OSHA'S 11

An OSHA 10-hour curriculum for Young Workers

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Welcome to OSHA's 11! This curriculum contains lesson plans for teaching a version of the OSHA 10-hour General Industry training course appropriate for young workers, especially high school aged students enrolled in career & technical education, skills centers, academies, workforce development, or other school-based programs. The curriculum includes an additional hour in order to provide information on child labor laws that provide protection to workers under age 18.

Students who complete an OSHA 10-hour general industry outreach course can receive an OSHA 10-hour card if the course is taught by an instructor who has taken an OSHA General Industry Standards Course (#511) and a Trainer Course (#501) from the OSHA Training Institute, or from one of the 29 OSHA Training Institute Education Centers. OSHA has specific requirements about what must be covered during an OSHA 10-hour course, and how much time must be spent on specific topic areas: (www.osha.gov/fso/ote/training/outreach/training_program.html)

We want to emphasize, however, that this curriculum will have considerable value to students and workers even if the instructor is not authorized to issue OSHA 10 cards.

The objectives for the OSHA's 11 curriculum found at the beginning of each module have been provisionally approved by the OSHA Outreach Training Program as meeting OSHA-10 requirements. The activities have been compiled and designed to meet these objectives and time requirements. If the entire curriculum is taught, all of the objectives will be covered. Be aware, however, that some of these objectives are partially addressed in the general introductory lessons, and all aspects of a topic are not necessarily covered under the topic-specific lessons. This is because OSHA's 11 is designed as an integrated curriculum and contains youth-oriented material emphasizing communications and problem-solving. We believe it will be more interesting to the intended audience of young workers and students in this format. A course matrix is provided showing how these activities meet the topic area time requirements and objectives.

We have assigned times to the modules so that the full curriculum will take 11 hours and 15 minutes. However, there are sections that can clearly use more time, so we encourage teachers to include optional activities where you can.

Activities have been drawn from the Young Worker Safety Resource Center's (YWSRC) Youth @ Work curriculum; a set of draft lesson plans called Safety Works, developed by Lyn Lamstein formerly of the Maine Dept. of Labor; California's WOSHTEP (Worker Occupational Safety and Health Training and Education Program) curriculum, PowerPoint presentations developed by the OSHA Office of Training and Education and the Hispanics Work Safe Program at University of Massachusetts-Lowell; Health and Safety Awareness for Working Teens (University of Washington); and existing videos developed by the CPWR - The Center for Construction Research and Training, the Washington State Dept. of Labor and Industries, and the University of Washington. Please see the outline that follows for more details.

This is a living document. If you have suggestions for changes or additional activities, please contact:

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OSHA's 11: Outline of the Instructors Guide

Activities	Sources #	Time needed
I. Introduction This section partially addresses OSHA's Objectives for *Introduction to OSHA**		
Teen Worker Injuries Watch video of injured youth (select either one) and follow-up discussion.	*Teens: The Hazards We Face* *Teen Workers: Real Jobs, Real Risks*	45 minutes
II. Hazards and Prevention This section meets OSHA's objectives for the following topic areas: Walking/Working Surfaces; Electrical; PPE; Hazard Communication; Bloodborne Pathogens; Safety and Health Programs; Ergonomics; Workplace Violence		
Finding Hazards: Draw hazard maps of workplaces, identify types of hazards.	*Youth @ Work* Checklists of hazards in common workplaces	45 minutes
Making the Job Safer: Students are introduced to the concept of hierarchy of controls through the safety pyramid game. Using various work scenarios students come up with ideas for controlling the hazards shown. Solutions are organized into categories.	*Youth @ Work*	45 minutes
Personal Protective Equipment (PPE): Using a PPE Grab Bag activity students pull PPE from a bag and describe how they are used as well as the equipment's limitations.	*Safety Works!* WA Dept of Labor & Industries	40 minutes
Electrical Safety: Using PowerPoint slides, handouts, and a scenario activity students learn strategies to prevent injuries from exposure to electricity.	*Safety Works!* OSHA Office of Training & Education - Hispanics Work Safe University of Massachusetts-Lowell	60 minutes
Chemical Hazards and Hazard Communication: Students learn about the Hazard Communication standard including labels and MSDSs. Students evaluate information on an MSDS.	*WOSH Specialist Training Curriculum*	60 minutes
Slips, Trips and Falls: Students review different types of slip, trip, and fall hazards. Students view a video on ladder safety and demonstrate ladder safety techniques.	*'Don't Fall for It' Safety Works* CPWR	45 minutes
Bloodborne Pathogens: Discuss different types of bloodborne pathogens. Students analyze scenarios of workers exposed to bloodborne pathogens.	*Safety Works!*	30 minutes
Ergonomics: Students view a video on ergonomic risk factors and participate in exercises to demonstrate risk factors. Using handouts students practice and evaluate proper lifting techniques.	*'Dr Ergo'-WA Labor & Industries Safety Works!* *UW - Health & Safety Awareness for Working Teens*	65 minutes
Workplace Violence: Students view a video on workplace violence and discuss strategies for prevention.	*'Is It Worth Your Life?'*	40 minutes

III. Emergency Preparedness This section meets OSHA's objectives for Exit Routes, Emergency Plans and Fire Prevention and Protection *		
Disaster Blaster Game: Using the Disaster Blaster board game, students review what to do for various workplace emergency scenarios.	*Youth @ Work*	30 minutes
Exit Routes and Fire Protection: Using PowerPoint slides, students discuss the elements of an exit route. Students then practice an emergency exit drill. Using an activity students discuss the five classes of fire extinguishers and evaluate which will work on different types of fires.	S*afety Works!* OSHA Office of Training & Education -PPTs	45 minutes
IV. Putting It All Together This section addresses OSHA's objectives for the following topics: Introduction to OSHA and Safety and Health Programs.*In addition, the section addresses laws and protections for young workers.		
Know Your Rights: Through the use of a Jeopardy-style game, students answer questions about safety and labor laws.	*Youth @ Work*	45 minutes
OSHA: Protecting Workers' Health and Safety: Through a discussion students learn the role of OSHA. Students then review the OSHA website to locate health and safety information.	OSHA website (including e-tools)	30 minutes
Taking Action: Students role play solutions to workplace health and safety and rights issues raised in a scenario.	*Youth @ Work*	50 minutes

 # Sources:

- *Youth @ Work: Talking Safety*, Young Worker Safety Resource Center
- *Safety Works!* Teaching Occupational Safety and Health to Teens, Maine Department of Labor
- *Teens: The Hazards We Face*, Young Worker Safety Resource Center
- *Teen Workers: Real Jobs, Real Risks*, University of Washington
- *Health and Safety Awareness for Working Teens*, University of Washington
- OSHA PowerPoints: OSHA 10-Hour General Industry Outreach-Trainer Presentations, www.OSHA.gov, OSHA Office of Training & Education – PowerPoints, e-tools
- WOSH-Worker Occupational Safety and Health Specialist Training, CA Commission on Health and Safety and Workers' Compensation
- *Dr. Ergo* video, Washington State Dept of Labor and Industries
- *Is It Worth Your Life?*, video by the WA State Dept. of Labor and Industry
- *Don't Fall for It* video by the CPWR - The Center for Construction Research and Training
- *Hispanics Work Safe*, University of Massachusetts - Lowell - PowerPoints

TEEN WORKER INJURIES

TEEN WORKER INJURIES

Learning Objectives

By the end of this lesson, students will be able to:

- Describe the effects that work injuries can have on a young person's life
- Identify the major messages in a video on teen job safety

Time Needed: 45 Minutes

Materials Needed

- Flipchart & markers, or chalkboard and chalk
- Computer Projector
- PowerPoints Slides #1–4 Examples of Teen Worker Injuries (John, Antonio, Keisha and Dakota)
  Slide #5: Where are Teens Injured?
  Slide #6: Key Points of this Training
- Video or DVD: *Teens: The Hazards We Face in the Workplace* or *Teen Workers: Real Jobs, Real Risks*
- DVD player and TV or LCD projector (with speakers)

Preparing to Teach This Lesson

Before you present this lesson:

1. Locate PowerPoint slides on the CD and set up computer projector. Preview slides #1-6.
2. Preview the DVD or video prior to showing to students. Identify places to pause the video for class discussion.
3. Review video discussion questions and answers found in lesson plan.

Detailed Instructor's Notes

A. Introduction: Effects of workplace injuries on young workers (15 minutes)

1. Explain that this is a series of classes about staying safe at work. Many teens have jobs, and sometimes their work is dangerous.

   Students in these classes will learn about the following:

   - Some of the ways people (both youth and adults) can get hurt on the job.
   - What to do if you see something at work that could hurt you or make you sick.
   - What legal rights all workers have to make sure their jobs are safe.
   - What extra protections young workers have under child labor laws.

2. As a warm-up discussion, ask students:

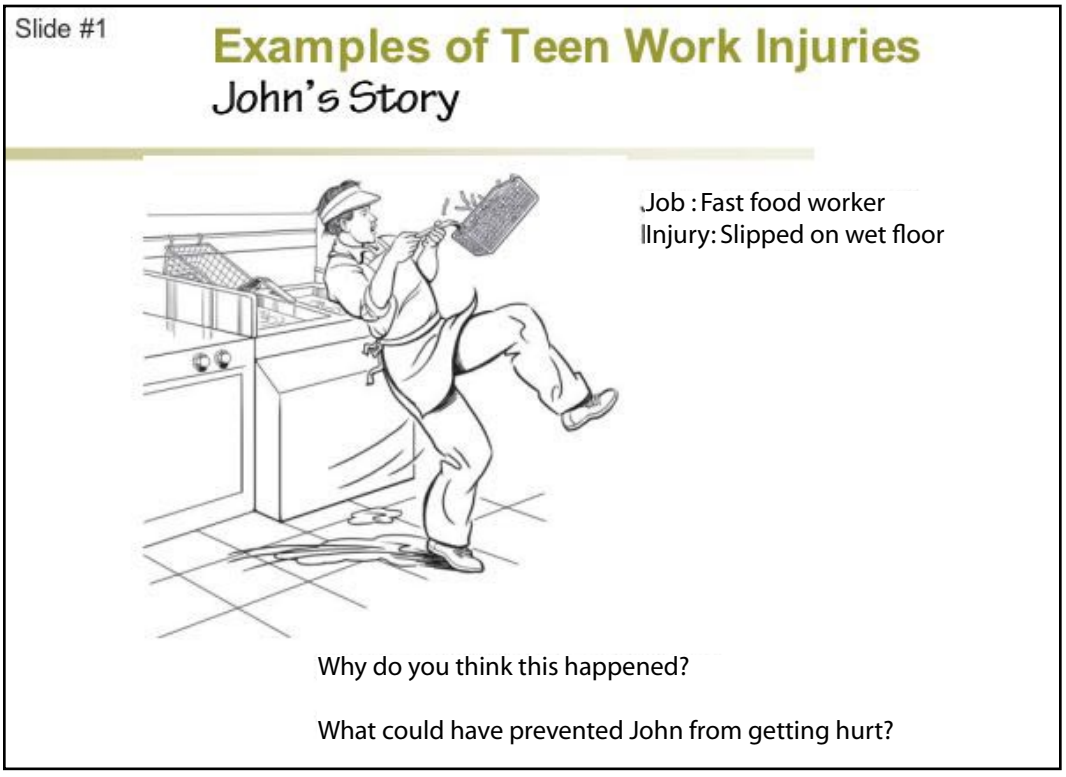
   How many of you have ever had a job?
   Where did you work?
   What did you do?
   Have you ever been hurt at work, or do you know someone who was?
   If you have not been hurt, has anyone had an accident or close call that could have caused you to be hurt?
   Have you ever been afraid to do a task you've been asked to do at work?

Let the class briefly discuss their answers. The questions are designed to get students thinking about safety issues in their own job experience.

3. To emphasize the long-term impact work injuries can have on a person's life, ask students if they have an injury story to share from their own personal experience. Otherwise tell them about an actual news event from your own state or read at least one of the stories below.
4. If you use the stories below, use PowerPoint slides #1-4 to help illustrate the story. You can also select stories from Part B of Making the Job Safer: the $25,000 Safety Pyramid game. Let the students know that all stories are based on real on-the-job injuries that actually happened to teens.

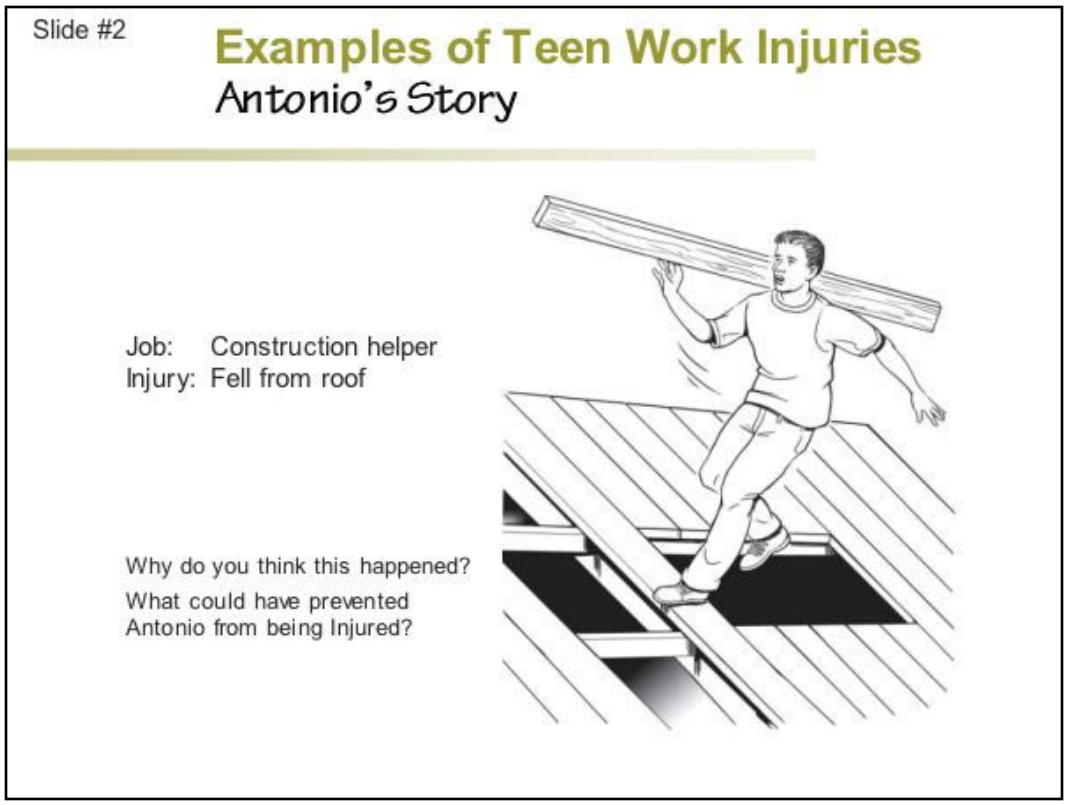
Slide 1: John's Story

John worked at a fast food restaurant. The floor often got very greasy and had to be washed frequently. As John walked across the wet floor, carrying a basket of french fries, he slipped. He tried to keep the fries from falling, so he couldn't break his fall with his hands. He fell on his tail-bone and was seriously injured. He is now permanently disabled and has trouble walking.



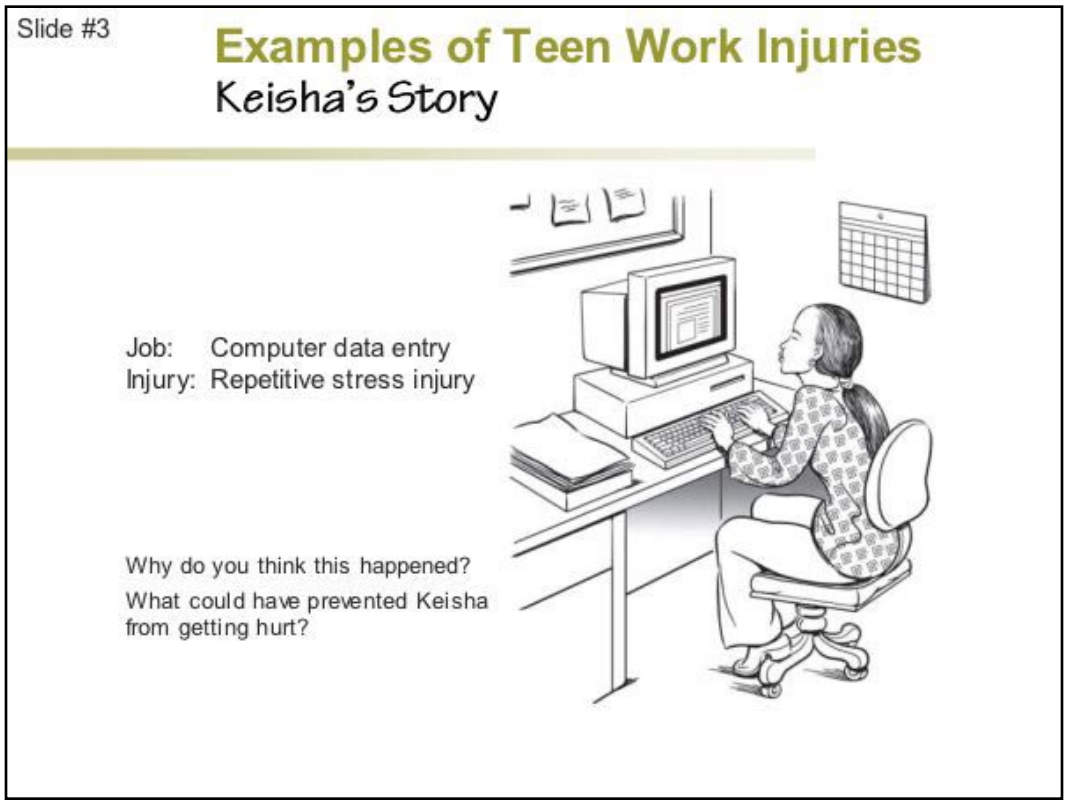
Slide 2: Antonio's Story

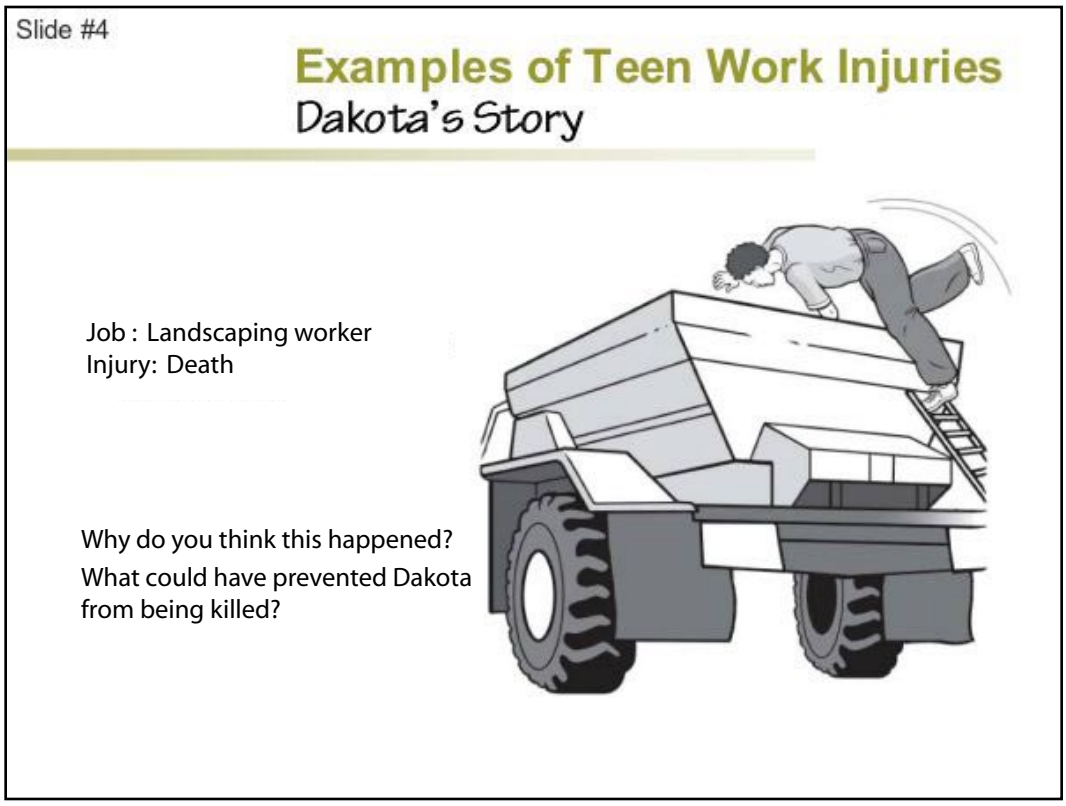
Antonio worked for a neighborhood builder. One day when he was carrying a 12-foot roof rafter along the top of an unfinished house, he backed into an unguarded chimney hole and plunged 28 feet to a concrete cellar floor below. He survived, but with three cracked vertebrae that forced him to spend the next three months locked in a "clamshell" brace from his neck to his hips.



Slide 3: Keisha's Story

Keisha did much of her homework on the computer and spent time each day e-mailing her friends. In addition, she worked three hours a day after school inputting data for a direct mail company. She was paid by "piece work" (by the amount of work, not the amount of time). She never took breaks. She began getting numbness in her fingers and waking up with a burning sensation in her wrists. Her doctor told her she had severe repetitive stress injury (RSI), in which prolonged typing in an awkward position damages muscles, tendons, and nerves. She now must wear braces on her wrists day and night and can't work on the computer for more than 15 minutes at a time. Her high school has arranged for someone to take notes in class for her, and when she goes to college she will have to use special software that allows her to dictate rather than type her papers.





Slide 4: Dakota's Story

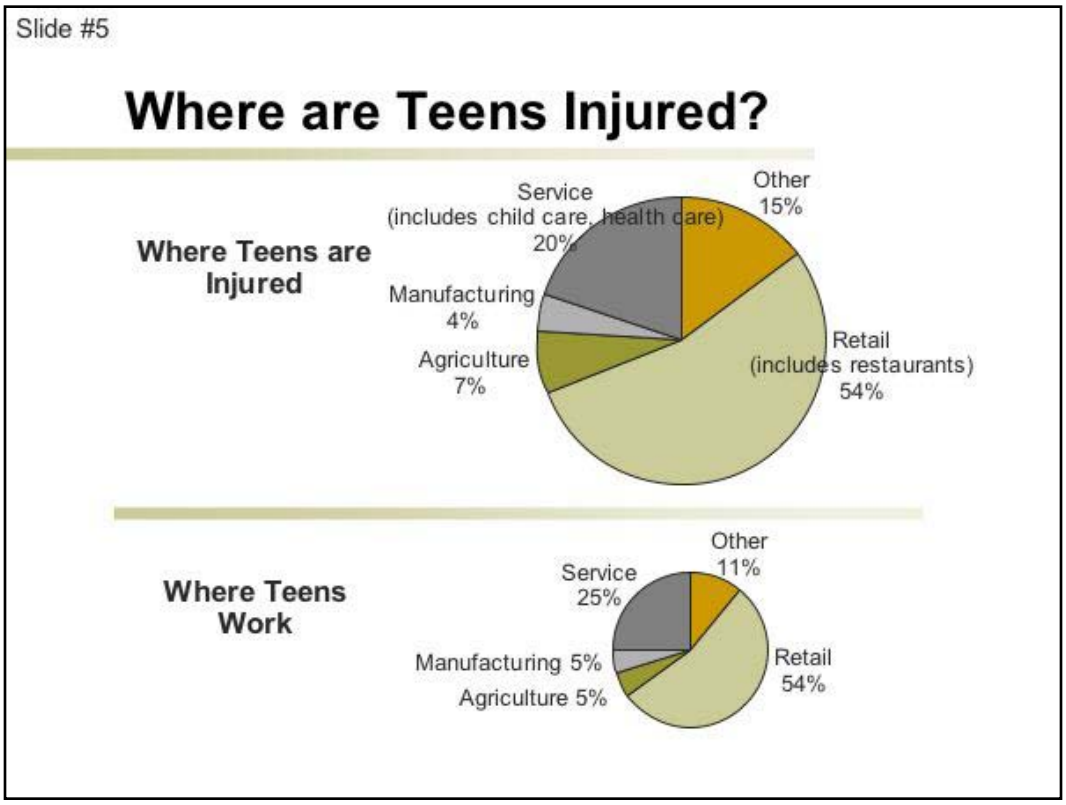
Dakota was a 15-year-old boy who found work with a landscape company after moving to Maryland with his family. After only a week on the job he was assigned to help spread mulch at a large residence using a motorized grinding mulch blower. Somehow, he climbed up to the top of the machine and fell into the grinding machinery of the mulch-spreading truck. A co-worker found his body soon after.

5. Ask students the questions below about each story. As students respond, write what they say on a flipchart page. (You don't need to discuss the answers now. Explain that students will learn more about these issues during the training.)

   Why do you think this happened?
   What could have prevented this person from getting hurt?

6. Show PowerPoint Slide #5. Tell students that more teens tend to be injured in industries where a lot of young people work. Since a little over 50% of teens work in retail, which includes fast food restaurants, most injuries occur in retail.

   Tell the class that the goal of this training is to help prevent them from becoming one of these statistics.



B. Video and discussion (30 minutes)

1. Explain that the class will now watch a video. Select either *Teen Workers: Real Jobs, Real Risks*, or *Teens: the Hazards We Face in the Workplace*. These videos introduce some of the topics that will be covered in these lessons. After deciding which video you will use, review the follow-up questions below to help students identify key points from the video.

   As you watch the video with your students, you may want to pause it at certain points and ask students the students follow-up questions. You may also want to hold a class discussion at the end of the video.

2. Follow-up questions (and possible answers) for the video *Teen Workers: Real Jobs, Real Risks*

   What long-term effects will Mallory's injuries have on her life?

   - Her arms will always be weak and tire easily
   - She can no longer do some of the physical and recreational activities that she used to do
   - She may be limited in doing jobs that require strength or extensive use of the arms

   What are some of the factors that lead to work-related injuries?

   - Unsafe equipment
   - Stressful working conditions
   - Inadequate safety training and supervision
   - Lack of experience

   Why are teens reluctant to speak up to their employers when they notice unsafe working conditions?

   - They don't want to appear incapable or as if they don't know how to do something
   - They don't want to appear as if they weren't paying attention during training
   - They are afraid they might get fired
   - They trust that their supervisor would not have them do a job if it was dangerous

   What are some of the rights that specifically protect teen workers on the job?

   - Limits on how many hours or how long they can work
   - Limits on how early or late they can work
   - Limits on the kinds of equipment that they can use
   - Limits on the jobs they can do

   What responsibilities do employers have to make sure employees have a safe work environment?

   - To train their workers properly
   - To identify potential safety hazards
   - To provide protective clothing and safety equipment

If you are hurt on the job, what does workers compensation cover?

- Payment of medical expenses
- Reimbursement for lost wages

3. Follow-up questions for the video *Teens: the Hazards We Face in the Workplace*

Ask students to list what they believe were the main messages. What did the teens in the video want them to know?

- There are hazards on most jobs
- Teens do get injured at work
- Teens often think it's their fault if they get hurt, rather than thinking about the hazards that can cause injuries
- Teens have rights on the job
- Teens should speak up and ask questions if they are concerned about something at work
- There are ways to reduce hazards on the job. Injuries can be prevented
- Employers have a responsibility to make the workplace safe for workers

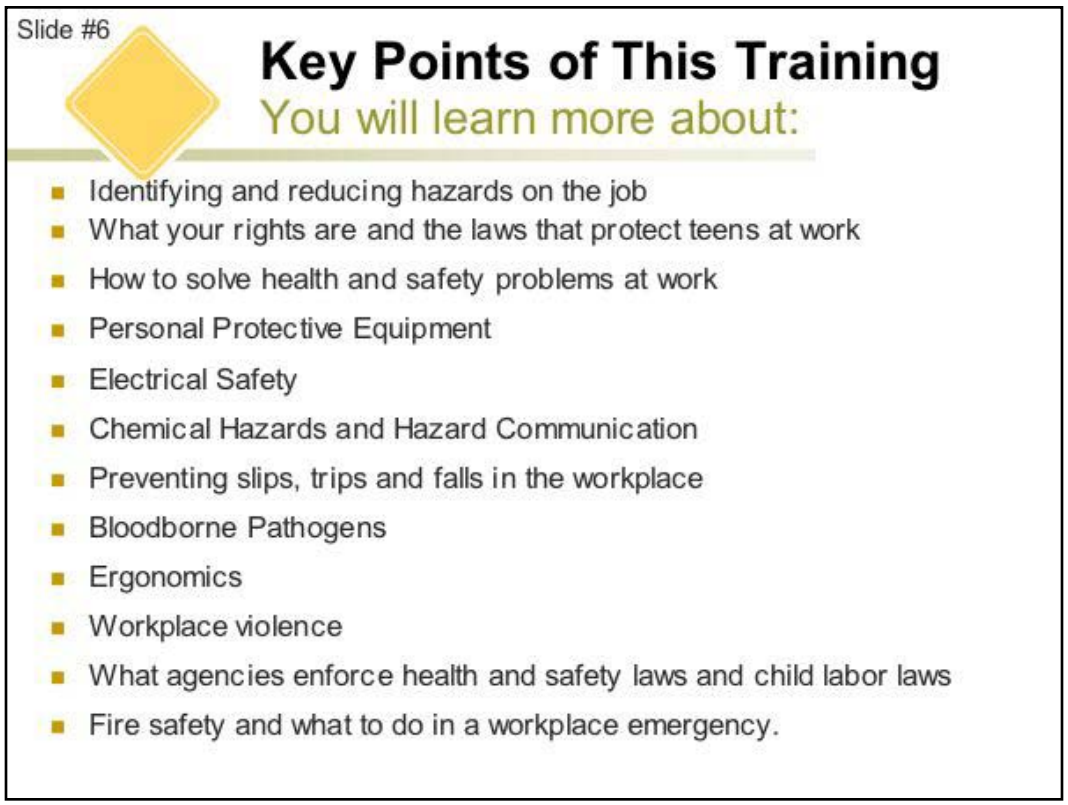
What job hazards did you notice in the video?

Possible answers include:

- Knives
- Meat slicer
- Lifting boxes and other containers
- Hot liquids and hot surfaces
- Dangerous machinery
- Chemicals
- Fire
- Long sleeves around a meat packing machine
- Ladders
- Construction tools and materials

C. Goals of this training

1. Show Slide #6. Explain that this series of lessons will help students avoid becoming an injury statistic. They will learn about their rights as well as a variety of workplace health and safety topics that apply to a wide range of careers.



The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA General Industry Safety Rules 29 (Code of Federal Regulations) CFR 1910

L&I DOSH WISHA General Industry Safety Rules (Washington Administrative Code) (WAC 296-24)

L&I DOSH WISHA Occupation Health Rules (WAC 296-62)

L&I DOSH WISHA Core Rules (WAC 296-800)

FINDING HAZARDS

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Learning Objectives

By the end of this lesson, students will be able to:

- Define the term *"job hazard"*
- Identify a variety of health and safety hazards found at typical worksites where young people are employed.
- Locate various types of hazards in an actual workplace.

Time Needed: 45 Minutes

Materials Needed

- Flipchart Paper
- Markers (5 colors per student group)
- PowerPoint Slides: #1: *Job Hazards*
  #2: *Sample Hazard Map*
  #3: *Finding Hazards*: *Key Points*
- Appendix A handouts (Optional)

Preparing To Teach This Lesson

Before you present this lesson:

1. Obtain a flipchart and markers or use a chalkboard and chalk.
2. Locate slides #1-3 on your CD and review them. If necessary, copy onto transparencies.
3. For the Hazard Mapping activity, you will need flipchart paper and a set of five colored markers (black, red, green, blue, orange) for each small group.

Detailed Instructor's Notes

A. Introduction: What is a job hazard? (15 minutes)

1. Remind the class that a job hazard is anything at work that can hurt you, either physically or mentally.

   Explain that some job hazards are very obvious, but others are not. In order to be better prepared to be safe on the job, it is necessary to be able to identify different types of hazards.

   Tell the class that hazards can be divided into four categories. Write the categories across the top of a piece of flipchart paper and show PowerPoint Slide #1, *Job Hazards*.

   - **Safety hazards** can cause immediate accidents and injuries. Examples: hot surfaces or slippery floors, trip hazards, sharp edges, etc.
   - **Chemical hazards** are gases, vapors, liquids, or dusts that can harm your body. Examples: cleaning products or pesticides.

- **Biological hazards** are living things—bacteria, viruses, or insects—that can cause diseases such as flu, AIDS, hepatitis, Lyme disease, tuberculosis, and methicillin-resistant *Staphylococcus aureus* (MRSA). In the workplace, you can be exposed to biological hazards through contact with used needles, sick children, animals, etc.
- **Other health hazards** include harmful things, not in the other categories, that can injure you or make you sick. These hazards are sometimes less obvious because they may not cause health problems right away. Some examples might be noise, repetitive movements, and mental stress.

2. Ask students to think about places they have worked, or workplaces with which they are familiar (restaurants, stores, movie theaters, offices, etc.).

   On the board or flipchart paper, create a table with four columns. Add the following headings to each column: Safety Hazards, Chemical Hazards, Biological Hazards, and Other Health Hazards.

   Have students call out possible job hazards and identify each as a safety hazard, chemical hazard, biological hazard, or other health hazard.

   List each hazard the students call out in the matching column on the table. Alternatively, have the class generate one list of hazards and then work in small groups to categorize them.

* **NOTE:** Students may confuse the effects of hazards with the hazards themselves. They may mention "cuts" for example, instead of knives, which cause cuts. The cause is the hazard and should be listed on the chart. If people give effects rather than causes, ask them what causes the problem they mention. This will help later when students discuss how to eliminate hazards.

Safety Hazards	Chemical Hazards	Biological Hazards	Other Health Hazards
• hot surfaces • slippery floors • unsafe ladders • machines without guards • sharp knives • hot grease • unsafe electric circuits • lack of fire exits • motor vehicles • cluttered work areas • falling objects • violence	• cleaning products • pesticides • solvents • acids • asbestos • lead • ozone (from copiers) • wood dust • mercury • poor air quality • gasoline	• viruses * bacteria • molds • animals • birds • insects • poison ivy • poison oak • used needles	• noise • vibration • radiation • heat or cold • repetitive movements • awkward posture • heavy lifting • fast pace of work • stress • areas too dark or too bright

B. Hazard mapping (30 minutes)

1. You may choose to select workplaces specifically relevant to your program or the experiences of your students for this exercise.

   Divide the class into small groups. Assign each group a type of workplace. You and your students can choose workplaces where young workers often work, such as fast food restaurants, grocery stores, movie theaters, and offices. Appendix A also contains other examples of hazards found in work settings where teens may be employed.

2. Have students draw a simple floor plan for their workplace on flipchart paper using a black marker. The floor plan should show typical rooms, work areas, furniture, equipment, work processes, doors, and windows. Explain that the floor plan can be very simple.

3. Next, each group should mark the location of various hazards on their floor plans. Using the following color code can help reinforce the different categories of hazards. It's not necessary to color code the categories if it feels too complicated.

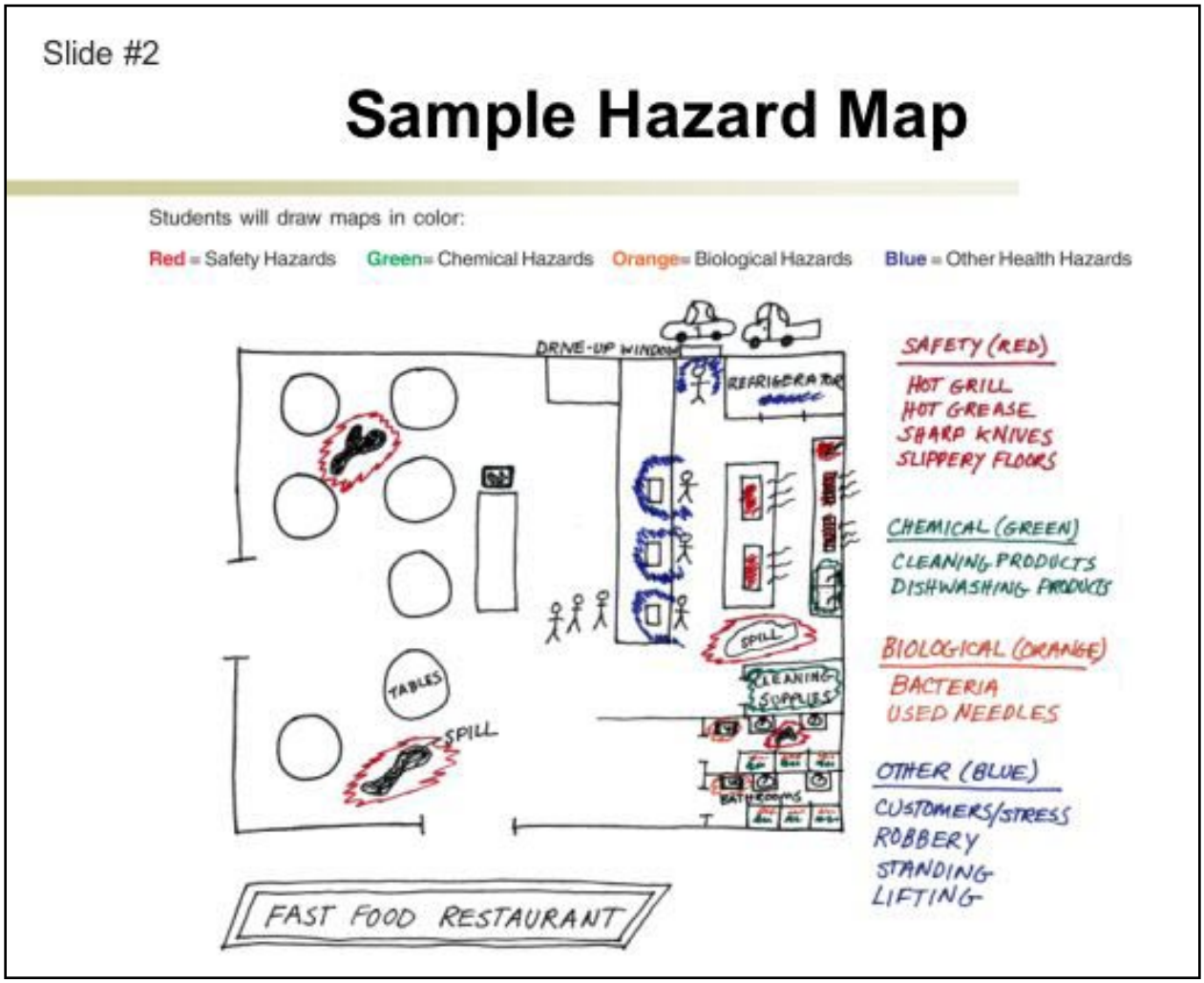
   Red = safety hazards

   Green = chemical hazards

   Orange = biological hazards

   Blue = other health hazards.

   Show students PowerPoint Slide #2, *Sample Hazard Map*.



4. (Optional) If you wish, also ask the groups to indicate how dangerous each hazard is. They can highlight hazards they consider especially serious or severe by coloring them more prominently.
5. Ask each group to choose someone to present their map to the entire class later. The presenter should be ready to explain to the class what they believe are the major hazards in this workplace.

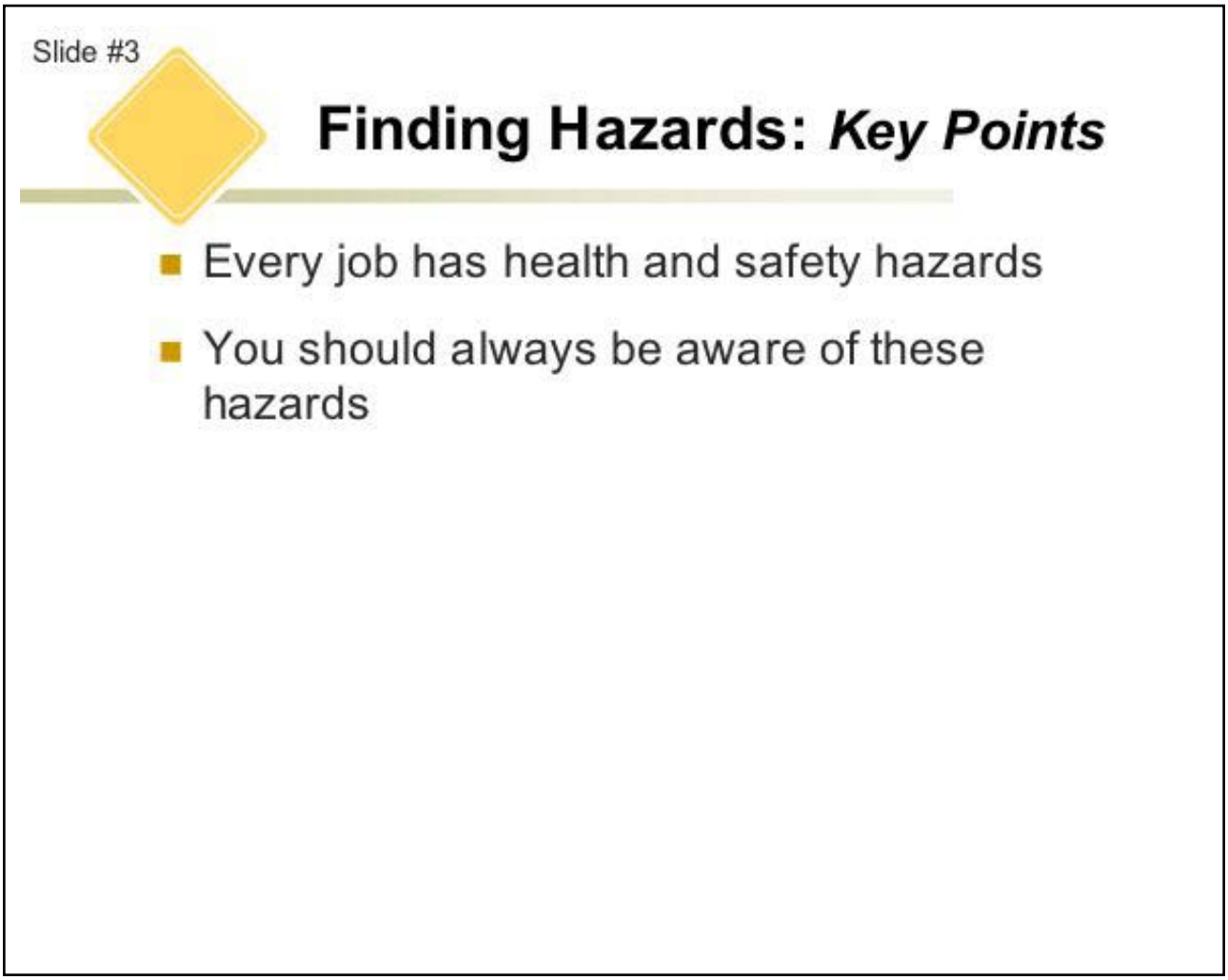
6. Have the person selected by each group present and explain its map. The explanation should include a list of the major hazards in this type of workplace. As each group presents its map, list any hazards people mention that were not previously listed on the chart created during the Introduction.

C. Review (5 minutes)

1. Show PowerPoint Slide #3, *Finding Hazards: Key Points*. Review the key points covered in this lesson.

   a. Every job has health and safety hazards.

   b. You should always be aware of these hazards.



SALESPERSONS & SALES CLERKS

Retail salespersons and sales clerks sell or rent goods and services.

Description of Job

Main Duties:

- Greet customers and discuss the type, quality, quantity, use and care of merchandise for purchase or rental;
- Estimate or quote prices, credit terms, trade-in allowances, warranties and delivery dates;
- Prepare merchandise for purchase or rental;
- Prepare sales contracts and do payment transactions;
- Assist in the display of merchandise.

Health and Safety Hazards

Biological:

- Potential hazard from breathing micro-organisms such as molds and bacteria which may grow in air-conditioning and humidifying systems, evaporative condensers and cooling towers in buildings may cause symptoms such as allergies and respiratory infections.

Chemical:

- Possible respiratory, eye and skin irritation from poor indoor air quality caused by poor ventilation design, sealed buildings and the build-up of contaminants from building materials and office equipment.

Ergonomic:

- Cumulative trauma disorders such as carpal tunnel syndrome, tendonitis and tenosynovitis can develop in cashiers
- Discomfort in the neck, shoulder, elbow and back from awkward positions in check-out stands
- Discomfort in legs, knees and feet, varicose veins and back pain from compressive forces from prolonged standing
- Back injuries from moving heavy or large merchandise.

Psychosocial:

- High stress from need to work efficiently and at a fast pace
- Shift work
- Competing for sales commission between co-workers
- Dealing with irate or difficult customers
- Being on the lookout for and coping with shoplifters.

Source: http://www.ccohs.ca/youngworkers/retail.htm

CAREGIVERS/HOUSEKEEPERS

Description of Job

Caregivers, housekeepers, domestic workers and babysitters have similar functions in the workplace. Their general tasks may include the following:

- Kitchen work, including shopping for food, cooking and meal preparation
- House cleaning, housekeeping, and washing dishes
- Laundry
- Childcare, which may involve diaper changing, bathing and supervision
- Elder care, which may involve bathing, companionship, and assistance with doctor visits.

What are some health and safety issues for caregivers and housekeepers?

There are several potential health and safety hazards associated with caregiving and housekeeping duties:

- Risk of illness or infection from changing diapers, performing first aid, etc.
- Exposure to chemicals in household cleaning products
- Working in awkward postures or performing repetitive tasks
- Risk of pain or injury from lifting or carrying heavy loads
- Slips, trips and falls
- Working with sharp knives or other potentially hazardous tools
- Risk of burns from ovens, deep fryers, and steam from pots
- Stress
- Fatigue and other health problems from long hours of work
- Working alone.

What are some preventive measures for a caregiver or housekeeeper?

- Learn safe lifting techniques
- Wash your hands frequently—an important step in preventing infection
- Always wear appropriate personal protective equipment for the task
- Wear shoes with non-skid soles.

What are some good general safe work practices?

- Practice safe lifting techniques
- Follow or establish safety procedures for working alone or avoid working alone wherever possible
- Get current training on chemical hazards and MSDSs
- Know basic and emergency first aid
- Follow company safety rules
- Know how to report hazards
- Practice good housekeeping procedures.

LANDSCAPERS

Under the label "landscaper" we are referring to gardeners, greenkeepers, lawn care specialists and horticultural workers. These people work in businesses or homes, indoors or outdoors.

Description of Job

Some of the main duties of a landscaper include the following:

- Plan, create and maintain landscaped environments, which may include flowers, plants, trees, lawns, fences, decks, patios or water features
- Prepare and spray chemical mixtures using various types of equipment
- Operate powered equipment and hand tools.

What are some health and safety issues for landscapers?

Depending on exact occupation or geographic location, the following are possible risks:

- Exposure to infectious human and animal waste
- Irritation or allergic reaction from plants, or from insect bites or stings
- West Nile virus, Lyme disease or Rocky Mountain Spotted Fever
- Histoplasmosis from bird droppings
- Hantavirus from mouse droppings
- Exposure to pesticides and other toxic chemicals
- Pain or injury from working in awkward positions, lifting and carrying heavy objects
- Noise
- Exposure to extreme temperatures.
- Work with heavy machinery, manual and power tools, and ladders
- Working near electrical lines
- Stress

What are some preventative measures for landscapers?

- Wash hands frequently
- Remove contaminated clothing and footwear to avoid transferring chemicals to your home or other "clean" spaces
- Wash contaminated items before re-wearing or discarding
- Read the Material Safety Data Sheet (MSDS) for each chemical used
- Keep limbs covered to avoid insect bites
- Wear protective clothing against the sun and extreme heat or cold
- Learn safe lifting techniques
- Wear appropriate personal protective equipment
- Know how to safely use equipment and tools.

What are some good general safe work practices?

- Practice safe lifting techniques
- Work safely with equipment, tools, and ladders
- Follow MSDS recommendations when working with chemicals
- Use, maintain and store personal protective equipment according to manufacturers' recommendations
- Stay hydrated to avoid heat stress
- Follow company safety rules
- Know how to report a hazard
- Follow good housekeeping procedures.

PAINTERS

A painter applies paint and other decorative finishes to interior and exterior surfaces of buildings and other structures.

Description of Job

Some of the main duties of a painter are to:

- Prepare surfaces to be painted (includes scraping, removal of wallpaper, etc.)
- Determine what materials will be needed
- Use, clean and maintain various equipment
- Supervise apprentices or other workers
- Provide estimates and invoices for clients.

What are some health and safety issues for painters?

Painters can work at a variety of workplaces, construction sites, homes, etc. and face a constantly changing set of hazards. Hazards can include the following:

- Working at heights on ladders, platforms, and scaffolds
- Working in confined spaces
- Risk of eye injury
- Slips, trips and falls
- Risk of injury from falling objects
- Exposure to molds, fungi and bacteria
- Exposure to paint products, solvents, lead and other toxic substances
- Proximity to flammable or combustible materials
- Working in awkward positions, or performing repetitive physical tasks
- Standing for long periods of time
- Lifting heavy or awkward objects
- Exposure to heat and ultraviolet radiation
- Noise
- Stress
- Shift work or extended work days

What are some preventive measures for painters?

- Learn correct procedures for working at heights.
- Avoid awkward body positions or take frequent breaks.
- Learn safe lifting techniques.
- Keep tools and equipment, and their safety features, in good working order.
- Wear appropriate personal protective equipment and footwear.
- Keep work areas clear of clutter and equipment.
- Learn safety procedures for working in confined spaces.

What are some good general safe work practices?

- Practice safety procedures for:
  - Working at heights
  - Lifting
  - Repetitive physical tasks
  - Selection, use, maintenance and storage of personal protective equipment
  - Confined space entry
- Follow company safety rules.
- Learn about chemical hazards and MSDSs.
- Know how to report a hazard
- Follow good housekeeping procedures.

GENERAL OFFICE CLERKS

General office clerks type and file correspondence, statements and other material. They also operate office equipment, answer telephones, respond to faxes and emails, and do general clerical duties. They work in the public and private sectors.

Description of Job

Main Duties:

- Receive and forward telephone or personal enquiries and provide general information to clients
- Photocopy and collate documents for distribution, mailing, couriers and filing
- Maintain and update manual or computerized filing, inventory, mailing and database systems
- Open, sort and route incoming mail and courier packages
- Send and receive email or fax messages
- Sort, process, type, proofread and verify reports, statements, applications, receipts, expenditures, forms, invoices, bank deposits and other documents using computers or typewriters.

Health and Safety Hazards

Biological:

- Potential hazard from breathing micro-organisms such as molds and bacteria that may grow in air-conditioning and humidifying systems
- Evaporative condensers and cooling towers in buildings may cause symptoms such as allergies and respiratory infections.

Chemical:

- Possible respiratory, eye and skin irritation from poor indoor air quality caused by poor ventilation design, sealed buildings and the build-up of contaminants from building materials and office equipment.

Ergonomic:

- Cumulative trauma disorders such as carpel tunnel syndrome, tendonitis, tenosynovitis, bursitis, thoracic outlet syndrome can affect the upper limbs and neck;
- Prolonged work with a computer may cause inflammation in the muscles, joints and tendons;
- Prolonged sitting can reduce blood circulation and increase blood pooling in the legs and feet and cause lower back pain;
- Eye strain and headaches from poorly designed lighting or uncorrected eyesight

Physical:

- High noise levels generated by the combination of copiers, typewriters, printers, phones

Safety:

- Slips, trips and falls from cluttered, slippery or wet floors
- Sprains, strains and fractures
- Collisions with open file cabinet drawers
- Back injuries from moving heavy objects
- Cuts and bruises
- Abrasions
- Burns and electric shock.

Source: http://www.ccohs.ca/youngworkers/clerks.html

MAKING THE JOB SAFER

MAKING THE JOB SAFER

Learning Objectives

By the end of this lesson, students will be able to do the following:

- Describe the three main ways to reduce or eliminate hazards at work.
- Explain which methods are most effective in controlling hazards.
- Describe why workers may not want to wear Personal Protective Equipment (PPE).

Time Needed: 45 Minutes

Materials Needed

- Flipchart & markers or chalkboard & chalk
- PowerPoint Slide #1 *Controlling Hazards: Key Points*
  PowerPoint Slides #2-10 *Teen Worker Injury Scenarios*
  PowerPoint Slide #11 *Making the Job Safer: Key points*
- Game board, score sheet, masking tape
- Post-it Notes (a different color for each team)
- Watch or timer
- Pens or pencils
- Prizes

Preparing To Teach This Lesson

Before you present Lesson Three:

1. Obtain a flipchart and markers, or use a chalkboard and chalk.
2. Locate PowerPoint slides for the unit on your CD and review. Prior to teaching this activity, review the stories for each game round found at the end of this lesson and select those stories most relevant to your students. If necessary, copy slides onto transparency.
3. For the $25,000 Safety Pyramid game (B), draw a game board in advance on flipchart paper as pictured in Section B, and tape it to the wall. Also obtain pads of Post-it Notes (a different color for each team), a watch or timer, and prizes (such as candy).
4. Review Slide #11 for use in summarizing the main points of this lesson at the end of the class.

Detailed Instructor's Notes

A. Introduction: Controlling hazards. (10 minutes)

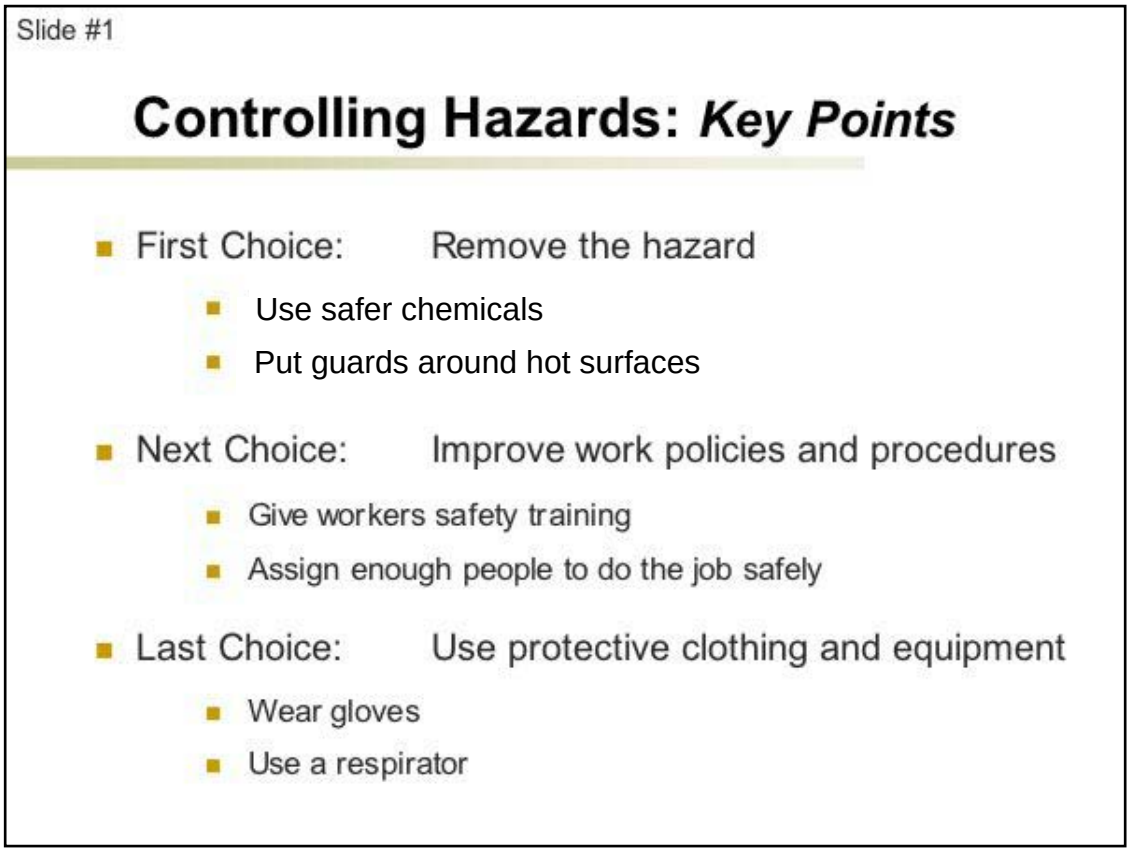
1. On a piece of flipchart paper, create a table with two columns. Head the left column "Hazards" and the right column "Possible Solutions."
2. Pick one job hazard from the list that the class made during the previous lesson. Write it in the Hazards column of the table. (For example, you might write "slippery floors.")

Ask the class:

How can this workplace hazard be reduced or eliminated?

3. As students suggest answers, write them in the Possible Solutions column next to the hazard. Possible solutions for slippery floors might include the following:
   - Put out caution signs
   - Clean up spills quickly
   - Install slip-resistant flooring
   - Use floor mats
   - Wear slip-resistant shoes
   - Install grease guards on equipment to keep grease off the floor.
4. Explain to the class that there are often several ways to control a hazard, but some are better than others. Hold a class discussion of the three main control methods:
   - Remove the hazard
   - Improve work policies and procedures
   - Use protective clothing and equipment.

   Instructors Note: Because the purpose of this lesson is to simply use it as a brainstorming session for your students, they are not expected to know specific details (e.g. how to appropriately use personal protective equipment). Each of these control methods will be covered in more depth in later modules.
5. Use PowerPoint Slide #1 and the sections below to help explain the three control methods. After you discuss a method, apply it to the list you created on the flipchart, as indicated below.



1. **Remove the Hazard**

   The best control measures remove the hazard from the workplace altogether or keep it isolated (away from workers) so it can't hurt anyone. This way, the workplace itself is safer, and all the responsibility for safety doesn't fall on individual workers.

   Here are some examples:

   - Use safer chemicals and get rid of hazardous ones
   - Store chemicals in locked cabinets away from work areas
   - Use machines instead of doing jobs by hand
   - Have guards around hot surfaces.

Ask the class:

Which of the solutions on the flipchart really get rid of the hazard of slippery floors?

Students should answer that slip-resistant flooring, floor mats, and grease guards are the items on the list that really remove the hazard. On the flipchart, put a "1" next to these solutions.

2. **Improve Work Policies and Procedures**

   If you can't completely eliminate a hazard or keep it away from workers, good safety policies can reduce your exposure to hazards. Here are some examples:

   - Safety training on how to work around hazards
   - Regular breaks to avoid fatigue
   - Assigning enough people to do the job safely (lifting, etc.).

Ask the class:

Which of the solutions for slippery floors on the flipchart involve work policies and procedures?

Students should answer that putting out caution signs and cleaning up spills quickly are in this category. On the flipchart, put a "2" next to these solutions.

3. **Use Protective Clothing and Equipment**

   Personal protective equipment (often called "PPE") is the least effective way to control hazards. However, you should use it if it's all you have.

   Here are some examples:

   - Gloves, steel-toed shoes, hard hats
   - Respirators, safety glasses, hearing protectors
   - Lab coats or smocks.

Ask the class:

Why should PPE be considered the solution of last resort?

Answers may include the following

- PPE doesn't get rid of or minimize the hazard itself
- Workers may not want to wear it because it can be uncomfortable, hot, and may make it hard to communicate or do work
- PPE must fit properly and be used consistently at the right time to work
- PPE must be right for the particular hazard, such as the right respirator cartridge or glove for the chemical being used.

Ask the class:

Which of the solutions for slippery floors on the flipchart involve protective clothing and equipment?

- Students should answer that wearing slip-resistant shoes is in this category. On the flipchart, put a "3" next to this solution.

  When you have finished marking the three categories on the flipchart, your completed table will look something like this:

HAZARD	POSSIBLE SOLUTIONS
Slippery floors	• Put out caution signs (2) • Clean up spills quickly (2) • Install slip-resistant flooring (1) • Use floor mats (1) • Wear slip-resistant shoes (3) • Install grease guards on equipment (1)

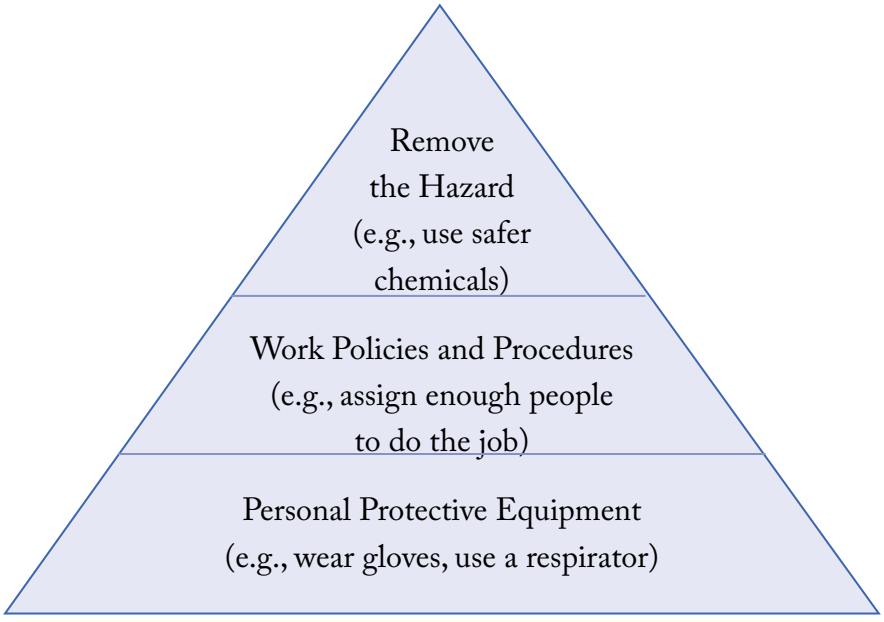
Tell students that they will learn more about these control methods during the next activity. They will play a game called the $25,000 Safety Pyramid.

B. $25,000 Safety Pyramid game. (30 minutes)

Instructor's Note

If you wish, you can present this material as a class discussion instead of a game. Show PowerPoint Slides #2–10 to the class. For each slide, ask students for their ideas about possible ways to prevent the injuries described. Prior to teaching this activity, review the stories for each round found at the end of this lesson and select those stories most relevant to your students.

1. If you are presenting the material as a game, draw a game board like the one below on flipchart paper, and tape it to the wall.



$25,000 Safety Pyramid Game

2. Explain that in each round of the game, you will read aloud a true story about a youth who got injured at work. Students will work in teams. Teams should think of themselves as safety committees, responsible for finding ways to control the hazard that caused the injury described.

   Notice that the pyramid divides solutions into three categories:

   - Remove the Hazard (often called engineering controls)
   - Work Policies (often called administrative controls)
   - Personal Protective Equipment (PPE).

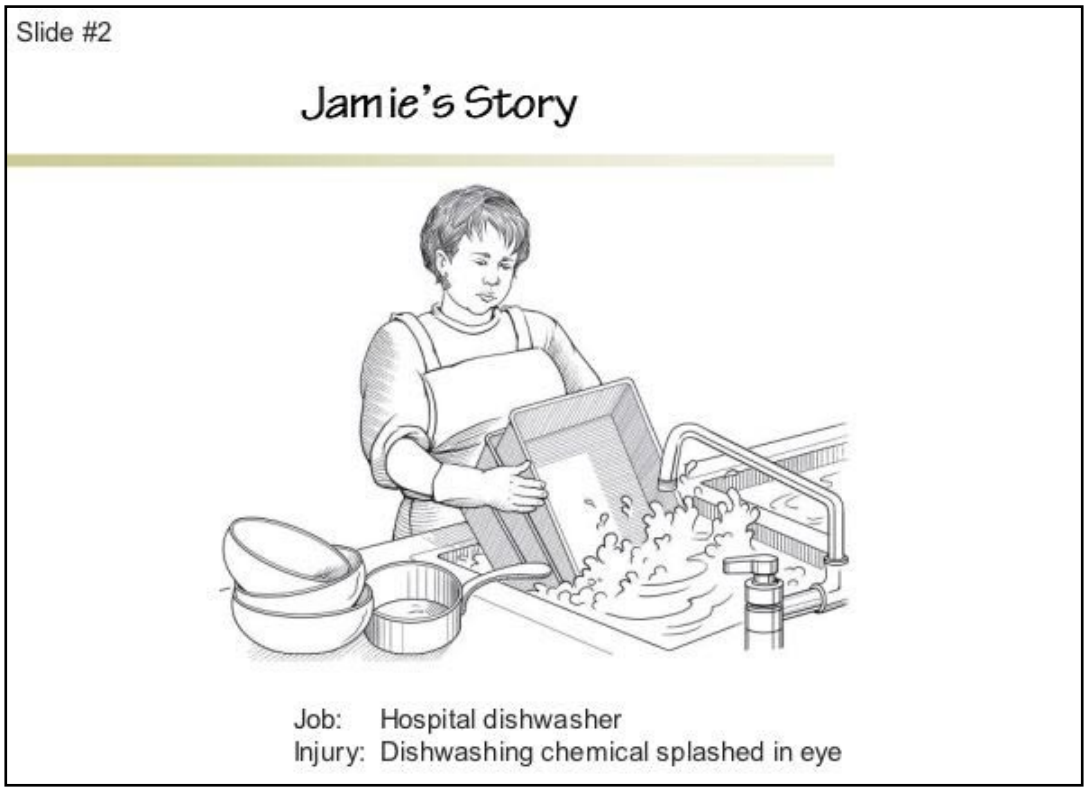
3. Select teams of 3-5 participants each. Ask each team to come up with a team name. Record team names on the chalkboard or on a sheet of flipchart paper, where you will also keep track of the points. Give a different color Post-it note pad to each team.
4. Go over the game rules; because this game often causes teams to become quite competitive, it is very important to go over the rules before playing the first round.

- Explain that this is a fast-paced game and time counts. After you read each story, the teams will have one minute (you may want to give them longer) to come up with solutions and post them on the game board.
- One team member should be chosen as the "writer" for the team. Each solution the team comes up with should be written on a separate Post-it note. Another team member should be chosen as a "runner" who will post the team's notes in the correct categories on the game board.
- Emphasize that in order to get points, their answers must be written in complete sentences. This will help eliminate ambiguous or vague answers and make your role as the judge easier. Let the teams know that if their answers are incomplete you have the option of not counting them.
- Tell the class that you will decide whether each solution is a good one. To be valid, the solution must relate to the story, be realistic, and be specific about the solution (for example, not just PPE, but what kind of PPE).
- Remember that some solutions may fall in more than one category. The same solution written on two Post-its placed in two categories should count once. Tell the class that in some cases there may be no good solutions in some of the categories. Explain that if teams put a good solution in the wrong category, you will move that Post-it to the proper category and give them the points.
- Explain that after each round you will tally the points. Each valid solution in the Remove the Hazard category is worth $2,000; each valid solution in the Work Policies category is worth $1,000 and in the PPE category, $500, because these are usually less protective solutions or solutions more prone to failure.

Practice Round: Jamie's Story

Conduct a practice round. Project PowerPoint Slide #2 and read the story aloud to the class.
For this practice round, teams should not bother writing down solutions, but should just call out their answers. Confirm with the students which category on the pyramid their solution belongs to. Add any solutions the class misses.

Show PowerPoint Slide #2. Read the story aloud:



Jamie is a 17-year-old dishwasher in a hospital kitchen. To clean cooking pans, she soaks them in a powerful chemical solution. She uses gloves to protect her hands and arms. One day, as Jamie was lifting three large pans out of the sink at once, they slipped out of her hands and back into the sink. The cleaning solution splashed all over the side of her face and got into her right eye. She was blinded in that eye for two weeks.

Ask the class:

What solutions can you think of that might prevent this injury from happening again?
Suggested answers:

Remove the Hazard: Substitute a safer cleaning product. Use disposable pans.
Use a dishwashing machine.

Work Policies: Have workers clean one pan at a time. Give them training about how to protect themselves from chemicals.

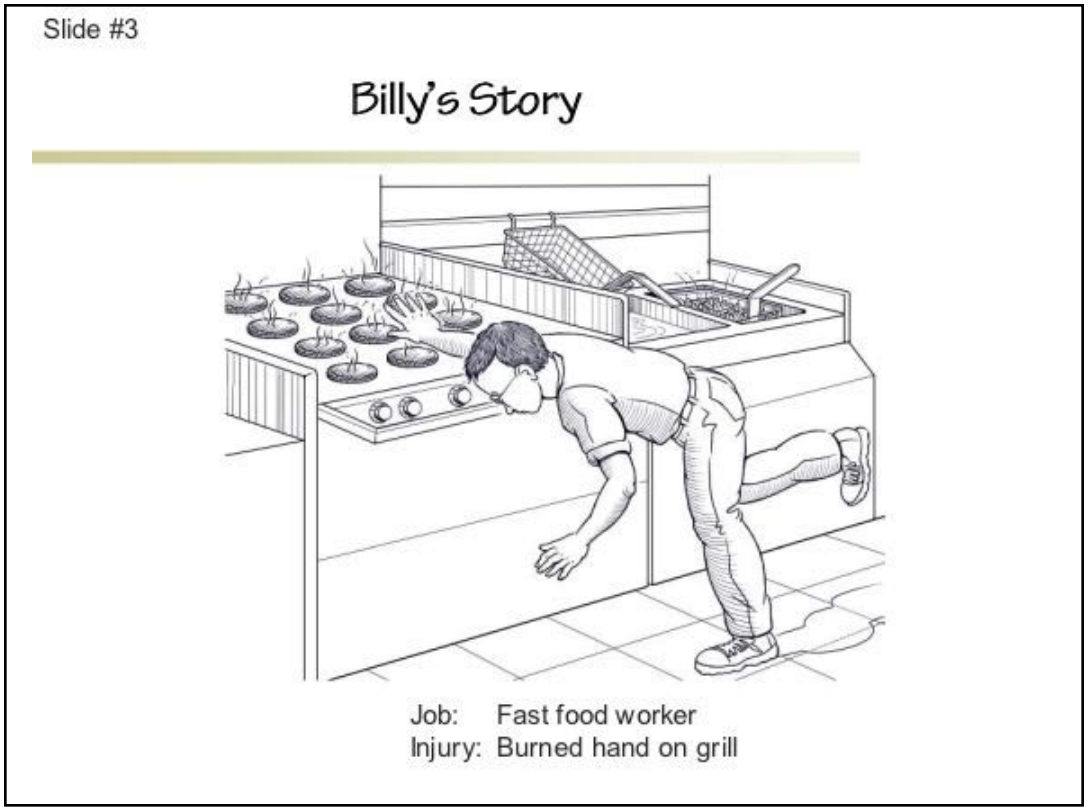
Personal Protective Equipment: Goggles.

Begin the game. Play as many rounds as it takes for a team to reach $25,000. When a team wins, award prizes.

At the end of each round, review the solutions teams have posted and total the points for valid answers. You can identify a team's solutions by the color of its Post-it notes. Add any solutions the teams missed.

Round 1: Billy's Story

Show PowerPoint Slide #3. Read the story aloud:



Billy is a 16-year-old who works in a fast food restaurant. One day Billy slipped on the greasy floor. To stop his fall, he tried to grab a bar near the grill. He missed it and his hand touched the hot grill instead. He suffered second degree burns on the palm of his hand.

Ask the teams:

What solutions can you think of that might prevent this injury from happening again?

Give the teams one minute to write down their solutions and put them on the board. Then compare them to the suggested answers below:

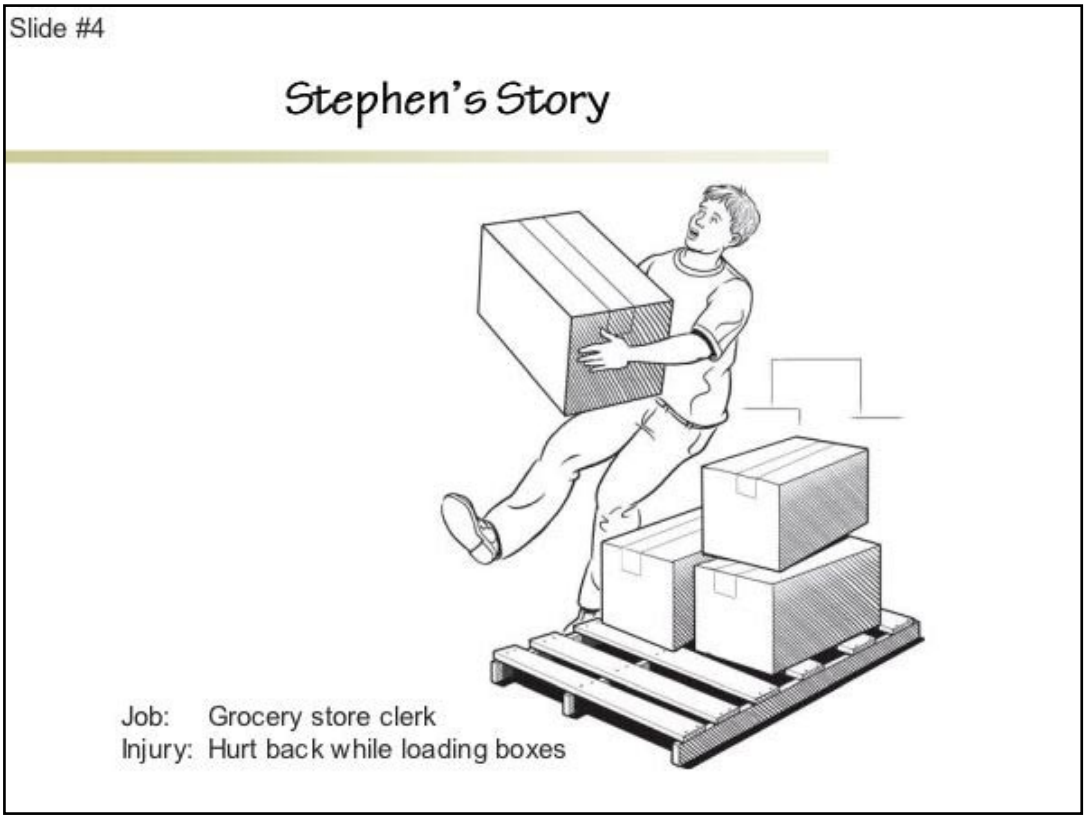
Remove the Hazard. Design the grill so the bar is not so close to the grill. Cover the floor with a non-skid mat. Install non-skid flooring. Put a shield on the grill when not in use to prevent people from accidentally touching it. Put a cover on the french-fry basket so grease won't splatter out.

Work Policies. Have workers immediately clean up spilled grease. Design the traffic flow so workers don't walk past the grill.

Personal Protective Equipment. Non-skid shoes. Gloves.

Round 2: Stephen's Story

Show PowerPoint Slide #4. Read the story aloud:



Stephen is a 17-year-old who works in a grocery store. One day while unloading a heavy box from a truck onto a wooden pallet, he slipped and fell. He felt a sharp pain in his lower back. He was embarrassed, so he got up and tried to keep working. It kept bothering him, so he finally went to the doctor. He had to stay out of work for a week to recover.His back still hurts sometimes.

Ask the teams:

What solutions can you think of that might prevent this injury from happening again?

Have the teams post their solutions and compare them to the suggested answers below.

- **Remove the Hazard.** Use a mechanical lifting device. Pack boxes with less weight. Unload trucks in a sheltered area so workers aren't exposed to weather, wind, or wet surfaces.
- **Work Policies.** Assign two people to do the job. Train workers how to lift properly. Enforce a policy that teens never lift over 30 pounds at a time, as recommended by the National Institute for Occupational Safety and Health (NIOSH).
- **Personal Protective Equipment.** Wear non-slip shoes.
  (**Note:** A recent NIOSH study found that back belts do not help. For more information see www.cdc.gov/niosh/belting.html.)

Then ask the class:

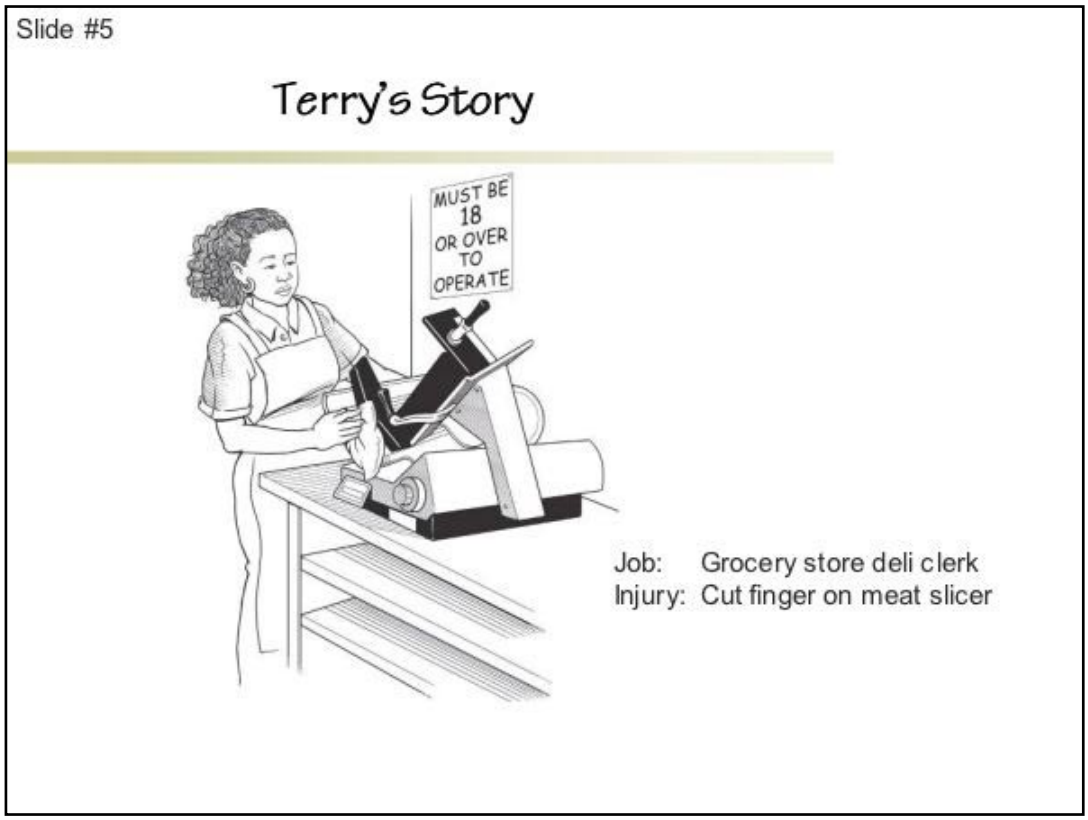
What is the proper way to lift heavy objects?

Demonstrate the following. Tell the class the rules for safe lifting:

1. Don't pick up objects over 30 pounds by yourself.
2. Keep the load close to your body.
3. Lift with your legs. Bend your knees and crouch down, keep your back straight, and then lift as you begin to stand.
4. Don't twist at your waist. Move your feet instead.

Round 3: Terry's Story

Show Slide #5. Read the story aloud:



Terry is a 16-year-old who works in the deli department at a grocery store. Her supervisor asked her to clean the meat slicer, although she had never done this before and had never been trained to do it. She thought the meat slicer was turned off before she began cleaning it. Just as she started to clean the blades, the machine started up. The blade cut a finger on Terry's left hand all the way to the bone.

Ask the teams:

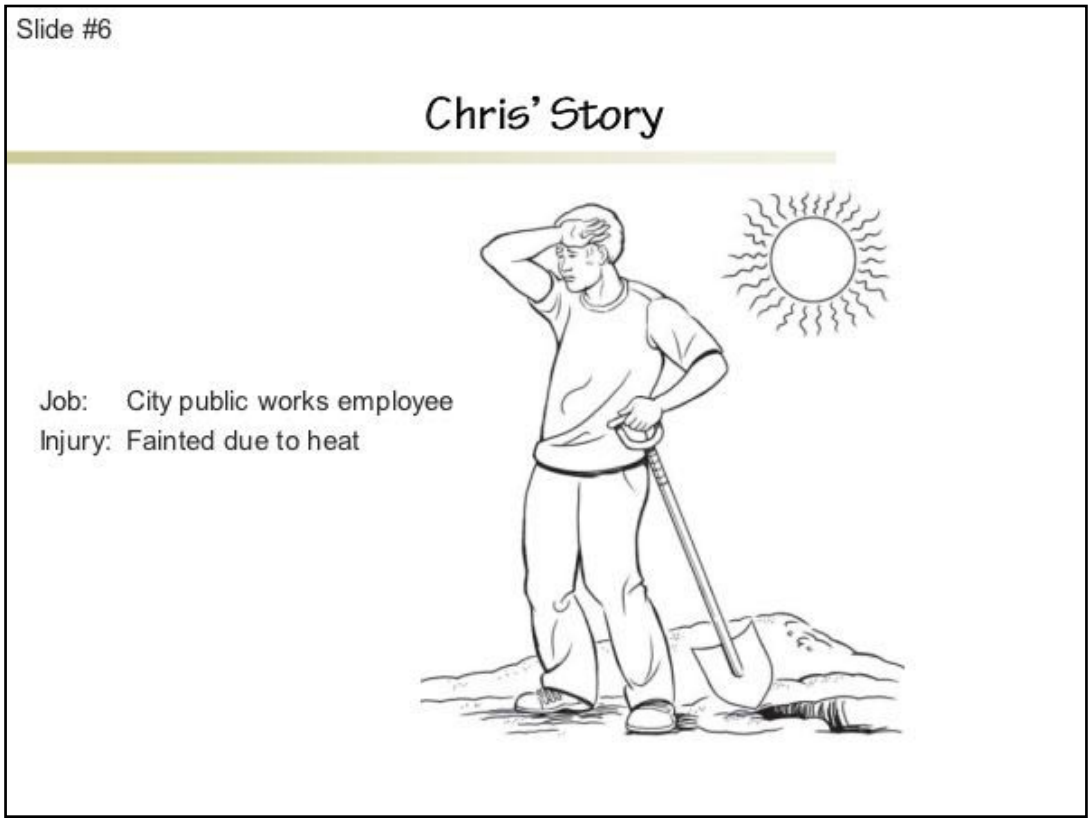
What solutions can you think of that might prevent this injury from happening again?

Have the teams post their solutions and compare them to the suggested answers below:

- **Remove the Hazard.** There should be a guard on the machine to protect fingers from the blade. There should be an automatic shut-off on the machine.
- **Work Policies.** There should be a rule that the machine must be unplugged before cleaning. No one under 18 should be using or cleaning this machine because it violates child labor laws.
- **Personal Protective Equipment.** Cut-resistant gloves.

Round 4: Chris' Story

Show PowerPoint Slide #6. Read the story aloud:



Chris works for a city public works department. One hot afternoon the temperature outside reached 92 degrees. While Chris was shoveling dirt in a vacant lot, he started to feel dizzy and disoriented, and he fainted.

Ask the teams:

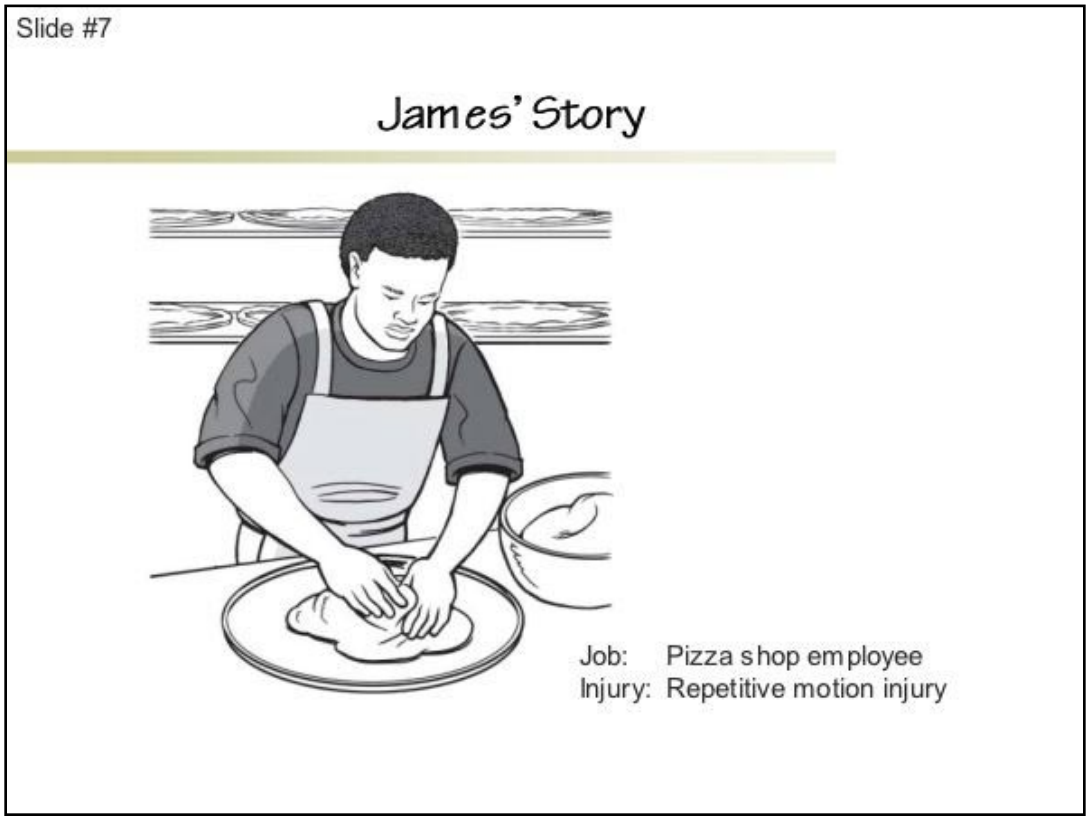
What solutions can you think of that might prevent this injury from happening again?

Have the teams post their solutions and compare them to the suggested answers below.

- **Remove the Hazard.** Limit outdoor work on very hot days.
- **Work Policies.** Limit outdoor work on very hot days. Work in early morning hours. Have a cool place to go for frequent breaks. Have plenty of water available. Provide training on the symptoms of heat stress and how to keep from getting overheated. Work in teams to watch one another for symptoms of overheating (such as disorientation and dizziness).
- **Personal Protective Equipment.** A hat to provide shade. A cooling vest.

Round 5: James' Story

Show PowerPoint Slide #7. Read the story aloud:



James is a 16-year-old who works in a busy pizza shop. His job is to pat pizza dough into pans. He prepares several pans per minute. Lately he has noticed that his hands, shoulders, and back are hurting from the repetitive motion and standing for long periods of time.

Ask the teams:

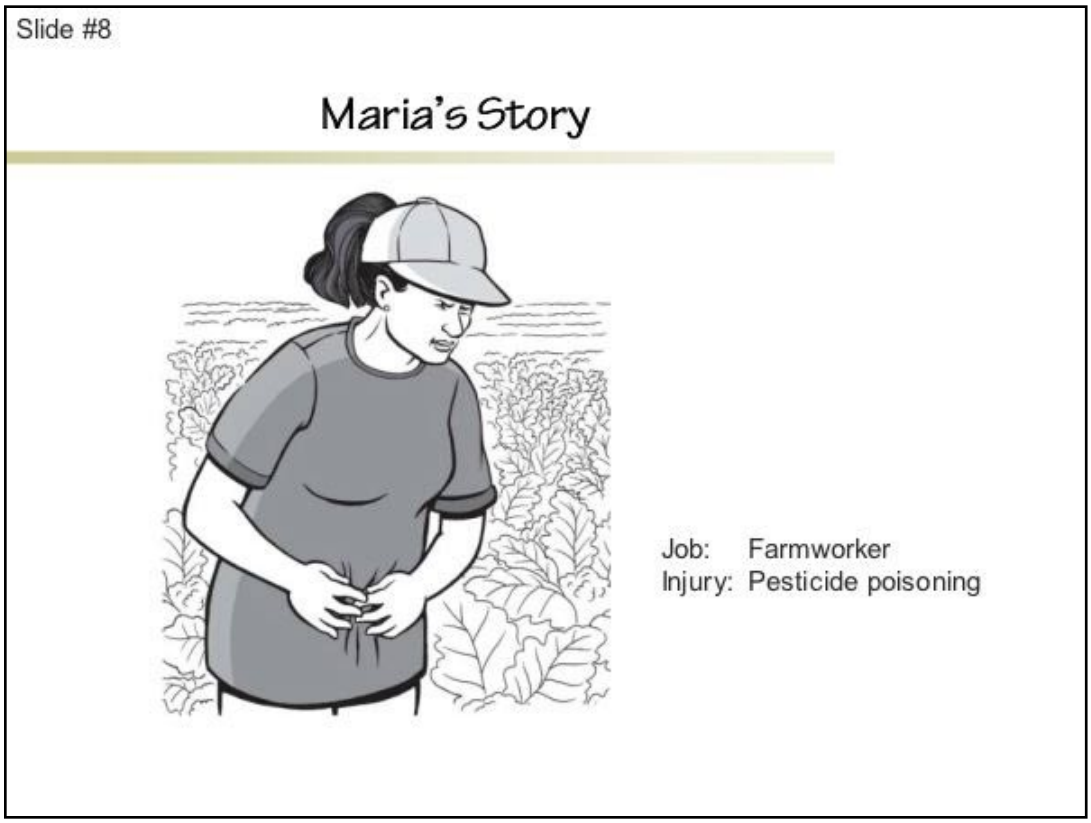
What solutions can you think of that might prevent this musculoskeletal strain?

Have the teams post their solutions and compare them to the suggested answers below.

- **Remove the Hazard.** Provide a chair or stool for sitting while doing this task.
- **Work Policies.** Vary the job so no one has to make the same movements over and over. Provide regular breaks.
- **Personal Protective Equipment.** None.

Round 6: Maria's Story

Show PowerPoint Slide #8. Read the story aloud:



Maria works tying up cauliflower leaves on a 16-acre farm. One day she was sent into the field too soon after it had been sprayed. No one told her that the moisture on the plants was a highly toxic pesticide. Soon after she began to work, Maria's arms and legs started shaking. When she stood up, she got dizzy and stumbled. She was taken by other farmworkers to a nearby clinic. Three weeks later she continues to have headaches, cramps, and trouble breathing.

Ask the teams:

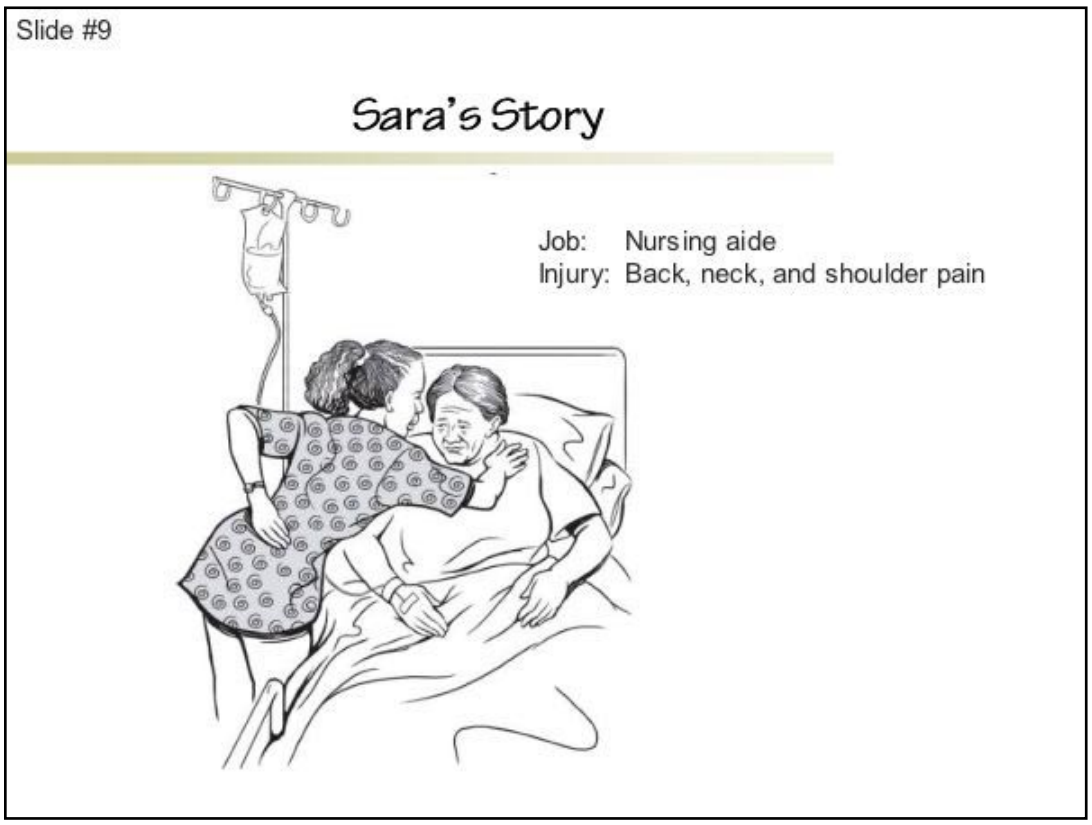
*What solutions can you think of that might prevent this injury from happening aga*in?

Have the teams post their solutions and compare them to the suggested answers below.

- **Remove the Hazard.** Use pesticide-free farming methods. Or use a less toxic pesticide.
- **Work Policies.** Wait the required number of hours or days after the crops are sprayed to re-enter the field. This should be on the label.
- **Personal Protective Equipment.** Wear impermeable gloves and work clothes. If needed, wear a respirator.

Round 7: Sara's Story

Show PowerPoint Slide #9. Read the story aloud:



Sara works as a nursing aide at a local hospital. She is expected to clean bedpans and sometimes change sheets, which requires lifting patients. Lately she has been feeling twinges in her back when bending over or lifting. She knows she is supposed to get help when lifting a patient, but everyone in the unit is so busy that she is reluctant to ask. At home, as she is going to sleep, she often feels shooting pains in her back, neck, and shoulders. These pains seem to be getting worse every day.

Ask the teams:

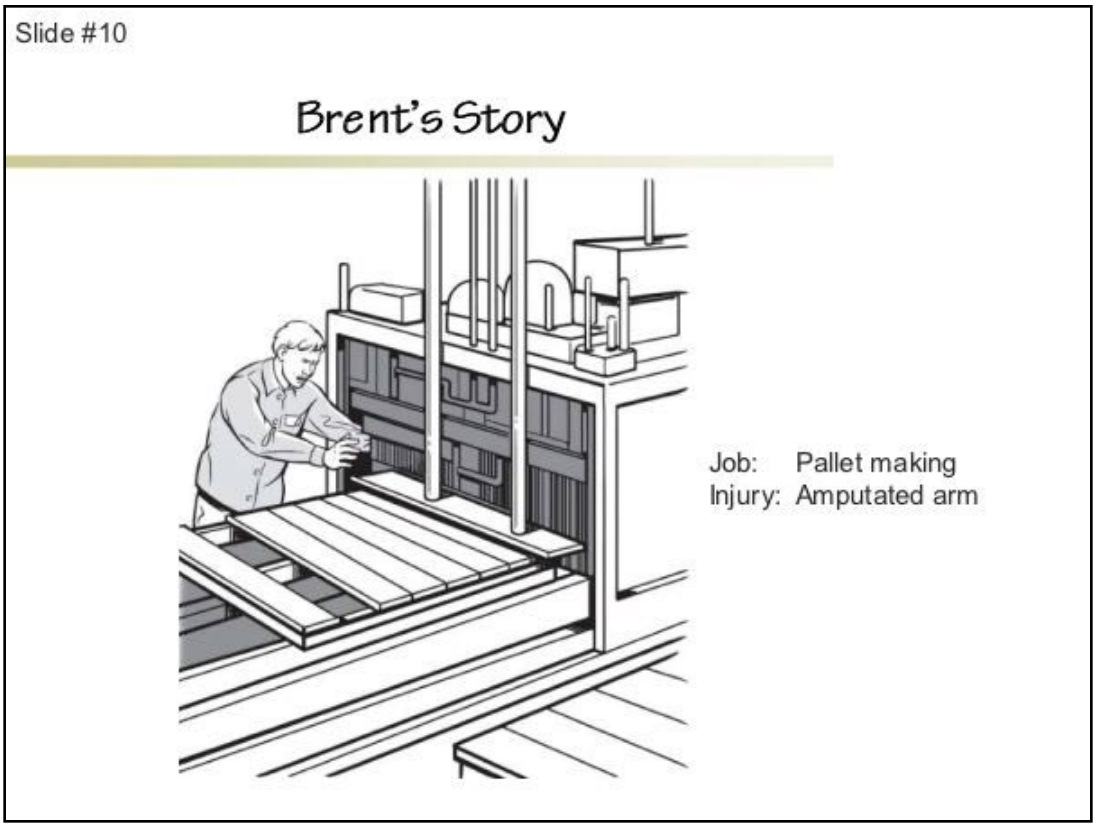
What solutions can you think of that might prevent this injury from happening again?

Have the teams post their solutions and compare them to the suggested answers below.

- **Remove the Hazard.** Use a mechanical lifting device.
- **Work Policies.** Make sure workers who have already been injured are not required to lift. Create a policy that workers may lift patients only in teams or when using a lifting device. Train workers about safe lifting methods.
- **Personal Protective Equipment.** None.

Round 8: Brent's Story

Show PowerPoint Slide #10. Read the story aloud



Seventeen-year-old Brent worked after school in his father's pallet-making business. One day Brent was working on a machine that helps take old pallets apart by cutting through wood and nails. The machine sorts out the old nails into a bin and then cuts the remaining wood into small pieces that can be ground into shavings. Brent's sleeve got caught in the mechanism of the saw. Before he realized what was happening, his arm was cut off. He was rushed to the hospital, but his arm could not be saved.

Ask the teams:

What solutions can you think of that might prevent this injury from happening again?

Have the teams post their solutions and compare them to the suggested answers below.

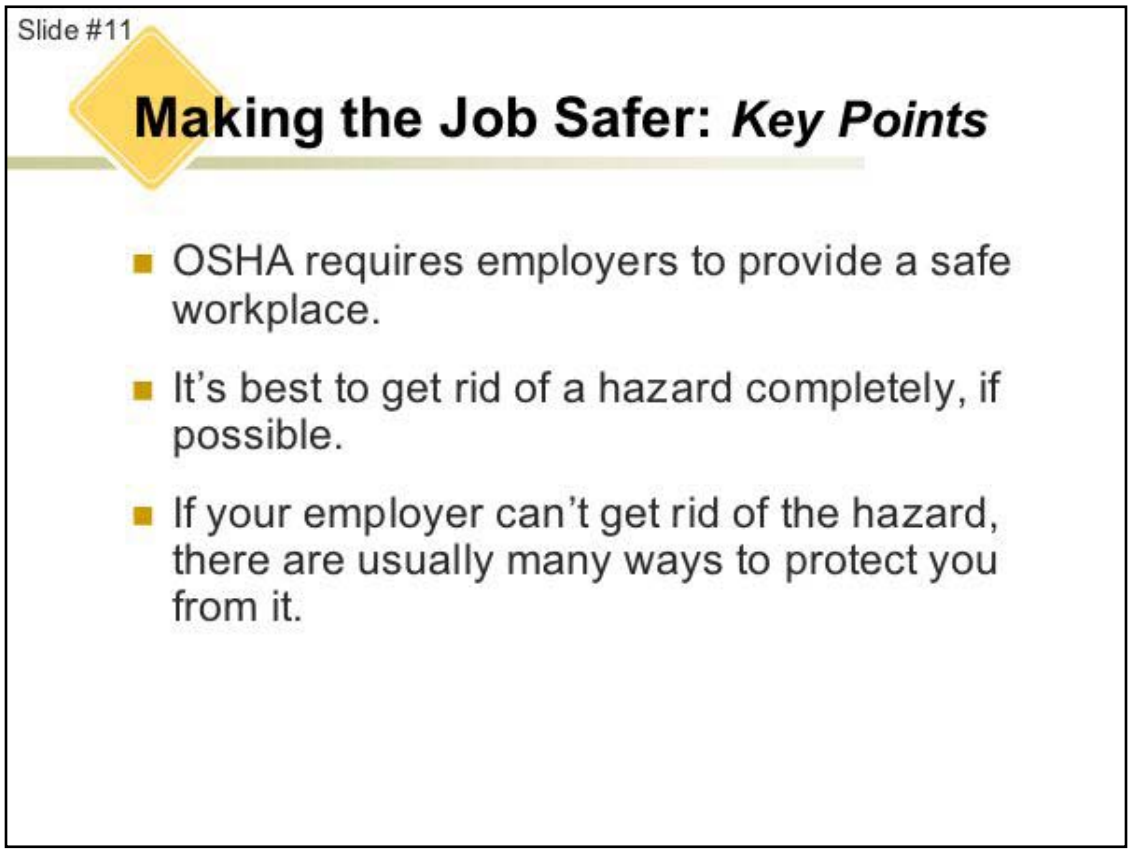
- **Remove the Hazard.** There should be a guard on the machine to protect body parts from the moving parts of the machine. There should be an emergency shut off button in reach of the operator. The machine might be designed so the operator has to keep both hands on the controls. This would keep hands away from the moving parts.
- **Work Policies.** There should be a rule that no loose clothing may be worn around the machinery.
- **Personal Protective Equipment.** None.

6. Tally the dollar amounts. Determine the winners and hand out prizes.

   Instructor's Note: If you wish, you can give students more information on hazards found on typical teen jobs and possible solutions. Copy and distribute the optional student handout in Appendix A.

C. Review (5 minutes)

1. **Show PowerPoint Slide #11.** Review the key points covered in this lesson. We've talked about how hazards can be controlled and injuries prevented. Remember that your employer is required under the Occupational Safety and Health Act to provide you with a safe and healthful workplace. It's best if your employer gets rid of a hazard completely, if possible. If your employer can't get rid of the hazard, there are usually many ways to protect you from it.



PERSONAL PROTECTIVE EQUIPMENT

PERSONAL PROTECTIVE EQUIPMENT

Learning Objectives

By the end of this lesson, students will be able to:

- List types of Personal Protective Equipment (PPE) that can be used to protect the hands, face, head, eyes, and feet. Describe the hazards each type of PPE protects against.
- Explain why workers may not want to use PPE.
- Explain what should be included in PPE training, including key criteria to ensure the equipment will be protective: fit, size, appropriate material.
- Describe/demonstrate the proper way to don gloves, eye protection and/or a hard hat.

Time Needed: 40 Minutes

Materials Needed

- Handouts: *What is Personal Protective Equipment?* (A)
  Use the Right Respirator (B)
  Hand Protection (Gloves) (C)
  Hearing Protection (D)
- A bag or box of PPE (as many as possible: hard hat, face mask, goggles, dust masks, and respirators with filter cartridges, several types of gloves, hearing protection, Tyvek suit.)

Preparing to Teach This Lesson

Before you present this lesson:

1. Make copies of the four different handouts for students.
2. Pull together your collection of PPE. You may want to contact a local safety supply vendor; they are often willing to donate some basic PPE.

Detailed Instructor's Notes

A. Introduction: Why this subject is important (5 minutes)

1. Discuss why this topic is important.
   - PPE can protect workers only if it is properly selected, worn, and maintained. That's why training is important.
   - Each year over 100,000 people have temporary or permanent vision loss because of eye injuries.
   - PPE is not just a workplace issue. It's important in personal life for sports, hobbies, and recreational activities.

B. Handout and Discussion (10 minutes)

1. Distribute the Handouts (A), *What is Personal Protective Equipment?*, (B) *Use the Right Respirator,* (C) *Hand Protection (Gloves)*, and (D) *Hearing Protection*. After giving students a few minutes to review them, hold a class discussion using the following questions:

   What are some examples of PPE?

   What are some common jobs where teens are employed?

   Give some examples of PPE they might need to do their job.

   Personal protective equipment, or PPE, is designed to protect you from hazards found on or off the job. Face shields used in ice hockey and helmets used for biking are examples of PPE; other examples include goggles, safety glasses, foot protection, coveralls, gloves, vests, earplugs, and respirators.

   Why is a PPE considered the least effective type of protection against injury?

   - It may not fully protect you
   - It may be uncomfortable to wear.
   - It requires the employee to have it, put it on, and keep it on.
   - It might not fit correctly.

   It is important to remember that PPE comes in various sizes. If the PPE does not fit correctly, it may be necessary to find and try a different size or brand. In order for it to be effective and provide protection, PPE must fit properly.

   PPE is often used in combination with other hazard-control methods like removing the hazard from the workplace and using good work rules.

   Even though PPE is considered to be the least effective form of protection, there are some conditions where it is the only protection available to protect the worker. For example, if a worker has to do work in a confined space, they may have to wear a respirator because ventilation may not be adequate.

   If PPE is needed, what training is required for its use?

   - How to use PPE the right way
   - When PPE is needed
   - What kind of PPE to use
   - What PPE can and cannot do to protect workers
   - How to put it on, adjust, wear, and take off PPE
   - How to take care of PPE

   Discuss additional key points from Handout (B) *Use the Right Respirator*, (C) *Hand Protection (Gloves)*, and (D) *Hearing Protection*, during the PPE Grab Bag activity.

C. PPE Grab Bag (15 minutes)

(or select an alternative activity described in E)

1. Put a variety of PPE into a bag or box. Explain that you will be handing out PPE and each person/group should address the following questions about their item and add information as needed. Write these questions on the board.

   How does this protect you?

   What training would you need to use this item?

   What kind of jobs might require wearing such an item?

   Why might you not want to wear this while working?

2. Have each student (or a small group of students) pull an item from the bag.

3. Go around the room to as many students or groups as you can and ask them to answer the questions about their item for the class. If appropriate, ask the student to demonstrate use of the equipment.

   - **Hard hats** can protect workers' heads from being hit by objects or coming in contact with electricity. Different types of hard hats protect against different hazards. Look for the marking ANSI Z89.1.
   - **Safety shoes, leggings, and foot guards** help protect workers from falling objects, sharp objects, wet and slippery surfaces, hot surfaces, and electrical hazards.
   - **Face shields, goggles, and safety glasses** with side shields can protect workers from liquids and solids that can get into their eyes. Look for the marking ANSI Z87.1.
   - **Earplugs or earmuffs** can help prevent damage to hearing. Exposure to high noise levels can cause irreversible hearing loss as well as physical and psychological stress.
   - **Gloves** can protect workers' hands from chemicals, hot and cold temperatures, vibration and sharp objects. Gloves must fit properly and be the right kind of material for the job.

     Instructors Note: It is important to be aware that different types of glove materials will protect against different types of chemicals. For example a nitrile glove will provide better protection against solvents than a latex glove will. (a glove material permeation chart can be viewed at: http://www.ansellpro.com/download/Ansell_7thEditionChemicalResistanceGuide.pdf)
   - **Respirators.** Employers must first try to remove breathing hazards. If they can't, workers may have to wear respirators. The kind of respirator required depends on the kind of hazard the worker is exposed to. For example, dust masks do not protect against chemical vapors. (See Handout (B) Use the Right Respirator.) Respirators must also fit correctly in order to prevent illness. If a worker has to wear a respirator, it is the employers responsibility to provide the employee with a medical evaluation to make sure they are healthy enough to work safely in a respirator.
   - **Full body suits.** In some cases workers must protect most or all of their bodies against heat, cold, radiation, hot metals and liquids, body fluids, or hazardous materials.

D. Additional Resources

OSHA's webpage on personal protective equipment:

http://www.osha.gov/SLTC/personalprotectiveequipment/index.html

http://www.ansellpro.com/download/Ansell_7thEditionChemicalResistanceGuide.pdf

E. Alternative Activities

The following short descriptions of activities are provided as an alternative to the PPE Grab Bag Activity.

PPE Grab Bag for Specific Trade: Same concept as the PPE Grab Bag, but you focus on the trade you are teaching and have PPE commonly used for the trade (e.g. construction, welding, etc.).

PPE Zones: Display or hand out a drawing of a body divided into five zones (head, torso, legs, hands, and feet). Have students think about what job hazards, for specific occupations, might be relevant for each body zone and what PPE might be appropriate for protecting that zone. You could draw bodies for different occupations and divide the class into small groups to do the activity, concluding with each group sharing their picture with the class.

PPE Shopping: PPlace PPE samples on a table and give each student or group of students a job (construction, restaurant worker, etc.). Ask students to consider the hazards they may face, then have them shop for the PPE on the table. You may have prices associated with each piece of PPE; ask students to track how much they might have to spend for PPE.

Incorporate PPE with skills, tools, and jobs you are already teaching. Take the opportunity to elaborate on the proper use of PPE as you teach your other skill sets.

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA 29 CFR 1910.134
L & I DOSH WISHA WAC 296-800-160 Personal Protective Equipment (PPE)

WHAT IS PERSONAL PROTECTIVE EQUIPMENT?

Personal protective equipment, or PPE, is designed to protect you from hazards found on or off the job. Face shields used in ice hockey and helmets used for biking are PPE; other examples include goggles, safety glasses, foot protection, coveralls, gloves, vests, earplugs, and respirators. If you must wear PPE for your job, your employer must train you to use it properly. Some PPE must comply with national standards, called ANSI standards. For example on safety glasses look for the ANSI marking "Z 87" on the temples of the glasses.

When do you need PPE?

Employers must assess their workplaces to find out if there are hazards that require workers to use PPE. If there are such hazards, employers must select the right type of PPE and make sure it fits the employee correctly. In most cases, the employer is
required to supply PPE to their workers at no charge, however there may be exceptions if you wear your PPE off the job site. Employers must train workers who have to use PPE on how to use it correctly. This includes the following:

- Knowing when PPE is needed
- How to use PPE correctly
- Knowing what kind of PPE to use
- Understanding what PPE can and cannot do to protect workers
- How to put on, adjust, wear, and take off PPE
- How to maintain PPE.

Limitations

PPE is the least effective way to protect you from hazards. That's because it may not fully protect you and may be uncomfortable to wear. However, you still have to wear it if your job requires it. PPE is often used in combination with other ways to control hazards, like removing the hazard or using good work rules. Even though PPE is the least effective form of protection, there are some conditions where it is the only protection that may be available to the worker.

Can PPE protect workers from head injuries?

Yes. Hard hats can protect workers' heads from being hit by objects or coming in contact with electricity. Different types of hard hats protect against different hazards. Look for the marking ANSI Z89.1.

How can PPE protect workers from foot and leg injuries?

Safety shoes, leggings, and foot guards help protect workers from falling objects, sharp objects, wet and slippery surfaces, hot surfaces, and electrical hazards.

Does PPE help protect workers from eye and face injuries?

Yes. Face shields, goggles, and safety glasses with side shields can protect workers from liquids and solids that can get into their eyes. Look for the marking ANSI Z87.1.

What can PPE do to protect workers from hearing loss?

Wearing earplugs or earmuffs can help prevent damage to hearing. Exposure to high noise levels can cause irreversible hearing loss as well as physical and psychological stress.

Should workers wear PPE to help prevent hand injuries?

Yes. Gloves can protect workers' hands from chemicals, hot and cold temperatures, vibration and sharp objects. Gloves must fit properly and be the right kind for the job.

Why should workers wear PPE to protect the whole body?

In some cases workers must protect most or all of their bodies against heat, cold, radiation, hot metals and liquids, body fluids, or hazardous materials.

When should workers wear PPE for respiratory protection?

Employers must first try to remove breathing hazards. If they can't, workers may have to wear respirators. The kind of respirator you need depends on what kind of hazard you are exposed to. For example, dust masks do not protect you from chemical vapors. Respirators must fit correctly in order to help prevent illness. All workers required to wear respirators must first have a medical evaluation paid for by the employer.

REMEMBER: PPE is the last line of defense against workplace hazards.

Even though PPE is considered to be the least effective form of protection, there are some conditions where it is the only protection that may be available to the worker.

Use the Right Respirator!

If you need to use a respirator on the job, Cal/OSHA requires your employer to set up a "respiratory protection program." The program should help you choose the right respirator, make sure it fits, and get training about how to use it and take care of it. Here are some guidelines to help you decide if you're getting the right protection.

1. WHEN SHOULD YOU USE A RESPIRATOR?

Respirators can be hot and uncomfortable. You don't want to wear one if you don't have to. They also aren't as effective as some other kinds of protection. But if there is no way to remove a harmful material from the air you are breathing (by using a safer chemical, better ventilation or other controls), you will need to use a respirator to protect yourself.

CAUTION: IF YOU HAVE HEART DISEASE OR RESPIRATORY PROBLEMS, YOU SHOULD CHECK WITH YOUR DOCTOR BEFORE USING A RESPIRATOR.

"Just my brothers work there. It's my father's shop. He never wears a respirator. We never wore respirators. Only those little paper dust masks. We just assumed that was enough protection. My father has been in the business all his life and he's healthy as a horse. But I got asthma and the doctor says it's from the fumes. We should have paid more attention to those MSDS's."

If you do have to wear a respirator, it is important to note that a medical evaluation is required.

2. WHICH KIND OF RESPIRATOR SHOULD YOU USE?

The type of respirator you need depends on:

- What hazard you are exposed to, and
- How much of it you are exposed to.

NO ONE RESPIRATOR IS RIGHT FOR ALL KINDS OF HAZARDS.

You can check the label on the respirator or the box it came in to find out what hazards it protects you from. Make sure it is approved by "NIOSH/MSHA" for protection against the hazard you're working with.

DUST MASKS

Dust masks protect against wood dusts and other dusts that are not very toxic. Dust masks are ***less reliable*** in protecting you against spray mists or toxic dusts like asbestos, silica or lead. They will ***not*** protect you against chemical vapors or second-hand smoke.

If you use a dust mask, make sure it has a double strap, a good nose grip and is approved by "NIOSH/MSHA" for "dusts, fumes and mists." *Never* rely on single strap masks.

CAUTION: IF THERE IS A RIP OR TEAR IN THE MASK, IT WILL NOT PROTECT YOU FROM ANY HAZARDS.

DUAL CARTRIDGE RESPIRATORS

Different cartridges or other filter attachments protect against different hazards.

MECHANICAL FILTERS protect against dusts, metal fumes and mists. They will ***not*** protect you against vapors or gases.

CHEMICAL CARTRIDGES protect against toxic gases and vapors from solvents or paints. They will ***not*** protect you against dusts or fumes.

COMBINATION RESPIRATORS protect against dusts, vapors, fumes and mists. Combination respirators are available for any set of inhalation hazards.

CHEMICAL CARTRIDGE AND MECHANICAL FILTER RESPIRATORS MAY LOOK ALMOST THE SAME. MAKE SURE YOU HAVE THE RIGHT KIND!

AIR-SUPPLIED RESPIRATORS

Air-supplied respirators give you fresh air from a tank or through an airline. Use them when you work in a confined space where there is not enough oxygen to breathe.

3. WHAT ELSE DO YOU NEED TO KNOW ABOUT RESPIRATORS?

Once you know what kind of respirator you need for the particular job you're doing, you still need to:

➤ Make sure your respirator fits properly.

No one respirator will fit everyone. If your respirator does not fit properly on your face, it will leak. You cannot tell if it fits by how it feels. The law requires your employer to test the fit to make sure no vapors or dusts can leak in around the edges.

CAUTION: IF YOU HAVE A BEARD, IT IS IMPOSSIBLE TO GET A PROPER FIT WITH MOST RESPIRATORS.

➤ Make sure your respirator is maintained properly.

Your respirator must be kept clean, and the cartridges or filters should be changed regularly. A respirator with a worn-out cartridge is worse than no respirator at all. (It's not protecting you, but it's making it harder to breathe.)

FIT TESTING

The method your employer will probably use to test your respirator's fit is called "qualitative fit testing." Someone passes banana oil or irritant smoke three inches from where the respirator meets your face. If you can smell the oil or smoke, the respirator does not fit.

You should also check your respirator's fit yourself every time you wear it. This will not be as accurate as the fit test. ***First,*** put the respirator on, put your hands over the intake filters or cartridges, then inhale gently and hold your breath for 5 to 10 seconds. The respirator should collapse against your face, and stay collapsed, with no air leaking in around the edges. ***Second,*** put your hands over the exhalation valve. Blow into the mask. Check for air leaking out, especially around your nose and chin.

Hand Protection (Gloves)

Don't take your hands for granted. Can you imagine trying to work without your hands?

Hand injuries include cuts, burns, fractures, amputations, nerve damage and skin rashes. Skin irritation, rashes, and even poisoning can occur from handling chemicals with bare hands.

Gloves can protect hands from:

- Knives, sharp edges, splinters
- Chemicals
- Blood and bodily fluids
- Excessive vibration
- Hot objects
- Electricity
- Extreme cold

There are many types of protective gloves:

- Leather gloves protect your hands from rough surfaces
- Special insulated gloves can protect your hands from hot objects
- Cut-resistant gloves prevent or reduce cuts from knives or sharp edges
- Anti-vibration gloves reduce the effects of vibration from hand tools and machinery
- Disposable gloves protect against blood and germs
- Electrically insulated gloves are used to handle live wires or energized electrical equipment

Different glove materials will protect against different types of chemicals; make sure you have the right kind of glove for the chemical you are using.

(To view a sample glove permeation chart, go to http://www.ansellpro.com/download/Ansell_7thEditionChemicalResistanceGuide.pdf)

Gloves do have limitations:

- Gloves can get caught on rotating machinery
- Latex gloves can cause severe allergic reactions in people allergic to latex.
- Gloves can cause problems if chemicals get inside the gloves
- Gloves can fail in conditions of extreme temperatures, high mechanical force, high vibration or extremely harsh chemicals
- If you have the wrong kind of glove, it may not protect you. For example, certain kinds of chemical solvents can go right through standard rubber or latex gloves.

Glove use and care:

- Use the correct size and fit of glove to give you the needed dexterity
- Clean your hands before using gloves
- Clean fabric and leather gloves regularly or discard them
- Do not use latex gloves if you are sensitive to latex or have a latex allergy
- Replace gloves if they have cuts, tears, holes or defects
- Make sure gloves are right for the job—don't use leather or fabric gloves to handle liquid chemicals.

Hearing Protection

Exposure to loud noise will inevitably cause hearing loss over time. Protect your hearing! A good rule of thumb: if you have to shout to be heard, the noise level is damaging your hearing.

There are two types of hearing protection: earplugs and ear muffs. All hearing protectors are designed to reduce the intensity (loudness) of noise for the inner ear.

Earplugs

Earplugs are made of foam, rubber, or plastic. They can be one size fits all or small, medium, or large. Many earplugs are disposable, but some are reusable. They are lightweight and require no maintenance. They are inserted into the ear canal. At first, some people may find earplugs uncomfortable to wear for long periods of time, but most people can find a comfortable fit by trying different sizes or brands. There are even custom-molded earplugs.

Ear Muffs

Ear muffs cover the whole ear. They have replaceable pads and some types can filter out specific noise pitches. Ear muffs last longer than most earplugs, but they can be uncomfortable in hot weather and may not fit well over glasses or people with heavy sideburns.

Noise reduction rating:

The "noise reduction rating" or "NRR" of hearing protection is measured in decibels.

The NRR is found on the ear muff or earplug package. The higher the number, the greater the protection

Proper Use of Hearing Protection:

- Hearing protection only works when used properly.
- You cannot remove hearing protection for just a minute in a noisy area.
- It takes just a few minutes of unprotected exposure at noise above 115 decibels to risk hearing damage.
- Earplugs not inserted properly into the ear canal will not provide complete protection.
- Ear muffs not snug against the head will leak noise into the ear.
- Portable music devices do not provide protection against noise—they only add to it.

This material was adapted from Washington State Department of Labor and Industries training tools: Noise Exposure at Work

ELECTRICAL SAFETY

Learning Objectives

By the end of this lesson, students will be able to:

- Describe/demonstrate how to inspect electrical equipment before using it
- Recognize damage to cords and plugs
- Explain what to do if you find damaged electrical equipment
- Explain the importance of using a Ground Fault Circuit Interrupter (GFCI) in wet or damp areas
- Explain the risks and proper procedures to follow when a coworker or other person appears to be shocked or in contact with live electricity
- Define lockout/tagout and explain how it protects workers

Time Needed: 60 Minutes

Materials Needed

- PowerPoint slides: *Electrical Hazards* (adapted from OSHA Office of Training and Education and Hispanic Work Safe, University of Massachusetts-Lowell)
- Handouts: *Electrical Safety and You* (A)
  What All Students Need to Know about Electrical Safety (B)
  Electrical Safety Scenario (C)
- Optional Props: Examples of damaged cords or wiring
  Ground fault circuit interrupter
  Lockout device

Preparing to Teach This Lesson

Before you present this lesson:

1. Make copies of handouts A) *Electrical Safety and You*, B) *What All Students Need to Know about Electrical Safety*, and C) *Electrical Safety Scenario*.
2. Familiarize yourself with the Electrical Hazards PowerPoint slides. There may be more slides than you have time for so decide ahead of time which ones you will show
3. Collect examples of damaged equipment, GFCIs, and lockout devices for demonstration.

Detailed Instructors Notes

A. Introduction: Why is this subject important? (5 minutes)

1. Discuss why this topic is important.
   - Electricity can cause electrocution, burns, fire, electric shock.
   - Electrocution is the third leading cause of work-related deaths among 16- and 17-year olds, after motor vehicle deaths and workplace homicide. Electrocution causes 12% of all workplace deaths among young workers.
   - Many people come in contact with electricity in their jobs—either directly, like electricians or engineers, or indirectly.
   - Because electricity is so dangerous, it is important to know how to recognize hazards and work safely around electricity.

B. Powerpoint and discussion (20 minutes)

1. Give students Handout (A) *Electrical Safety and You* and Handout (B) *What All Students Need to Know about Electrical Safety*. Use the PowerPoint presentation, Electrical Hazards, to go over the main points of the handouts.
2. Use the following questions during or after the presentation to ensure students are getting some of the main points.

   How does an electrical shock affect your body?

   An electrical shock can affect your breathing, heart, brain, nerves and muscles. The body has its own electrical system for breathing, nerve transmission and heart rate. An electrical shock can shut off or "blow the fuses" in your body. When your body's fuses are blown the heart can stop beating or you can stop breathing. A fatal shock is called electrocution. You can also receive electrical burns or fall due to a shock.

   What should you do if you find someone who has suffered electrical shock?

   The first two things are to call for help and shut off the source of electricity. It is critical to not touch the person until you are certain that they are not still part of the live circuit. Otherwise you could be the next victim. If it happens at school or work, call a teacher or supervisor and 911. If the situation is at home or along a road, call 911 and do not touch any wires or power lines.

   What possible hazards should you look for before using electrical equipment?

   If possible, have students look for any electrical hazards in the classroom (or bring in examples of equipment with damaged wire); ask them to demonstrate and explain what they're looking for. Some examples:

   - Damaged wiring
   - Proper grounding
   - Working near heat sources, oil, or water
   - Warning signs: very hot cords or plugs, minor shocks.

What does grounding do?

Grounding provides a safe pathway for electricity to travel from the equipment or circuit to the ground, preventing shock. The third prong on a plug is the ground prong---don't remove it. Double-insulated tools, identified by the words "double insulated" or "double insulation" do not need to be grounded.

What are GFCI's and why are they important?

A GFCI (ground fault circuit interrupter) detects very small amounts of current leakage from a circuit to a ground and shuts the current off. It measures the difference between current flowing to an electrical device and current returning from the device. It trips in as little as 1/40th of a second when it senses a difference of 5mA For example, if there is a short (current leakage) in a power tool, the metal casing can become "live." A GFCI will cut off the power before the user gets a serious shock. Note that other "overcurrent" devices, like circuit breakers and fuses, are intended to protect equipment. GFCI's are used to protect people. Because water is a great conductor of electricity, some form of GFCI should be used whenever someone is working outdoors or in a wet area. GFCI's should also be used with extension cords and other temporary wiring.

When should you make repairs to electrical equipment?

You should never try to repair electrical equipment yourself. If tools or cords run very hot, or if you get a shock, or if the equipment is damaged, stop using the equipment and report the condition immediately. Never use a 3-prong grounded plug with the third prong broken off.

What is lockout/tagout?

Lockout/tagout (LOTO) stands for procedures, required by OSHA regulations, to prevent worker injury or death from the unexpected activation or startup of machinery or electric current, especially during service or maintenance activity. "Hazardous energy" that could harm a worker includes electricity and other forms of energy like mechanical, hydraulic, and pneumatic. If all possible sources of energy to machinery and electrical equipment are disabled, unsuspecting workers will not be caught in machinery or come in contact with live electricity while they are repairing or otherwise servicing equipment. Lockout/tagout procedures require two things:

1. An assigned person (the "authorized employee") must turn off and disconnect (unplug) the machinery or equipment from its energy source(s) before performing service or maintenance.

2. The authorized employee must either lock or tag the energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify that the energy can't reach the point where the work is taking place .

C. Electrical Safety Scenario (25 minutes)

1. Give students Handout (C) Electrical Safety Scenario. Read the scenario out loud.

2. Divide students into groups of 3 or 4. Ask each group to identify at least three things that could have been done to prevent this death.

3. Bring the class back together. Ask for one idea from each group. Write ideas on the board or on flipchart paper; add any that the students did not think of. Possible answers:

   - If the circuit had been equipped with a GFCI, the current would have been shut off before injury occurred. Equipment in wet or damp areas must be GFCI protected.
   - Do not work with electricity in wet or damp areas without proper insulating protective equipment. The recent mopping increased the risk of electrocution.
   - If the breakers had been labeled, which they are required to be, the manager would have known which breaker to shut off and would have been able to turn off the circuit more quickly.
   - Exposed receptacle boxes should be made of nonconductive material so that contact with the box will not constitute "a ground".
   - All workers must be trained about electrical hazards on the job and how to work safely around these hazards, **before they start a job**. Workers need to know that if an electrical injury occurs they shouldn't touch the victim or the electrical equipment until the current has been shut off.

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA 29 CFR 1910.301 Electrical Safety
L&I DOSH WISHA WAC 296-800-280 Electrical, Basic Requirements (Core Rules)

Glossary of Electrical Terms

(from *Electrical Safety Student Manual,* NIOSH publication no. 2002-123)

ampacity - maximum amount of current a wire can carry safely without over-heating

amperage - strength of an electrical current, measured in amperes

ampere (amp) - unit used to measure current

arc-blast - explosive release of molten material from equipment caused by high-amperage arcs

arcing - luminous electrical discharge (bright, electrical sparking) through the air that occurs when high voltages exist across a gap between conductors

AWG - American Wire Gauge-measure of wire size

bonding - joining electrical parts to assure a conductive path

bonding jumper - conductor used to connect parts to be bonded

circuit - complete path for the flow of current

circuit breaker - overcurrent protection device that automatically shuts off the current in a circuit if an overload occurs

conductor - material in which an electrical current moves easily

CPR - cardiopulmonary resuscitation-emergency procedure that involves giving artificial breathing and heart massage to someone who is not breathing or does not have a pulse (requires special training)

current - movement of electrical charge

de-energize - shutting off the energy sources to circuits and equipment and depleting any stored energy

double-insulated - equipment with two insulation barriers and no exposed metal parts

energized (live, "hot") - similar terms meaning that a voltage is present that can cause a current, so there is a possibility of getting shocked

fault current - any current that is not in its intended path

fixed wiring - permanent wiring installed in homes and other buildings

flexible wiring - cables with insulated and stranded wire that bends easily

fuse - overcurrent protection device that has an internal part that melts and shuts off the current in a circuit if there is an overload

GFCI - ground fault circuit interrupter-a device that detects current leakage from a circuit to ground and shuts the current off

ground - physical electrical connection to the earth

ground fault - loss of current from a circuit to a ground connection

ground potential - voltage a grounded part should have; 0 volts relative to ground

guarding - covering or barrier that separates you from live electrical parts

insulation - material that does not conduct electricity easily

leakage current - current that does not return through the intended path, but instead "leaks" to ground

lock-out - applying a physical lock to the energy sources of circuits and equipment after they have been shut off and de-energized

milliampere (milliamp or mA) - 1/1,000 of an ampere

NEC - National Electrical Code - comprehensive listing of practices to protect workers and equipment from electrical hazards such as fire and electrocution

neutral - at ground potential (0 volts) because of a connection to ground

ohm - unit of measurement for electrical resistance

overcurrent protection device - device that prevents too much current in a circuit

overload - too much current in a circuit

power - amount of energy used each second, measured in watts

PPE - personal protective equipment (eye protection, hard hat, special clothing, etc.)

qualified person - someone who has received mandated training on the hazards and on the construction and operation of equipment involved in a task

resistance - material's ability to decrease or stop electrical current

risk - chance that injury or death will occur

shocking current - electrical current that passes through a part of the body

short - low-resistance path between a live wire and the ground, or between wires at different voltages (called a fault if the current is unintended)

tag-out - applying a tag that alerts workers that circuits and equipment have been locked out

trip - automatic opening (turning off) of a circuit by a GFCI or circuit breaker

voltage - measure of electrical force

wire gauge - wire size or diameter (technically, the cross-sectional area)

Electrical Safety and You

It is hard to think of any job today that does not involve the use of electricity. Some workers, such as engineers, electricians, and people who do wiring, work with electricity directly. Other workers, such as office workers and salespeople, use it indirectly. Working with electricity can be deadly if not done safely.

Electrical Shock

Electrical shock occurs when electricity enters your body. You become part of an electrical circuit. Electricity always seeks the shortest path to the ground. If you become part of that path, the electrical current flows through you to the ground. It is the flow, or amount, of electricity (amperes) and the length of time your body is in contact with the current that determine the amount of damage. The strength of the electricity (voltage) affects the amount of current, but electricity can cause serious injury or death at both low and high voltages.

How Electricity Works

Electricity is similar to water in a garden hose. Pressure is required to make the water flow out of the hose. If there is no pressure, no water will flow. At the end of the hose, a nozzle may be added that can turn the hose off. The pressure is still there but the flow is stopped. This is similar to the electrical switches in your school, house, or workplace. When you turn off the light, the flow of electricity stops but the electrical power is still there. The pressure of the electrical current is measured in volts.

It doesn't take much current to kill. Just 75/1000 of an ampere (the amount of flow necessary to light a Christmas tree light) can kill you if it passes through your chest.

An electrical shock can affect your breathing, heart, brain, nerves, and muscles. The body has its own electrical system for breathing, nerve transmission, and heart rate. An electrical shock can shut off or "blow the fuses" in your body. When your body's fuses are blown the heart can stop beating or you can stop breathing. A fatal shock is called electrocution.

Electrocution is one of the leading causes of death of young workers.

Contact with overhead wires is a common cause of electrocution. This can happen when people are carrying ladders or poles or using equipment that is tall enough to touch electrical wires.

What Should You Do if Someone is Shocked by Electricity?

If you come upon someone who has been shocked by electrical current, do these things first:

- Disconnect the power source
- Call for emergency services or 911

Do not touch the person until you are certain the power is off and they are no longer part of the live current path. If you touch the person, you could well be the next victim. You must not administer CPR or first aid unless you know the power is disconnected and you are trained in these practices.

Electrical Burns

Burns can occur all along the path that current follows through the body, including where it enters and leaves.

Other Electrical Hazards

In addition to electrical shock, contact with electricity can cause other problems. It can throw you or make you fall. And, if you get an electrical shock while operating a power tool, you can lose control of the equipment, which can injure you or someone nearby.

Electrical-related hazards that can cause electrical shocks, fires, or falls include:

- Inadequate wiring
- Overloaded circuits
- Exposed electrical parts
- Wet conditions
- Overhead powerlines
- Damaged tools and equipment
- Defective insulation
- Improper personal protective equipment
- Improper grounding.

Grounding

Proper grounding of electrical equipment helps prevent electrical shock. An ungrounded power tool can lead to electrical shock, injury, or death if enough current passes through the body. Grounding provides a safe pathway for electricity to travel from the equipment or circuit to the ground, preventing shock. The third prong on a plug is the ground prong—don't remove it. Double-insulated tools, identified by the words "double insulated" or "double insulation" do not need to be grounded.

A ground fault circuit interrupter, or GFCI, is an inexpensive lifesaver. A GFCI detects current leakage from a circuit to a ground and shuts the current off. For example, if there is a short (current leakage) in a power tool, the metal casing can become "live." A GFCI will cut off the power before you get a serious shock. There are three types of GFCI:

- a GFCI receptacle
- a portable GFCI that plugs into a standard receptacle
- a GFCI circuit breaker

Because water is a great conductor of electricity, some form of GFCI should be used whenever someone is working outdoors or in a wet area.

Equipment needs to be grounded in any of these situations:

1. The equipment is within 8 feet vertically and 5 feet horizontally of the floor or walking surface.
2. The equipment is within 8 feet vertically and 5 feet horizontally of grounded metal objects you could touch.
3. The equipment is used outdoors.
4. The equipment is located in a wet or damp area and is not isolated.
5. The equipment is connected to a power supply by cord and plug and is not double insulated. (The third prong in portable tools and extension cords supplies grounding).

Adapted from Safety and the Young Worker - Student Manual, Workers' Compensation Board, Northwest Territories, Canada and Electrical Safety: Safety and Health for Electrical Trades Student Manual, National Institute for Occupational Safety and Health (NIOSH)

What is Lockout/Tagout?

"Lockout/tagout" refers to specific practices and procedures to protect employees from machine Injuries or electric shock due to the unexpected energizing or startup of machinery and equipment during service or maintenance activities. "Hazardous energy" includes electricity as well as other forms of energy like mechanical, hydraulic, and pneumatic. OSHA developed the lockout/tagout regulation to prevent the deaths and serious injuries that result from unsuspecting workers being caught in machinery or contacting live electricity while they are doing repairs or otherwise servicing equipment.

Lockout/tagout procedures require that:

1. an assigned person (the "authorized employee") turns off and disconnects (unplugs) the machinery or equipment from its energy source(s) before performing service or maintenance, and
2. the authorized employee either locks or tags the energy-isolating device(s) to prevent the release of hazardous energy and takes steps to verify that the energy has been isolated effectively.

Lockout involves the use of "locks to ensure that circuit breakers, switches, valves, etc. are held in the "off" position, or not operated until the person who has attached the lockout device, the "authorized employee," removes it. These devices can only be removed with a key or other unlocking mechanism. Before the locks are removed and the equipment can be reenergized, everyone must be in a safe position and accounted for.

Tagout involves the use of "tags" to warn others that a circuit breaker, switch or valve, and the equipment that it is attached to, must not be used until the tag is removed. Because a tag only serves as a warning and does not physically prevent the equipment from being started, it is much less protective than an actual lockout device. Tags are supposed to be used only in conjunction with other procedures that provide protection equivalent to lockout devices.

Adapted from *Lockout/Tagout Factsheet*, at:
http://nonprofitrisk.org/tools/workplace-safety/public-sector/topics/lt/lockout-ps.htm
and:
Serving Up Safety, A Guide to Occupational Safety and Health Standards for the Restaurant Industry at
http://www.nsbdcbep.org/restsafety/09-Lockout%20Tagout.pdf

What All Students Need to Know about Electrical Safety

1. Keep tools and cords away from heat, oil, and sharp edges.
2. Do not use electrical equipment in damp or wet areas.
3. Do not use electrical equipment on or near metal ladders.
4. Be sure the control switch on equipment is in the "off" position before you plug it in or unplug it.
5. Disconnect tools and extension cords by holding the plug—not the cord.
6. Never use a 3-prong grounded plug with the 3rd prong broken off. Always plug a 3-prong plug into a properly installed 3-prong socket.
7. Use a Ground Fault Circuit Interrupter (GFCI) when using portable tools.
8. Avoid using extension cords. If you must use an extension cord, choose one with the same ampere rating as the tool. Make sure the insulation is intact and that all connections are tight. Make sure the cord does not create a tripping hazard.
9. Do not overload circuits.
10. If tools or cords run very hot or if you get a shock, report the condition to your supervisor immediately.
11. Report any damaged tool or equipment or one that gives off minor shocks to your supervisor immediately. Report exposed live parts to your supervisor immediately. Do not attempt to make repairs yourself.

Electrical Sockets with GFCI's

Adapted from Safety and Health for Industrial/Vocational Education, NIOSH/OSHA

Scenario: Electrical Safety

An 18 year-old worker with 15 months of experience at a fast food restaurant was plugging a toaster into a floor outlet when he received a shock. Since the restaurant was closed for the night, the floor had been mopped about 10 minutes before. The restaurant manager heard the worker scream and investigated. The worker was found with one hand on the plug and the other hand grasping the metal receptacle box. His face was pressed against the top of the outlet. The manager tried to take the worker's pulse, but got a shock when he touched the worker. The manager could not locate the correct breaker for the circuit. He called the emergency squad, returned to the breaker box, and found the correct breaker. By the time the circuit was turned off, the worked had been exposed to the current for 3 to 8 minutes. His pulse was very rapid at this time.

By the time the rescue crew arrived, the worker had no pulse. Despite CPR, he was dead on arrival at the hospital.

What could have been done to prevent this death?

PowerPoint Presentation

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Introduction

- An average of one worker is electrocuted on the job every day
- There are four main types of electrical injuries:
  - Electrocution (death due to electrical shock)
  - Electrical shock
  - Burns
  - Falls

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Electricity – How it Works

- Electricity travels in a closed circuit
- Electricity flows through *conductors*
  - water, metal, the human body

The human body is a conductor!

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Electrical Shock

- Received when current passes through the body
- Severity of the shock depends on:
  - Path of current through the body
  - Amount of current flowing through the body
  - Length of time the body is in the circuit
- **LOW VOLTAGE DOES NOT MEAN LOW HAZARD**

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Body as path to ground

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

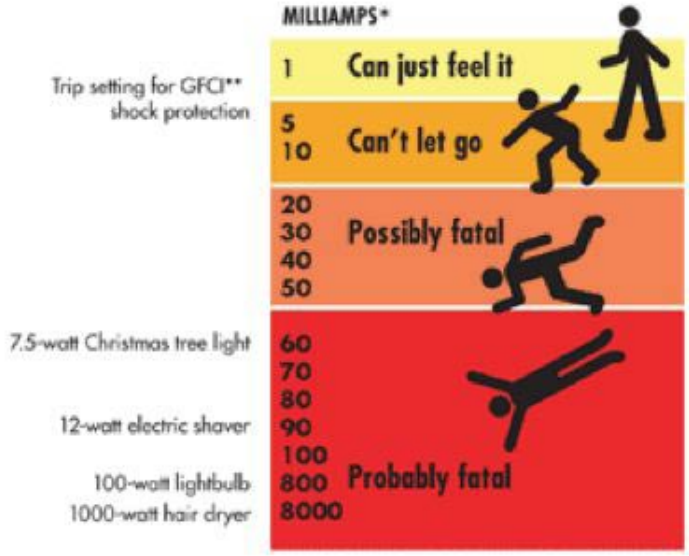
Dangers of Electrical Shock

- Currents > 75 mA* can cause ventricular fibrillation (rapid, ineffective heartbeat)
- Will cause death in a few minutes unless a defibrillator is used

75 mA is not much current – a small power drill uses 30 times as much

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Just a Little Current Can Kill



* A milliamp is 1/1000th of an ampere, a measure of electrical current.

** A GFCI is a ground fault circuit interrupter, a device that protects against serious shock.

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Electrical shock

- Affects your breathing, heart, brain, nerves and muscles
- "Blows the fuses" in your body
- Electrocution (a fatal shock) is one of the leading causes of death of young workers

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

What to do if someone is shocked by electricity?

- Disconnect the power
- Call emergency medical services, or 911

Use appropriate first aid and CPR techniques only if you are trained to do so

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What to do if someone is shocked by electricity?

Don't

- Don't touch the victim unless you are certain that the power has been shut off. If you do, you must be the next victim!
- Don't touch bare wires, power lines, or power company equipment
- Don't try to put out a fire started by electricity with water. The water can conduct electricity

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Electrical Injuries: Burns

- Most common shock-related, nonfatal injury
- Occurs when you touch electrical wiring or equipment that is improperly used or maintained
- Usually occurs on the hands
- Very serious injury that needs immediate attention

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Electrical injuries: Burns

Electricity can 'cook' internal organs or cause internal bleeding!

Internal effects may happen days later

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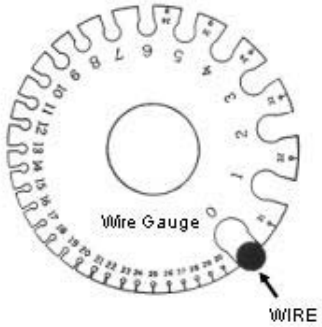
Electrical injuries: Falls

- Electric shock can also cause **indirect** or **secondary** injuries
- Workers at heights who experience a shock can fall, resulting in serious injury or death

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Inadequate Wiring Hazards

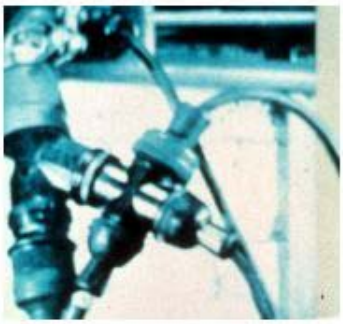
- Conductor is too small to safely carry the current
  - *E.g.* portable tool with extension cord too small for the tool
    - Cord can overheat and cause fire without tripping the circuit breaker
    - Breaker could be the right size for the circuit but not for the extension cord



Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Overload Hazards

- Too many devices plugged into a circuit
  - Overheated wires can cause a fire
  - If insulation melts, arcing could cause a fire, even inside a wall



Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Overhead Powerline Hazards

- Overhead powerlines are usually not insulated
- Powerline workers need special training and personal protective equipment (PPE) to work safely
- Do not use metal ladders – instead, use fiberglass ladders
- Beware of powerlines when you work with ladders and scaffolding

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Overhead Line Incident

- Two workers were attempting to remove a metal pole.
- Pole made contact with 7200 volts.
- One worker died.

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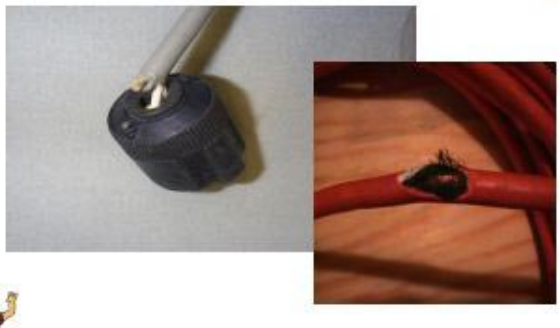
Defective Extension Cords

Plastic or rubber covering is missing



Damaged extension cords & tools

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Damaged Cords

Cords can be damaged by:

- Aging
- Door or window edges
- Staples or fastenings
- Abrasion from adjacent materials
- Activity in the area

Improper use of cords can cause shocks, burns or fire

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Taking care of electric cords & wires

- ✓ Check before use
- ✓ Use only cords that are 3-wire type
- ✓ Use only cords marked for hard or extra-hard usage
- ✓ Cords not marked for hard or extra-hard use, or which have been modified, must be taken out of service immediately

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Extension Cord Use

- ✓ Do not pass through holes in walls, floors, or ceilings or through windows or doors
- ✓ Do not run behind building walls, ceilings, or floors
- ✓ Do not drive over them
- ✓ Do not attach to building surfaces (including hanging them from nails, staples or bare wire)
- ✓ Do not lay out in a manner that can cause tripping
- ✓ Do not use as a substitute for the fixed wiring of a structure

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Be aware of the environment you will be working in. If the environment is wet or damp, use equipment and cords designed for that situation!

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Hazard Control: Grounding

- Grounding provides a safe pathway for electricity to travel
- Proper grounding helps prevent electrical shock
- If you come into contact with an improperly grounded electrical device, **YOU WILL BE SHOCKED**
- **Double insulated** tools do not need to be grounded

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Do Not Eliminate the Ground!

You'll become the next-best path for current!

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Electrical Protective Devices

- Shut off electricity flow in the event of an overload or ground-fault in the circuit
- Examples: Fuses, circuit breakers, and ground-fault circuit-interrupters (GFCI's)
- Fuses and circuit breakers are overcurrent devices
  - When there is too much current:
    - Fuses melt
    - Circuit breakers trip open

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Ground-Fault Circuit Interrupter

- Protects you from dangerous shock
- Detects current leakage from a circuit to a ground and shuts the current off.
- Can shut off electricity flow in as little as 1/40 of a second, protecting you from a dangerous shock

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Remember…

- **Circuit Breakers and Fuses** *protect the building, equipment, and tools*
- **GFCI** is the only device which will *protect the worker* from shock and electrocution!

Fuses and circuit breakers protect equipment, not people, and don't protect against shocks and electrocutions!

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Equipment must be grounded if it's...

- Within 8' vertically and 5' horizontally of the floor or walking surface.
- Within 8' vertically and 5' horizontally of grounded metal objects you could touch.
- Used outdoors.
- Located in a wet or damp area and is not isolated.
- Connected to a power supply by cord and plug and is not double insulated. (The third prong in portable tools and extension cords supplies grounding.)

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

What is Lockout/Tagout?

- **De-energize (shut down) equipment before inspecting or making repairs**
- **Protect employees from the unexpected startup of machinery and equipment**
- **Lock or tag the energy-isolating device to prevent the release of hazardous energy**

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

How do Lockout/Tagout Devices Work?

- **Lockout devices** can only be removed with a key or other unlocking mechanism.
- **Tagout devices** are warnings that the employee attaches to the power source to warn employees not to turn on equipment while that employee services or maintains it.

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Electrical Safety: What to Look For

- Keep tools and cords away from heat, oil, and sharp edges.
- Do not use electrical equipment in damp or wet areas.
- Do not use electrical equipment on or near metal ladders.
- Be sure the control switch on equipment is in the "off" position before putting in or pulling out a plug.

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Electrical Safety: What to Look For

- Disconnect tools and extension cords by holding the plug.
- Never break the 3rd prong off or use a plug with with a broken 3rd prong.
- Use a Ground Fault Circuit Interrupter (GFCI) when using portable tools.
- Avoid using extension cords.
- Do not overload circuits.

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

Report Damaged Equipment IMMEDIATELY

- If tools or cords run very hot.
- If tools or cords are giving off minor shocks.
- If you see live parts.

Do not attempt to make repairs yourself!

Young Worker Safety Resource Center, adapted from OSHA Office of Training and Education

CHEMICAL HAZARDS AND HAZARD COMMUNICATION

Learning Objectives

By the end of this lesson, students will be able to:

- Identify common chemicals found in typical youth employment sites.
- Identify three ways chemicals can enter the body.
- Explain how chemicals can affect the body.
- Describe the four main employer responsibilities under the Hazard Communication standard.
- Identify and evaluate two sources of information on workplace chemicals: labels and Material Safety Data Sheets (MSDS).

Time Needed: 60 Minutes

Materials Needed

- Factsheets:
  Evaluating Your Workplace Hazard Communication Program (A)
  Chemical Labels (B)
  Material Safety Data Sheets (C)
  Sample MSDSs (If possible, find examples from your shop or school, or relevant to places your students may work; samples are included)
- Worksheets: MSDS Worksheet (#1)
- 4-5 containers of chemicals from your shop, school, or home
- Colored pens
- Blank pieces of unlined paper

Preparing to Teach This Lesson

Before you present this lesson:

1. Make copies of student handouts A, B, C, and worksheet #1.
2. Make copies of MSDSs either from the lesson plan or for chemical products you use in your classes. (You may be able to find MSDSs for specific products on the web if you do not have any in your classroom.)
3. Bring in samples of chemical products with labels on them from chemicals used in the class. If you don't use chemicals in class bring them from your home.

Detailed Instructor's Notes

A. Introduction: Why is this subject important? (5 minutes)

- Exposure to chemicals makes thousands of workers sick each year; many others are killed by cancers and other illnesses caused by chemical exposures they did not realize were making them sick. Employers are required to inform you about and protect you from any chemicals you work with in the workplace.

"What are some chemicals you may work with or be exposed to at work?"

- Common chemicals people often work with or may be exposed to include products that contain chemical solvents like acetone and toluene (e.g. glues), cleaning products, paints, wood dust, asbestos from insulation or other building products, pesticides, heavy metals, gasoline, and carbon monoxide.

"How can chemicals get inside your body?"

- When you breathe them in (**inhalation**); swallow them (**ingestion**) or get them on your skin (**absorption**).

"How can chemicals harm you?"

- Chemicals can cause many different kinds of symptoms, such as dizziness and breathing problems, immediate effects like burns and more serious diseases like cancer, or failure of a vital organ such as the liver.
- Things that make a chemical more likely to harm the body include
  - how toxic it is
  - how it enters or contacts the body (inhalation, ingestion, absorption)
  - how much and for how long the person is exposed to it, and
  - the individual characteristics of the person exposed, such as body weight, age, genetic factors.
- When health effects occur right away, they are called *acute* effects. When health effects occur a long time after exposure or over a long period, we call them *chronic* effects. Some chemicals can cause both acute and chronic effects. For example, the solvent benzene can cause nausea and dizziness from a short-term or acute exposure, but it also causes leukemia, a chronic effect that may show up years after the exposure.
- The organs most often affected by chemicals are the skin, lungs, liver, kidneys, heart, nervous system (including the brain), and reproductive system. Chemicals can cause *local* effects where they first contact your body or *systemic* effects if they get into your bloodstream.

Preventing Chemical Exposures

"*What are some ways to reduce or eliminate exposure to chemicals at work?*"

- Substitute a safer chemical product in place of a more toxic one
- Enclose a process that uses toxic chemicals so no one is exposed
- Use good ventilation so workers don't breathe in a chemical
- Limit how much time a worker is exposed to a chemical
- Train workers in how to use chemicals safely
- Use personal protective equipment such as gloves, goggles, respirators, etc.

B. OSHA's Hazard Communication Standard (20 minutes)

1. **Explain to the class that you will next discuss how to find information about specific chemicals.**

2. **Ask people to call out what things they would like to know about the chemicals they work with.**

   Write their answers on a flipchart page, and then add any they may not have mentioned. The list may include the following:

   - What should you do if you spill a chemical on your skin?
   - How should you clean a chemical up if it spills?
   - How toxic is it?
   - Who makes it?
   - How do you handle it safely?
   - What should you do in an emergency?
   - How do you dispose of it safely?
   - What health effects does it cause?
   - How flammable is it?
   - Is there a safe level of exposure?
   - Do you need a respirator or other personal protective equipment (PPE) when you work with it?

3. **Explain to the class that they are entitled to get this information under OSHA's Hazard Communication standard:**

   - When you use a product that contains chemicals, like a cleaning solution or a pesticide, it's important to know what kinds of health effects the chemical can cause, and how to protect yourself. If you already have asthma or some other health problem, this information can be especially important.
   - OSHA says that workers have a right to get information about the chemicals used in their workplace. Employers must train workers in how to use those chemicals safely, and teach them what to do if there is a chemical spill or other chemical emergency.

"*What are some ways to find out how a chemical product might harm you and how to protect yourself from it?*"

To find out more about the chemicals in a product, you can:

- Check the label
- Ask your supervisor
- Get training
- Call a resource agency or check their website
- Look at the Material Safety Data Sheet (MSDS) for the product.

OSHA requires employers to let their workers see and copy MSDSs for every chemical used or stored at the workplace. MSDSs are information sheets that manufacturers must send to companies along with their chemical products. They tell you what is in the product, how it can harm you, and how to protect yourself. We'll look at some examples a little later.

Workers' "*right to know*" about chemicals at work is contained in the Hazard Communication standard, which has five major requirements that employers must follow:

Hazard Communication Standard

- Develop a written hazard communication program.
- Prepare and maintain an inventory of all hazardous substances in the workplace.
- Make sure all chemical products in the workplace have labels.
- Obtain material safety data sheets (MSDSs) for all chemicals in the workplace and make them available to employees.
- Train employees about the hazards of the specific chemicals they work with or work around, how to protect themselves against chemical exposure, and how to read MSDSs and labels.

Refer the class to Factsheet A, *Evaluating Your Workplace's Hazard Communication Program*. It has more information on what should be in an employer's Hazard Communication program.

4. Refer the class to Factsheet B, *Chemical Labels*, and explain:

Next we will look at labels and MSDSs, two important sources of information on chemical hazards.

Divide the class into groups of 3-4 students. Give each group a different container of a chemical product (from your shop, school, or home). Ask them to examine the label.

"*What are some things you can learn about a chemical product by reading the label?*"

- The name of the chemical or the chemicals the product contains.
- Whether or not the chemical is flammable.
- Major health effects - for example, that it is harmful if swallowed or inhaled, or causes irritation.
- The name and address of the manufacturer.

Explain that a label is "snapshot" of a chemical, but doesn't usually give us all the information we want to know. The Hazard Communication standard requires that the label include only:

- Product identity, such as chemical or trade name.
- Hazard warnings, including the type of hazard (fire, health effects, etc.).
- Name and address of the manufacturer.

Ask the class whether the label on the product they have includes all of the required information. Try to point out how some labels provide very little information about health effects, and some provide so many health warnings that you may not take any of the warnings seriously. (If you are not able to use actual products, you can have the students look at the labels on Factsheet B. The acetone label includes product identity and hazard warnings, but doesn't list the name and address of the manufacturer.

5. **Refer participants to Factsheet E, *Material Safety Data Sheets*, and explain what MSDSs are:**

Sample MSDS

The Material Safety Data Sheet, or MSDS, is an information sheet that contains more detailed data about the health and safety aspects of a chemical product. The supplier or manufacturer provides it to purchasers. The employer must make them available to employees. They are often kept in a binder, which should be accessible to employees without having to ask a supervisor. Sometimes they are kept electronically on a computer.

MSDSs are often difficult to understand. The format of MSDSs can vary from supplier to supplier. The same chemical product could have different MSDSs from different suppliers. MSDSs are divided into sections. Each section provides specific information.

Review the required information on an MSDS, using Factsheet C:

- Product identity and ingredients
- Physical and chemical characteristics
- Fire and explosion hazards
- Reactivity information (incompatibility with other chemicals or with heat, etc.)
- Health hazards: symptoms, routes of exposure, and potential to cause cancer
- Precautions for safe handling and use
- Protective measures needed
- Personal protective equipment needed
- Emergency and first aid measures
- Spill and leak procedures
- Legal exposure limits (permissible exposure limits or PELs)

6. Explain OSHA's legal exposure limits. Tell the class:

OSHA requires employers who use certain chemicals to keep worker exposure below set limits, called Permissible Exposure Limits (PELs). The PEL for a chemical is the maximum amount of that chemical that a worker may be exposed to over a period of time. For most regulated chemicals there is a limit to exposures averaged over an 8-hour day. Some chemicals also have shorter limits (usually 15 or 30 minutes) or maximum (ceiling) concentrations.

The idea is that the employer must control exposures so that workers aren't breathing enough of the chemical to cause harm. Workers should be told by their employer about the exposure limits for any chemicals they use. Note that not all chemicals have PELs but many common ones do.

C. Evaluating MSDSs (30 minutes)

1. **Introduce the small group activity. Explain that in this activity the class will be divided into small groups to learn how to read and understand the health effects section of an MSDS.**

   Explain that each group will be given an MSDS for a particular chemical, and a factsheet with the outline of a body drawn on it with organs. Each group will answer some questions about their particular chemical, using the health effects section of the MSDS.

2. **Divide the class into 3 – 4 small groups, with no more than six people in each group.**

Trainer's Tip: This activity involves a lot of reading. Consider asking for volunteer readers, and then form small groups so that each volunteer reader leads a group.

Hand out a copy of Worksheet #1, MSDS Worksheet, to each group. Also give each group an MSDS, a colored pen, and a blank piece of unlined paper. Sample MSDSs are provided, but you can also use any you may have that are most relevant to your students. Try to provide a different MSDS to each group.

3. **Before the groups begin working, read aloud the questions on Worksheet #1.**

   Explain that they should use their MSDS to answer Questions #1 – 4. Point out that when answering Question #4, they should mark the target organs affected by their particular chemical on the body outline using colored pens. Question #5 asks for their opinion about what health effects concern them most. Last, they will create a label that provides all the required information.

   Ask each group to have a volunteer take notes. Each group should also select another two people to report back to the whole class: one to hold up the body outline and label, and one to report on their worksheet answers.

   Give the groups 15 minutes to answer the questions on the worksheet and create their label. As they work, check in to see if there are any questions.

4. **Bring the whole class back together after 15 minutes. Have the groups report back on the MSDS they studied, their worksheet answers, and the label they created.**

If more than one group has been given the same MSDS, rotate the worksheet questions among the groups with that MSDS. After finishing a question, ask the other group(s) if they have anything to add to what the others reported.

5. Tell the class:
"Let's list some strengths and limitations of MSDSs as a way to get information about a chemical. Why is an MSDS useful?"

List people's responses on the flipchart and add any they may not have mentioned. Possible answers include:

- An MSDS provides more information than a label. If it's well-written, it can be a valuable tool.
- It may give detailed health information.
- It may give comprehensive information on how to protect yourself, and what your employer should do to protect you.
- It should give you information on safe storage, legal exposure limits, incompatibility, and what to do in an emergency.

Next ask:
"*What are the limitations of MSDSs?"*

List people's responses on the flipchart and add any they may not have mentioned. Possible answers include:

- One chemical could have many different MSDSs from different suppliers, with different information.
- An MSDS may be missing information.
- An MSDS may have vague or inaccurate information.
- An MSDS may be difficult to read and understand. It may be too technical. If you don't read English, it may not be available in your own language.

"Was it difficult to create a label from the information you had?"

Tell the class that it's also important to use other sources of information about chemical hazards, including factsheets available from health and safety organizations. The Internet has made it much easier to get access to these kinds of sources.

D. Sum Up (5 minutes)

1. **Ask participants to share what they think are the key points of this module. Add any points they don't mention. Answers may include:**

   - Chemicals in the workplace take different forms. Chemicals enter the body primarily through three routes of entry — breathing, skin and eye contact, and swallowing. Chemicals can cause acute (short-term) and/or chronic (long-term) health effects.

- Various factors influence whether a person may develop health effects from chemical exposure. These include toxicity, route of exposure, dose, duration of exposure, interaction with other chemicals, and individual differences.
- Remember that chronic health effects may not cause visible symptoms, or symptoms may not show up for years.
- OSHA's Hazard Communication standard requires that employers:
  - develop a written hazard communication program;
  - inventory chemical products;
  - label all hazardous products;
  - obtain Material Safety Data Sheets (MSDSs) for all products;
  - provide training for all employees.
- Two resources for information about chemicals are labels and MSDSs, but both have limitations. It is important to use additional sources of information to learn more about chemicals.

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA 29 CFR 1910.1200 Right to Know
L&I DOSH WISHA WAC 296-800-170 Hazard Communication

Evaluating Your Workplace Hazard Communication Program

Use this checklist to see if your employer's Hazard Communication program meets OSHA requirements.

Does your workplace have the following elements in place?

A Written Hazard Communication Plan

Yes	No	
☐	☐	Is there a written Hazard Communication program for your workplace and is there someone who is responsible for preparing and maintaining the program?
☐	☐	Does the written program describe how chemical containers will be labeled, how material safety data sheets will be compiled and maintained for each chemical at the worksite, and how employee information and training requirements will be met?
☐	☐	Does the written program include a list of the hazardous substances that are present in the workplace (either for the workplace as a whole or for individual work areas)?
☐	☐	Does the written program include the methods the employer will use to inform employees of the hazards that may be created by non-routine tasks or situations?
☐	☐	Is the written hazard communication program made available, upon request, to employees and their designated representatives?
☐	☐	For workplaces that have more than one employer, does the written program include the methods to be used to inform all employees in the workplace of the hazards and suggestions for protective measures?

Labels on Chemicals

Yes	No	
☐	☐	Is someone responsible for making sure chemicals are properly labeled?
☐	☐	Does each chemical container have a clear label with the product name, hazard warnings, and the name and address of the manufacturer, importer, or other responsible party?

Material Safety Data Sheets

Yes	No	
☐	☐	Is someone responsible for obtaining and maintaining MSDSs for each chemical used in the workplace and making sure they are up-to-date?
☐	☐	Is there an MSDS for each chemical used in the workplace?
☐	☐	Are MSDSs readily accessible to workers? Do workers know where MSDSs are kept?

Training

Yes	No	
☐	☐	Is someone responsible for providing health and safety training to workers?
☐	☐	Is training and information provided on the hazardous substances in employee's work areas at the time of their initial assignment and whenever a new hazard is introduced into their work area?
☐	☐	Does training include information on the following topics? • The Hazard Communication standard requirements; • The location and availability of the employer's written hazard communication program; • An explanation of the labeling system and where material safety data sheets are kept; • The hazards of the specific chemicals used and how to protect oneself from exposure.

Chemical Labels

Under the "Right to Know" laws, labels from suppliers are only required to contain the following information:

- Product identity, such as chemical or trade name.
- Hazard warnings, including what type of hazard (for example, fire or lung damage).
- Name and address of the manufacturer.

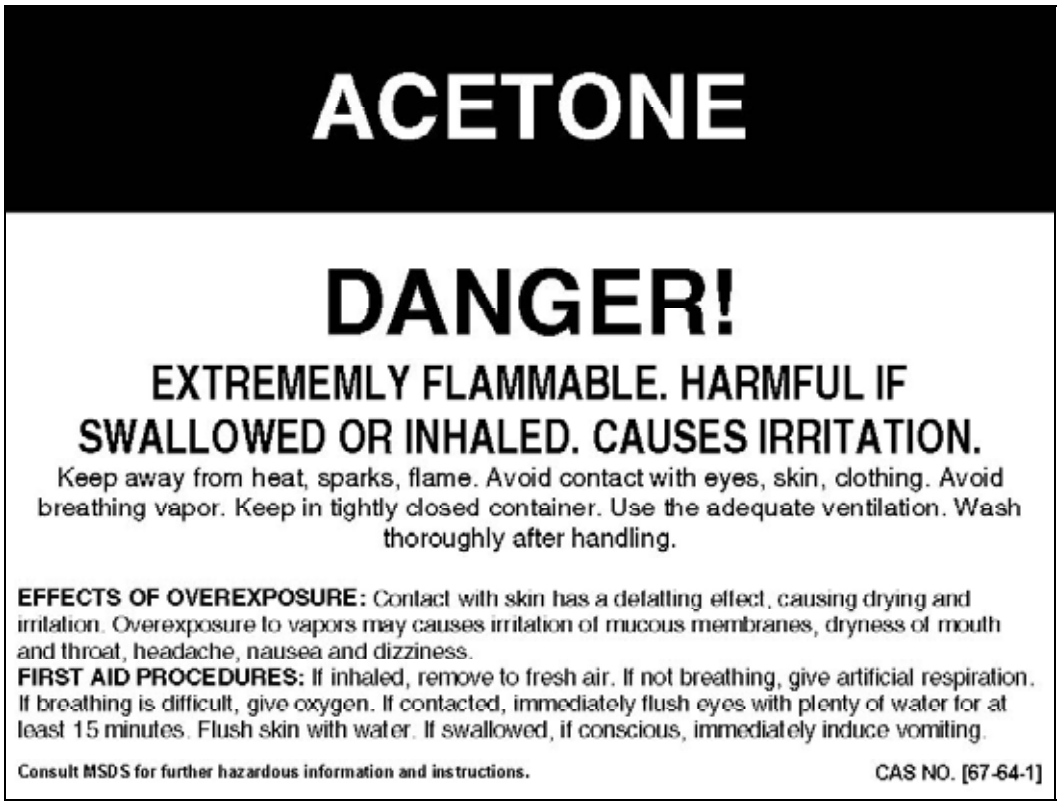
Some labels may include additional information and include words like "caution" or "harmful if breathed."

What Information May Be Missing?

There is a lot of information that can often not be found on a chemical label, such as:

- What to do if the chemical spills.
- How to store the chemical safely.
- How to protect yourself from harmful health effects.

Remember: All chemical products in the workplace should have labels. If a chemical is poured into a smaller container and taken elsewhere in the workplace, it still needs to have a label unless it is a portable container that is with the worker at all times and will be emptied at the end of the shift.



ACETONE

DANGER!

EXTREMEMLY FLAMMABLE. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION.

Keep away from heat, sparks, flame. Avoid contact with eyes, skin, clothing. Avoid breathing vapor. Keep in tightly closed container. Use the adequate ventilation. Wash thoroughly after handling.

EFFECTS OF OVEREXPOSURE: Contact with skin has a defatting effect, causing drying and irritation. Overexposure to vapors may causes irritation of mucous membranes, dryness of mouth and throat, headache, nausea and dizziness.
FIRST AID PROCEDURES: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If contacted, immediately flush eyes with plenty of water for at least 15 minutes. Flush skin with water. If swallowed, if conscious, immediately induce vomiting.

Consult MSDS for further hazardous information and instructions. CAS NO. [67-64-1]

Material Safety Data Sheets

Material Safety Data Sheets (MSDSs) are data sheets that contain information about the health and safety properties of workplace chemical products. They are usually written by the supplier or manufacturer of the product, and provided to purchasers. When employers receive an MSDS, they are required to let workers see and copy it.

An MSDS is divided into sections, and must have certain required information. Each section gives a different kind of data about the chemical product. These sections are not always the same on every MSDS.

What's on an MSDS?

Under OSHA's Hazard Communication standard, an MSDS must contain certain information. This includes:

- Product identity and ingredients
- Physical and chemical characteristics
- Fire and explosion hazards
- Reactivity data
- Health hazards: symptoms, routes of exposure, and potential to cause cancer
- Legal exposure limits
- Precautions for safe handling and use
- Protective control measures
- Personal protective equipment
- Emergency and first aid procedures
- Spill and leak procedures


MATERIAL SAFETY DATA SHEET
FLUSH-OFF DEGREASER

Although an MSDS must contain all the information above, the sections may not always appear in the same order.

Factsheet C

The table below lists some of the information you can find about a chemical product by looking at its MSDS.

Questions	What to look for	Section of the MSDS
What is this product?	Name of chemical? Who makes it? Ingredients	Identity Hazardous Ingredients
Can this product harm my health?	Health effects Symptoms Cancer hazard Emergency and First-Aid procedures	Health Hazards
Does this product have other dangers?	Fire and explosion hazard Incompatible materials to avoid Stable or unstable	Fire and Explosion, Hazard Data Reactivity Data
How can you protect yourself?	Personal protective equipment to use Other control measures	Control Measures
How should the product be handled?	Safe handling and storage Spill and accidental release procedures Waste disposal	Precautions for Safe Handling and Use
Where do you get more information?	Name and phone number of manufacturer	Manufacturer of product

What Are the Strengths and Limitations of an MSDS?

Why is an MSDS useful?

- An MSDS provides more information than a label. If it's well-written, it can be a valuable tool.
- It may give detailed health information.
- It may give comprehensive information on how to protect yourself, and what your employer should do to protect you.
- It should give you information on safe storage, legal exposure limits, incompatibility, and what to do in an emergency.

What are the limitations of MSDSs?

- One chemical could have many different MSDSs from different suppliers, with different information.
- An MSDS may be missing information.
- An MSDS may have inaccurate information.
- An MSDS may be difficult to read and understand. It requires a lot of reading. It may be too technical. If you don't read English, it may not be available in your own language.

It's also important to use other sources of information about chemical hazards, including the Internet, factsheets, and materials available at WOSH Specialist Resource Centers.

MSDS Worksheet

Name of Product: _____

1. How is this chemical used?

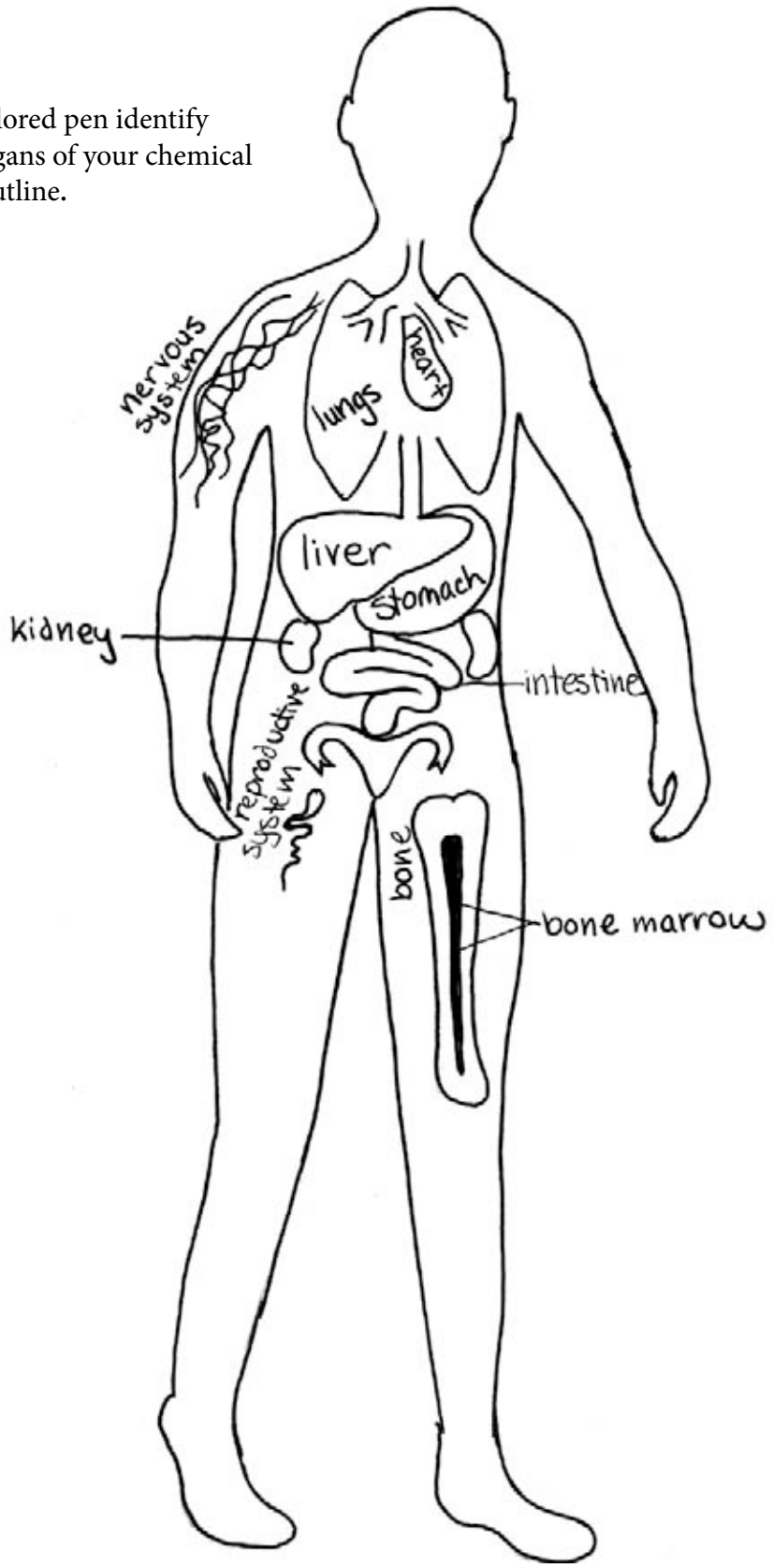
2. What are the routes of entry for this chemical?

3. What are the potential acute health effects of exposure to this chemical?

4. What are the potential chronic health effects of exposure to this chemical?

5. Which health effect concerns you most, and why?

Directions: Using a colored pen identify and mark the target organs of your chemical product on the body outline.



Material Safety Data Sheet

1 - Chemical Product and Company Identification

Manufacturer: WD-40 Company **Address: 1061 Cudahy Place (92110)** **P.O. Box 80607** **San Diego, California, USA** **92138 –0607** **Telephone:** **Emergency only: 1-888-324-7596 (PROSAR)** **Information: 1-888-324-7596** **Chemical Spills: 1-800-424-9300 (Chemtrec)** **1-703-527-3887 (International Calls)**	**Chemical Name: Organic Mixture** **Trade Name: WD-40 Aerosol** **Product Use: Cleaner, Lubricant** **MSDS Date Of Preparation: 3/16/07**

2 – Hazards Identification

Emergency Overview:
DANGER! Flammable aerosol. Contents under pressure. Harmful of fatal if swallowed. If swallowed, may be aspirated and cause lung damage. Avoid eye contact. Use with adequate ventilation. Keep away from heat, sparks and all other sources of ignition.

Symptoms of Overexposure:
Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.
Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.
Eye Contact: Contact may be mildly irritating to eyes. May cause redness and tearing.
Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.
Chronic Effects: None expected.
Medical Conditions Aggravated by Exposure: Preexisting eye, skin and respiratory conditions may be aggravated by exposure.

Suspected Cancer Agent:
Yes No X

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent
Aliphatic Hydrocarbon	64742-47-8 64742-48-9 64742-88-7	45-50
Petroleum Base Oil	64742-65-0	15-25
LVP Aliphatic Hydrocarbon	64742-47-8	12-18
Carbon Dioxide	124-38-9	2-3
Non-Hazardous Ingredients	Mixture	<10

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.
Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.

Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.
Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

5 – Fire Fighting Measures

Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.
Special Fire Fighting Procedures: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.
Unusual Fire and Explosion Hazards: Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back.

6 – Accidental Release Measures

Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area. Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 – Handling and Storage

Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.
Storage: Store in a cool, well-ventilated area, away from incompatible materials Do not store above 120°F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol.

8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
Aliphatic Hydrocarbon	100 ppm TWA (ACGIH) 1200 mg/m3 TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m3 TWA, 10 mg/m3 STEL ACGIH TLV 5 mg/m3 TWA OSHA PEL
LVP Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA (OSHA/ACGIH), 30,000 ppm STEL (ACGIH)
Non-Hazardous Ingredients	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product
Engineering Controls: Use in a well-ventilated area.
Personal Protection:
Eye Protection: Avoid eye contact. Always spray away from your face.
Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.
Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended
Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

Personal Protection:
Eye Protection: Safety goggles recommended where eye contact is possible.
Skin Protection: Wear chemical resistant gloves.
Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.
Work/Hygiene Practices: Wash with soap and water after handling.

9 – Physical and Chemical Properties

Boiling Point:	323°F (minimum)	Specific Gravity:	0.817 @ 72°F
Solubility in Water:	Insoluble	pH:	Not Applicable
Vapor Pressure:	110 PSI @ 70°F	Vapor Density:	Greater than 1
Percent Volatile:	74%	VOC:	412 grams/liter (49.5%)
Coefficient of Water/Oil Distribution:	Not Determined	Appearance/Odor	Light amber liquid/mild odor
Flash Point:	131°F (concentrate) Tag Closed Cup	Flammable Limits: (Solvent Portion)	LEL: 1.1% UE:: 8.9%

10 – Stability and Reactivity

Stability: Stable
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.
Incompatibilities: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

The oral toxicity of this product is estimated to be greater than 5,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.
None of the components of this product is listed as a carcinogen or suspected carcinogen or is considered a reproductive hazard.

12 – Ecological Information

No data is currently available.

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Dispose in accordance with federal, state, and local regulations.

14 – Transportation Information_

DOT Surface Shipping Description: Consumer Commodity, ORM-D
IMDG Shipping Description: Un1950, Aerosols, 2.1, LTD QTY

15 – Regulatory Information

U.S. Federal Regulations:
CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.
SARA TITLE III:
Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None
Section 302 Extremely Hazardous Substances (TPQ): None
EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product does not contain chemicals regulated under California Proposition 65.
VOC Regulations: This product complies with the consumer product VOC limits of CARB, the US EPA and states adopting the OTC VOC rules.
Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification
Canadian WHMIS Classification: Class B-5 (Flammable Aerosol)
This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

16 – Other Information:

HMIS Hazard Rating:
Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Reactivity – 0 (minimal hazard)

SIGNATURE: Peter P. Lyon

TITLE: Director of Global Quality Assurance

REVISION DATE: 3/5/2009

SUPERSEDES: May 2007

MATERIAL SAFETY DATA SHEET

 MSDS # 126038005

DRANO® CLOG REMOVER (LIQUID)

Date Issued: 16Jan2007 **Supersedes: 07Sep2004**

US MANUFACTURER:
S.C. Johnson & Son, Inc.
Phone: (800) 725-6737
Racine, Wisconsin 53403-2236
Emergency Phone: (866) 231-5406
International Emergency Phone:
(952) 852-4647

CANADIAN MANUFACTURER:
S.C. Johnson and Son, Limited
Phone: (800) 725-6737
1 Webster Street
Brantford, Ontario N3T 5R1
Transportation Emergency:
CANUTEC (collect) (613) 996-6666
Poison Control: (866) 231-5406

HAZARD RATING	HMIS	HAZARD	NFPA
4-Very High	3	Health	3
3-High	0	Flammability	0
2-Moderate	1	Reactivity	1
1-Slight	OXY	Special	
0-Insignificant			

DISTRIBUTED IN CANADA BY:
S.C. Johnson and Son, Limited
Phone: (800) 725-6737
1 Webster Street
Brantford, Ontario N3T 5R1

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME..... DRANO® CLOG REMOVER (LIQUID)
PRODUCT USE..... Household: Specialty chemical

UPC	SCJ CODE	QUANTITY	US SIZE	CANADIAN SIZE
59200 00686	10686	12		900 ml
19800 00110	10686	4	128 oz	3.8 L

SECTION 2 - INGREDIENT INFORMATION

INGREDIENT	WEIGHT%	EXPOSURE LIMIT/TOXICITY
Water (CAS# 7732-18-5).....	60-100	NOT ESTABLISHED
Sodium hypochlorite (CAS# 7681-52-9).....	3-7	0.5 ppm ACGIH/OSHA TWA , 1 ppm ACGIH/OSHA STEL (CHLORINE)
Sodium hydroxide (CAS# 1310-73-2).....	1-5	2 mg/m³ ACGIH/OSHA CEILING
Sodium silicate (CAS# 1344-09-8).....	1-5	NOT ESTABLISHED

SECTION 3 - HEALTH HAZARDS IDENTIFICATION (Also See Section 11)

ROUTE(S) OF ENTRY..... Eye contact. Skin contact.
EFFECTS OF ACUTE EXPOSURE:
EYE..... May cause: Eye damage.
SKIN..... May cause: Chemical burns.
INHALATION..... None known.
INGESTION..... Corrosive to mouth and digestive tract.
MEDICAL CONDITIONS..... None known.
GENERALLY RECOGNIZED
AS BEING AGGRAVATED
BY EXPOSURE

SECTION 4 - FIRST AID MEASURES

EYE CONTACT..... Flush immediately with plenty of water for at least 15 to 20 minutes. Seek immediate medical attention.

DRANO® CLOG REMOVER (LIQUID)

Date Issued: 16Jan2007 **Supersedes: 07Sep2004**

SECTION 4 - FIRST AID MEASURES (continued)

SKIN CONTACT	Flush immediately with plenty of water for at least 15 to 20 minutes. Seek immediate medical attention.
INHALATION	No special requirements.
INGESTION	Do not induce vomiting! Immediately drink 1-2 glasses of water or milk. Seek immediate medical attention.

SECTION 5 - FIRE AND EXPLOSION INFORMATION

FLASH POINT	Not applicable.
FLAMMABLE LIMITS	Not applicable.
AUTOIGNITION TEMPERATURE	Not applicable.
EXTINGUISHING MEDIA	Foam. CO2. Dry chemical. Water fog.
SPECIAL FIREFIGHTING PROCEDURES	Fire fighters should wear self-contained breathing apparatus and protective clothing.
UNUSUAL FIRE AND EXPLOSION HAZARDS	No special hazards known.

SECTION 6 - PREVENTIVE RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Absorb with oil-dri or similar inert material. Sweep or scrape up and containerize. Rinse affected area thoroughly with water.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONARY INFORMATION	DANGER: KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed. May burn skin and damage eyes, and mucous membranes on contact.
OTHER HANDLING AND STORAGE CONDITIONS	Wash thoroughly after handling.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	No special requirements under normal use conditions.
VENTILATION	No special requirements.
PROTECTIVE GLOVES	No special requirements under normal use conditions.
EYE PROTECTION	No special requirements under normal use conditions.
OTHER PROTECTIVE MEASURES	No special requirements.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

COLOR	Clear to Straw-colored
PRODUCT STATE	Liquid.
ODOR	Bleach
pH	11.5-13.4
ODOR THRESHOLD	Not available.
SOLUBILITY IN WATER	Complete
SPECIFIC GRAVITY (H2O=1)	1.104
VAPOR DENSITY (AIR=1)	Same as water.
EVAPORATION RATE (BUTYL ACETATE=1)	Not available.
VAPOR PRESSURE (mm HG)	Same as water.
BOILING POINT	> 93°C (> 199°F)

DRANO® CLOG REMOVER (LIQUID)

Date Issued: 16Jan2007 **Supersedes: 07Sep2004**

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES (continued)

FREEZING POINT.....	< 32°F (< 0°C)
COEFFICIENT OF..... WATER/OIL	Not applicable.
PERCENT VOLATILE BY.... VOLUME (%)	Not available.
VOLATILE ORGANIC..... COMPOUND (VOC)	Not available.
THEORETICAL VOC..... (LB/GAL)	Not available.

SECTION 10 - STABILITY AND REACTIVITY

STABILITY.....	Stable
STABILITY - CONDITIONS. TO AVOID	None known.
INCOMPATIBILITY.....	CHEMICAL HAZARD: Never use or mix with other cleaners or chemicals. Avoid mixing with: Strong acids (eg., muriatic acid), Ammonia. Can react to give chlorine gas. If this occurs, leave area immediately. Do not return for half hour. Ventilate if possible.
HAZARDOUS DECOMPOSITION PRODUCTS	chlorine.
HAZARDOUS..... POLYMERIZATION	Will not occur.
HAZARDOUS..... POLYMERIZATION - CONDITIONS TO AVOID	Not applicable.

SECTION 11 - TOXICOLOGY INFORMATION (Also See Section 3)

LD50 (ACUTE ORAL TOX)..	Corrosive
LD50 (ACUTE DERMAL TOX)	Not available.
LC50 (ACUTE INHALATION. TOX)	Not available.
EFFECTS OF CHRONIC..... EXPOSURE	None known.
SENSITIZATION.....	None known.
CARCINOGENICITY.....	None known.
REPRODUCTIVE TOXICITY..	None known.
TERATOGENICITY.....	None known.
MUTAGENICITY.....	None known.

SECTION 12 - ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA.....	Not available.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL..... INFORMATION	Waste from normal product use may be sewered to a public-owned treatment works (POTW) in compliance with applicable Federal/ Provincial/ State/ Local/ Municipal pretreatment requirements.

DRANO® CLOG REMOVER (LIQUID)

Date Issued: 16Jan2007 **Supersedes: 07Sep2004**

SECTION 14 - TRANSPORTATION INFORMATION

US DOT INFORMATION.....	Please refer to the Bill of Lading/receiving documents for up-to-date shipping information.
CANADIAN SHIPPING NAME.	DRANO® CLOG REMOVER (LIQUID)
TDG CLASSIFICATION.....	Not applicable.
PIN/NIP.....	Not applicable.
PACKING GROUP.....	Not applicable.
EXEMPTION NAME.....	Exempt per TDG Regulation 2.3(A)(XXI)

SECTION 15 - REGULATORY INFORMATION

WHMIS CLASSIFICATION...	Not applicable.

All ingredients of this product are listed or are excluded from listing on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

All ingredients in this product comply with the New Substances Notification requirements under the Canadian Environmental Protection Act (CEPA).

This product is not subject to the reporting requirements under California's Proposition 65.

SECTION 16 - OTHER INFORMATION

ADDITIONAL INFORMATION.	Use as directed.
EPA REGISTRATION #.....	Not applicable.

PREPARATION INFORMATION

PREPARED BY.....	Manufacturer's Technical Support Department. Refer to page 1 (Manufacturer) for contact information.

This document has been prepared using data from sources considered technically reliable. It does not constitute a warranty, express or implied, as to the accuracy of the information contained herein. Actual conditions of use and handling are beyond seller's control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State, Provincial and Local laws and regulations.
PRINT DATE: 16Jan2007

The Clorox Company
1221 Broadway
Oakland, CA 94612
Tel. (510) 271-7000

Material Safety Data Sheet

I Product:	CLOROX REGULAR-BLEACH
Description:	CLEAR, LIGHT YELLOW LIQUID WITH A CHARACTERISTIC CHLORINE ODOR

Other Designations	Distributor	Emergency Telephone Nos.
Clorox Bleach EPA Reg. No. 5813-50	Clorox Sales Company 1221 Broadway Oakland, CA 94612	For Medical Emergencies call: (800) 446-1014 For Transportation Emergencies Chemtrec (800) 424-9300

II Health Hazard Data

DANGER: CORROSIVE. May cause severe irritation or damage to eyes and skin. Vapor or mist may irritate. Harmful if swallowed. Keep out of reach of children.

Some clinical reports suggest a low potential for sensitization upon exaggerated exposure to sodium hypochlorite if skin damage (e.g., irritation) occurs during exposure. Under normal consumer use conditions the likelihood of any adverse health effects are low.

Medical conditions that may be aggravated by exposure to high concentrations of vapor or mist: heart conditions or chronic respiratory problems such as asthma, emphysema, chronic bronchitis or obstructive lung disease.

FIRST AID:

Eye Contact: Hold eye open and rinse with water for 15-20 minutes. Remove contact lenses, after first 5 minutes. Continue rinsing eye. Call a physician.

Skin Contact: Wash skin with water for 15-20 minutes. If irritation develops, call a physician.

Ingestion: Do not induce vomiting. Drink a glassful of water. If irritation develops, call a physician. Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If breathing is affected, call a physician.

III Hazardous Ingredients

Ingredient	Concentration	Exposure Limit
Sodium hypochlorite CAS# 7681-52-9	6.15%	Not established
Sodium hydroxide CAS# 1310-73-2	<1%	2 mg/m$^{3;1}$ 2 mg/m$^{3;2}$

[1]ACGIH Threshold Limit Value (TLV) - Ceiling

[2]OHSA Permissible Exposure Limit (PEL) – Time Weighted Average (TWA)

None of the ingredients in this product are on the IARC, NTP or OSHA carcinogen lists.

IV Special Protection and Precautions

No special protection or precautions have been identified for using this product under directed consumer use conditions. The following recommendations are given for production facilities and for other conditions and situations where there is increased potential for accidental, large-scale or prolonged exposure.

Hygienic Practices: Avoid contact with eyes, skin and clothing. Wash hands after direct contact. Do not wear product-contaminated clothing for prolonged periods.

Engineering Controls: Use general ventilation to minimize exposure to vapor or mist.

Personal Protective Equipment: Wear safety glasses. Use rubber or nitrile gloves if in contact liquid, especially for prolonged periods.

KEEP OUT OF REACH OF CHILDREN

V Transportation and Regulatory Data

DOT/IMDG/IATA - Not restricted.

EPA - SARA TITLE III/CERCLA: Bottled product is not reportable under Sections 311/312 and contains no chemicals reportable under Section 313. This product does contain chemicals (sodium hydroxide <0.2% and sodium hypochlorite <7.35%) that are regulated under Section 304/CERCLA.

TSCA/DSL STATUS: All components of this product are on the U.S. TSCA Inventory and Canadian DSL.

VI Spill Procedures/Waste Disposal

Spill Procedures: Control spill. Containerize liquid and use absorbents on residual liquid; dispose appropriately. Wash area and let dry. For spills of multiple products, responders should evaluate the MSDS's of the products for incompatibility with sodium hypochlorite. Breathing protection should be worn in enclosed, and/or poorly ventilated areas until hazard assessment is complete.

Waste Disposal: Dispose of in accordance with all applicable federal, state, and local regulations.

VII Reactivity Data

Stable under normal use and storage conditions. Strong oxidizing agent. Reacts with other household chemicals such as toilet bowl cleaners, rust removers, vinegar, acids or ammonia containing products to produce hazardous gases, such as chlorine and other chlorinated species. Prolonged contact with metal may cause pitting or discoloration.

VIII Fire and Explosion Data

Flash Point: None

Special Firefighting Procedures: None

Unusual Fire/Explosion Hazards: None. Not flammable or explosive. Product does not ignite when exposed to open flame.

IX Physical Data

Boiling point	approx. 212°F/100°C
Specific Gravity (H_2O=1)	~ 1.1 at 70°F
Solubility in Water	complete
pH	~11.4

 DATE PREPARED 05/05

Material Safety Data Sheet

Section 1 General Information

Manufacturer:
Zinsser Company, Inc.
173 Belmont Drive
Somerset, NJ 08875
(732) 469-8100

Emergency Telephone: Chemtrec (800) 424-9300 **Date: December 1, 2006**

Product Name: Parks Paint Thinner

Codes: **002011** **002012** **002015** **002023**

Section 2 Hazardous Ingredients

Hazardous Component	CAS#	OSHA PEL	ACGIH TLV
Stoddard Solvent	8052-41-3	500 ppm	100 ppm
1,2,4 Tri Methyl Benzene	95-63-6	10 ppm (TWA) 25 ppm (Ceiling)	25 ppm

Section 3 Hazard Identification

Emergency Overview: This material is a colorless liquid with a characteristic kerosene-like odor. It is flammable and has a flash point of 105° F. The vapor is heavier than air and may travel along the ground. Ignition of the vapor by distant ignition sources is possible.

Primary Routes of Exposure:

Skin Contact
Eye Contact
Inhalation

Potential Acute Health Effects:

Eye: Contact may cause eye irritation.

Skin: May cause skin irritation. Repeated or prolonged contact with skin may cause dermatitis.

Ingestion: May be harmful if swallowed. This material may pose an aspiration hazard. Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system. This substance may cause gastrointestinal tract distress and central nervous system depression.

Inhalation: High vapor concentrations may be irritating to the eyes, nose, throat and lungs.

Potential Chronic Health Effects: The substance may defat the skin. This substance may have effects on the central nervous system.

Target Organ: Eyes, skin, respiratory system, central nervous system, kidneys.

(See also Sections 4, 8, and 11 for related information)
Signs and Symptoms: None known

(See also Sections 4, 8, and 11for related information)

Section 4 First Aid Measures

Eye contact: Immediately flush eyes with water for at least 15 minutes. Get medical attention if irritation persists.

Skin contact: Wash thoroughly with soap and water. Get medical attention if irritation develops or persists.

Ingestion: If swallowed, Contact a physician or Poison Control Center. This material may pose an aspiration hazard. Do Not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. The symptoms of chemical pneumonitis often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Section 5 Fire Fighting Measures

Flash Point (method)**:** 105°F, TCC.

Extinguishing Media: Foam, Dry Chemical, Water Fog, CO_2

Protection of Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH and full protective gear. Evacuate area and fight fire from safe distance.

LEL: 1.0% **UEL:** 6.0%

Section 6 Accidental Release Measures

Clean Up Methods: Eliminate all ignition sources. Keep unnecessary people away. Dike and contain spill with inert material (sand, earth, etc.). Transfer liquid to containers for recovery or disposal, or absorb with absorbent materials and place into containers for disposal. Keep spill out of sewer and open bodies of water. Floors may be slippery; care should be exercised to avoid falls during clean up operations.

(See also Section 8 for information on Exposure Controls and Personal Protective Equipment)

Section 7 Handling and Storage

Handling: Keep away from heat, sparks and open flame. Use with adequate ventilation. Keep container closed. Personnel should avoid inhalation of vapors. Personal contact with the product should be avoided. Should contact be made, remove saturated clothing and flush affected areas with water.

Storage: Keep away from heat, sparks and open flame. Keep container closed

Section 8 Exposure Controls / Personal Protection

Engineering Controls: Use in well-ventilated areas. If necessary use mechanical local exhaust ventilation or general room dilution ventilation to reduce vapor concentrations.

Personal Protective Equipment (PPE):

Eye Protection: Prevent eye contact. Wear chemical splash goggles or similar eye protection if the potential exists for eye contact.

Skin Protection: Prevent skin contact. Wear chemical-resistant flexible-type gloves (neoprene, PVC, butyl, nitrile or similar). Depending on conditions of use additional protective equipment may be necessary such as face-shield, apron or coveralls.

Respiratory Protection: None required for normally expected use conditions. If occupational exposure limits are exceeded or if irritation is experienced, wear an appropriate NIOSH approved respirator with organic vapor cartridges.

General Hygiene Practices: Wash after handling material. Prevent Eye contact. Avoid prolonged skin and inhalation contact. Wash thoroughly before handling food, cosmetics, or before smoking. Remove contaminated clothing and launder before reuse.

Section 9 Physical Data

Appearance:	Colorless liquid	**Odor:**	Kerosene-like odor.
Physical State:	Liquid	**pH:**	N/A
Boiling Point:	310 – 405° F	**Melting Point:**	N/D
Vapor Pressure:	2 mmHg	**Vapor Density:**	4.9
Odor Threshold:	N/D	**Viscosity:**	N/D
Solubility in Water:	Negligible (<5%)	**Specific Gravity:**	0.78

Section 10 Stability and Reactivity

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: Reacts with chloroform and bromoform under basic conditions, causing fire and explosion hazard.

Stability: Stable.

Incompatibility: Strong oxidizers. May react with strong oxidizer causing fire and explosion hazard. Attacks some forms of plastics, rubber, and coatings.

Section 11 Toxicological Information

Carcinogenicity: This material is not listed as a carcinogen by IARC, NTP or OSHA.

(See also Section 15 for related information)

Section 12 Ecological Information

Chemical Fate and Effects: None known

Section 13 Disposal Considerations

RCRA Hazardous Waste: This material, when discarded or disposed of, could be a hazardous waste according to federal regulations (40 CFR 261) due to characteristics of ignitability (D001). The transportation, storage, treatment, and disposal of this waste must be conducted in compliance with 40 CFR 262,263,264,268, and 270. Disposal can only occur in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate.

Section 14 Transportation Information

Regulated by the DOT: No, (Combustible liquid)

DOT Proper Shipping Name: N/A

UN / NA Number: N/A

Hazard Class: N/A

Packing Group: N/A

Section 15 Regulatory Information

CERCLA:
The Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification to the National Response Center for releases of quantities of Hazardous Substances equal to or greater than the reportable quantities (RQs) in 40 CFR 302.4 (for CERCLA 102).

Components present in this product at a level which could require reporting under the statute are:

Chemical Name	CAS#	Maximum Concentration (Wt. %)
None	N/A	N/A

SARA Title III, section 311/312:
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312).

Components present in this product at a level which could require reporting under the statute are:

Chemical Name	CAS#	Maximum Concentration (Wt. %)
None	N/A	N/A

SARA Title III, section 313:
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313).

Components present in this product at a level which could require reporting under the statute are:

Chemical Name	CAS#	Maximum Concentration (Wt. %)
1,2,4 Tri Methyl Benzene	95-63-6	3.5%

TSCA:

The components of this mixture are listed in the Toxic Substance Control Act Inventory of Chemical Substances.

This product does not contain any chemicals that require export notification under Section 12(b) of the TSCA regulation.

Section 16 Other Information

Legend: **N/A**: Not Applicable
N/D: Not Determined
N/E: Not Established
N/R: Not Required
cps: Centipoise
KU: Krebs Units
STEL: Short Term Exposure Limit
C: OSHA Ceiling Value
PPM: Parts Per Million
PPB: Parts Per Billion
PEL: Permissible Exposure Limit
TLV: Threshold Limit Value
TWA: Time Weighted Average
mg/m^3: Milligrams per cubic Meter
mppcf: Million particles per cubic foot of air.
ACGIH: American Conference of Governmental Industrial Hygienists
OSHA: Occupational Safety and Health Administration (US Dept. of Labor)
RCRA: Resource Conservation and recovery Act
SARA: Superfund Amendment and Reauthorization Act
TSCA: Toxic Substance Control Act
FHSA: Federal Hazardous Substance Act

Prepared By: Zinsser Health and Safety Manager, Regulatory Compliance Dept.
173 Belmont Drive Somerset, NJ 08875 (732) 469-8100

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SLIPS, TRIPS, FALLS AND LADDER SAFETY

SLIPS, TRIPS AND FALLS

Learning Objectives

By the end of this lesson, students will be able to:

- Identify at least five slip, trip and fall hazards
- Discuss at least five strategies that can be used to control hazards in floors, holes, cluttered work spaces, stairways, and ladders
- Describe/demonstrate the proper way to set up and climb a ladder.

Time Needed: 45 Minutes

Materials Needed

- DVD: *Don't Fall for It, f*rom the CPWR - The Center for Construction Research and Training
- DVD player and TV or LCD projector (with speakers)
- Handouts: Checklist: *Slips, Trips, and Falls* (A)
  Ladder Safety Tips (B)
- 6-foot ladder for demonstration

Preparing To Teach This Lesson

Before you present this lesson:

1. Locate DVD *Don't Fall For It* on your CD and watch it yourself before showing it to students. Identify places to pause the video to elicit class discussion.
2. Make photocopies of handouts for the students.
3. Locate a ladder to bring into classroom.

Detailed Instructor's Notes

A. Introduction: Why is this subject important? (10 minutes)

1. Ask the following questions to lead into the discussion points below.
   Have any of you had a serious fall, or known someone who has?
   How did the fall affect this person?
   Why do people laugh at falls?
2. In this class we will talk about why it's important to prevent falls, and how we can do that.
   - Often in our society falls are not taken seriously. In cartoons and on television, falls are often seen as funny and as entertainment. But in real life falls can be serious, even fatal.
   - Over 250,000 workers in the US are seriously injured each year from falls.
   - Falls are second only to motor vehicles as the cause of accidental deaths.

- You don't have to fall far to get hurt; most ladder injuries result from falls under 10 feet.
- Good housekeeping and keeping clutter off the floor are key to preventing falls.

3. Remind the class that several examples of slip and fall hazards were discussed in the Safety Pyramid game. Explain that the class will begin with a review of those hazards, followed by a video and ladder safety activities. Ladders are commonly used both at home and at work, so ladder safety is relevant to everyone.

B. Discuss slip, trip, and fall hazards and how to prevent them. (10 minutes)

1. Ask students to brainstorm what kinds of hazards are the most likely to cause falls. You may want to break it down into two categories of hazards (slipping and tripping hazards and falling from heights).

What are the main causes of slipping or tripping?

- Ice, wet spots, grease, polished floors
- Loose flooring or carpeting
- Uneven walking surfaces
- Clutter (tools and materials lying around, boxes, blocked passageways)
- Electrical cords

What are the some of main causes of falls from heights?

- Working at heights (platforms, roofs, ladders, chairs)
- Damaged or improperly set up ladder
- Ladders that slip or move
- Unguarded floor openings
- Stairs or platforms with no guard rails

[Note: If you have extra time, have students use the checklist found in Handout (A) to conduct a walk-through in the classroom or another nearby location to identify specific hazards. Use the discussion to identify policies or procedures that would address or prevent these hazards.]

2. Discuss what employers and workers can do to prevent slips, trips, and falls in a work setting.

- Make sure that any workers under 18 are not allowed to work on or near a roof. For those workers who do work at heights, the employer is required to set up the work so that it is safe, including providing fall protection harnesses if needed. (Note: This unit is not designed to cover fall protection. It focuses on slip and trip hazards, and working on ladders.)
- Floors, walkways, stairs, and other passageways should be kept clear and free of tools, scrap, debris, or other tripping hazards.
- Storage areas and walkways should be kept free of holes, ruts, clutter, and obstructions.
- Spills of grease, oil, water, and other liquids should be cleaned up immediately or, if that's not possible, covered with sand or some other absorbent material until they can be cleaned up.

- Extension cords and hoses should be coiled up and stored when not in use.
- Electrical cords should never be placed in or across walkways.
- Burned out lights should be reported immediately and replaced as soon as possible.

3. Give students Handout (A). They can use this checklist to identify hazards and possible prevention strategies on their own or as homework.

C. Video and Discussion (15 minutes)

1. Explain that the class will now watch an 11-minute DVD, *Don't Fall for It.*
   Ask students to keep in mind these questions while they watch the DVD:
   What are the most important ladder safety tips?
   Have you ever taken any ladder shortcuts? What were the reasons?

2. Show the DVD.
   What are the "costs" of a fall injury? (both personal and financial)

   - Loss of work time and income
   - Pain and suffering
   - Permanent injury or death
   - It may affect family, non-work activities
   - Retraining costs for employer.

   What are the most important ladder safety tips?
   - See Handout (B), *Ladder Safety*
   - The technique a person uses to climb the ladder
   - Making sure the ladder is set up at the proper angle has been found to be an important factor for preventing falls.
   - Other important factors include securing the ladder (at top and bottom), using the belt-buckle rule described in the video, and carrying no loads.

   Have any of you ever taken any of these shortcuts? What were the reasons?
   - In a hurry
   - Couldn't find the right equipment
   - Had a bad surface to set the ladder on
   - Saw other people doing it like that
   - Others:

   What would you do if you were asked to use faulty equipment, or a ladder not appropriate for the job?"
   - Tell the supervisor the ladder is damaged and request a new ladder
   - Point out what appropriate type of ladder will be required to do the work safely.

D. Practice Ladder Safety (10 minutes)

1. Give students Handout (B) *Ladder Safety*.
2. Ask for two volunteers to come up and demonstrate safe use of a 6-foot folding ladder. You may want to have them do a specific task, such as change a light bulb or hang something. Have the rest of the class review the volunteers' technique, using the ladder safety handout, and make suggestions. Point out the things that are done correctly and incorrectly.

Ideas for Additional Activities and Resources

- Have students use the checklist in Handout (A) to identify hazards in the classroom or another location you identify. This could be done in groups, as homework, or as a competition (the team of students that finds the most hazards wins a prize.)
- Contact your local fire department to come and demonstrate safe ladder use.

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA 29 CFR 1910.21, Walking and Working Surfaces

L & I DOSH WISHA WAC 296-24—750 Floor and Wall Openings & Holes, Guarding

Checklist: Slips, Trips, and Falls

Use the following checklist to look for slip, trip, and fall hazards in a work space. Note that each "no" answer may indicate a problem where you will need to identify what is needed. If you see hazards that are not listed, write them in at the end of each section under "Other."

Floors and Walkways	**Yes**	**No**	**What's needed:**
1. Are walkways and stairways wide enough?	___	___	_____
2. Are walkways and stairways kept clear?	___	___	_____
3. Are buckets and mops available to clean up so no one will slip?	___	___	_____
4. Are non-slip mats, grates, or slip-free coatings used in wet areas to prevent falls?	___	___	_____
5. Do stairways have handrails?	___	___	_____
6. Are furniture and equipment secured against earthquakes?	___	___	_____

7. Other: _____

8. Other: _____

Ladders and Fall Protection			
1. Are ladders in good condition?	___	___	_____
2. Do ladders have safety feet?	___	___	_____
3. Are non-metal ladders used when there is a chance of electric shock?	___	___	_____
4. Have workers been trained in ladder safety?	___	___	_____
5. Is there a fall protection plan in place?	___	___	_____
6. If work is done at heights, is fall protection used (e.g., a lifeline and harness)?	___	___	_____

Training and Work Policies	**Yes**	**No**	**What's needed:**
1. Are there work policies or rules to prevent slips and falls? What are they?	___	___	_____
• _____			
• _____			
• _____			
2. Have workers received training about these policies?	___	___	_____
3. Have workers been trained in ladder safety?	___	___	_____
4. If work is done at heights, is there a fall protection plan in place?	___	___	_____

Ladder Safety Tips

If you have to use a ladder for work, your employer must train you how to use it safely.

General tips:

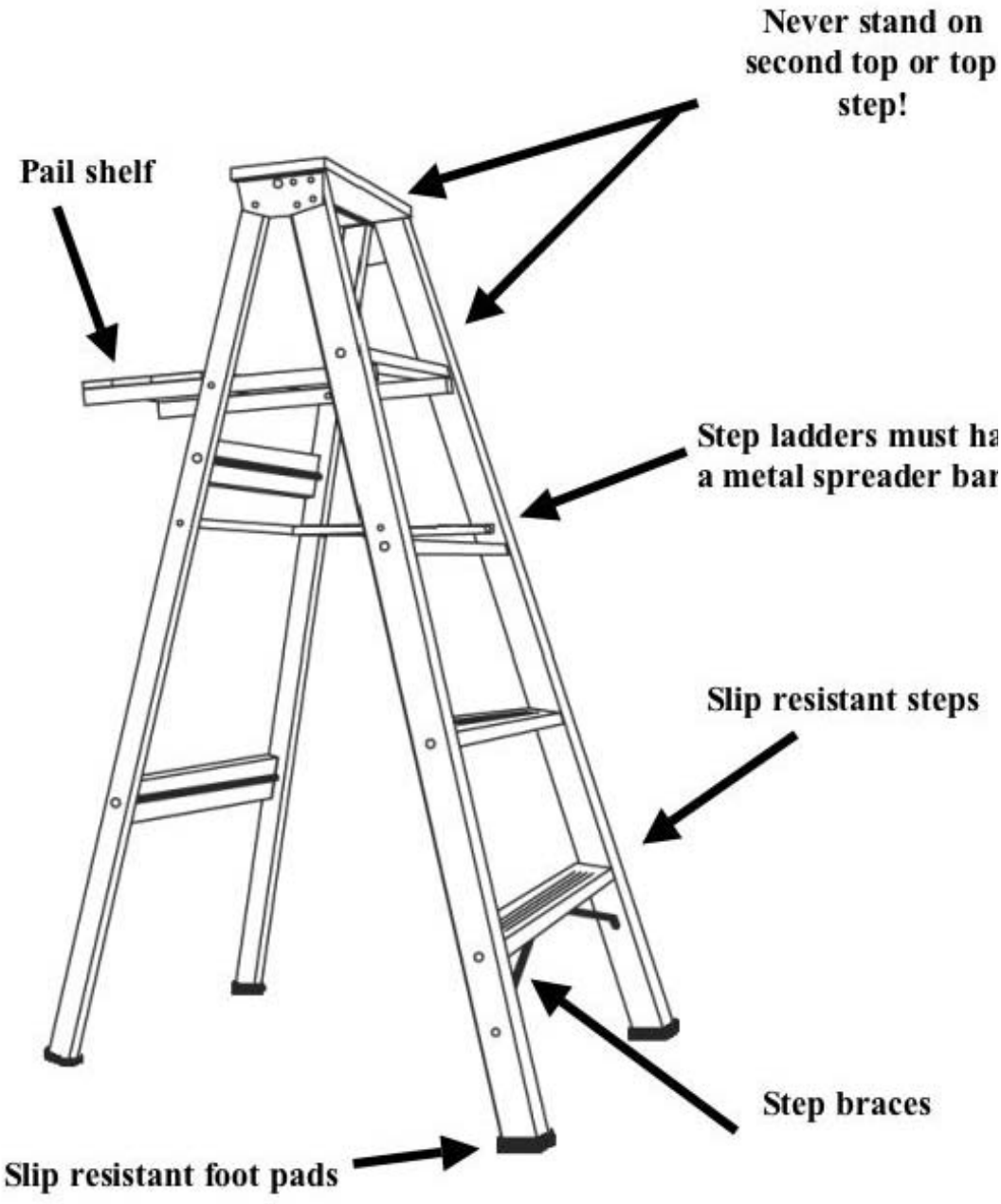
1. Hold on with both hands when going up or down a ladder. Always use at least one hand to hold on.
2. If material must be moved, hoist it up and lower it using a rope, don't carry it up the ladder.
3. Always face the ladder when climbing up or down.
4. Be sure your shoes are not greasy, muddy, or slippery before climbing.
5. Do not use a metal ladder near overhead electrical lines.
6. Take special precautions when erecting or climbing a ladder on a windy day.
7. Allow only one person at a time on a ladder unless the ladder is made for more than one person.
8. Do not place ladders in front of doors unless the doors are blocked off, locked, or guarded.
9. Do not place ladders on boxes, barrels, or other unstable bases.
10. Do not climb higher than the second rung from the top on stepladders.

Straight extension ladders:

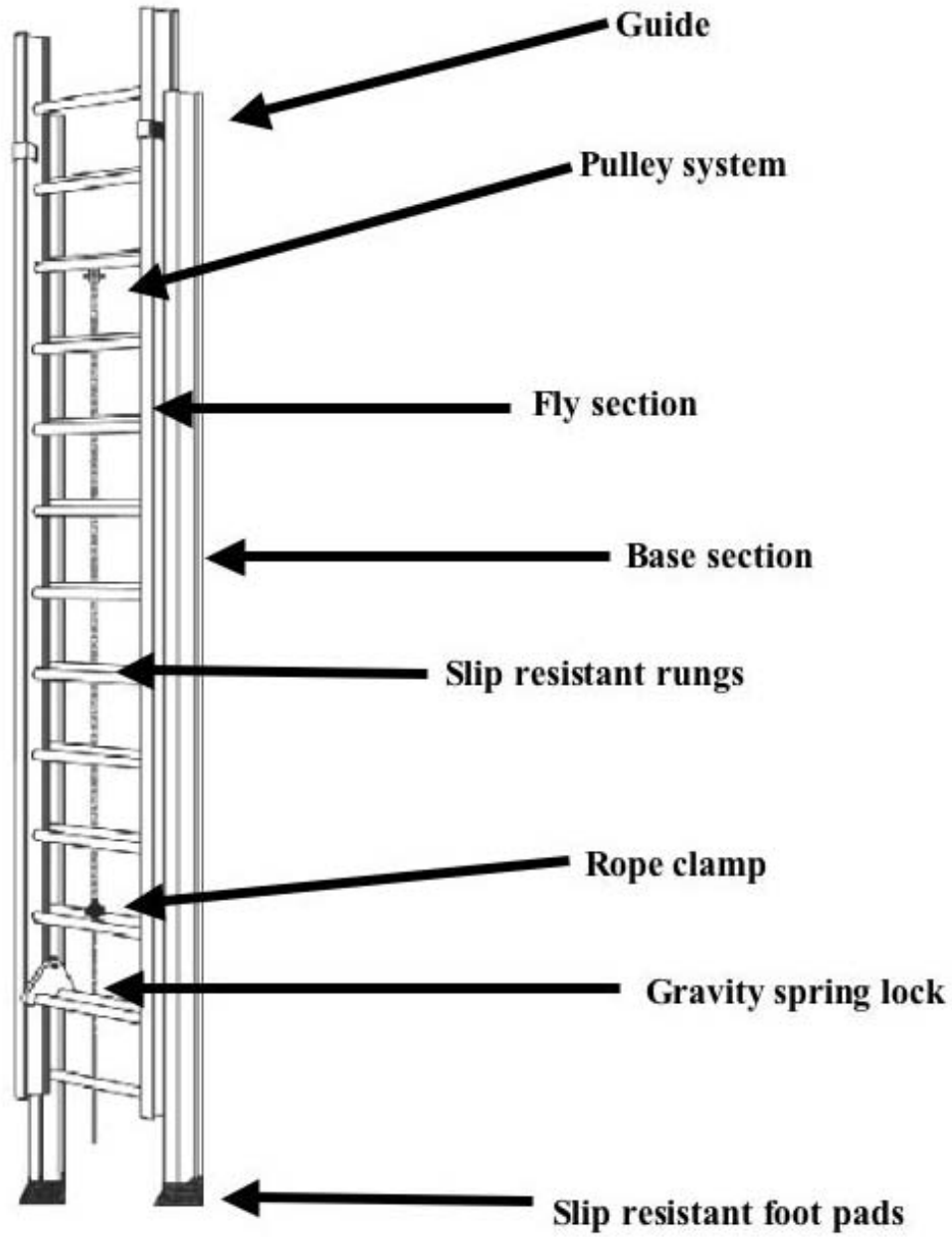
11. Do not climb higher than the third rung from the top on straight or extension ladders.
12. The horizontal distance between the ladder and the wall should be 1/4 of the height of the ladder. For example, if the top support point of a ladder is 20 feet high, the base of the ladder should be five feet from the wall.
13. When using a ladder to get onto a roof, make sure the top of the ladder extends at least three feet above the roof surface.
14. Do not lean your body to a point where your waist is beyond the side rails ("belt buckle" rule).

Adapted from *South Carolina Curriculum Guide for Safety in Occupation-*

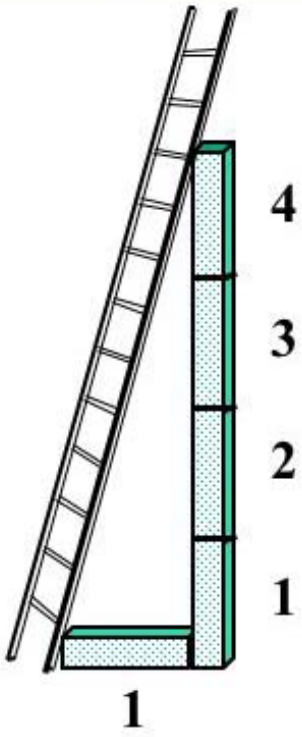
The parts of a step ladder



The parts of an extension ladder



Ladder placement



Place the base of non-self supporting ladders out away from the wall or edge of the upper level one foot for every four feet of vertical height (1:4).

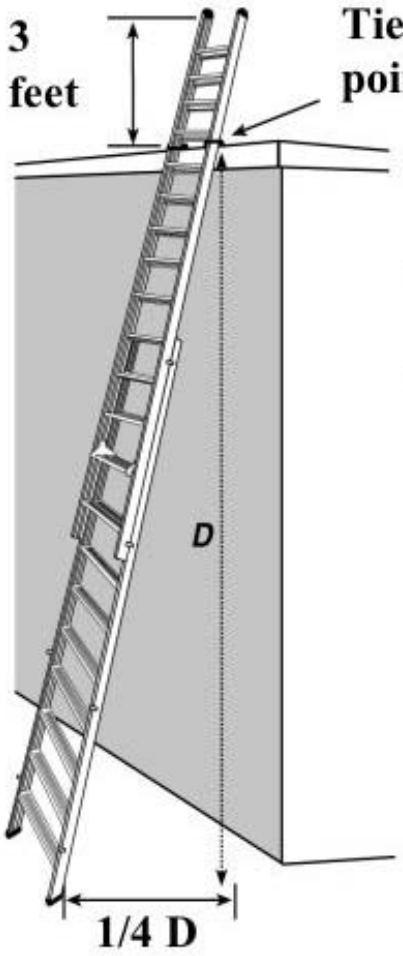
An easy way to know if the ladder is at the correct angle:

Put one foot on the first step of the ladder. Hold your back straight. Extend your arm straight out in front of you. If the ladder is at the correct angle your hand will have a ladder rung on which to rest. See diagram.

Move the base of the ladder away from you if the closest rung to your hand is below your hand. Move the base of the ladder toward you if the closest rung to your hand is above your hand.

Ladder placement

Extend the ladder at least 36 inches (3 feet) above the surface served.



Secure ladder to prevent it from displacement.

Use slip resistant feet pads on slippery surfaces.

Ladder placement

Over half of all ladder accidents are caused by falls when the ladder tips over as a result of poor ladder placement.

Use a wood or plastic wedge or a ladder leveler leg when using ladders on unven surfaces.

BLOODBORNE PATHOGENS

BLOODBORNE PATHOGENS

Learning Objectives

By the end of this lesson, students will be able to:

- Define bloodborne pathogen.
- List the three ways exposure to bloodborne pathogens commonly occurs.
- Give at least three examples of work situations where young workers may be exposed to bloodborne pathogens, such as park maintenance, cleaning bathrooms or motel/hotel housekeeping.
- Describe at least three ways that workers can be protected from exposure to blood borne pathogens, including properly used PPE and appropriate housekeeping methods
- List three important steps to take if exposed to a bloodborne pathogen.
- Identify whether state law permits youth under 18 to work in jobs with exposure to bloodborne pathogens.

Time Needed: 30 Minutes

Materials Needed

- Handouts: *Bloodborne Pathogens* (A)
  Scenarios: Blood Exposure in the Workplace (B)

Preparing to Teach This Lesson

1. Make copies of handouts (A) and (B).
2. If conducting optional activity locate the bloodborne pathogen cleanup kit in your classroom and look through its contents to demonstrate.

Detailed Instructor's Notes

A. Introduction: What are bloodborne pathogens? (10 minutes)

Concern about exposure to bloodborne pathogens in the workplace was limited until the appearance of the HIV virus during the AIDS epidemic in the 1980's. Prior to that time, personal protective equipment was primarily worn by health care workers to protect the patients from getting infections. After the discovery of HIV, healthcare employees wore PPE to protect themselves from becoming infected from various infectious diseases. This influenced the development of regulations to protect workers from a variety of different diseases caused by bloodborne pathogens.

1. Give students Handout (A) *Bloodborne Pathogens*. Use the following questions to review the handout.

   How Infectious Diseases are Transmitted:

   Why should you be concerned about being exposed to someone else's blood or other bodily fluids, or skin contact?

   - You could be exposed to diseases

   What are some examples of bloodborne diseases?

   - HIV
   - Hepatitis B
   - Hepatitis C

Although they are not transferred by blood, and are not classified as bloodborne diseases, there are other types of serious infectious diseases that workers need to be aware of. These can be transmitted by skin exposure or by inhalation.

What are examples of other infectious diseases?

- Methicillin-Resistent Staph Aureus (MRSA)
- Tuberculosis
- SARS
- Hepatitis A (fecal to oral contact)

What are some ways you might be exposed to blood or bodily fluids in the workplace?

- Cleaning bathrooms (restaurants, hotels)
- Co-worker is injured or cut by a sharp object
- Needles in trash (custodial work)
- Needles in outdoor settings (park clean-up)
- Needles in laundry (health care)

Discuss with students how contracting one of these illnesses can affect your life short term and long term.

How can workers be protected from these risks?

- Personal protective equipment (gloves, eye protection, CPR mouthpieces)
- Procedures and special containers for used needles in health care settings
- Training on how to handle first aid injuries at work (who is in charge)
- Training on how to handle trash (do not crush bags) or what to do if needles are found in the work area (contact manager)

Instructor Note: *All workers, regardless of their age, are not allowed to deal with blood or body fluids without proper training from their employer. If you are a minor you are not allowed to be exposed to blood or body fluids while on the job.*

What should you do if you are exposed?

- Wash your skin well with soap and water.
- Flush your nose, mouth or skin with water if they have been splashed.
- If it got in your eyes, irrigate eyes with water or saline.
- Report the exposure.
- Talk to a health care professional to find out what follow-up you need.

B. Small Groups Work on Scenarios (20 minutes)

1. Give students Handout (B) S*cenarios: Blood Exposure in the Workplace*. Divide students into groups of 3-4 students. Ask each group to consider one scenario, and answer the questions.
2. After 5-10 minutes, bring students back together and ask each group to report on their scenario.

Optional Activity

Bloodborne pathogen clean-up kit demonstration

If your room or school has a bloodborne pathogen clean-up kit, you may want to demonstrate to your students what is found in the kit to prevent workers from being exposed to bloodborne pathogens if they have to clean up a spill or an area that has been exposed to bloodborne pathogens. It is important to emphasize to students that all workers, regardless of their age, are not allowed to deal with blood or body fluids without proper training from their employer. Also point out that if they are minors, they are not allowed to be exposed to blood or body fluids while on the job.

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA 29 CFR 1910.1030 Bloodborne Pathogen Code

L&I DOSH WISHA WAC 296-823 Bloodborne Pathogens

Bloodborne Pathogens and Other Infectious Diseases

Bloodborne Pathogens

Bloodborne pathogens are bacteria or viruses that are biological hazards. They can be transmitted by contact with an infected person or from exposure to contaminated body fluids or tissues. Three very serious diseases that can be transmitted by contact with contaminated blood or other body fluids include:

- Hepatitis B
- Hepatitis C
- HIV

Other Infectious Diseases (not bloodborne)

There are other serious infectious diseases that you can be exposed to, but they are not transferred by blood or body fluids. These diseases can be transmitted by skin exposure, inhalation or other methods of exposure:

- Tuberculosis
- Methicillin-Resistent Staph Aureus (MRSA)
- SARS
- Hepatitis A

Doctors and nurses are not the only workers who are at risk of exposure to bloodborne pathogens. Police, firefighters, teachers, first-aid providers, emergency medical technicians, janitors and housekeeping staff, and laundry workers are some of the other workers who might be exposed to bloodborne pathogens at work.

Exposure to bloodborne pathogens in the workplace commonly occurs in these ways:

1. Needle sticks [or punctures from used needles].
2. Cuts from other contaminated sharps such as scalpels or broken glass.
3. Contact of the eye, nose, mouth or cut or abraded skin with contaminated blood or other body fluids.

Work practices can help protect workers against exposure to bloodborne pathogens

1. Using personal protective equipment like gowns, gloves, face shields, eye protection, mouthpieces and resuscitation devices provide a barrier between potential contaminants and the body.
2. Cleaning and decontamination of work surfaces reduce the chances of exposure to a bloodborne pathogen.
3. Thorough hand-washing also reduces the risk of exposure.

You cannot tell by looking at a person whether or not he or she is infected with a bloodborne disease. As a precaution, it's important to treat all blood and other body fluids as if they are contaminated. That's called "universal precautions." It means that you don't touch the blood or body fluids of other people at work.

If you are exposed to a bloodborne pathogen:

1. Wash your skin well with soap and water.
2. Flush your nose, mouth or skin with water if they have been splashed.
3. If it got in your eyes, irrigate eyes with water or saline.
4. Report the exposure.
5. Talk to a health care professional to find out what follow-up you need.

Scenarios: Blood Exposure in the Workplace

1. You work in the laundry department of a nursing home. Used hypodermic needles sometimes show up in the dirty laundry. You have finally decided to talk to the supervisor about this, but you are worried about how to do this, because you don't want to lose your job, or sound like you're complaining about the medical staff.

   a) What do you need to prepare in advance? What do you think possible solutions are?

   b) Will you go by yourself or with co-workers? Why?

   c) What will you say to the supervisor?

   d) If the supervisor doesn't take you seriously, what will you do next?

2. You are a supervisor in a park maintenance program where many young people work. The workers pick up all sorts of trash. You are concerned that someone might get stuck by a used needle, but you think the workers don't take this very seriously.

   a) How can you protect your employees from this hazard?

   b) What kind of training will you provide? What will you say?

3. You work in a restaurant, and usually end up cleaning the bathrooms. They don't seem to get cleaned very often, so they're usually pretty dirty. You're provided with some bleach, but no gloves. You're worried about catching some kind of disease, but don't want to sound like a complainer.

   a) What do you think possible solutions are?

   b) Will you talk to the supervisor? Will you go by yourself or with co-workers? Why?

   c) What will you say?

   d) If the supervisor doesn't take you seriously, what will you do next?

4. One of your co-workers got a bad cut on a piece of glass. He's bleeding badly and you are the nearest person. What will you do?

   a) What will you say to your co-worker?

   b) What help will you give?

   c) What will you not do?

   d) Who else will you call for help?

ERGONOMICS

ERGONOMICS

Learning Objectives

By the end of this lesson, students will be able to:

- Define the terms *ergonomics* and *work-related musculoskeletal disorders*.
- Explain the risk factors for musculoskeletal injuries.
- Give at least three examples of work situations where young workers may be at risk for injury.
- Identify two ergonomic solutions to reduce the risk factors for musculoskeletal injuries.
- Describe and demonstrate the proper way to lift a load.

Time Needed: 65 Minutes

Materials Needed

- DVD: *Ergonomics Awareness*
- DVD player and TV or LCD projector (with speakers)
- Handouts: *Four Steps to Proper Lifting* (A)
  Proper Lifting Evaluation (B)
  Ergonomic Checklist (C)
- 2 to 3 empty boxes
- Reams of office paper
- Unsharpened pencils

Preparing to Teach This Lesson

Before you present this lesson:

1. Locate DVD on CD. Preview the DVD prior to showing to students.
2. Make copies of handouts (A) *Four Steps to Proper Lifting* and (B) *Proper Lifting Evaluation*.
3. Collect boxes for lifting exercises and two reams of office paper per student group.

Detailed Instructor's Notes

A. Introduction: Why is this subject important? (5 minutes)

1. As a warm-up discussion ask students:
   What does the word "ergonomics" mean?

   Ergonomics is the study of how the human body performs tasks, and how to design equipment, or organize the task, to best fit our body's abilities and limits. In the workplace, this means fitting the job to the worker.

   A good example of the early use of ergonomics was in designing the cockpits of airplanes. When you're flying miles above the earth at very high speeds, you want to make sure the con-

trols, visibility, and comfort are as good as they can be so pilots can do their work safely and make the right decisions.

In more typical workplaces, it means setting up the worksite to meet the needs of the workers. In ergonomics, the worker is the central figure. When worksites are designed to suit the needs of the worker there are fewer cases of work-related musculoskeletal disorders (WMSDs), fewer days absent, higher productivity, and more comfortable workers.

2. *Why is ergonomics important?*

   Injuries that result from poor ergonomics are some of the most common and frequent kinds of injuries, and they are found in all kinds of workplaces and occupations. Many of these are musculoskeletal injuries, which we commonly refer to as strains and sprains. These often affect the back but other body parts are also involved such as hands and wrists, shoulder, neck, and knee.

   The rise in the use of computers has contributed to a dramatic increase in injuries due to ergonomic factors. We don't yet know what a lifetime of working on a personal computer does to the body, because we only have about 25 years of experience. Ergonomic-related injuries can be serious and disabling.

   Young people who get back injuries are more likely to have lifelong back problems, which can limit both work and recreational activities.

   Using the principles of ergonomics, it is possible to reduce the risk of injury.

B. DVD and Discussion (25 minutes)

1. Explain that the class will now watch a 14-minute DVD, *Ergonomics Awareness*, created by the Washington State Department of Labor and Industries.

   Ask students to keep in mind these questions while they watch the DVD:

   a. What are the key ergonomic risk factors?
   b. What kinds of jobs have you done that involve these risk factors?
   c. What kinds of changes can be made to protect workers from these risks?

2. Show the DVD.
3. After showing the DVD, discuss the following questions with the class:

   What are the key ergonomic risk factors?

   - Working in awkward positions
   - Using high hand force
   - Performing repetitive motions
   - Using the hand or knee to make repeated impacts
   - Heavy, frequent or awkward lifting
   - Exposure to moderate to high levels of vibration
   - Standing too long in one position
   - Mechanical pressure (leaning against a hard edge)

What kinds of jobs have you done that involve these risk factors?

- Construction: lifting, vibrating tools, awkward positions, pinch grips
- Office work: repetitive keyboarding, lifting, sitting in one position for a long time
- Restaurant work: lifting, standing for long periods, repetitive kitchen work
- Other

6. Explain that the class will discuss these jobs and risks in more detail, along with possible solutions, in a later activity.

C. Experiencing Injury Risk Factors (15 minutes)

Certain body positions and postures are naturally stronger than others. Two exercises will demonstrate this for the hands/wrists and the lower back.

1: Strong and Weak Grips

Grip Strength Tug-o-War

Students pair off and compete in a tug-o-war competition using pencils. Two separate comparisons will illustrate the difference between 1) a pinch grip competing with a power grip and 2) a neutral wrist competing with a bent wrist posture. Students compare their strength using both techniques.

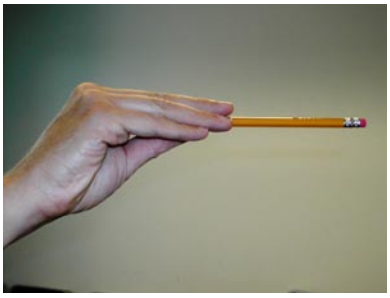


Fig. A

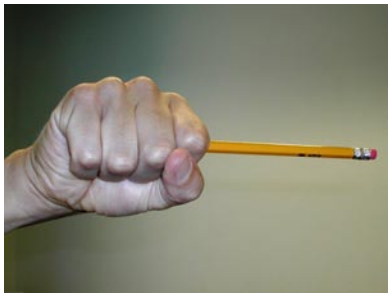


Fig. B

Fig. C

a. The first student holds the pencil in a pinch grip as in figure A. The other student tries to pull the pencil out of the grip. Then the first student holds the pencil in a power grip, figure B. The other student again tries to pull the pencil out of the first student's hand.

Ask students:

Which was easier to pull out, the pinch grip or the power grip? Why?
What does that tell you about doing a task with the hand in a pinch grip rather than a power grip?

The power grip is the stronger grip since all of the fingers and palm are supporting the pencil.

b. Reverse roles and have the second student hold the pencil as in B (power grip with a straight wrist). Now the first student tries to pull it out. Now hold the pencil the same way but bend the wrist forward (down) as far as you can. Student #2 now tries to pull it out again.

Ask students:

Which was easier to pull out this time, straight wrist or bent wrist?
For the student holding the pencil what did it feel like trying to hold it with the wrist bent so far?

The straight wrist is stronger, which is the neutral posture for the wrist. Holding the wrist bent and trying to grip is uncomfortable.

2. Posture, Force, and Effort

Students will lift and hold a box in four positions: without a box, close to their body, mid-way from their body, and low/away from their body. Following the directions on part 1 of Handout (A) *Four Steps to Proper Lifting*, students will assess posture, fatigue, and strength using a 1-10 scale. To set up for this activity, you will need to place two reams of office paper in each box. One ream of office paper weighs approximately five pounds.

Safety Note: Students with back or shoulder injuries should either not participate actively or lift only one ream of paper.




D. Practice Safe Lifting: Lifting Loads at the Pizzeria (20 minutes)

1. Divide students into groups of 2-4. Present them with this scenario:

   You have a new job working in the kitchen of a pizzeria. Every morning boxes of ingredients are delivered to the back door of the kitchen. One of your job duties is to move these boxes into the kitchen. At the end of your shift, you also have to empty all the trash cans and carry the garbage to the dumpster behind the shop. After three weeks on the job, you have noticed that your back has started to feel sore and tired by the end of your shift.

   Give students copies of Handout A, *Four Steps to Proper Lifting* and B, *Proper Lifting Evaluation*.

2. Give each group two or three empty boxes. Tell them their task is to practice lifting and moving the boxes using the techniques from the handout. After reading *Four Steps to Proper Lifting*, each person takes a turn lifting the boxes and moving them to a location you specify. The other students in the small group use the safe lifting checklist from part two of Handout B, *Proper Lifting Evaluation* to evaluate the lift.
3. After everyone is done and you get back together as one group, discuss how it felt to use the proper lifting techniques. The students may say that it feels funny bending the knees

and lifting with the legs. Emphasize that many lifting tasks are not as straightforward as lifting compact boxes. Materials are often bulky, odd-shaped, and too heavy for any one person to lift safely. Sometimes what you're lifting is a person, as in a hospital or nursing home. Here lifting with your knees may be impossible. Therefore it's very important to look for solutions that go beyond proper body movement to protect the health of your back. There are ways to change the workplace or the task to make lifting easier. Ask the students to think of some of these types of changes.

Some examples:

- Store boxes off the ground so they are at a height between the knees and the shoulders, in order to avoid high or low lifts.
- Have orders delivered in smaller (lighter) boxes.
- Use two people to lift.
- Use cranes, dollies, or other lifting devices.

Leave students with the message that good back care is important on and off the job, but it's always important to look at the job and equipment as well as what you can do yourself to protect your back.

Note: If students suggest wearing back belts, tell them that NIOSH (the National Institute for Occupational Safety and Health) does not recommend them. Back belts do not specifically protect the back and may even be hazardous themselves. They may give people the false impression that they can lift more than they should. Following safe lifting techniques is always essential.

E. Optional Activity: Analyzing a task for ergonomic hazards. (15 minutes)

1. Divide the class into groups of three or four. Assign each group one of the jobs mentioned in the previous discussion or a job shown below. Give students Handout C, the *Ergonomics Checklist.*
2. Ask each group to identify all the possible ergonomic risks involved in that job, using the checklist. Suggest that one person in the group mime different aspects of the job, so that the others can observe and identify possible risks. Ask each group to report back the following information:
   - All ergonomic risk factors
   - At least three possible changes that could be made to address those risks.
3. Bring the class back together. Ask each group to report back on their findings.
4. Review key points.

Construction work: fastening down roofing material

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

L&I DOSH WISHA WAC 296-126-096 Lifting

Four Steps to Proper Lifting

FOUR STEPS TO PROPER LIFTING

1. SIZE UP THE LOAD

- Use a hand truck if possible.
- Get help if you need it.
- Check for slivers, nails, exposed staples.
- Use gloves if necessary.
- Make sure you have a clear path to where you are moving it to.

2. LIFT

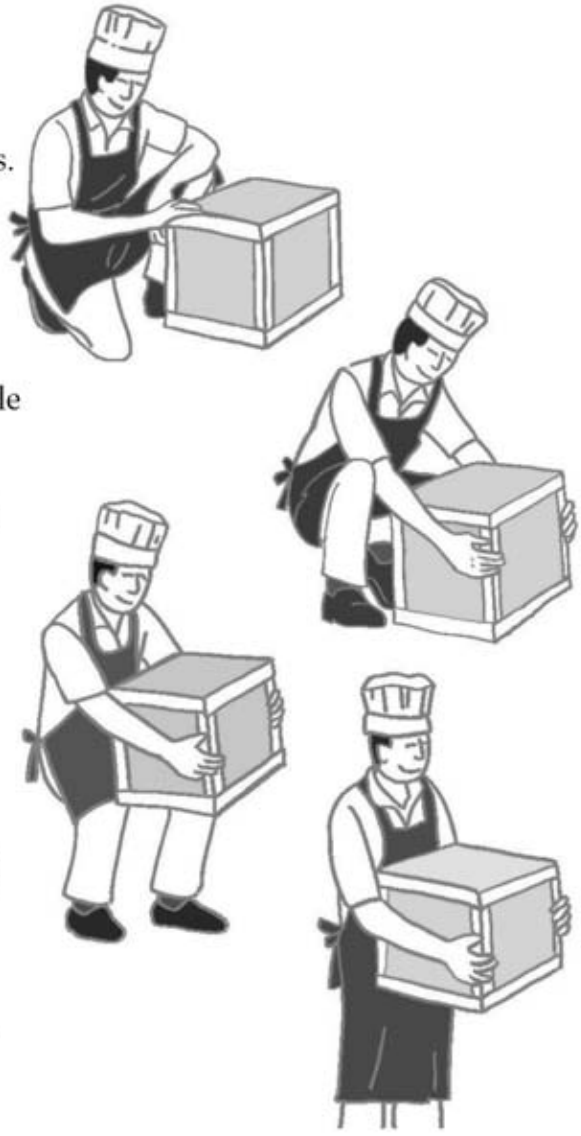
- Bring the load as close to you as possible before lifting.
- Lift with your legs, not your back.
- Keep your head up, your back straight and bend at your hips.

3. MOVE

- Keep the load close to your body.
- Look where you are going.
- Shift your feet to turn, don't twist your body.

4. GET SET AND LOWER

- When setting a load down, let your leg muscles carry it down.
- Make certain your fingers and toes are clear before setting the load down.



Washington State Department of Labor & Industries
Division of Occupational Safety and Health

WASHINGTON RESTAURANT WRA ASSOCIATION

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Proper Lifting Evaluation | Part 1

Posture, Force & Effort

Each partner will take turns lifting and holding the box in different positions. Use the Physical Effort Rating Scale to fill out the table. For each position, provide the Physical Effort Rating and write down where in your body you felt discomfort or fatigue after holding the position for 15 seconds.

Physical Effort Observations

Position	Partner #1	Partner #2
No box Pretend as if you have a box to lift and follow the basic procedure. Stand for 15 seconds before lowering. 	**Rating:** Discomfort/fatigue:	**Rating:** Discomfort/fatigue:
Box held close Lift and then hold the box close, about 1-2" in front of your body at waist level. Do not allow the box to touch or rest on your body. Hold for 15 seconds and then lower the box. 	**Rating:** Discomfort/fatigue:	**Rating:** Discomfort/fatigue:
Box held at the middle distance with slight bend in elbows Lift and then hold the box 8-10" in front of you with elbows bent. Hold for 15 seconds and then lower the box. 	**Rating:** Discomfort/fatigue:	**Rating:** Discomfort/fatigue:
Box held low and far away Hold the box in front of you, about 10-12" off the ground. Hold for 15 seconds and then lower the box. 	**Rating:** Discomfort/fatigue:	**Rating:** Discomfort/fatigue:

Physical Effort Rating Scale

Use this scale to answer the questions above.

10 Very, very difficult
9 Very difficult
8 Difficult
7 Somewhat difficult
6 A little difficult
5 Moderate effort
4 Little effort
3 Very little effort
2 Easy
1 No effort

Safety Note: If lifting and holding the box with two reams of paper is too heavy for you, feel free to remove one ream of paper from the box.

SAFE LIFTING CHECKLIST | PART 2

Watch your fellow students lift the boxes. See if they follow the safe lifting method. Help them if they miss a step.

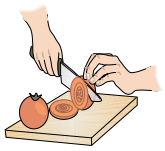
Did they…	Yes	No
Know where the boxes will be placed?		
Check for obstacles and clear a path before moving the material?		
Check the weight of the load before lifting it?		
Have two or more people lift (or use a lift device) if necessary?		
Avoid twisting while carrying?		
Keep the load as close as possible to the body?		
Lift with the legs and not with the back?		
Lift the load slowly, avoiding fast jerky movements?		
Use their leg and back muscles by bending their knees when setting the load down?		

Comments:

ERGONOMICS CHECKLIST

Does the job include any of the following?		Yes	No	Not Sure
	Repetitive bending or turning the wrist in any direction.			
	Frequent reaching forward, behind, or out to the side with one or both arms stretched out.			
	Repeating the same motion over and over.			
	Frequent pinching, pulling or using force.			
	Lifting above shoulder height.			
	Wearing gloves that are too big or too small.			
	Lifting with forceful throwing			
	Exertion of force in awkward postures (to the side, overhead, extended reaches).			
	Lifting objects off the floor.			
	Handling or hard-to-grasp tools or equipment. (Poor handhold? Items difficult to reach?)			

(continued, next page)

Does the job include any of the following?		Yes	No	Not Sure
	Regularly pressing hands or arms on sharp edges			
	Hand tool vibration			
	Cold temperatures			
	Pace of work set by machines			

Adapted from Massachusetts Department of Public Health

WORKPLACE VIOLENCE

WORKPLACE VIOLENCE

Learning Objectives

By the end of this lesson, students will be able to:

- Give at least three examples of work situations where young workers may be at risk for workplace violence.
- Identify five things a store owner/manager can do to make the store less likely to be targeted for a robbery.
- Name at least three actions an employee should be trained to take to reduce the likelihood he/she will be assaulted.
- Name at least three actions an employee should be trained to take to reduce the likelihood of *being injured during* a robbery.

Time Needed: 40 Minutes

Materials Needed

- Video *Is It Worth Your Life?*
- DVD player and TV or LCD projector (with speakers).
- Handouts: *Preventing Injuries from Workplace Violence: Robberies* (A)
  Violence by a Customer or Client Scenario (B) – optional activity D
  Violence by a Co-Worker Scenario (C) – optional activity E

Preparing to Teach This Lesson

Before you present this lesson:

1. Locate the DVD file *Is It Worth Your Life?* on disc and preview prior to showing it to students. Identify potential points to pause the video to elicit class discussion.
2. Make photocopies of handouts you will be using with your students.

Detailed Instructor's Notes

A. Introduction: Why is this subject important? (5 minutes)

1. Explain why this topic is important.
   - Although workplace violence can occur in any workplace, it is common in the types of places in which many teens work because money is present.
   - Every year, about 1.7 million workers are injured during workplace assaults.
   - Every week, more than 10 people in the United States are victims of a homicide in the workplace.

- Homicide is the leading cause of death in the workplace for people under 18 years of age.
- Violence that occurs during a robbery is a major threat to young workers, especially those working in convenience stores, gas stations, restaurants, and other retail businesses.
- The risk of violence during a workplace robbery in retail establishments increases after dark.

B. Video and Discussion (35 minutes)

1. Divide the class into several small groups. Explain that the class will now watch the first three minutes of a video, *Is It Worth Your Life?* which will be stopped from time to time for small group discussion.

2. Before starting the video, ask the class to think about why the store might be an attractive target for a robber while they watch the first minute of the video. Students keep in mind these questions while they watch the first minute of the video.

   Play the first segment (1:30) of the video (until the customer pulls the car out of the parking lot). Stop the video.

   Ask the small groups to discuss and write down their ideas about the following:

   - *What made the store an attractive target for robbers?*
   - *What could be done to make the store a less attractive target?*

   Ask for volunteers to read their group's ideas to the class.

3. Ask the class to think about what the clerk was doing that made him an easy target for robbery while they watch the next segment of the video.

   Play the second minute of the video (until the robber pulls the gun from his belt). Stop the video.

   Ask the small groups to discuss and write down their ideas about the following:

   - *What was the employee doing that made him an easy target for a robbery?*
   - *What could he have done to discourage a robber?*

   Ask for volunteers to read their group's ideas to the class.

4. Ask the class to think about what the store employees did that increased the chances of getting hurt while they watch the next segment of the video.

   Play the third minute of the video (until the robber runs from the store). Stop the video.

   Ask the small groups to discuss and write down their ideas about the following:

   - *What did each of the employees do that might have increased the chances they would be hurt?*
   - *What could each of the employees have done that might have decreased the chances that they would be hurt?*

   Ask for volunteers to read their group's ideas to the class.

5. Show the rest of the video. Point out that there are things that employers and employees can do to reduce the likelihood of being robbed and ways an employee can behave while being robbed that can reduce the likelihood of being hurt. Note that some of the suggestions made by the class were similar to the advice given in the video (if this is the case).

6. Distribute Handout (A) *Preventing Injuries in the Workplace: Robberies*. Summarize the key points (most of which are in the video):
   - The employer/owner of a business—especially one open late at night and/or which handles cash—should take the following steps to make the store environment safer:
     - Have bright lights outside the business
     - Have bright lights inside the business
     - Remove clutter from the windows, so others can see inside easily, like a fishbowl
     - Install surveillance cameras and/or large mirrors so all areas of the store are clearly visible
     - Keep cash in a drop box and post signs saying there is minimal cash in the register
     - Do not keep weapons in the store
     - Post emergency numbers in prominent locations
     - Keep the door to the delivery area locked
     - Have two employees in the store at night
     - Areas where trash bins are located should be well lit.

   - The employer should train employees to take the following actions while on duty to reduce their likelihood of being assaulted:
     - Keep busy when there are no customers; don't sit near the cash register
     - Keep watching the parking lot and call the police about anything suspicious
     - Make eye contact with everyone who comes in the store
     - Put all money in the drop box.
   - The employer should train employees to behave in the following ways if they are robbed or threatened:
     - Cooperate fully and do not argue or challenge
     - Explain each of their actions, avoid surprises, and use a calm tone
     - Hand over the cash
     - Don't try to fight or chase the assailant
     - Lock the door as soon as the assailant leaves
     - Call the police.

C. A Final Note

1. Explain to the class:
   - Robbery is, by far, the most common type of workplace violence
   - The types of places in which young people work, like convenience stores, are common targets of robbers.

2. Point out that there are other types of violence that occur in workplaces. These include customers or clients attacking workers, workers attacking other workers, and intimate partner violence. Discuss examples of each type of workplace violence.

   - Customers or clients attacking workers can include customers in a store, gas station, or restaurant; patients in a health care setting; clients of a business or social service agency.
   - Workers attacking co-workers can include physical violence or threats, bullying, verbal and emotional abuse, and sexual harassment.
   - Intimate partner violence in the workplace typically involves the spouse or partner of an employee coming to the workplace and threatening or attacking the employee with whom they are involved.

Optional Activities

The following activities provide the opportunity for students to explore two of these types of violence in more depth:

D. Preventing Violence by a Customer or Client (20 minutes)

Materials Needed

Handout (B): *Violence by a Customer or Client Scenario*

1. Explain to the class that, after robberies, the most common types of violence that teens face in the workplace are violence by customers and violence by fellow workers (including bullying and sexual harassment). Note that this activity will help them learn about responding to customer-on-worker violence.
2. Distribute and read Handout (B).

   Ask the small groups to discuss and write down their ideas about the following questions:

   - *What could the employer have done to prevent this injury?*
   - *How could the worker respond to avoid being injured?*

   Have one student from each group read the group's ideas to the class.

3. If the students have not mentioned any of these ideas, point out the following:

   The employer could have done the following:

   - Establish a policy that an adult must always be in the office
   - Establish barriers (e.g. a counter with a closed gate) to separate customers or clients from staff

- Tell workers that their safety is more important than other procedures or rules
- Train employees to leave the building or call the police if they feel threatened by a client or customer
- Post the police emergency number (911) at each work station to remind staff to call the police if threatened
- Train employees how to act when confronted with an angry or irrational client or customer in order to defuse the situation and reduce the risk of violence
- Direct staff to call for assistance.

The employee (Jane) could have done the following:

- Called the police
- Left the office
- Stayed seated.

E. Violence by a Co-Worker (20 Minutes)

Materials Needed

Handout (C): *Violence by a Co-Worker Scenario*

1. Explain to the class that, after robberies, the most common types of violence that teens face in the workplace are violence by customers and violence by fellow-workers (including bullying and sexual harassment). Note that this activity will help them respond to worker-on-worker violence.
2. Distribute and read Handout (C).
3. Ask the small groups to discuss and write down their ideas about the following:
   - *What could the employer have done to prevent being bullied/verbally attacked?*
   - *How could the worker respond to avoid being bullied/attacked?*
   - *What can co-workers do when a worker is bullied by another worker?*

   Have one student from each group read the group's ideas to the class.
4. If the students have not mentioned any of these ideas, point out the following:

   The employer could have done the following:

   - Establish a clear policy forbidding violence, abuse, verbal and emotional abuse, and harassment of all kinds
   - Train supervisors and managers to recognize bullying, abuse, and other violations of these policies and know how to respond to violations
   - Train workers about this policy and the ramifications of violating the policy
   - Let employees know that they can come to the store manager or supervisor (or other adult) and confidentially relate any concerns about their own safety or the safety of other employees.

The employee (Guy) could have done the following:

- Told the manager about Frank's behavior
- Told a parent, guidance counselor, or other trusted adult, about Frank's behavior.

The employee's co-worker (Jenna) could have done the following:

- Told the manager about Frank's behavior
- Told a parent, guidance counselor, or other trusted adult, about Frank's behavior.

F. Additional resources

For additional background information on workplace violence, we recommend the following resource:

Violence on the Job: This 21-minute video from the National Institute for Occupational Safety and Health (NIOSH) explores practical measures for keeping employees safe from violence at work. It is available as streaming video, a Flash video download, or on DVD. To stream, download, or order the video (or download a transcript that can be used to enhance your classroom presentation of this material), visit the NIOSH website at http://www.cdc.gov/niosh/docs/video/violence.html.

Another Resource for dealing with robberies and abusive customers:

http://www.lni.wa.gov/IPUB/FSP0-919-000.pdf

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

L&I DOSH WISHA WAC 296-296-832 Late Night Retail Worker Crime Prevention

Preventing Injuries from Workplace Violence: Robberies

Make the work environment safe

The employer/ owner of a business — especially one open late at night and/or which handles cash — should take the following steps to make the store environment safer:

- Have bright lights outside the store
- Have bright lights inside the store
- Remove clutter from the windows, so the store has a 'fishbowl" appearance
- Install surveillance cameras and/or large mirrors so all areas of the store are clearly visible
- Keep cash in a drop box and post signs saying there is minimal cash in the register
- Do not keep weapons in the store
- Post emergency numbers in prominent locations
- Keep the door to the delivery area locked
- Have two employees in the store at night
- Make sure areas where trash bins are located are well-lit.

Engage in safe work practices

The employer should train employees to take the following actions while on duty to reduce their likelihood of being assaulted:

- Keep busy when there are no customers; don't sit near the cash register
- Keep watching the parking lot and call the police about anything suspicious
- Make eye contact with everyone who comes in the store
- Put all money in the drop box.

Know how to react

The employer should train employees to behave in the following ways if they are robbed or threatened:

- Cooperate fully
- Explain each of their actions, avoid surprises/ use a soothing tone
- Hand over the cash
- Don't try to argue, fight, or chase the assailant
- Lock the door as soon as the assailant leaves
- Call the police as soon as the assailant leaves.

Violence by a Customer or Client

Jane is a high school senior with an after school job at a small insurance agency. One afternoon, the office manager left Jane alone while she did errands. A few minutes after the office manager left, a man came in and demanded to see an agent. His face was red and he was clearly angry. He said the company had refused to pay his claim and he wasn't going to be cheated.

Jane told him that none of the agents would be in until the next day, but he could come back or call the next morning. This made him even angrier. He said "I know they're hiding in the back office. I'm going to sit here until they come out." He sat down.

Jane was scared and thought about calling her parents, but she was also frightened that the man would hear what she was doing and get even angrier. The owner of the agency was constantly telling everyone that "the customer is always right."

About two minutes after the man sat down, he jumped up and again loudly demanded to see an agent. Jane told him that there wasn't anyone else there, but the office manager would be back in a couple of minutes.

The man yelled "I know someone is here!" and started toward the back office.

Jane had been told never to let clients into the back rooms alone, so she stood up as he passed her desk and said "Please sir, you aren't allowed back there!"

The man turned and pushed her. She fell backwards over her chair and he ran from the office.

When the office manager returned, Jane was taken to a doctor who discovered that she had a broken wrist.

In your group, discuss the following:

- What could the owner of the agency have done to prevent this injury? Think about the kind of training the employer should provide employees, what rules should be established, and how the office could be set up, in order to increase the safety of the employee.
- How could Jane have responded to avoid being injured?

Violence by a Co-Worker

Guy is a high school junior who works the evening shift in a fast food restaurant. Frank, the evening shift supervisor, was constantly berating the other workers. Frank was especially abusive to Guy.

Frank's abuse never started until after the store manager left for the day. Frank frequently yelled at Guy, belittling him in front of the other workers and the customers, and telling Guy that he was stupid and should be fired.

One evening, Jenna, one of Guy's co-workers and classmates, told Guy that Frank told her that someday he was going to "pop Guy in the mouth." Jenna said that Guy should complain to the store manager. But Guy was worried that if Frank heard that Guy complained, he would become even more difficult.

The next night, as Guy was carrying a tray of milkshakes, Frank approached Guy shouting "You made too many milkshakes. What's wrong with you? You can't do anything right!"

Guy said that "My work is just as good as anyone's, including yours."

In response, Frank knocked the tray out of Guy's hands and walked away.

As Jenna helped Guy clean up, she again told Guy that he should tell the store manager. Guy responded that "He won't do anything."

In your group, discuss the following:

- *What could the restaurant owner/manager have done to prevent this incident? Think about the kind of training the employer should provide employees, what rules should be established, what policies should be in place, in order to decrease workplace bullying and harassment.*
- *What could Guy have done to avoid being bullied/harassed?*
- *What could Jenna have done to help address the problem?*

EMERGENCIES AT WORK

EMERGENCIES AT WORK

Learning Objectives

By the end of this lesson, students will be able to:

- List at least eight types of emergencies that can occur in a workplace.
- Explain what to do in at least three kinds of emergencies.
- Identify important information employers should provide about how to respond to workplace emergencies.

Time Needed: 30 Minutes

Materials Needed

- Handouts: *Disaster Blaster Game board* (A)
  Disaster Blaster Game cards (B)
  Emergencies in the News (C) – optional activity D
  Emergency Action Plans (D) – optional activity D
- One die for each table
- Game pieces (One per team)
- Prizes
- Flipchart & markers, or chalkboard & chalk
- PowerPoint Slide #1: *Key Points: Emergencies at Work*

Preparing To Teach This Lesson

Before you present this lesson:

1. Obtain a flipchart and markers or use a chalkboard and chalk.
2. Locate and review PowerPoint Slide #1. Copy onto a transparency if necessary.
3. For the Disaster Blaster game, copy Handout A (Disaster Blaster Game board), one for each table of four students. Also copy Handout B (Disaster Blaster Game cards), one for each table, and cut out cards so that each table has one deck of 33 cards. Obtain game pieces, dice, and prizes, enough for each table.
4. For the Emergencies in the News activity, copy Handouts C and D for each student.

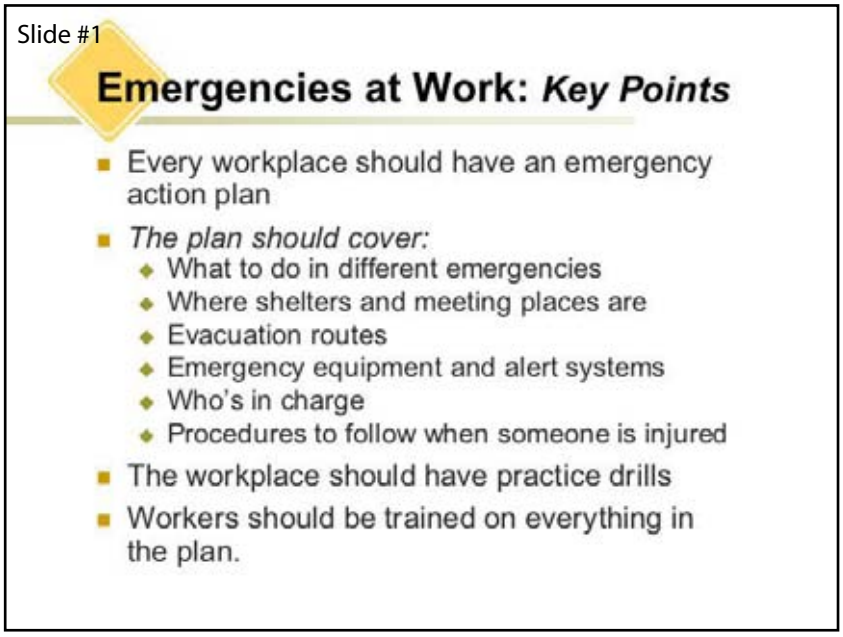
Detailed Instructor's Notes

A. Introduction: What is an emergency? (5 minutes)

1. An emergency is any unplanned event that threatens employees, customers, or the public; shuts down business operations; or causes physical or environmental damage.
2. Tell students that emergencies may be natural or human-caused.

Have students call out examples of emergency events; write their suggestions on the board. Your list may include the following:

- Severe illness or injury
- Tornadoes
- Explosions
- Fires
- Earthquakes
- Toxic releases
- Floods
- Power outages
- Terrorism
- Hurricanes
- Chemical spills
- Violence



3. Show PowerPoint Slide #1. Tell the class that the best way to minimize the effects of an emergency is to know ahead of time what to do if that kind of emergency occurs and then practice the proper procedures. Few people can think clearly and logically in a crisis, so it is important to think through the proper procedures in advance, when you have time to be thorough and to practice. Employers are responsible for telling employees what kinds of emergencies could happen in their workplace and what procedures should be followed for safety. OSHA requires employers to have an Emergency Action Plan that should include information on the following:

- What to do in different types of emergency
- Where shelters and meeting places are located
- Evacuation routes
- Emergency equipment and alert systems
- Procedures to follow when someone is injured or becomes ill
- Who is in charge during emergencies
- Employee responsibilities
- Practice drills.

Employees should receive training about these things and participate in the practice drills. We will spend more time talking about emergency preparedness, Emergency Action Plans, and what employees should expect from employers. If the school has a plan in place, quickly review the procedure for your classroom or building.

B. Disaster Blaster game (20 minutes)

1. Introduce the game. Explain that students will be paired up and will play a board game called Disaster Blaster against another pair of students at their table.
2. Divide the class into groups of four students and assign each group a table. Have each group split into two teams. Pass out Handout A (Disaster Blaster Game board), game pieces, a die, and one deck of Handout B (Disaster Blaster cards cut into 33 cards) to each table.
3. Explain the rules of the game. Tell students that the teams at each table should take turns rolling the die and moving ahead the number of spaces shown. Follow the instructions written on the spaces for moving around the game board. The arrows indicate the direction to move. When a team lands on a blank space, its turn is over.

   Whenever a team's game piece lands on a Disaster Blaster square with a question mark (?), the opposing team picks a Disaster Blaster card from the top of the deck and reads the question on the card to the team whose turn it is. If that team's answer is basically correct, they move their game piece ahead one space. If they do not answer correctly, they remain on the square until their next turn.The opposing team should then read aloud the complete answer.

   Explain that teams may not always know the "right" answer to a Disaster Blaster question, but should use their best judgment. They will learn correct answers while playing the game. The team reaching the finish first wins the game. They receive a prize.
4. Tell teams to begin playing the game. Visit tables to check that students understand the instructions. Distribute prizes to winning teams or play non-competitively and reward all with candy or other prizes. Safety supply companies or fire stations may donate stickers, pencils, erasers, etc. with safety slogans.

C. Review (5 minutes)

1. Tell students that this concludes our lesson on emergency preparedness. Remember that every workplace should have an Emergency Action Plan. The plan should include the following information and workers should be trained about it:
   - Who is in charge during an emergency;
   - Where the shelters and evacuation routes are;
   - Where the meeting places are;
   - What procedures to follow when someone is injured;
   - Where first-aid kits are;
   - Who has first aid training; and
   - How and when practice drills will be conducted.

   Tell students they are entitled to this information whenever they start a new job.

Optional Activity

The following activity provides an additional opportunity for students to explore how to respond to different workplace emergency scenarios more in depth:

D. Emergencies in the news (25 minutes)

1. Tell students that advance planning for emergencies is essential. It can reduce the risk of injuries or death. Your employer should have a written Emergency Action Plan and you should be trained about what to do in the different kinds of emergencies that could occur. Regular practice drills should also be conducted.

Ask the class:

What would you want to know if you were in an emergency situation at work?

Possible answers might include the following:

- What could happen in this emergency and how do I protect myself?
- Will an alarm alert me to the emergency? What does it look or sound like?
- Who is in charge during the emergency?
- Where do I go to be safe? How do I get there?
- If someone gets hurt, what should I do?
- Who in the building knows first aid?
- What are my responsibilities?
- How will I know when the emergency is over?

2. Tell the class they will next work in small groups to read news stories about emergencies that occurred at work, learn how workers responded, and decide what could have been done better to protect workers and prepare them for future emergencies. The groups will present their ideas to the rest of the class.

3. Divide the class into small groups of 4-5 students. Distribute copies of Handouts C and D to each student. Handout C is a set of news stories. Handout D, *Emergency Action Plans*, describes key elements of emergency preparedness.
4. Assign a different news story from Handout C to each small group. Have groups select one person to lead his or her group's discussion by reading aloud the assigned story and the questions at the end. Another student should write down the group's responses to the questions. A third student may be designated to report the group's responses to the class.
5. Give small groups approximately 15 minutes to read their story and answer the questions on Handout C. If they finish early, they may discuss the other news stories on the handout.
6. After 15 minutes, bring the class back together. Have the small groups report on their story, their evaluation of how the workers responded, and steps that could be taken in the workplace to better protect and prepare the workers. Make sure the points following each story are addressed in the small group's presentation. If necessary, add them yourself.

Story A: Grease Fire in Restaurant Burns Employee

A fire erupted at Sunny's Family Restaurant Tuesday night, critically injuring an employee and causing $100,000 worth of damage to the building. The fire was caused when a frying pan, filled with oil heating up on the stove, was left unattended. The fire rapidly spread to dish towels hanging nearby. An employee discovered the scene and attempted to put out the fire by pouring water on the stove, causing the burning grease to splatter his face, arms, and chest. A co-worker, hearing the commotion, called 911 and yelled for everyone to leave the restaurant immediately. The fire department arrived, extinguished the fire, and attended to the burned employee. The victim was taken to Mercy Hospital and is reported to be in serious but stable condition.

What went right in this situation?

- The co-worker called 911 and yelled for everyone to leave the restaurant immediately.

What went wrong in this situation?

- The cook should not have left the stove unattended.
- Dish towels should not be located so close to the stove.
- It doesn't appear the employee who tried to put out the fire was trained.
- The employee should not have tried to put out the grease fire with water.
- A fire extinguisher or baking soda should be used on grease fires.
- It appears there was no smoke detector or sprinkler system.

What steps should be taken in this workplace to make sure employees are better protected and prepared the next time?

- A smoke detector with an alarm and a sprinkler system should be installed.
- Employees should be trained about the hazards of leaving a stove unattended, what type of fire extinguisher to use, how to use it, and to immediately leave the building if a fire begins to get out of control.
- Once everyone is out of the building, the fire department (911) should be called.
- Practice drills should be conducted so everyone knows the evacuation route and where to gather to be sure everyone got out of the building.

Story B: Robber Threatens Young Employee With Gun

A 16-year-old employee of a local convenience store was held up at gunpoint late Thursday night by a masked man demanding money. The employee was working alone and in the process of closing the store for the evening. The employee later reported to police that, after emptying the cash register, the robber tied him up and then left with the money. Although the young employee was shaken up by the incident, he was not physically injured. The name of the young employee is being withheld because of his age.

What went right in this situation?

- The employee cooperated with the robber, which probably kept him from being injured.

What went wrong in this situation?

- The robber was able to tie up the employee and rob the store because security measures weren't in place.

What steps should be taken in this workplace to make sure employees are better protected and prepared the next time?

- Employees, especially young employees, shouldn't be working alone at night.
- There should be a silent alarm in place that would signal police, or there should be a security guard.
- The store should be well lit and have a security camera.
- All employees need to be trained in how to respond during a robbery or other threat.

Story C: Parents Praise Quick Action of Local Teen Parents

Charlene Cook and Kelly Nelson, who have children attending the Happy Go Lucky Day Care Center, called the Daily Times this week to praise the quick action of 17-year-old Tamara Thompson, one of Happy Go Lucky's star employees. Tamara noticed that an entire container of bleach had spilled near the janitor's closet and was giving off fumes in one of the nearby classrooms. Knowing that some of the children have asthma, Tamara walked the children to another teacher's classroom so they wouldn't be exposed. She then rushed back with paper towels to clean up the spill. Unfortunately, Tamara herself suffered breathing problems after cleaning up the bleach and had to be taken to the emergency room to be checked. She is currently at home recovering but plans to return to work when she feels better.

What went right in this situation?

- Tamara made sure the children were not exposed to the spill.

What went wrong in this situation?

- Tamara shouldn't have tried to clean up the spill herself, without being trained in how to do it properly and without the appropriate personal protective equipment.

What steps should be taken in this workplace to make sure employees are better protected and prepared the next time?

- Employees should be trained to leave chemical spills alone and to alert a supervisor so that someone with training and the appropriate personal protective equipment can handle it.
- Caution tape should be used to secure the area so others can't go near the spill.
- Personal protective equipment appropriate for the types of chemicals on site should be available.
- In some situations, it is best to call the fire department to assist with spills.

Story D: Young Construction Worker Falls From Ladder

An 18-year-old house painter, who was painting the second story of a house, fell off his ladder yesterday, breaking both legs. He also suffered severe cuts when he caught his arm on a metal fence during the fall. Coworkers rushed to assist him and called for an ambulance. Local EMTs reported that the co-workers carried the fallen employee to the front lawn and then applied pressure to the open wound to stop the bleeding.

What went right in this situation?

- Co-workers called 911. The co-workers knew to apply pressure to the bleeding wound.

What went wrong in this situation?

- Employees should not have moved the injured worker because more damage may be caused.
- Only trained employees should administer first aid.
- It doesn't appear that the employees wore gloves before touching the bleeding young worker.

What steps should be taken in this workplace to make sure employees are better protected and prepared the next time?

- Employees should be trained to call 911 or medical staff whenever there is an injury.
- Employees should be trained not to move a co-worker with possible broken bones because this can cause more damage.
- Workers should not leave an injured co-worker alone except to call for help.
- There should be a first-aid kit easily accessible and several people should be trained in basic first aid. (Examples of items that should be in a first-aid kit are bandages, antiseptic, aspirin/pain reliever, thermometer, latex gloves, sunscreen, tweezers, scissors, syrup of ipecac (to induce vomiting), sterile gauze pads, tape, and safety pins.)

Story E: 6.1 Earthquake Shakes Local High Rise Office Building

Office workers at R&D Business Solutions huddled under desks and doorways as a 6.1 earthquake shook their building. Once the tremors subsided, they followed lighted exit signs to the stairwell. They made it down ten flights of stairs and outside to the street. Gladys Royce, of Washington Township, whose son, Jason, is an employee of the company, complained that her son, who has Down Syndrome, was left alone to figure out what to do during and after the earthquake. The employees and supervisors had no idea Jason had remained on the 11th floor. The company pledges to take another look at its Emergency Action Plan and make sure the plan protects and prepares all their employees, including those who may need extra assistance.

What went right in this situation?

- There were lighted exit signs.
- Employees took the stairs instead of the elevator.
- Employees didn't panic, so people weren't trampled.
- The company has a written Emergency Action Plan and will be making changes after evaluating what didn't work well.

What went wrong in this situation?

- Jason was left alone rather than assisted to the staircase.
- It does not appear that Jason or the other employees received training or drills in how to respond in the event of an earthquake.
- It doesn't appear that there was a designated meeting place or a procedure for doing a head count to make sure all employees were accounted for.

What steps should be taken in this workplace to make sure employees are better protected and prepared the next time?

- Employees should be trained to get under heavy desks for earthquakes.
- Practice drills should be conducted so everyone knows the evacuation route and where to gather so a head count can be conducted.
- Someone should be responsible for bringing the daily sign-in sheet to make sure all employees have been accounted for.
- The company should consider instituting a buddy system, or some other method, to assure that employees who need extra assistance are able to leave the building safely.

Story F: Tornado Breaks Windows at Local Department Store

A tornado blew through town yesterday, causing major power outages and damage to several buildings, including blowing out most of the windows in Johnson's Department Store on East 8th Street. As glass went flying, employees reportedly herded customers into the center section of each floor in the three-story building. Customer Tom Wilson expressed appreciation for the assistance employees provided in getting everyone away from the windows.

What went right in this situation?

- Employees knew to get people away from the windows.
- Employees took responsibility for getting customers to safety.

What went wrong in this situation?

- The employees and customers should have gone to the lowest place in the building, preferably the basement.

What steps should be taken in this workplace to make sure employees are better protected and prepared the next time?

- Employees should be trained on elements of the emergency plan, such as going to the lowest level of the building during tornadoes or hurricanes and staying away from windows.
- Practice drills should be conducted so employees know the evacuation route and where to gather so a head count can be conducted.
- A supervisor should bring the workplace sign-in sheet to make sure all employees have been accounted for.

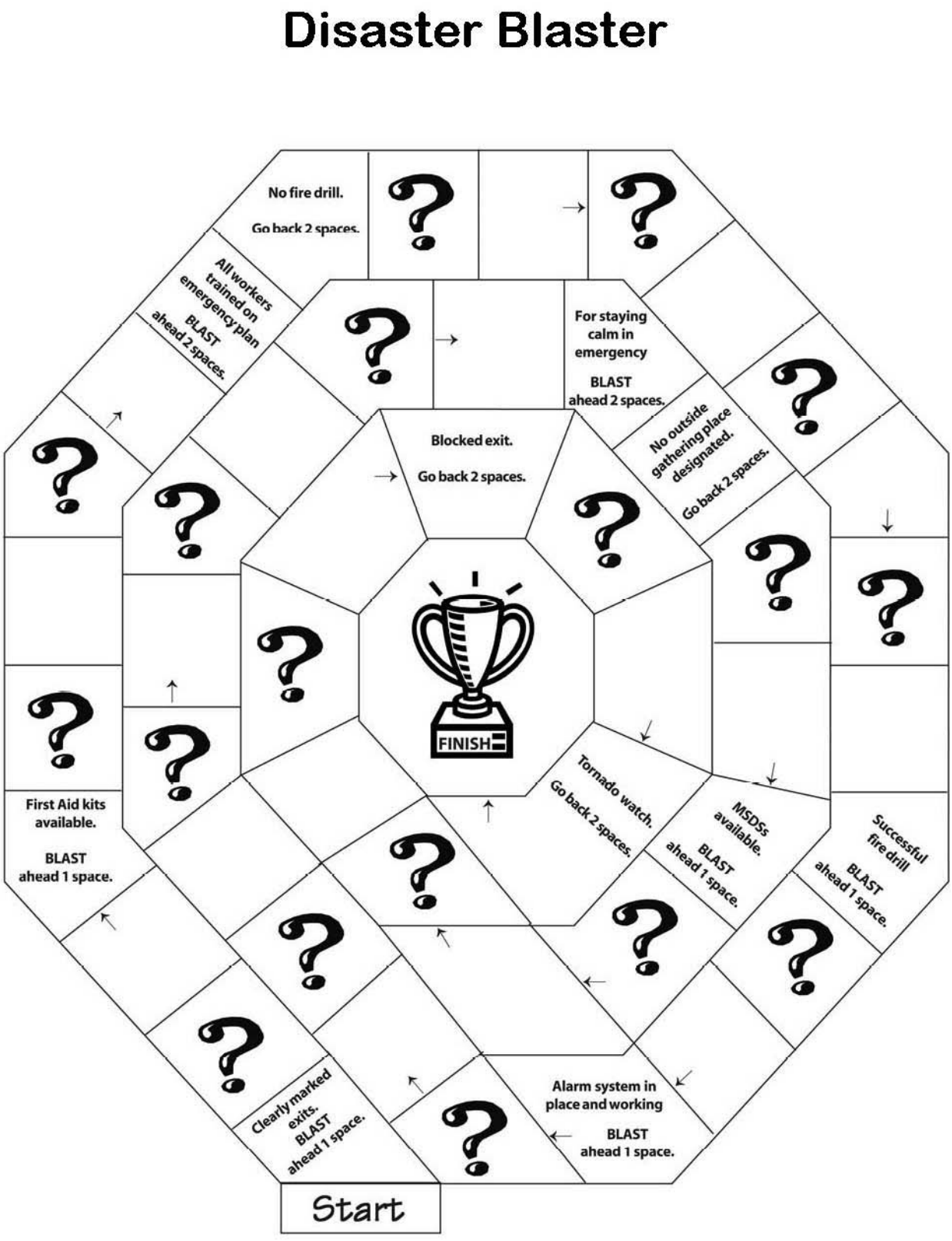
The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA 29 CFR 1910.33 Means of Egress

OSHA 29 CFR 1910.155 Fire Protection

L&I DOSH WISHA WAC 296-800-300 Fire Extinguishers

Disaster Blaster Game Board



Disaster Blaster Game Cards, page 1

Q. If you are inside a building and begin to feel the shaking of an earthquake, what should you do? **A.** Get under something heavy or sturdy like a desk or doorframe.	**Q.** If you are in a building and hear a tornado warning, what should you do? **A.** Go to the lowest level of the building; the basement, a storm shelter, or an interior room without windows.	**Q.** If you smell smoke and suspect a fire burning somewhere in the building, what should you do? **A.** Shut the door, get out of the building, and call the fire department from somewhere else.
Q. If someone comes into your workplace with a gun, what should you do? **A.** Cooperate fully with the gunman's instructions, Don't try to be a hero.	**Q.** If an unknown chemical spills in your workplace, what should you do? **A.** Leave it alone and get your supervisor.	**Q.** How many exit routes must a workplace have? **A.** Enough to allow for safe evacuation of all employees (and customers) but at least two exits.

Disaster Blaster Game cards, page 2

Q. True or False? If you are caught in a fire you should stay close to the ground. **A.** True.	**Q.** What are the steps for using a fire extinguisher? **A.** Pull the pin; aim the nozzle; squeeze the trigger; sweep the extinguisher back and forth over the fire.	**Q.** What phone number should you call to report an emergency? **A.** 911.
Q. What should you do for a severe cut? **A.** Apply pressure to the wound and, if there are no broken bones, elevate the wound above the heart. Seek medical help.	**Q.** What should you do for a very serious second or third degree heat burn? **A.** Call 911. Don't remove clothing if stuck to the burned area.	**Q.** What should be used to put out a grease fire on a stove? **A.** A pan lid or baking soda. Never water or flour.
Q. What should you do if you are in a building and the power goes out? **A.** Stay calm. Look for and follow lighted exit signs.	**Q.** You are driving home from work. It is late and you are on a quiet country road. Your car breaks down. What should you do? **A.** Use your cell phone, if you have one, to call for help. Keep windows and doors locked and wait for police to arrive.	**Q.** You are working on a construction site and a co-worker enters a trench and passes out. What do you do? **A.** Tell a supervisor. Don't go after him; you may become a second victim.

Disaster Blaster Game cards, page 3

Q. A co-worker slips on a slippery floor and hits his head, losing consciousness. What do you do?

A. Don't move him because you may cause more damage. Call for help.

Q. If a co-worker falls off a ladder and injures his back, what should you do?

A. Do not move him yourself (this can cause more damage), and call 911 for an ambulance.

Q. If your clothes catch on fire, what should you do?

A. Stop, drop, and roll; or smother the flames with a blanket. Never run.

Q. What is at least one factor that increases your risk of being robbed at work?

A. Working alone; working at night; access to money.

Q. What letters are on the type of fire extinguisher that can be used in any kind of fire?

A. A–B–C.

Q. What are the information sheets called that provide information about chemical products?

A. Material Safety Data Sheets—MSDSs.

Q. What is at least one item that should be included in an emergency kit?

A. Water; flashlight and batteries; first aid supplies.

Q. What does the skull and crossbones symbol mean?

A. Poison.

Q. If a chemical gets into your eye, what should you do?

A. Flush it with water for at least 15 minutes.

Disaster Blaster Game cards, page 4

Q. What is one security measure that can reduce the chance of workplace violence?

A. Good lighting; a panic button or other communication device; a security guard; a video camera.

Q. Which is more hazardous, a sharp knife or a dull knife?

A. A dull knife.

Q. What two common household cleaning products should you never mix?

A. Ammonia and bleach because chlorine gas is released.

Q. If you hear a hurricane warning on the T.V. or radio it means that a hurricane is expected to reach land within how many hours?

A. 24 hours.

Q. If you are driving to work and see the funnel shape of a tornado approaching, what should you do?

A. Get out of the car and lie down in a low place.

Q. If you are working outside when a lightning storm starts and you can't get to shelter, what should you do?

A. Crouch low to the ground, sit on the balls of your feet, stay away from trees and metal objects.

Q. Name at least two things that should be strapped down in your house or workplace to prepare for earthquakes.

A. Heavy furniture; bookshelves; cupboards; refrigerator; water heater.

Q. What can you use to melt ice on the sidewalks in the winter?

A. (Rock) salt.

Q. Name at least two things that should be in an Emergency Action Plan.

A. Who is in charge; escape routes; training; drills; alarm systems; meeting place.

Emergencies in the News

In your small group, read your assigned news story, then answer the three questions on the other side.

Story A: Grease Fire in Restaurant Burns Employee

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Questions

1. What went right in this situation?

2. What went wrong in this situation?

3. What steps should be taken in this workplace to make sure employees are better protected and prepared the next time?

Emergency Action Plans

Planning ahead can reduce the effects of an emergency on workers, the workplace property, and the surrounding community. In preparing an Emergency Action Plan, an employer can figure out what protections are needed and what procedures should be followed in an emergency. All workplaces should have an Emergency Action Plan.

An Emergency Action Plan should be in writing. It should state who is responsible for coordinating emergency response; where chemicals are stored and where Material Safety Data Sheets (MSDSs) for these chemicals are kept; and how critical operations will be maintained during and after an emergency (if necessary). The plan should also list measures that will be taken to protect employees (including those with physical disabilities).

Training and drills

There should be training and regular practice drills so everyone knows what to do during different kinds of emergencies. Workers should be trained so they understand their responsibilities during an emergency; the alarm system and "all clear" announcements; where to gather during an emergency; how to report an emergency; what to do if there is a chemical spill; and when and how to use emergency equipment.

Alarm systems

These must be seen, heard, and understood by all employees.

Shelters and evacuation

The plan should designate inside shelters, exits, evacuation routes and procedures, and outside meeting places. Shelters inside the building should be identified if tornadoes or hurricanes are a possibility. Exits and evacuation routes should be checked periodically to be sure they are not blocked. Exits should be of sufficient number, width, and location that workers can rapidly evacuate. An outside meeting place should be designated so employees can be counted after evacuation.

Emergency lighting

Exit routes should have emergency lighting in all areas where work is performed after daylight hours.

Emergency equipment

The plan should provide for installation and testing of appropriate emergency equipment such as building sprinkler systems, fire extinguishers, eyewash systems, and safety showers if chemicals are used.

Procedures to follow when someone is injured

First aid kits should be provided, as well as trained personnel to use them. Employees should know who is trained in first aid or CPR, and where to get medical attention if needed.

EXIT ROUTES AND FIRE PROTECTION

EXIT ROUTES AND FIRE PROTECTION

Learning Objectives

By the end of this lesson, students will be able to:

- List or describe the three parts to an appropriate exit route.
- List at least three of the five classes of fire extinguishers and the types of fires they can properly extinguish.
- Describe the basic steps involved in using a fire extinguisher.

Time Needed: 45 Minutes

Materials Needed

- PowerPoints: *No Exit*
  Which Fire Extinguisher
- Handouts: Fire Safety at Work (A)
  Typical Fire Extinguisher Labels (B)
- Printouts: A,B,C,D,K fire extinguisher labels for posting
- Consider inviting a local fire department representative to train students on fire extinguisher use

Preparing to Teach This Lesson

Before you present this lesson:

1. Locate the PowerPoint slides *No Exit* (adapted from the OSHA-10 PowerPoint created by the OSHA Office of Training and Education) and *Which Fire Extinguisher?* on your CD. Review and test the slides in each file.
2. Make student copies of handouts (A) Fire Safety at Work and (B) Typical Fire Extinguisher Labels.
3. Make one copy each of printouts A, B,C, D and K and tape them up on the walls in different locations around the room.

Detailed Instructor's Notes

A. PowerPoint Slide: *Exit Route* (10 minutes)

1. Start the presentation with the following introduction about why this subject is important.
   - Workplace fires and explosions kill 200 and injure more than 5,000 workers each year in the U.S.
   - Two examples of tragic workplace fires:
     - In 1911, 146 workers died at the Triangle Shirtwaist Factory in New York City because fire exits were locked and there was no fire extinguishing system.

       http://en.wikipedia.org/wiki/Triangle_Shirtwaist_Factory_fire

- In 1991, 25 workers died and 54 were Injured in the Hamlet Chicken Processing Plant fire in North Carolina because of blocked or locked fire exits.

  http://en.wikipedia.org/wiki/Hamlet_chicken_processing_plant_fire

- In addition to fire, other kinds emergencies can endanger workers such as explosions, earthquakes, bomb threat, toxic vapors, storms, etc.

2. Use the PowerPoint presentation, *No Exit,* to go over key elements of exit routes and what's required in the workplace.

B. Practice Emergency Exit Drill (10 minutes)

1. Use your classroom and the school to demonstrate exit route principles. Point out your exit route map, exit signs, and a final safe place to debrief. Time how long it takes to get the class out of the building.
2. In the debriefing session, ask the students about some of the main points from the PowerPoint presentation and what they noticed when exiting your building such as:

   What are the three things every exit must have?

   - Access to the exit from inside
   - The exit itself (the doorway)
   - A clear place safe to exit out to (discharge)

   What are important things to look for when checking for adequate exits in your workplace?

   - Enough exits for everyone to get out
   - Well-marked and well-lighted exits
   - Doors can't be locked from the inside
   - Unobstructed exits

C. Understanding fire extinguishers (25 minutes)

1. Distribute the Handouts (A) *Fire Safety at Work* and (B) *Typical Fire Extinguisher Labels.*

   Go over key points, including the importance of using the right fire extinguisher. Remind students that in most workplace settings, the most important thing for employees to know is the procedures in their workplace: who is trained to use a fire extinguisher? what is the alarm system? when and how should employees leave the building? Remind students that if they have not been trained to use the fire extinguisher, at their workplace, they should not use it.

2. "*Which Fire Extinguisher?*" Activity.

   This activity helps students recognize fire types and the appropriate extinguishers. Print out the labels for fire extinguishers (A,B,C,D,K) and place them on the wall around the room.

   Show the PowerPoint presentation *Which Fire Extinguisher?* Each slide has pictures of different types of fires. Instruct the students to point to the proper fire extinguisher type as you present each slide. Discuss the correct answer, which will appear with a mouse click for each picture. Note that combination extinguishers, e.g. ABC, often replace single types today, but for the purposes of this exercise the correct answers are single answers.

3. **Optional Activity:** You may want to invite the local fire department in to train students on fire extinguisher use. This is an excellent hands-on activity. Emphasize that they should not use the extinguisher in their workplace unless they've been trained to do so, but that using an extinguisher is an important skill for everyone to know. Ask them if they have fire extinguishers in their homes.

D. Additional resources

The following websites may help with this module:

OSHA's e-tool for exit routes (with online, interactive demonstrations of the rules):
http:/www.osha.gov/SLTC/etools/evacuation/egress_construction.html

OSHA's website on fire safety: http://www.osha.gov/SLTC/firesafety/index.html

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA 29 CFR 1910.33, Means of Egress

OSHA 1910.155 Fire Protection

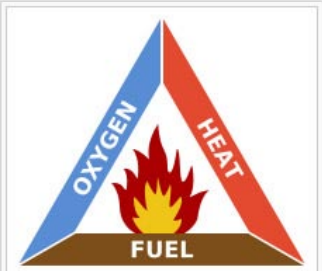
L & I DOSH WISHA WAC 296-800-300 Fire Extinguishers

Fire Safety at Work

Fire is a hazard on any job. Fires can be started many ways. Heating systems, cooking, careless smokers, electricity, appliances, poor housekeeping and the improper storage of chemicals are a few examples. With fires or other emergencies, the primary concern is to protect the building occupants.

Always know the location of escape routes (more than one) and what to do in case of fire or other emergency. If you do not know, ask. Every workplace should post evacuation routes and have exits clearly marked.

For a fire to burn three things must be in place. They are:



The fire triangle.

1. **Fuel: the material which burns.** Solids and liquids do not burn — it is their gases or vapors that burn.When materials such as wood and gasoline are heated to a certain point, they give off vapors. If enough vapor is present and mixed with air, the mixture can be ignited. A flashpoint is the lowest temperature at which there is enough vapor to form a mixture that can produce a flame.

2. **Heat: the means by which the fire is ignited.** This may be from a spark, hot surface, hot air or a chemical reaction.

3. **Oxygen: feeds a fire.** Oxygen is required for a fire to begin and for it to continue to burn.

If one of these three elements is absent, there is no chemical reaction and the fire cannot burn. If you remove one of the three components, the triangle collapses and fire cannot occur. To prevent fires, keep the three components of fuel, heat and oxygen from combining and causing a chemical reaction.

In case of fire…

Firefighting is best done by trained professionals. Only fight a fire if you have been trained to do so and have the proper equipment.

Fires and fire extinguishers are classified by type of fuel:

- **Class A fires** involve ordinary materials like wood, paper, plastic and cloth. Prevent these types of fires by keeping work areas free from litter and placing cleaning rags in special covered containers. When working near a source of heat or open flame, ensure that you keep things that can burn well away from the heat source.
- **Class B fires** involve flammable or combustible liquids, such as paint thinners, grease, gasoline, propane, kerosene, fuel oil, paint and lamp oil. To prevent these types of fires, use the following :
    - Allow machinery to cool before refueling.
    - Do not refuel or pour liquid near an open flame (furnace, barbecue or cigarette).

  - Make sure that the areas where the fuels are stored are well ventilated to prevent the buildup of fumes that could be ignited.
  - Store fuels away from sources of sparks. The containers that the flammable liquids are stored in should be tightly closed and spill proof.

- **Class C fires** are electrical fires involving electrical equipment, switches, and power tools. Prevent these types of fires by keeping electrical equipment in good repair. Do not use equipment that has faulty wiring. Do not overload wall outlets. Use three-prong plugs. Fight Class C fires with a fire extinguishing material that does not conduct electricity. Never use water on fires where there is electricity.

- **Class D fires** involve metals that burn, such as magnesium, potassium and sodium. Special materials, which differ according to the metal involved, are needed to extinguish Class D fires. If you work on a work site with metals that burn, be sure you know what to do in case of a fire.

- **Class K fires i**nvolve cooking oil and greases, such as animal and vegetable fats. Remember K is for kitchen fire. To prevent these types of fires:

  - Don't leave food cooking unattended.
  - Turn pot handles inward to prevent knocking pots over accidentally.
  - Keep stove top clean. Grease can ignite.
  - Roll your sleeves up when cooking.
  - Keep all flammable things, including utensils and potholders, away from open flames.

Fire Extinguishers

Fire extinguishers are rated according to the type of fire (A,B,C,D, K) they are suited to extinguish. The rating should be on a plate on the extinguisher. Do not use a fire extinguisher unless you have been trained to do so.

What should *you* do if there is a fire?

- Always alert emergency response people in the case of fire.
- When you leave a burning room or building, close the door if you are the last one out. This prevents air (oxygen) from reaching the fire.
- Do not use elevators — use the stairs. Stairways should always be kept free of obstacles.
- Stay low to the floor to avoid smoke and toxic gases.
- Try to cover your nose and mouth with a damp cloth.
- Before opening doors, place the back of your hand on them to see if they are hot. If a door is hot, use another exit.

- If you become trapped, seal the cracks around the doors and vents. Look for a telephone, call the fire department and give your exact location. Keep the vents and windows closed but make sure that you can open them to let fresh air in if breathing becomes difficult. Stay low.

Stop, Drop and Roll

If you or a co-worker catch on fire, remember Stop, Drop and Roll.
Stop what you are doing, Drop to the ground and Roll around.
This action will smother the flames and may save your life.

A special fire blanket, a blanket, rug or coat can be used to wrap a person who is on fire.
This will prevent the flames from getting air.

Adapted from Safety and the Young Worker - *Student Manual*, Workers' Compensation Board, Northwest Territories, Canada

Typical Fire Extinguisher Labels

Letter-shaped symbol markings are used to indicate which fire extinguisher to use for each type of fire.

Extinguishers for Class A fires should be identified by a triangle containing the letter "A." If colored, the triangle should be green.

Extinguishers for Class B fires should be identified by a square containing the letter "B." If colored, the square should be red.

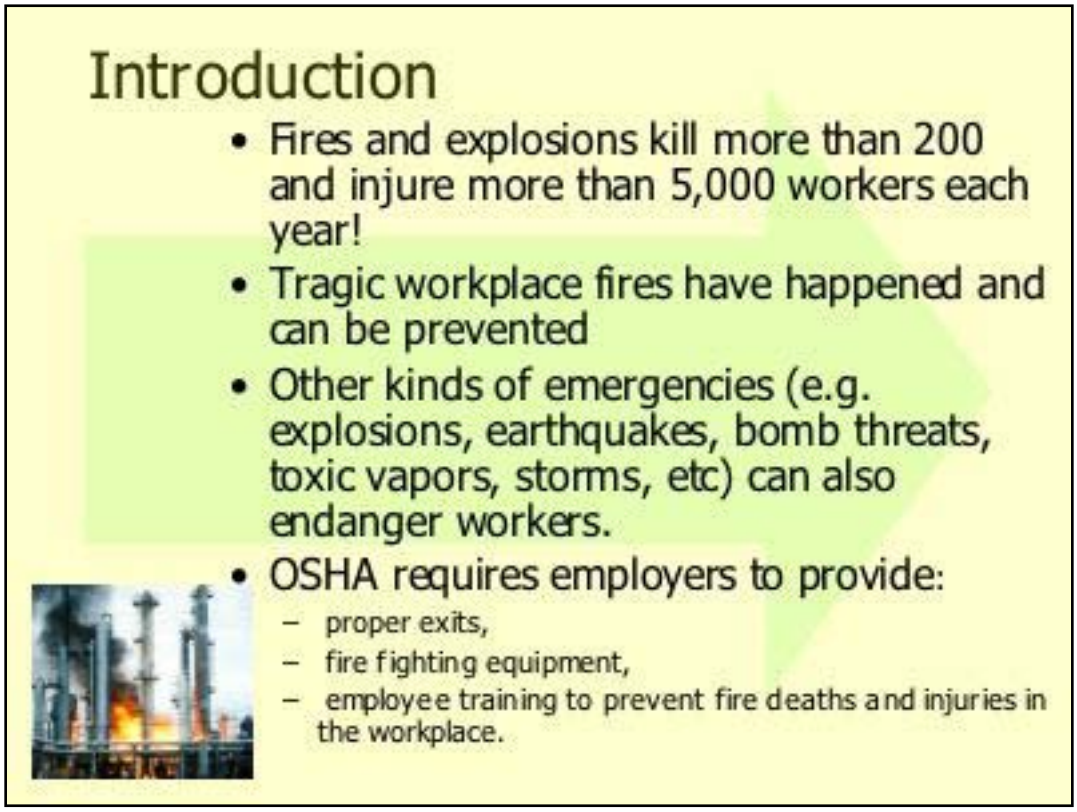
Extinguishers for Class C fires should be identified by a circle containing the letter "C." If colored, the circle should be blue.

Extinguishers for fires involving metals should be identified by a five-pointed star containing the letter "D." If colored, the star should be yellow.

Extinguishers for fires involving cooking oils should be identified by the letter "K." This Is usually not colored.

Extinguishers suitable for more than one class of fire should be identified by multiple symbols placed in a horizontal sequence. For example ABC combination extinguishers are very common for multi-purpose application.

No Exit PowerPoint Presentation



No Exit PowerPoint Presentation

Exit Route

- An exit route is a **continuous** and **unobstructed** path from any point within a workplace to a place of safety
  - includes refuge area
- Exit routes have three parts:
  - Exit access
  - Exit (door)
  - Exit discharge

Basic Requirements

- Exit Routes must:
  - Be permanent
  - Have enough exits for a quick escape
- Exits must be separated by fire-resistant materials
- Openings into an exit must be:
  - limited to those necessary to allow access to the exit or to the exit discharge
  - protected by an approved self-closing fire door that remains closed or automatically closes in an emergency

No Exit PowerPoint Presentation

Exit Discharge Requirements

- An exit discharge must lead directly to safe space
  - Outside, street, walkway, refuge area, public way, or open space with access to the outside
- The safe space must be large enough to accommodate everyone likely to use the exit
- Exit stairs that continue beyond where the exit discharge is located must have some effective means clearly indicating the discharge

Exit Doors Must Be Unlocked

Locked and blocked exit!

Not Allowed!

- Everyone must be able to open exit doors from the inside at all times
  - without keys, tools, or special knowledge
  - may be locked from the inside only in mental, penal, or correctional facilities where there is constant supervision
- Device such as a panic bar that locks only from the outside is permitted
- Must be free of any device or alarm that could restrict emergency use if the device or alarm fails

No Exit PowerPoint Presentation

Minimize Danger to Employees

- Exit routes must be:
  - Free and unobstructed
  - Free of explosive or highly flammable materials
  - Arranged so that employees will not have to travel toward a high hazard area, unless it is shielded
- Emergency safeguards must be in working order at all times
  - sprinkler systems, alarm systems, fire doors, exit lighting, etc.

Obstructed exit route

Exit Marking

- Each exit must be clearly visible and marked with an "Exit" sign
- Each exit must be free of decorations or signs that obscure the visibility of the door
- The line-of-sight to an exit sign must clearly be visible

No Exit PowerPoint Presentation

Exit Marking (cont'd)

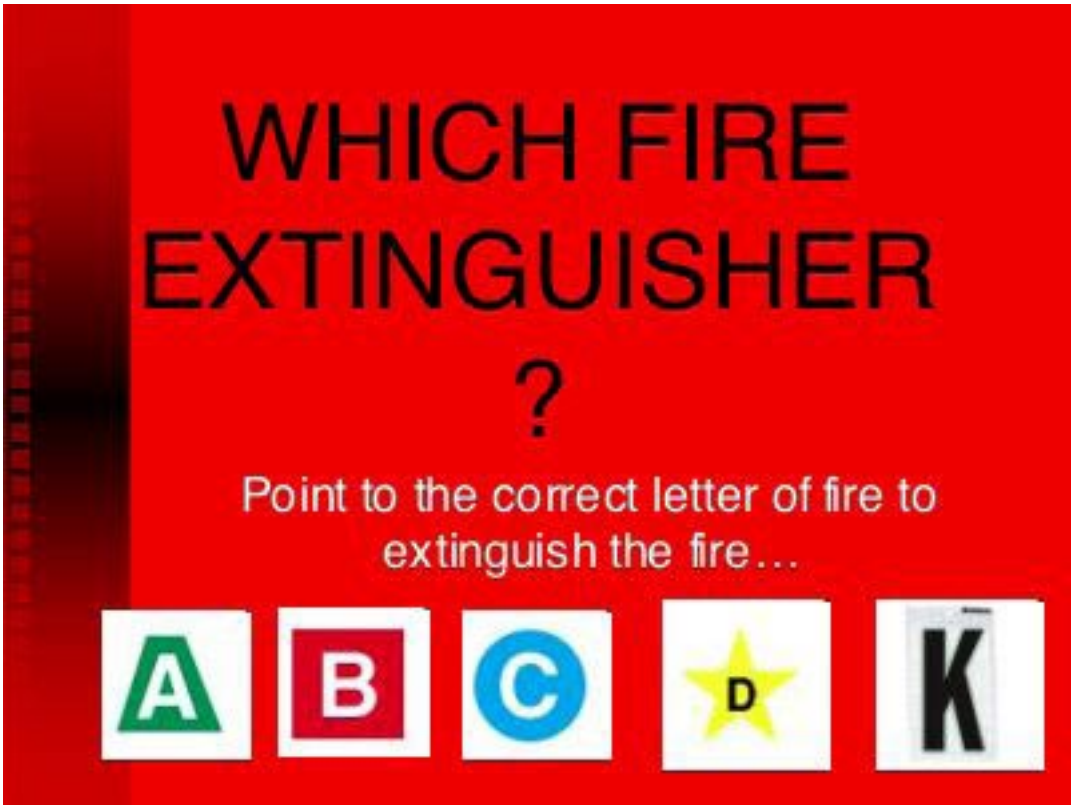
- If the direction of exit travel is not immediately apparent, signs must be posted indicating the direction to the nearest exit
- Doors along an exit route that could be mistaken for an exit must be marked "Not an Exit", or be identified by a sign indicating its actual use (e.g. closet)

Importance of Safe Exit Routes

- Factors that may interfere with safe escape include:
  - Panic
  - Confusion
  - Poor visibility
  - Lack of information
  - Misinformation

- These factors frequently cause more injuries and fatalities than the hazard itself
- Be prepared

Which Fire Extinguisher? PowerPoint Presentation



Which Fire Extinguisher? PowerPoint Presentation


B


A

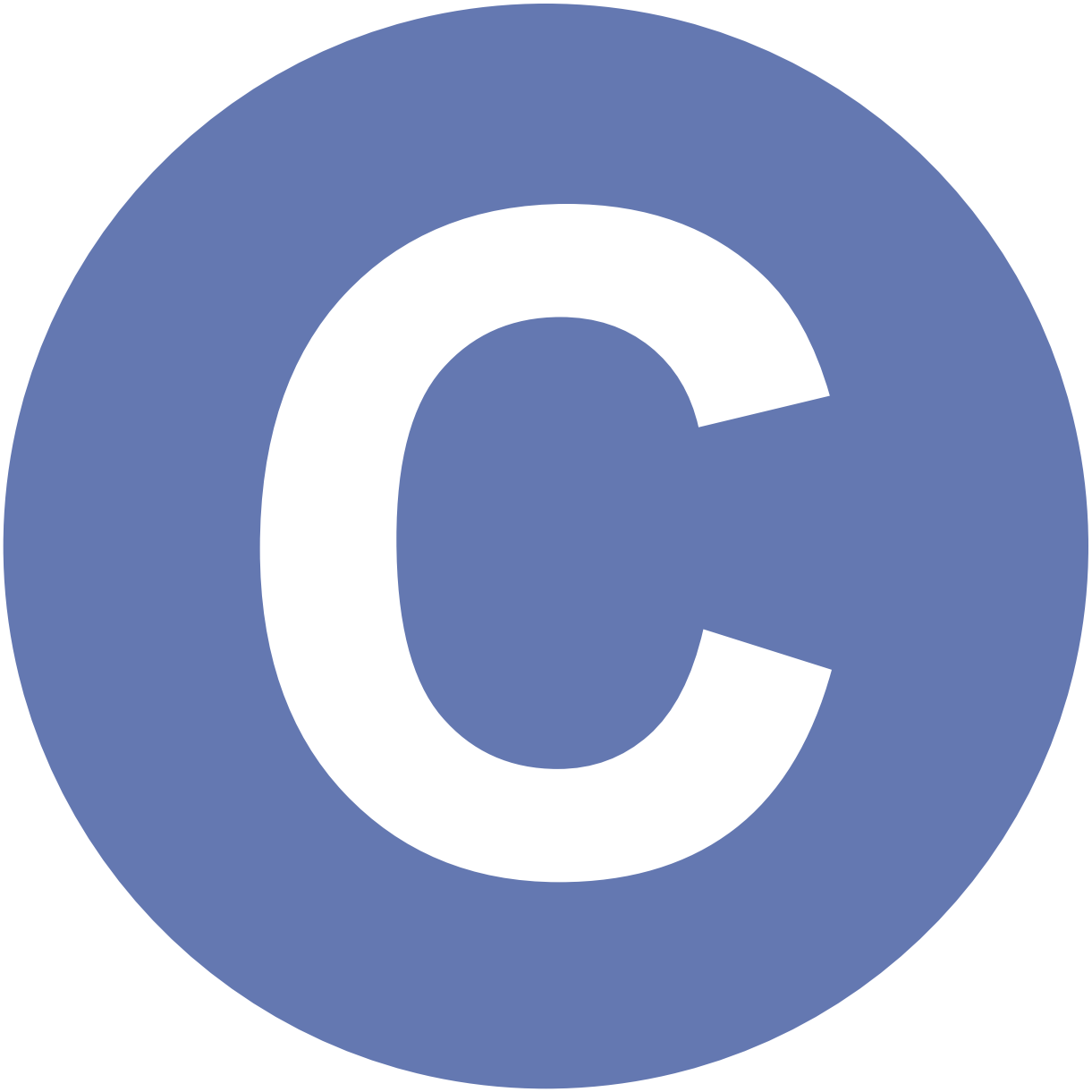
Which Fire Extinguisher? PowerPoint Presentation


C

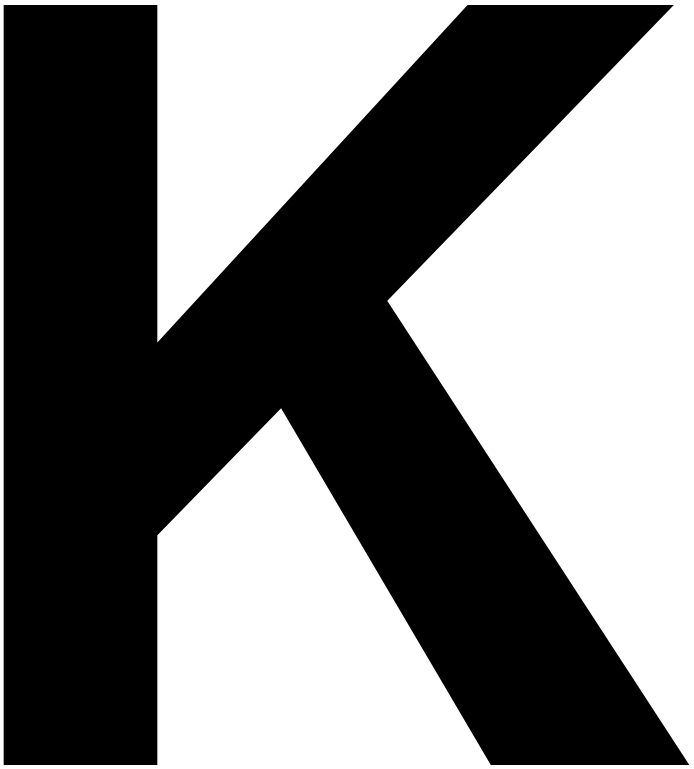

B

Which Fire Extinguisher? PowerPoint Presentation


B


C


D



KNOW YOUR RIGHTS

KNOW YOUR RIGHTS

Learning Objectives

By the end of this lesson, students will be able to:

- Describe the legal limitations on tasks that teens may do on the job, and on the hours they may work
- Identify three health and safety rights and responsibilities that teens have on the job under the OSHA standards or other labor laws
- Identify the government agencies that enforce labor and job safety laws.

Time Needed: 45 Minutes

Materials Needed

- Handouts: *Are You a Working Teen? (A)* or your own state's version
  Labor Law Jeopardy Student Answer Sheet (B)
- PowerPoint Slides #1 Know Your Rights Interactive Jeopardy
  #2 Jeopardy Game Board (for transparency)
  #3 Know Your Rights: Key Points
- Prizes (candy, etc.)

Preparing To Teach This Lesson

Before you present this lesson:

1. Find the correct Handout *(A) Are You a Working Teen?* for your state. The version in this curriculum, and the answers to the Jeopardy questions, are for the state of Washington. However, versions for all 50 states, Puerto Rico, and the Virgin Islands are available on the NIOSH website at:

   http://www.cdc.gov/niosh/talkingsafety

   Click on your state, click on Student Handouts, and scroll down to Handout #12 (p.21 of PDF). Print all four pages. To find answers to the Jeopardy questions for your state, click on Entire Booklet and then scroll down to page 65 (p. 73 of the PDF). Print that page.

2. Find the minimum wage for your state (use an internet search engine or call your state department of child labor.) Check the resource phone numbers and websites on page 4 of *Are You a Working Teen?* and make the necessary changes to the handout or to the Jeopardy answers.

3. Read through Handout (A) and make a copy for each student. Optional: If you want students to write out the answers to each of the questions, make a copy of handout (B) for each student.

4. Locate PowerPoint Slide #1, *Know Your Rights Interactive Jeopardy*, on your CD and test it on your computer. If no computer projector is available, copy PowerPoint Slide # 2 onto a

transparency and use it as your game board on an overhead. You can also draw the game board on a blackboard, whiteboard, or flipchart paper.

Note: When opening up the interactive Jeopardy PowerPoint slide, you will need to click on the Enable Macros button that will pop up on the dialog box in order to play the interactive game.

5. Obtain prizes.
6. Review PowerPoint Slide # 3, *Know Your Rights: Key Points*.

Detailed Instructor's Notes

A. Introduction: Your legal rights (5 minutes)

1. Explain to the class that teens have important legal rights on the job. Child labor laws protect teens from working long or late hours, and from doing certain dangerous tasks on the job. Health and safety laws protect all workers, including teens, from job hazards.
2. Ask the class the following questions to introduce the topic:

   What is the minimum wage in our state?

   Answer: The minimum wage is the lowest hourly wage that employers are allowed to pay their workers. In our state, it is $_____per hour.

   Note: the minimum wage will vary from state to state.

   Note for WA instructors: *In WA the minimum wage changes each year. To find the current wage, go to the Department of Labor & Industries website www.Lni.wa.gov. The minimum wage for 16- and 17- year-old workers is the same as for adults. Workers under 16 may be paid 85% of the adult minimum wage.*

   How late can teens work on school nights?

   Answer: Until _____p.m. if you are 14 or 15 and until _____p.m. if you are 16 or 17.

   Note for WA instructors: *In WA State teens can work until 7 pm if they are 14 or 15, and until 10 pm if they are 16 or 17. There may also be some exceptions for 16- and 17-year-old students. For more information go to www.TeenWorkers.Lni.wa.gov.*

   What agency can you call if there's a health and safety problem on your job?

   Answer: Call your local OSHA office. You can find your local office by calling 1-800-321-OSHA or visiting www.osha.gov.

   Note for WA instructors: *In WA State contact the WA State Department of Labor & Industries, www.Lni.wa.gov or 1-800-423-7233.*

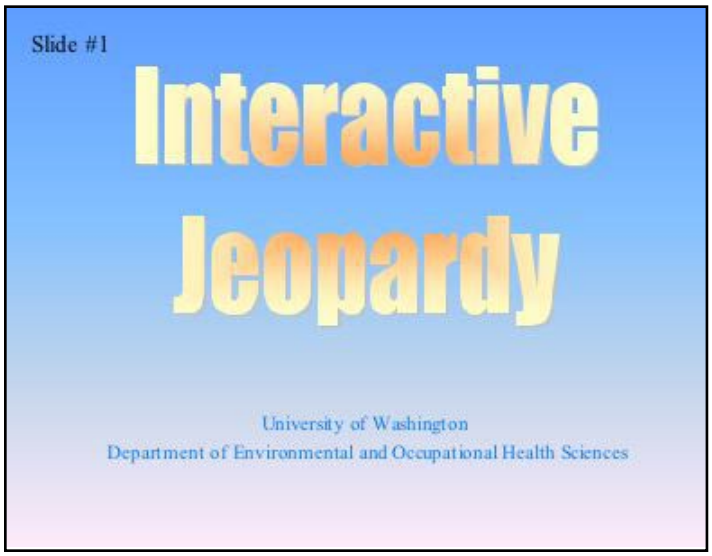
3. If no one volunteers the answers to the above questions, give the class the right answers. Explain that they will get more information on these and other legal rights in the next activity.

B. Review *Are You a Working Teen* (5 minutes)

1. Distribute Handout (A) or your own state's version of *Are You a Working Teen?*
2. Point out the key topics covered in the handout. Tell students this is a summary of their workplace health and safety rights. Tell them to keep this sheet in their binders, as they will use the information during the next several units.

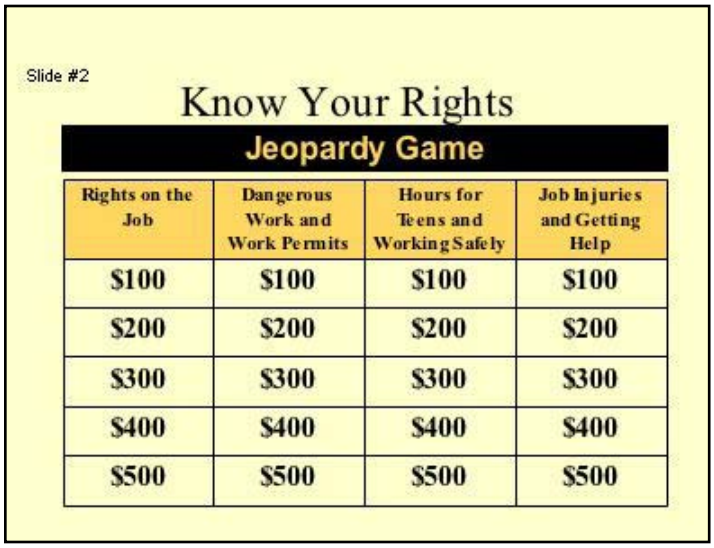
C. "Jeopardy" game (30 minutes)

1. Explain to the class that they will now play a game to review key information about health and safety and labor laws.
2. Divide the class into teams of three to five participants each. You may want to have individual team members try to memorize a specific section of the handout and become "subject matter experts." You may want to have them individually read through the sheet independently for a couple of minutes prior to going through the Jeopardy game activity.
3. Have each team pick a team name. Write the team names across the top of a flipchart or chalkboard, making a column for each team for scorekeeping. The instructor can keep score or ask for a volunteer to be scorekeeper.
4. Project the PowerPoint file with the Jeopardy game.



Note: To use the interactive PowerPoint game board, select a category on the board by clicking on it. After the question comes up, have the team answer the question. If they have answered correctly, click directly on the question and the answer will appear. If not, give other teams a chance to answer. Click on the home button at the bottom of the screen to return to the main game board for the next round of questions.

5. If no computer projector is available, copy PowerPoint Slide # 2 onto a transparency and use it as your game board on an overhead. You can also draw the game board on a blackboard, whiteboard, or flipchart paper.


Slide #2

Know Your Rights

Jeopardy Game

Rights on the Job	Dangerous Work and Work Permits	Hours for Teens and Working Safely	Job Injuries and Getting Help
$100	$100	$100	$100
$200	$200	$200	$200
$300	$300	$300	$300
$400	$400	$400	$400
$500	$500	$500	$500

6. Then explain the rules:

   - Teams may refer to Student Handout (A) *Are You A Working Teen?* to find answers during the game.
   - The first team will pick a category and dollar amount from the game board. The instructor will ask the corresponding question.
   - The team gets approximately 30 seconds to discuss the question and come up with an answer.
   - If the first team answers correctly, they get the dollar amount for that question. The scorekeeper will record it in their column on the flipchart or chalkboard. Then the next team picks a category and dollar amount.
   - If the first team answers incorrectly, the next team in order will be called on to answer the same question. This will continue until a team gets the correct answer. They win the dollar amount. There is no penalty for incorrect answers.

   Note: Don't call on another team if the question is True or False.

   - If all the teams miss a question, the instructor should give the correct answer.
   - Whether a team gets the correct answer or the instructor gives it, take time to explain the answer. Sometimes there are several possible correct answers, or more complete answers.
   - If using an overhead transparency rather that a computer projector, once a question has been answered, cross off that block on the game board. Use a non-permanent transparency marker so the overhead can be cleaned easily.

7. Play the game. At the end of the game, total up the dollar amounts each team has won. Award a prize to the winning team.
8. You may want to have students use the *Labor Law Jeopardy Answer Sheet* (Handout B) blank game board grid to record their answers.
9. The teacher's question and answer key appears on the next page.

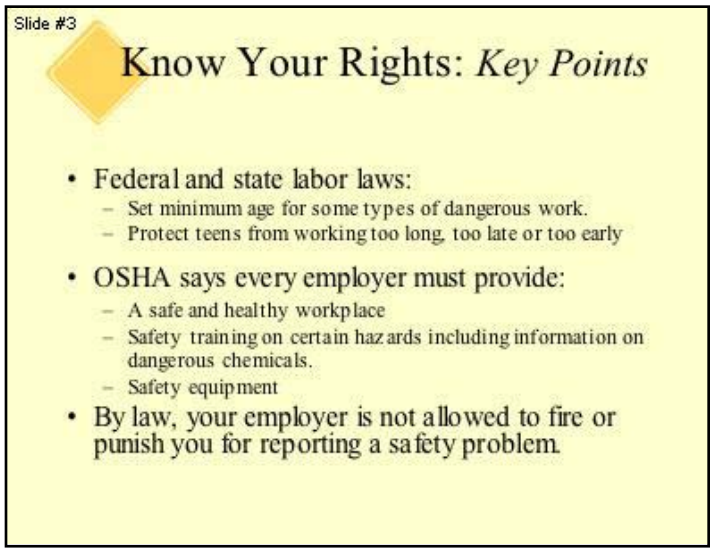
Answer Key

Labor Law Jeopardy
Teacher Question and Answer Key

	Rights on the Job	Dangerous Work & Work Permits	Hours for Teens & Working Safely	Job Injuries & Getting Help
$100	True or False? Your employer can not punish you for reporting a safety problem. *True*	How old do you have to be to drive a forklift? *18 years old*	If you are 14 or 15, how many hours can you work on a school day? *3 hours*	True or False? You can sue your employer if you're hurt on the job. *False*
$200	What is the minimum wage in our state? $_____hour *WA: Check www.Lni.wa.gov for the current minimum wage.*	Name one kind of machinery you can't use if you're under 18. *Power equipment: meat slicer, saw, bakery machine, box crusher.*	If you are 14 or 15, how late can you work on a school night? *7:00 PM*	True or False? Your boss can punish you for getting hurt on the job. *False; it is against the law for your boss to punish or fire you for a job-related injury.*
$300	Name two rights you have if you get hurt on the job? *Payment for medical care; you may also get lost wages.*	If you are under 18 and still in school, what form or permit is needed before you can take a job? _____permit/form *WA: Parent/School Authorization form*	In our state, if you are 14 or 15, how many hours can you work in a school week?_____hours *WA: 16 hours*	In our state, what's the name of the agency that handles workplace health and safety complaints? State agency name: _____ *WA: Dept of Labor & Industries or Washington Industrial Safety & Health Administration*
$400	Name two health and safety protections your employer must provide on the job. *Safe and healthy work-place; safety training; protective clothing; payment for medical care if injured.*	Name one kind of work you can not do if you're 14 or 15. *Baking; cooking; dry cleaning or laundry; using a ladder or scaffold; construction; loading or unloading trucks, rail cars, or conveyors.*	In our state if you're 16 or 17, how late can you work on a school night? _____ PM *WA: 10:00 PM*	In our state what agency enforces the laws about work hours and wages? State agency name: _____ *WA: Dept of Labor & Industries or Washington Employment Standards section.*
$500	Name two rights all workers have on the job? *To report safety problems; to work without racial or sexual harassment; to join a union.*	Name one kind of construction work you can't do if you're under 18. *Wrecking; demolition; excavation; or roofing.*	Name two things you can do to prevent a job injury. *Report unsafe conditions; get safety training; follow safety rules; refuse to do something that is too dangerous.*	Name two things you should do if you get hurt on the job. *Tell your boss; get medical treatment; fill out a claim form.*

E. Review (5 minutes)

1. After playing the game, show PowerPoint Slide #3 and review the key points covered in this lesson.



Federal and state labor laws set a minimum age for certain types of dangerous work. They also protect teens from working too long, too late, or too early.

OSHA says that by law every employer must provide the following:

- A safe and healthful workplace
- Training on chemicals and other health and safety hazards at your job
- Protective clothing or safety equipment that workers need to do the job.

OSHA sets basic workplace health and safety laws. Your state's OSHA program may set more protective or stricter laws than federal OSHA. The US Department of Labor's Wage and Hour Division sets and enforces minimum child labor laws regarding wages, hours, and prohibited occupations and tasks. Your state's labor department may set more protective or stricter laws.

The following OSHA and State of Washington L&I-DOSH-WISHA codes correspond to information in this unit:

OSHA General Industry Safety Rules 29 (Code of Federal Regulations) CFR 1910

L&I DOSH WISHA General Industry Safety Rules (Washington Administrative Code) (WAC 296-24)

L&I DOSH WISHA Occupation Health Rules (WAC 296-62)

L&I DOSH WISHA Core Rules (WAC 296-800)

Are You a Working Teen?

Protect Your Health! Know Your Rights!

Could I Get Hurt or Sick on the Job?

- 18-year-old Sylvia caught her hand in an electric cabbage shredder at a fast food restaurant. Her hand is permanently disfigured and she'll never have full use of it again.
- 17-year-old Joe lost his life while working as a construction helper. An electric shock killed him when he climbed a metal ladder to hand an electric drill to another worker.
- 16-year-old Donna was assaulted and robbed at gunpoint at a sandwich shop. She was working alone after 8 p.m.

Every year nearly **70 teens under 18 die** from work injuries in the United States. Another **84,000 get hurt** badly enough that they go to a hospital emergency room.

Why do injuries like these occur? Teens are often injured on the job due to unsafe equipment, stressful conditions, and speed-up. Also they may not receive adequate safety training and supervision.

Teens are much more likely to be injured when they work on jobs they are not allowed to do by law.

What Hazards Should I Watch Out For?

Type of Work	Examples of Hazards
Janitor/Clean-up	• Toxic chemicals in cleaning products • Blood on discarded needles
Food Service	• Slippery floors • Hot cooking equipment • Sharp objects
Retail/Sales	• Violent crimes • Heavy lifting
Office/Clerical	• Stress • Harassment • Poor computer work station design

What Are My Rights on the Job?

By law, your employer must provide:

- A safe and healthful workplace.
- Training on chemicals and other health and safety hazards.
- Protective clothing and equipment.
- In most cases, at least the Washington minimum wage of $7.63 an hour. A new minimum wage takes effect each year on January 1, based on increased cost of living. 14 and 15-year-olds may be paid 85% of minimum wage.
- Rest and meal breaks.
- Workers' compensation benefits if you are hurt on the job. These include:
  - Medical care for your injury, whether or not you miss time from work.
  - Payments if you lose wages for more than 3 days.
  - Other benefits if you become permanently disabled.

You also have a right to:

- Report safety problems to OSHA.
- Work without racial or sexual harassment.
- Refuse to work if the job is immediately dangerous to your life or health.
- Join or organize a union.

Is It OK to Do Any Kind of Work?

NO! There are laws that protect teens from doing dangerous work.

In Washington no worker under 18 may:

- Drive a motor vehicle on public streets as part of the job (17-year-olds may drive in very limited circumstances)
- Drive a forklift or other heavy equipment
- Use powered equipment like a circular saw, box crusher, meat slicer, or bakery machine
- Work in wrecking, demolition, excavation, or roofing
- Work in logging or a sawmill
- Prepare, serve, or sell alcoholic beverages
- Work where there is exposure to radiation, bodily fluids, or hazardous substances

***Also,* no one 14 or 15 years old may:**

- Do any baking activities
- Cook
- Work in dry cleaning or a commercial laundry
- Do building, construction, or manufacturing work
- Load or unload a truck, railroad car, or conveyor
- Work on a ladder or scaffold

Are There Other Things I Can't Do?

YES! There are other restrictions on the type of work you can and cannot do. **Age 14** is the minimum for most employment, except for informal jobs like babysitting or yard work. Check with your state labor department, school counselor, or job placement coordinator to make sure the job you are doing is allowed.

Do I Need a Work Permit?

YES! If you are under 18 and plan to work, your employer must get a "Parent/School Authorization" form from the Dept. of Labor and Industries, *www.teenworkers.lni.wa.gov*.

What Are My Safety Responsibilities on the Job?

To work safely you should:

- Follow all safety rules and instructions; use safety equipment and protective clothing when needed
- Look out for co-workers
- Keep work areas clean and neat
- Know what to do in an emergency
- Report any health and safety hazard to your supervisor
- Ask questions if you don't understand

Should I Be Working This Late or This Long?

Child labor laws protect teens from working too long, too late, or too early.

This table shows the hours teens may work. (Some school districts may have more restrictive regulations. Also, there are some exceptions for teens in work experience education programs.)

Work Hours for Teens

	Ages 14 and 15	Ages 16 and 17
Work Hours	• 7 am–7 pm, from Labor Day–June 1 • When attendance at school is not required • 7 am–9 pm, from June 1–Labor Day	• 7 am–10 pm year round • 7 am–midnight on Fridays & Saturdays • 5 am–midnight during non-school weeks
Maximum Hours When School Is in Session	16 hours a week, but not over: • 3 hours a day on school days • 8 hours a day Saturday–Sunday and holidays • 6 days a week	20* hours a week, but not over: • 4 hours a day Monday–Thursday • 8 hours a day Saturday–Sunday and holidays • 6 days a week
Maximum Hours When School Is *not* in Session	• 40 hours a week • 8 hours a day • 6 days a week	• 48 hours a week • 8 hours a day • 6 days a week

* 16 and 17-year-olds may work up to 28 hours a week with written parental and school consent.

What If I Get Hurt on the Job?

- Tell your supervisor right away. If you're under 18, tell your parents or guardians too.
- Get emergency medical treatment if needed.
- Your employer must give you a **claim form**. Fill it out and return it to your employer. This helps ensure that you receive workers' compensation benefits.

Workers' Compensation: Did You Know?

- You can receive benefits:
  - Even if you are under 18.
  - Even if you are a temporary or part-time worker.
- You receive benefits no matter who was at fault for your job injury.
- You don't have to be a legal resident of the U.S. to receive benefits.
- You can't sue your employer for a job injury (in most cases).

You have a *right* to speak up!

It is illegal for your employer to fire or punish you for reporting a workplace problem or injury, or for claiming workers' compensation.

The information in this factsheet reflects your state and/or federal labor laws, whichever are more protective. The more protective laws usually apply. Check with your state agencies listed at the right.

What If I Have a Safety Problem?

- Talk to your supervisor, parents, teachers, job training representative, or union representative (if any) about the problem.
- For health and safety information and advice, call the National Young Worker Safety Resource Center. Many materials are available in Spanish.

  ☎ (510) 643-2424 *www.youngworkers.org*
- If necessary contact one of these agencies.

To make a health or safety complaint:

- OSHA (Occupational Safety and Health).
  ☎ (800) 321-OSHA (6742)
  www.osha.gov
- Dept. of Labor & Industries
  Washington Industrial Safety & Health Administration (WISHA).
  ☎ (800) 423-7233
  www.Lni.wa.gov/safety

To make a complaint about wages or work hours:

- Dept. of Labor & Industries
  Washington Employment Standards Section
  ☎ (866) 219-7321
  www.teenworkers.Lni.wa.gov
- U.S Department of Labor
  ☎ (866) 487-9243
  www.wagehour.dol.gov

To make a complaint about sexual harassment or discrimination:

- Washington State Human Rights Commission
  ☎ (800) 233-3247 *www.hum.wa.gov*
- U.S. Equal Employment Opportunity Commission
  ☎ (800) 669-4000 *www.youth.eeoc.gov*

For information about benefits for injured workers:

- Dept. of Labor & Industries
  Washington Industrial Insurance Services
  ☎ (800) 547-8367
  www.Lni.wa.gov/ClaimsIns

Labor Law Jeopardy Answer Sheet

	Rights on the Job	Dangerous Work & Work Permits	Hours for Teens & Working Safely	Job Injuries & Getting Help
$100				
$200				
$300				
$400				
$500				

OSHA: PROTECTING WORKERS' HEALTH AND SAFETY

OSHA: PROTECTING WORKERS' HEALTH AND SAFETY

Learning Objectives

By the end of this lesson, students will be able to:

- Define the acronym "OSHA," explain what OSHA does, and name the agency responsible for workplace health and safety in your state.
- Describe or state where to find out more about OSHA, OSHA standards, and where to seek OSHA help, including the website and the hotline.
- Discuss the benefits of an effective safety and health program, including roles for employee involvement.
- Name four elements of an effective safety and health program.

Time Needed: 30 Minutes

Materials Needed

- Internet access to the OSHA website
- Computer(s) to explore the website
- Handouts *OSHA Website Worksheet* (A)
  OSHA Inspection Information Worksheet (B)
- Consider inviting an OSHA representative to present to the class (optional)

Preparing to Teach this Lesson

Before you present this lesson:

- Locate and review the sections of the OSHA website identified in activity C prior to teaching the lesson.
- Sign up for computer lab ahead of time if your room has limited internet access.
- Make photocopies of handouts you will be using with your students.
- Locate and review the sections of the OSHA website identified in activity C prior to teaching the lesson.

Detailed Instructor's Notes

A. Introduction: Why is this subject important? (5 minutes)

1. Discuss why OSHA is important.
   - Workplace injury and illness is an enormous problem:
     - Each year approximately 6,000 US workers die from injuries and 50,000 die from illnesses related to work; 6 million workers suffer non-fatal workplace injuries
     - Young and new workers are injured at higher rates than older and more experienced workers
   - OSHA plays a key role in addressing this problem:
     - Since 1970, the fatality rate has been cut in half under OSHA's watch
     - In industries where OSHA concentrates its attention, there are reduced overall injury and illness rates

B. What OSHA does (10 minutes)

1. OSHA's role:
   - OSHA is both a federal law and the name of an agency. The Occupational Safety and Health Administration (OSHA) is an agency of the United States Department of Labor. It was created by Congress under the Occupational Safety and Health Act on December 29, 1970. Its mission is to prevent work-related injuries, illnesses, and deaths by issuing and enforcing rules (called standards) for workplace safety and health.
   - Depending on the state, either federal OSHA or a comparable state agency carries out the law. In Washington State, for example, the Division of Occupational Safety and Health (DOSH) in the Department of Labor & Industries has this role. A state that takes responsibility must have standards and enforcement that are at least as effective as federal OSHA standards.
   - OSHA has a number of responsibilities:
     - OSHA encourages employers and employees to reduce workplace hazards and to create or improve health and safety programs in the workplace
     - OSHA also develops and enforces mandatory job safety and health standards (regulations) in several areas:
       - General industry
       - Construction
       - Maritime
       - Some agricultural activities
     - Even when there is no specific standard for a hazard, under the federal OSHA law every employer is required to "furnish...a place of employment that is free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees." This is called the "General Duty Clause," and it protects all workers.
       - OSHA operates a reporting and recordkeeping system to keep track of job-related injuries and illnesses
       - OSHA provides information, technical assistance, training, and other support to help employers and workers.
2. OSHA provides a framework, but in the workplace every employer must have its own health and safety program. Good programs do the following
   - Prevent injuries (pain, suffering, need for workers' compensation)
   - Increase employee morale
   - Increase productivity

   Health and safety programs that work have these things in common:
   - Commitment from management
   - Employee involvement in identifying problems and solutions
   - Hazard analysis (surveys, checklists) in the workplace
   - Plans for addressing the hazards
   - Strong communication at all levels of the workplace.

C. Review the OSHA website (20 minutes)

Instructor's note: If the classroom has good Internet access and there are enough computers for all students to participate, consider doing one of the following exercises as a classroom activity. If Internet access is limited, demonstrate the website to the students and assign one of the exercises as a homework assignment.

1. There are 2 ways to contact OSHA. One way is by phone (call 1-800-321-OSHA). The other way is through the OSHA website. The OSHA website has an enormous amount of information. Starting with the home page (www.osha.gov), click on the "Workers" link on the left side of the page. Ask students to find the following and complete the worksheet at the end of this module:
   - Determine if their state has a state OSHA program (24 states plus Puerto Rico and US Virgin Islands do)
   - Find the contacts for the state plan or for federal OSHA in their state

   - Find information about the safety and health rights of workers
   - Find how to file a complaint with OSHA

2. Now click on the Teen Workers link on the left side of the page and have students answer the next question on the worksheet;

   What are the leading causes of deaths on the job for teen workers?

   - Point out "Potential Hazards: Real Stories," about halfway down the teen worker page, for stories of real accidents to young workers in a variety of industries. Discuss the resources and information on the site.
   - Find the link to the Teen Worker Safety in Restaurants e-tool on the Teen Worker page and go there. Move the cursor around to discover the different hazards and resources and learn how an e-tool works. Answer the last question on the worksheet.

3. Optional activities for classroom or homework assignment.

   Instructor's note: The OSHA website can answer many other questions, but you must know how to search it. The following activity will allow students to look deeper into specific workplaces and standards, but this will take more time and may sometimes lead to dead ends. However, these activities can also turn up information directly related to workplaces that the students know about.

Optional Activity:

Finding information about a specific workplace.

Almost every workplace that OSHA has inspected will have a record that can be accessed through the OSHA website. Students should choose a workplace where they have worked or where a parent has worked. If none of these produce a hit in the OSHA database, they can try the school itself or a well-known establishment in the area. You may want to look in the database beforehand and identify a few well-known businesses that have been inspected. Suggest students check these if they don't find any on their own. To access the inspection information do the following:

- On the OSHA home page (www.osha.gov) go to the right hand column to Statistics/ Inspection Data
- Click the "Establishment Search" link
- Type in the name of the establishment you are interested in. The search needs to match the name in the data base, so you may need to try different terms. Choose the state and the date range you want. A wider date range will increase the likelihood of finding an inspection.
- Once students have found a workplace with a record, they should answer the following questions:

  a. Name of company _____

  b. When was it inspected _____

  c. Why was it inspected? Was it following an accident or injury? Was it in response to an employee complaint? _____

  d. Were any violations of OSHA standards found? If yes, what hazards or rules did the violation pertain to? _____

  e. How serious was the violation? Did the employer have to pay a fine? _____

  _____

OSHA Website Worksheet

Answer the following questions by starting at www.osha.gov and following the right links.

1. Does the state where you live have a state OSHA plan?

   If yes, what is the main contact information for the state OSHA agency?

2. List at least four of the main worker safety and health rights under OSHA:

   a. _____

   b. _____

   c. _____

   d. _____

3. How can you file a complaint with OSHA?

4. In the restaurant e-tool, what are the hazards that seem to be common regardless of what job or part of the restaurant you're working in?

OSHA Inspection Information Worksheet

1. Name of company _____

2. When was it inspected?_____

3. Why was it inspected? _____

_____

Was it following an accident or injury? _____

Was it in response to an employee complaint? _____

4. Were any violations of OSHA standards found? _____

If yes what hazards or rules did the violation pertain to?_____

_____

_____

_____

_____

_____

How serious was the violation? _____

Did the employer have to pay a fine? How much? _____

TAKING ACTION

TAKING ACTION

Learning Objectives

By the end of this lesson, students will be able to:

- Apply safety and child labor laws to real life situations
- List three ways to get information and help on health and safety problems
- Discuss several appropriate ways to approach supervisors about problems.

Time Needed: 50 Minutes

Materials Needed

- Flipchart and markers or chalkboard and chalk
- PowerPoint Slide #1 - *Handling Workplace Safety Problems*
  PowerPoint Slide #2 - *Summing it Up*
- Handouts: *Are You a Working Teen* (A) (See the Know Your Rights module)
  Chris's Story (B)
  Role Play Solution Planning Sheet (C)

Preparing To Teach This Lesson

Before you present this lesson:

1. Obtain a flipchart and markers or use a chalkboard and chalk.
2. Locate PowerPoint slides #1 and #2 on your CD. Copy onto transparencies if needed.
3. Make extra copies of Handout (A), the handout used during the Know Your Rights unit, in case students haven't saved their copies.
4. Photocopy Handout (B) for your students.

Detailed Instructor's Notes

A. Introduction: Steps in problem solving (10 minutes)

1. **Introduce the topic.** Explain that the class will now learn and practice what to do when a safety problem comes up at work. They will also use some of the skills learned in earlier lessons, such as identifying hazards, controlling them to prevent injuries, understanding legal rights, and knowing where to go for help. It may be helpful to affirm to your students that young workers typically try hard to do a good job for employers. Unfortunately this can get students in trouble if the employer takes advantage of their willingness to do anything, even things that are not legal for them to do or for which they have not been correctly trained. Most employers won't purposely put students in danger, but there are far too many cases where employers allowed an eager young worker to do a task that was beyond his or her training. The results have been fatal. See the stories in Lesson 3 for examples.

2. **First, ask students the following question:**

   Has anyone had any kind of problem at work, or a problem that someone you know has had, that you want to share with the class? It doesn't need to be a health and safety problem.

   Then ask those who responded:

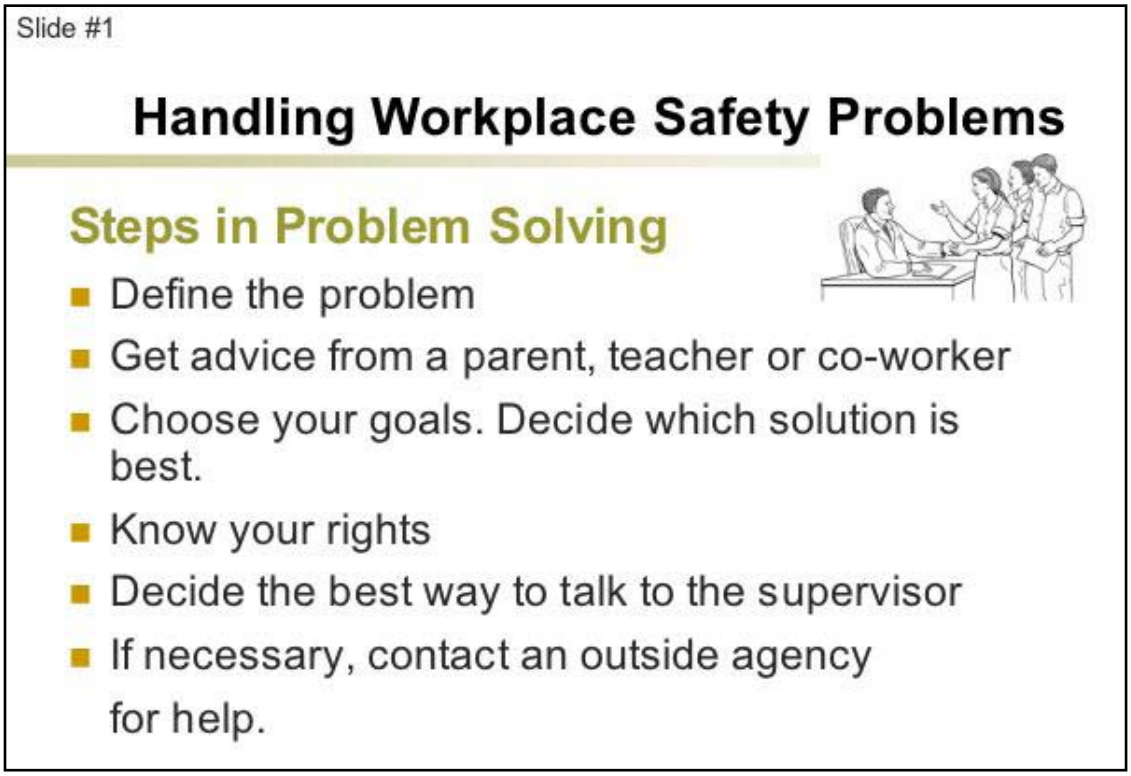
   What steps did you or the person take to solve this problem?

   Ask the whole class:

   What other steps do you think someone with this problem could take?

   As students answer, make a list on the board of the steps they mention. Although you will be listening to students' particular experiences when making this list, try to keep the steps you list general enough to apply to a range of possible problems.

3. PowerPoint Slide #1 shows some of the steps involved in solving workplace problems (both safety problems and other kinds). Discuss these steps with the class.



Note : You may want to wait to go over these steps until after students have had the opportunity to develop and demonstrate their own steps as part of the Chris role-play exercise.

- Define the problem or problems: Being able to describe the problem clearly is the first step toward solving it.
- Get advice from a parent, teacher, or co-worker: If there is a union at the workplace, the student may also want to ask them to help.
- Choose your goals: Students should think about what needs to happen to fix the problem; write down possible solutions.
- Know your rights: Students should become familiar with the hours they are allowed to work and the tasks that teens are not allowed to perform. Students should also become familiar with their safety rights.
- Decide the best way to talk to the supervisor: What should be discussed? Who should go along?
- If necessary, contact an outside agency for help: If the student continues to have trouble after talking to the supervisor, the student may need to call the appropriate government agency. If the problem is a workplace safety or health problem, contact OSHA or your state OSHA agency.

B. Role play: Chris's story (30 minutes)

1. Pass out copies of Student Handout (B) Chris's Story.
2. Ask for volunteers to play the roles of Chris, Mr. Johnson, and Dana. Have the volunteers come to the front of the class and read their parts aloud to the class.
3. Ask students what laws were violated in the story. Suggest they look at Handout (A) if necessary. As volunteers answer, write their responses on flipchart paper.

   Possible answers include the following:

   - Chris was not given information about the cleaning chemicals.
   - The employer didn't give Chris protective clothing (gloves).
   - No worker under 18 may use a meat slicer.
   - No one who is 14 or 15 may work that late on a school night.
   - Some students may interpret Mr. Johnson's comments as a threat to fire Chris if she won't stay and work. An employer may not threaten to fire someone because they won't do something illegal or unsafe.
4. Divide the class into groups of 3–6 students Use groups of mixed ages if possible.
5. Explain that each group should come up with an alternate ending to Chris's Story, showing what Chris could have done about the health and safety problems. Assign each group one issue in the story to focus on (for example, working too late, working around chemicals, or using the meat slicer).
6. Encourage groups to think about these questions:
   How should Chris approach the supervisor about this problem?
   What are the different ways the supervisor might respond?
   Where else could Chris get help?

7. Groups may refer to Handout (A) if necessary. Explain to the students that they will be role-playing the alternate endings they've come up with; they should assign parts, decide roughly what each person will say, and take notes if necessary.

8. After about 15 minutes, bring the class back together.

9. Ask several of the groups (or all, if there is time) to act out their alternate endings to the Chris's Story skit.

   Possible endings include the following:

   - Chris asks a co-worker, friend, parent, or teacher for advice.
   - Chris tells the supervisor she is uncomfortable with the late hours and prohibited duties.
   - Chris asks a union or community organization for information on workers' rights.
   - Chris quits the job because of the long hours or other inappropriate requests.
   - Chris refuses to use the meat slicer because, by law, he/she is too young.
   - Chris files a complaint with OSHA or the labor law enforcement agency.

10. Ask the class to comment on how effective each group's ending is.

    Questions to consider include the following:

    How serious is the problem?

    Is it urgent to get it corrected?

    Will any of these approaches endanger Chris's job?

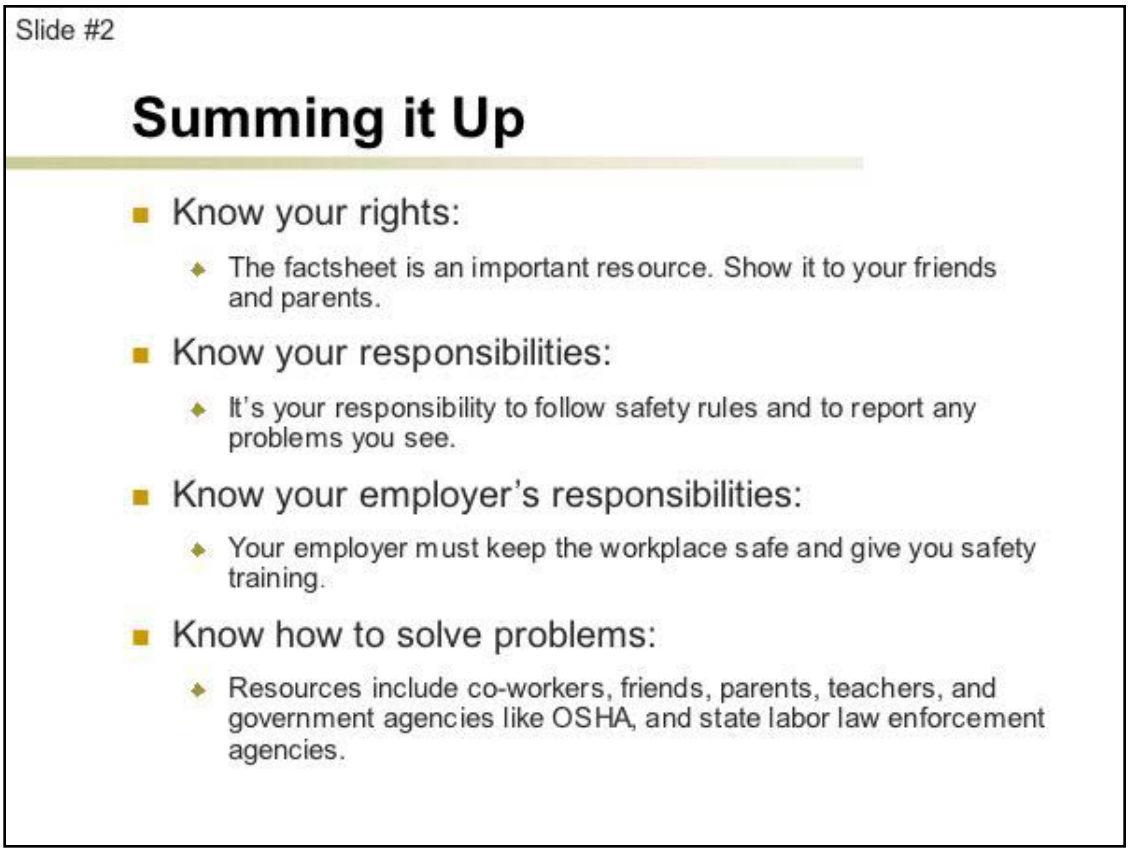
    Which approaches will be most effective in solving the problem?

11. Review the problem-solving steps from Activity A, step 3 of this lesson.

C. Wrap-up and evaluation (10 minutes)

1. This lesson has focused on how to speak up effectively at work when there is a problem. It's important for students to know their rights, but it's also important for them to think through how they want to approach a supervisor with a problem. It's usually helpful to talk the situation over first with parents, teachers, co-workers, union representatives, or another trusted person—and then plan out the conversation. If necessary, there are agencies that can help you, like OSHA or the federal or state labor law enforcement agency.

   Show PowerPoint slide #2.



Remember:

- Know your rights.
- Know your responsibilities.
- Know that your employer has a legal responsibility to keep your workplace safe.
- Know how to solve problems as they arise.

Encourage students to ask their employers about the procedures for bringing up problems they run into at work—before the problems occur. If you are responsible for placing students in jobs, this may be a topic you want to raise with employers.

Remind students that their employers have a responsibility to provide them with a safe workplace and to give them specific training about hazards on their job.

CHRIS'S STORY

Scene: Sandwich shop. Chris is a 15-year-old high school student.
Mr. Johnson is her supervisor, and Dana is one of Chris's co-workers. It is Thursday evening.

Mr. Johnson: Chris, Andre just called in sick so I need you to work extra hours. I'd like you to stay until 10 tonight.

Chris: But Mr. Johnson, I have a test tomorrow and I need to get home to study.

Mr. Johnson: I'm really sorry, but this is an emergency. If you want to work here you have to be willing to pitch in when we need you.

Chris: But I've never done Andre's job before.

Mr. Johnson: Here's what I want you to do. First, go behind the counter and take sandwich orders for a while. Ask Dana to show you how to use the meat slicer. Then, when it gets quiet, go mop the floor in the supply closet. Some of the cleaning supplies have spilled and it's a real mess.

Later: Chris gets the mop and goes to the supply closet.

Chris: Hey, Dana! Do you know what this stuff spilled on the floor is?

Dana: No idea. Just be careful not to get it on your hands. You really should wear gloves if you can find any. Andre got a rash from that stuff last week.

Developing Your Role Play

1. Discuss with the class what laws are being violated here.
2. Work in your small group to come up with a different ending to the story. Choose one problem in the story to focus on. Think about these three questions:
   How and when should Chris approach the supervisor about these problems?
   What are the different ways the supervisor might respond?
   Where else can Chris get help?
3. Practice role-playing your ending with your group. You will perform for the class later.

Role Play Solution Planning Sheet

Directions:

Work in your small group to come up with a different ending to the story. Your group will be role-playing your alternate story ending. Assign parts to your group members. Decide what each person will say, and write it down on the back of this worksheet.

Step 1:

Choose one problem in the story to focus on.

1. What is the problem your group will be focusing on? (Note: your teacher may assign your group the problem to focus on.)

Step 2:

To better help you plan what to say, think about these questions before writing out your solution to the skit:

1. What laws were being violated in this scenario? _____

_____

_____

_____

2. How and when should Chris approach the supervisor about the problem? _____

_____

_____

_____

3. What are the different ways Chris's supervisor might respond? _____

_____

_____

_____

4. Where else can Chris get help? _____

_____

_____

_____

Step 3:

Use the back of this worksheet to decide what each character will say and write out the dialog for your characters. Use this as your script for the role-play.