

*Sample Lesson Plan
Construction Training Program (10-hour)*

Topic: Hand and Power Tools

Overview of OSHA Standard

Hand and power tools are a part of our everyday lives and help us to easily perform tasks that otherwise would be difficult or impossible. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward hand and power tool safety is necessary in order to reduce or eliminate these hazards. Employees using hand and power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Workers must be provided with appropriate personal protective equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions (e.g. wet, dusty, flammable vapors). Employees should be trained in the proper use of all tools. Workers should be able to recognize the hazards associated with the different types of tools and the safety precautions necessary.

Step 1: Planning the Lesson

• **Instructional Materials.**

1. PowerPoint presentation.
2. Instructor notes.
3. Other materials.

• **Instructional Objectives.**

1. Complete the required topics for the OSHA 10-hour course.
2. Complete the following optional topics:
 - a.
 - b.
 - c.
3. Present *Hand and Power Tools* to [number] participants.
4. Incorporate active participation in each lesson.
5. Provide a quiz or short evaluation at the end of the course.
6. Ensure feedback from participants at various points in the training.

• **Guest Speakers/Presenters and Topics/Responsibilities.**

Step 2: Presenting the Lesson

• **Lesson Introduction.**

Introductory remarks or transition from previous lesson.

- **Learning Objectives/Outcomes.**

Upon completion of the lesson, participants will be able to:

1. List at least three basic hand and power tool safety rules.

Possible responses.

- Inspect the tool before use
- Use the right tool for the job
- Operate tools according to the manufacturers' instructions
- Use proper guards
- Use appropriate personal protective equipment
- Perform maintenance on tools regularly

2. Identify at least two precautions that are essential to safe use of:

- a. Hand tools

Possible responses.

- Do not use wrenches if the jaws are sprung
- Do not use chisels or wedges if the heads have mushroomed
- Do not use tools with loose, cracked, splintered or taped handles
- Keep cutting tools sharp
- Use the proper tool for its intended job
- Use safety goggles and gloves
- Keep floor surface free of debris and tripping hazards

- b. Electrically powered tools

Possible responses.

- Disconnect tools when not in use
- Remove damaged tools and tag them "do not use"
- Don't carry electric tools by the power cord
- Don't operate in wet locations
- Use a cord with a three-pronged plug and grounding pin
- Ensure cords are not a tripping hazard

- c. Abrasive wheels and tools

Possible responses.

- Cover the spindle end, nut and flange projections
- Maintain proper alignment with the wheel
- Use eye and/or face protection
- Perform a "ring" test to ensure the wheel is free of cracks and defects

• **Learning Objectives/Outcomes. (Continued)**

d. Pneumatically powered tools

Possible responses.

- Use same precautions with air hoses as electrical cords
 - Keep away from sharp objects, oil, etc
 - Beware of tripping hazard
 - Do not carry the tool by the air hose
- Ensure the air hose is securely fastened to the connector
- Place a safety device on the muzzle
- Wear eye protection and/or hearing protection
- Don't use compressed air for cleaning unless it's reduced to less than 30 p.s.i

e. Liquid fuel tools

Possible responses.

- Use only approved containers for liquid fuel
- Shut down the engine before refueling
- Let the engine cool before refueling
- Avoid breathing fuel vapors
- No open flames or electrical sparks near vapors

f. Hydraulically powered tools

Possible responses.

- Ensure jacks are set solidly and will not shift
- Use the jack with the correct weight capacity for the job
- Lubricate and inspect jacks regularly
- Do not exceed the stop limit for jacks

g. Powder actuated tools

- Limit the number of people in the work area to those that are directly involved in the work
- Wear suitable eye, ear and face protection
- Select a powder that will do the work without excessive force
- Test the tool each day to be sure safety devices are functioning
- Avoid using powder actuated tools on easily penetrated materials

- **Learning Objectives/Outcomes. (Continued)**

3. Name at least two guarding techniques or principles that apply to hand and power tools.

Possible responses.

- Guard an abrasive wheel so that the minimal amount of the wheel is exposed, and ensure the guard is properly aligned with the wheel
- Guard moving parts of power tools
- Never remove a guard when a tool is in use
- Machine guards must protect the operator and others from point of operation, nip points, rotating parts or flying chips and sparks
- Guard saws to prevent from coming in contact with the blade

- **Planned Activities, Discussion, or Participant Interaction**

Step 3: Evaluating Student Learning and Instruction

- **Lesson Evaluation and Comments.**

References

OSHA Standard: 29 CFR 1926 Subpart I (1926.300 to 1926.307)

OSHA Publications

- <http://www.osha-slc.gov/OshDoc/Additional.html>
- 3080 Hand and Power Tools
- 3157 A Guide for Protecting Workers from Woodworking Hazards

OSHA References/Resources

- Construction Safety and Health Outreach Program - Hand and Power Tools
 - <http://www.osha.gov/doc/outreachtraining/htmlfiles/tools.html>
- OSHA Technical Links - Construction: Hand and Power Tools
 - <http://www.osha.gov/SLTC/constructionhandpowertools/index.html>
- OSHA Technical Links - Hand and Power Tools
 - <http://www.osha.gov/SLTC/handpowertools/index.html>
- OSHA Technical Links - Woodworking
 - http://www.osha.gov/SLTC/woodproducts/tech_woodworking.html