

Oxy-Fuel Set-Up & Safety

Media Type: DVD

Duration: 25 min.

Goal: To be able to safely set-up, change tips, use and clean up an oxy-fuel welding machine.

Description: This presentation features Mary Jo Emerick, Adjunct Welding Professor and AWS CWI/CWE at Austin Community College and the Tech V Welder/Inspector and AWS CWI/CWE at the University of Texas. Follow along as she explains and demonstrates the correct procedure for safely preparing and using oxy-fuel welding machinery. During this presentation, insight into different welding tips, fuel types and flame types are shown.

Objectives:

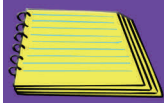
1. To understand the safety procedures required to operate the oxy-fuel welding machine.
2. To understand the specific fuel types associated with oxy-fuel welding.
3. To understand how to use and change the different tips used in oxy-fuel welding.

4. To

Horizontal Alignment

Core-Subject Area	Foundation Concept	Basic Understanding
Math	<i>Logical Skills</i>	<ul style="list-style-type: none">• Reasoning• Problem solving• Real-life applications
Language Arts	<i>Application of Writing Skills</i>	<ul style="list-style-type: none">• Organizing logical arguments• Vocabulary enhancement
	<i>Analysis of Text, Literature and Information</i>	<ul style="list-style-type: none">• Critical thinking• Communication skills• Developing listening and comprehension skills• Creating visual representations
	<i>Technology Applications in Literature</i>	<ul style="list-style-type: none">• Utilizing document processing software• Internet-based research
Science	<i>Scientific Thinking and Investigating</i>	<ul style="list-style-type: none">• Real-world investigations and applications• Technology-based research• Classification/organization skills

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Lesson Plan

Class 1: Distribute the *Oxy-Fuel Set-Up & Safety Vocabulary Handout* and the *Worksheet* to use as reference materials during the presentation. Show *Oxy-Fuel Set-Up & Safety: Introduction*, *Oxy-Fuel Set-Up & Safety: Safety* and *Oxy-Fuel Set-Up & Safety: Cylinder Safety* segments. Distribute the *Safety Flier Project* and allow the remainder of class to work on. Hand out the *Welding & Cutting Processes Comparison Project* for students to begin as homework.



Video
12 min.

Class 2: Remind students to refer to the *Vocabulary Handout* and complete the *Worksheet* as they view the segments. Show *Oxy-Fuel Set-Up & Safety: Fuel Types* and *Oxy-Fuel Set-Up & Safety: Types of Flames* segments. Distribute the *Components Tree Chart Project*. Distribute the *Welding Practice Activity* and allow students the remainder of the class to work on.



Video
3 min.

Class 3: Remind students to refer to the *Vocabulary Handout* and complete the *Worksheet* as they view the segments. Show *Oxy-Fuel Set-Up & Safety: Tip Cleaning*, *Oxy-Fuel Set-Up & Safety: Changing to a Welding Tip*, *Oxy-Fuel Set-Up & Safety: Changing to a Heating Tip* and *Oxy-Fuel Set-Up & Safety: Clean Up* segments. Allow students time to work on the *Welding Practice Activity*.



Video
10 min.

Class 4: Have students present and turn in the *Safety Flier Project*. Distribute the *Oxy-Fuel Set-Up & Safety: Final Assessment* and have students complete. Allow students time to finish the *Welding Practice Activity* and the *Components Tree Chart Project*. Turn in for a grade.



Lesson Links

American Welding Society

- <http://www.aws.org/certification/CWI/>

OSHA Welding, Cutting and Brazing

- <http://www.aws.org/w/a/?id=YfPYAoms>



Career & Technical Student Organizations

National FFA

- Agricultural Mechanics

SkillsUSA

- Welding
- Welding Fabrication
- Welding Sculpture Demo



Career Connections

Using the *Career Connections Activity*, allow students to explore the various careers associated with this lesson. See the *Activity* for more details. *If student licenses have been purchased:* Students will select the interviews to watch based on your directions. *If only a teacher license is purchased:* Show students all the career interviews and instruct them to only complete the interview form for the required number of interviews.

- iCEV50001, Howard Alford, Welder, Self-Employed
- iCEV50534, Brandon Whatley, Department Chair, Welding Professor, Austin Community College
- iCEV50535, Mary Jo Emrick, Adjunct Welding Professor, Austin Community College
- iCEV50633, Breann Shirk, Production Welder, John Deere
- iCEV50879, Dana Perkins, Agricultural Mechanics Teacher, North Region Area, Georgia

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Lab Activities

Welding Practice

Directions:

Allow students to use the shop and practice welding, using the positions and techniques discussed in class. All lab activities for these segments will be *Welding Practice*.



Projects

Welding & Cutting Processes Comparison

Directions:

Using the Internet, library or any other available resource, students should research and write a paper which compares and contrasts oxy-fuel welding with other welding and cutting processes. Choices include but are not limited to: flux cored arc welding (FCAW), shielded metal arc welding (SMAW), gas metal arc welding (GMAW), gas tungsten arc welding (GTAW), etc. Students should give a short description of each welding type they discuss. Students should cite any sources used.

Safety Flier

Directions:

Using the lesson segments, notes and the Internet, instruct students to construct a one sheet safety flier to be posted in the shop. This flier should be specific to oxy-fuel welding and cutting. The safety procedures should be numbered and listed in sequential order. The flier should be neat, organized and easy to read. Have students present their fliers to the class and turn in for a grade. Once graded hang students fliers in the shop.

Components Tree Chart

Directions:

Pass out the *Tree Chart Handout* to every student. Using the lesson segment, notes and the Internet, instruct students to fill out the chart. There are two gases, two types of tips and three types of flames used with oxy-fuel welding and cutting. Answers should be brief and concise; include a definition, description as well as uses and applications in this type of welding. If more space is needed, have students staple lined paper to the handout. Have students turn in for a grade.