON PLAN OBJECTIVES (SUB LEARNING GOALS)

The Learner Will: <ul style="list-style-type: none">• Compare and contrast common automotive hand tools• Evaluate the right tool for a given job• Maintain and store tools properly• Incorporate common safety fundamentals while using hand tools• Summarize the differences between a linear force and a rotational force• Explain how to modify a tool to reduce the amount of force required to provide torque

KEY VOCABULARY

<ul style="list-style-type: none">• Various names of different types of hand tools• Cheater bar• Force• Linear force• Rotational force• Torque• Angular displacement
--

INSTRUCTIONAL MATERIALS REQUIREMENTS

Teacher Needs	<ul style="list-style-type: none"> • Tool box • Textbook with teacher resources • Whiteboard and markers • Hand tools • Auto shop with vehicles
Student Needs:	<ul style="list-style-type: none"> • Textbook • Hand tools • Auto shop with vehicles

ESSENTIAL QUESTIONS FOR THE LESSON: Resource Available

<ul style="list-style-type: none"> • What factors must be considered when selecting the proper tool to safely complete an automotive repair? • What can be done to reduce the amount of force required to turn a stubborn bolt or nut?
--

FOUR-STEP LESSON PLAN: Describe the lesson in detail: Resource Available

Introduction	<ul style="list-style-type: none"> • The students will examine a tool box and the various tools within it
Presentation	<ul style="list-style-type: none"> • We will use guided instruction while reviewing the tool box and the various tools within it and while reviewing Ch. 3 in the <u>Modern Automotive Technology</u> text book: "Basic Hand Tools"
Application	<ul style="list-style-type: none"> • The students will use a linear force to push a vehicle into a shop stall for repair • The students will attempt to remove the wheels from the vehicle by using both improper and proper hand tools
Testing and Assessment	<ul style="list-style-type: none"> • The students will be observed while removing and replacing all four wheels on a vehicle in the auto shop