

# #11895

## WORKING SAFELY WITH HAND & POWER TOOLS

AURORA PICTURES, 2004

Grade Level: 12-13+

18 Minutes



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**AURORA PICTURES**

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**WORKING SAFELY WITH  
HAND & POWER TOOLS**

Leader's Guide

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WORKING SAFELY WITH HAND & POWER TOOLS

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

**INTRODUCTION:** A brief description of the program and the subject that it addresses.

**PROGRAM OUTLINE:** Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

**PREPARING FOR AND CONDUCTING THE PRESENTATION:** These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

**REVIEW QUESTIONS AND ANSWERS:** Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

## **INTRODUCTION**

Because simple hand and power tools are commonly used for many basic job tasks, we often fail to consider the dangers associated with using them improperly or in an unsafe manner. For example, the improper use of a simple screwdriver results in over 100 deaths each year. Fortunately, most injuries involving tools can be avoided when we keep them in good working condition and use them properly.

In this program, viewers are shown the basic safety rules that will greatly reduce the risk of injury during hand and power tool use. Stressed is the importance of having a good safety attitude and exercising good judgment while using tools. Tools covered include wrenches, pliers, screwdrivers, striking tools, power drills, power saws and battery-operated tools. Equipment inspection and personal protective equipment are other featured topics.

## ***PROGRAM OUTLINE***

### **GOOD SAFETY ATTITUDES**

- A good safety attitude is the first step in injury prevention. A good safety attitude means being aware of the potential hazards in your work area and taking the necessary steps to control them.
- One way to eliminate hazards in your work area is to follow good housekeeping practices. Keeping your tools neat, organized and stored in a proper manner not only ensures you can find the proper tool when you need it, but also reduces the risk of injury.

### **EQUIPMENT INSPECTION**

- A good safety attitude also means making sure the tool you are about to use is in good condition.
- Check hand tools for cracked or broken parts. Pay special attention to any wooden-handled tools, which may crack or split.
- Pay special attention to the areas of the tool that grips materials, such as the inside of a box wrench or the gripping face of pliers and other gripping tools. If these areas are stripped or worn, the tool should be replaced.
- The cords on power tools should be inspected for damage and a proper ground connection. Be sure to inspect any extension cords as well.
- A ground fault circuit interrupter should be used with power tools when working in damp areas.
- Some tools are double-insulated and do not have a ground prong. These tools are safe to use, but the cords should still be inspected for damage.
- All too often, workers grab a familiar tool and begin working without bothering to inspect it. They assume it will be safe to operate. This is the cause of many needless injuries.

- If a tool is found to be damaged or defective, don't use it. Report it to your supervisor; damaged tools must be removed from service so they may be repaired or replaced.

### **PERSONAL PROTECTIVE EQUIPMENT**

- Depending on your work environment and the type of task you are performing, you may need some type of personal protective equipment.
- At a minimum, you should always wear a pair of safety glasses when using any tool, even a hand tool. Not only will safety glasses protect eyes from falling and flying debris, they will protect against inadvertent impacts as well.
- Be aware that jobs that generate flying debris such as grinding require safety glasses and a face shield.
- You may also be required to wear a hard hat, gloves, safety footwear or other PPE.
- Putting a good safety attitude into practice means always wearing the proper protective equipment.

### **WRENCHES**

- Wrenches take advantage of grip and leverage to allow us to turn a bolt, nut, pipe or other materials we could not turn by hand. The same features that give a wrench its power can also present hazards.
- Because a wrench can apply significant leverage, a significant amount of force is quickly set into motion when the material breaks free or the wrench slips.
- This force may smash knuckles or cause a loss of balance.
- When a loss of balance occurs while on a ladder or other elevated working surface, a fall can easily happen.
- When using a wrench, always be prepared for the wrench to slip. If you're expecting the wrench to slip, you're better prepared to prevent an accident or injury.
- To reduce the chance of a wrench slipping, make sure the wrench you choose is the right size for the nut or bolt. Besides leading to a slip, a loose fit can damage the wrench or strip the nut or bolt.
- One common mistake is to use a metric wrench on a standard nut or bolt. Always use the proper tool for the job.
- Never use a cheater bar to increase the leverage of your wrench; this is a serious safety violation. If you find yourself tempted to put a pipe on the end of a wrench, stop!
- These tools are designed and manufactured for hand pressure only; when you add a cheater bar, you are exceeding the safety design of the tool. It may snap, the bolt may break or the pipe may slip from the handle.
- Adjustable or crescent wrenches are versatile tools allowing on-the-spot adjustment for a variety of sizes. Once adjusted properly, the wrench should maintain the correct size.
- If the threads used to adjust the jaws become worn or rounded from use, the size may suddenly change and cause the tool to slip. Be sure your wrench is in good condition and properly adjusted before use.
- When using the wrench, make sure that the force of the tool is on the side of the fixed jaw rather than the side that adjusts.

### **PLIERS**

- Just as there are many types of wrenches, pliers also come in a wide variety of types and sizes. Like wrenches, you should always use the right pliers for the job.
- While many pliers are versatile and adaptable for many jobs, none should be used to turn nuts and bolts as the pliers or fasteners can easily be damaged. A wrench is the appropriate tool for that job.
- To prevent damage, never expose pliers to excessive heat. Jobs involving high temperatures require a clamp designed to withstand heat.
- When using cutting pliers, always cut at right angles. Don't rock the pliers from side to side or bend the wire back and forth to finish the cut.
- Never use pliers as a hammer or hammer on the handles; they can easily be damaged.
- If you need greater leverage than cutting pliers provide, get a larger pair or a bolt cutter.
- Don't try to extend the length of the handles with cheater bars or use mechanical methods to apply force to the handles.
- Pliers should be oiled occasionally at the hinges to make them easier to operate and to make them last longer.
- Be aware that the cushion grips on pliers will not provide protection from electric shock unless they indicate they are insulated to provide this protection.

### **SCREWDRIVERS**

- When a screwdriver slips, the force generated usually causes a stabbing type motion that can damage anything in its path.
- Common screwdriver injuries include stab wounds to the hands, thighs, abdomen and eyes.
- To reduce the chance of a slip, select the proper sized screwdriver for the screw being turned. Whether you are using a slotted screwdriver or a Phillips head, the blade should fit snugly into the slotted area.
- Using a blade that is too big or too small can damage the screw and cause the tool to slip.
- Be prepared in advance for the tool to slip. Don't place body parts in the path of a potential slip; take a moment to evaluate your body placement and make any necessary adjustments before applying pressure with the screwdriver.
- Don't try to hold the work in one hand while using the screwdriver with the other. You can receive a nasty stab wound if the screwdriver slips out of the slot.
- Never use a screwdriver as a chisel, punch or pry bar. One slip and a serious injury is likely to occur.
- When driving a screw, make sure to make a pilot hole first. For smaller screws, use an awl; use a drill to make the pilot hole on harder materials or when using larger screws.

### **STRIKING TOOLS**

- Striking tools such as hammers are probably the most used hand tools and unfortunately, the most widely abused. They are made in various types, sizes and configurations for a variety of purposes.
- To prevent a hammer or the striking surface from chipping, only select and use hammers for their intended purpose.

- Make sure to use a hammer that is the appropriate size and weight for the job. A sledge hammer should never be used to drive small nails, while a trim hammer should not be used to drive a spike.
- A hammer blow should always be struck squarely with the striking face parallel with the working surface. Avoid glancing blows and over- or under-strikes.
- When striking a chisel punch or other tool, the striking face of the hammer should have a diameter of at least 3/8 of an inch larger than the face of the tool.
- Never use a hammer to strike another hammer or hatchet.
- Hammers with damaged handles, dents, cracks, chips or mushroomed heads should be discarded. Never attempt repairs, such as grinding, welding or reheating them.
- A common misuse of hammering tools is striking with the side or the cheek of the tool. This should never be done, as it can damage the hammer and chips from its head can cause an eye or other bodily injury.

### **POWER DRILLS**

- When using power drills, be sure you know what is on the other side of the material you are drilling through.
- When drilling, never place your hand on the backside of the material. When in a seated position be careful not to drill into your leg.
- One common source of injury while using drills is pressing too hard on the bit, causing it to break.
- One way to avoid the need to apply excessive pressure is to use sharp drill bits. Drill bits must be sharpened or replaced periodically.
- Another common cause of a drill slipping and causing injury is applying too much force before the bit is started properly. To prevent this, use a punch to make a small dent or hole where you intend to drill; this helps hold the bit in place until it begins to cut.

### **PORTABLE SAWS**

- Portable saws come in many sizes and shapes. The number one rule for all of them is to keep your hands and fingers out of the blade.
- Many saws come with guards to reduce the risk of hands entering the cutting path. When this is the case, make sure the guards are present and functioning properly.
- Never remove or tie back the guard. This is an amputation waiting to happen.
- Due to the nature of many reciprocating saws, it is not possible to completely guard the blade. When using these types of saws, stay alert to where you place your hands.
- Understand that the blade is going through the material with each stroke; never allow hands, legs or other body parts to come close to the reciprocating blade on the underside of the material.
- Using sharp blades designed for the material you are cutting should eliminate the need for excessive force. Nonetheless, always be prepared for a sudden freeing of the blade and keep hands clear of the blade's travel path.

### **TAKING CARE OF POWER TOOLS**

- No matter what type of power tools you use, taking proper care will give them a longer life and help prevent injury.

- Never carry any electrical tool by the cord. This can damage the cord and connections, rendering the tool unsafe to use.
- When unplugging the tool from the wall, grab the plug. Don't yank the cord.

### **BATTERY-POWERED TOOLS**

- When using a battery-powered tool, only use the type of battery specified by the tool's manufacturer. Also, you should only recharge the battery with a charger that is specially designed for that tool.
- If you do not plan on using the tool for an extended period of time, remove the battery before storing.
- Remove the battery before changing accessories or making adjustments to the tool. This has the same effect as unplugging a traditional power tool and is an important safety precaution often overlooked.
- Store battery packs safely so nails, screws, wrenches or any other objects cannot come in contact with the battery terminals. This could result in sparks, fires or burns.

### **PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION**

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

**Here are some suggestions for preparing your videotape equipment and the room or area you use:**

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

**CONDUCTING THE PRESENTATION**

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to illustrate the basic safety rules associated with hand and power tools and to stress the importance of having a good safety attitude and exercising good judgment when using this equipment.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about specific tools used at your facility and how employees can control the hazards associated with them. Use the review questions to check how well the program participants understood the information.

After watching the videotape program, the viewer will be able to explain the following:

- The importance of having a good safety attitude when using hand and power tools;
- What to look for when inspecting tools;
- Basic safety rules for wrenches, pliers, screwdrivers and striking tools;
- Basic safety rules for power drills, power saws and battery-powered tools.

**WORKING SAFELY WITH HAND & POWER TOOLS**  
**REVIEW QUIZ**



Name \_\_\_\_\_ Date \_\_\_\_\_

*The following questions are provided to check how well you understand the information presented during this program.*

1. You should always wear safety glasses when using any tool, even a hand tool.
  - a. true
  - b. false
  
2. You should only use a cheater bar with a wrench to loosen a bolt after you have tried unsuccessfully to loosen it with hand pressure.
  - a. true
  - b. false
  
3. Which of the following statements about pliers is false?
  - a. they should never be exposed to excessive heat
  - b. they should never be used to turn nuts and bolts
  - c. they should never be used as hammers
  - d. they should never be oiled at the hinges
  
4. A screwdriver should never be used as a punch or awl.
  - a. true
  - b. false
  
5. The face of a hammer used to strike a chisel should have a diameter at least \_\_\_\_\_ the chisel's face.
  - a. the same size as
  - b.  $\frac{3}{8}$  of an inch smaller than
  - c.  $\frac{3}{8}$  of an inch larger than
  
6. What is the proper way to start a drill bit into its path?
  - a. apply enough force on the drill to make it cut into the material
  - b. turn a Phillips head screwdriver clockwise to make a dent or hole where you intend to drill
  - c. use a punch to make a dent or hole where you intend to drill
  
7. When is it acceptable to tie back the guard on a power saw?
  - a. when you need to get a better view of the material being cut
  - b. when the guard prevents you from making a straight cut
  - c. never
  
8. You should always carry an electrical tool by its cord.
  - a. true
  - b. false

***ANSWERS TO THE REVIEW QUESTIONS***

1. a

2. b

3. d

4. a

5. c

6. c

7. c

8. b