

# SCHOOL SAFETY

Presented by:  
Brodie Loushin

Commercial Insurance Loss Control Specialist  
Montana Schools Property and Liability Insurance Plan



# Agenda

- ▣ Common playground hazards and types of injuries
- ▣ Parts of the playground and how they should be maintained
- ▣ General considerations
- ▣ Shop Safety
- ▣ Chemistry Lab safety

# Playground Injury Statistics

- ▣ Each year, Emergency Departments treat about 200,000 children 15 years old and younger for playground related injuries.
- ▣ The American Academy of Orthopedic Surgeons estimates 527,000 children are treated in hospitals, emergency departments, doctors offices, and ambulatory surgery centers.
- ▣ 45 percent of the playground injuries that take place are severe: fractures, concussions and dislocations.

# Playground Injury Statistics

- ▣ 75 percent of non-fatal injuries take place on public playgrounds like those in schools and parks.
- ▣ 70 percent of the deaths that take place on playgrounds happen on home playgrounds

# The Playground Injury Problem

- ▣ Falls to the surface cause 70 percent of the injuries on playgrounds.
- ▣ Entanglement of clothing, strings and ropes are the number one cause of death on playgrounds
- ▣ Other dangers include:
  - Head entrapment in equipment openings
  - Impact of moving swings
  - Tripping on loose equipment

# The Playground Injury Problem

- ▣ Head and face injuries are most common in children under 4 years of age.
- ▣ Arm and hand injuries are most common among children 5-14 years of age

# Playground Injuries Are Preventable

# Follow the SAFE Model

- ▣ Supervision and Survey
- ▣ Age appropriate and design
- ▣ Fall Surface Cushioning
- ▣ Equipment Maintenance



# S-Supervision

- ▣ To properly supervise children they need to be seen
- ▣ They need to be visible in crawl spaces
- ▣ Playground rules should be posted

# S- Survey

- ▣ Before children are allowed to play in playgrounds:
- ▣ Look for safety hazards
  - Look for broken glass, litter, pieces of metal and other sharp objects
  - In summer, check metal equipment to make sure it is not hot

# S-Survey

- ▣ Make sure there are no tripping hazards like:
  - Tree stumps
  - Exposed concrete
  - Missing rubber tiles
  - Pot holes

# S-Survey



Some common tripping hazards found in playgrounds



# A= Age Appropriate Equipment and Design

- ▣ Children develop different skills at different ages.
- ▣ Equipment designed for children 5-12 is too big for children ages 2-5.
- ▣ Platforms elevated more than 20 inches above the ground need guardrails or protective barriers for ages 2-5 year olds and those higher than 3-inches need barriers for 5-12 years olds.

# F= Fall to Safe Surfaces

- ▣ Surfacing must be provided under all equipment, and there must be at least a 6 foot fall zone around all equipment.
- ▣ For swings the length of the fall zone should be twice the height of the beam from which the swing hangs

**Table 2. Minimum compressed loose-fill surfacing depths**

Inches	Of	(Loose-Fill Material)	Protects to	Fall Height (feet)
9		Shredded/recycled rubber		10
9		Sand		4
9		Pea Gravel		5
9		Wood mulch (non-CCA)		7
9		Wood chips		10



Fill material needed under playground equipment





# E= Equipment Maintenance

- ▣ Check to make sure that equipment is:
  - Anchored safety into the ground
  - Well maintained
  - Free of broken parts
  - Has no noticeable gaps less than 3 ½ inches or more than 9 inches

# E= Equipment Maintenance

▣ Check to make sure that the equipment is free of:

- ▣ Dangerous hardware like protruding bolts and improperly closed s-hooks
- ▣ Sharp points or edges
- ▣ Splinters
- ▣ Cracks or holes

(Make sure your child's clothes are tucked in; items that may get caught in the equipment can be strangulation risk (hoodies, scarves, loose hanging strings, jewelry, hooks, cords, and helmets))

# E= Equipment Maintenance

- ❑ Swings that are old and cracked can be very dangerous and are in need of replacement
- ❑ There should also be only a maximum of two swing per bay



# E= Equipment Maintenance



Projections on playground equipment should not be able to entangle children's clothing nor should they be large enough to impale. Bolts should not expose more than two threads beyond the end of the nut.



# E= Equipment Maintenance



All hooks, such as C-hooks and S-hooks, should be closed. A hook is considered closed if there is not a gap or space greater than .04 inches, about the thickness of a dime. Also make sure that the hooks are not rusting and wearing down. Some hooks may be closed, but still may need to be replaced because of wear and tear.

# E= Equipment Maintenance



Make sure that that all damaged or weathered wood on a playground equipment is replaced. Wood that is damaged can cause children to be injured by splinters. Rotted wood need to be replaced immediately because it becomes very brittle and can break easily.

# E= Equipment Maintenance

- ▣ According to the Consumer Product Safety Commission fiber ropes are not recommended as a means of suspending swings since they may degrade over time.



# General Playground Considerations

Site Factor	Questions to Ask	If yes, then...Mediation
Travel patterns of children to and from the playground	Are there hazards in the way?	Clear hazards.
Nearby accessible hazards such as roads with traffic, lakes, ponds, streams, drop-offs/cliffs, etc.	<p>Could a child inadvertently run into a nearby hazard?</p> <p>Could younger children easily wander off toward the hazard?</p>	Provide a method to contain children within the playground. For example, a dense hedge or a fence. The method should allow for observation by supervisors. If fences are used, they should conform to local building codes and/or ASTM F-2049.
Sun exposure	Is sun exposure sufficient to heat exposed bare metal slides, platforms, steps, & surfacing enough to burn children?	<p>Bare metal slides, platforms, and steps should be shaded or located out of direct sun.</p> <p>Provide warnings that equipment and surfacing exposed to intense sun can burn.</p>
	Will children be exposed to the sun during the most intense part of the day?	Consider shading the playground or providing shaded areas nearby.
Slope and drainage	Will loose fill materials wash away during periods of heavy rain?	Consider proper drainage re-grading to prevent wash outs.



# Slips Trips and Falls

- ▣ **General Tips**
- ▣ Maintain adequate lighting in parking areas, on sidewalks, and in stairways. This can make it easier for pedestrians to see any possible impediments.
- ▣ Gutters should not drain water from the roof onto walkways or into parking areas. Water and puddles can easily lead to slips, and if the temperature is below freezing, ice will form.
- ▣ Reported spills should be cleaned up quickly.
- ▣ Repair or replace torn carpets, rugs, loose or missing floor tiles, or any other flooring materials.
- ▣ Consider a removal plan for snow and ice on sidewalks, stairs, parking areas, and around dumpsters.
- ▣ Always repair potholes or uneven surfaces in driveways and parking lots. ( Make sure that students are also wearing proper shoes for weather conditions-proper tread)

# Slips Trips and Falls

## Stairways, Steps, And Ramps

- ❑ Install handrails on stairways and ramps in accordance with local building code requirements.
- ❑ Handrails should be stable and securely fastened.
- ❑ Consider using nonslip surfaces, like carpet on stairs.

## Walkways And Lawn Areas

- ❑ Repair uneven surfaces, large cracks, or bumps in the sidewalk.
- ❑ Remove obstructions from walkways, such as ladders and other maintenance equipment.
- ❑ If there is a lawn sprinkler system, remember to turn it off and drain the system when the temperature nears freezing. If you don't, the pipes could freeze, leading to leaks and an unplanned ice rink.

# Cell Phones

- ▣ Do not use cell phones while watching kids on the playground. This creates a distraction which could be very serious if an emergency situation should occur.

# Other Playground Safety Tips

- ▣ Play responsibly; no pushing or roughhousing.
  - Take turns; one person at a time on a swing, slide, monkey bars.
  - Remind children to sit down while swinging, slow down before getting off, and not walk close to someone swinging.
  - Climbing up the front of a slide is not acceptable.
  - Look before you jump or slide; make sure no one is below you.

# Other Considerations

- ▣ Natural Play areas may not meet current playground guidelines depending on materials used
- ▣ Parent and Teachers Association (PTA)
  - At times will install equipment that does not meet current playground regulations
    - ▣ Build own equipment
- ▣ Please check with Western States School Program before installing new equipment!

# SHOP SAFETY

# Shop Safety

- ▣ OSHA
  - Occupational Safety and Health Act

# General Housekeeping

- ▣ Housekeeping is one of the most important things within the shop
- ▣ A number of hazards can be eliminated through basic housekeeping



# Eye Protection

- ▣ Eye protection is a primary safety concern in the shop
  - Machine tools produce metal chips
  - Grinders produce small fragments
  - These and other items may be ejected from equipment at high speeds
  - Eye protection should have side shields to prevent materials from getting into the eye from the side
  - Safety glasses should meet the ASNI Z-87 Standard

# Foot Protection

- ▣ Shop floors can often have razor-sharp metal chips on them
- ▣ Safety shoes with a steel toe may be worn, but are may not required
- ▣ Sandals and open-toe shoes should not to be worn in the shop
- ▣ Likewise, no bare feet
- ▣ Leather shoes are preferred over tennis shoes

# Ear Protection

- ▣ Hearing protection made be required in some of the areas of the shop or while conducting certain activities
- ▣ Signs may be posted where hearing protection is required
- ▣ OSHA requires hearing protection at 90 dB or greater for an 8 hr workday

# Hair and Jewelry

- ▣ Secure long hair
- ▣ Remove your wristwatch and rings before operating any machine tool

# Equipment Guards

- ▣ Equipment needs to be properly guarded at all times.
  - Saws
  - Grinders and Drill Press- Most common missing guards within schools.



# Tool Safety

- ▣ Tools need to be checked before use and taken out of service if not working properly or broken.
- ▣ Extension cords also need to be checked before use to ensure no damage. Damaged extension cords create a huge fire hazard. Damaged extension cords should be cut up to prevent future use.

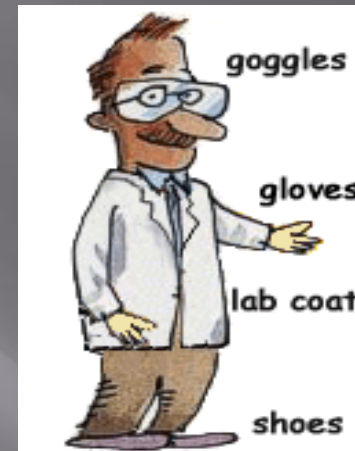
# Chemistry Lab Safety

# Protect Your Eyes

- ▣ Appropriate eye protection must be worn at all times!
- ▣ Inform your teacher if you wear contact lenses.



# Wear appropriate protective clothing



- ❑ Lab aprons can be used to protect good clothing and you
- ❑ Loose clothing should not be worn because it may dip into chemicals or fall into a flame and catch fire

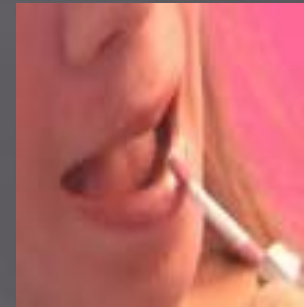
# Wear shoes that cover your feet.

- ❑ Sandals and open-toed shoes do not protect your feet from broken glass that is frequently found in the lab



# Do not apply cosmetics, eat, or drink in the lab.

- ▣ These activities are ways by which you can accidentally ingest harmful chemicals



# Emergency Gas Shutoff

- Know location of switch
- Needs to be labeled
- Do not store items in front of shutoff. This creates a huge safety hazard

# Wash your hands with soap and water before leaving.

- ▣ This rule applies even if you have been wearing gloves!



# Know the hazards of the materials being used.

- ▣ Read and reread labels carefully to make sure that you are using the right chemical.
- ▣ Pay attention to the warnings about the chemicals used in the lab.

A detailed Material Safety Data Sheet (MSDS) form. The form is titled 'MSDS' and 'GENERAL SAFETY DATA SHEET'. It contains various sections including 'Product Name', 'Hazardous Ingredients', 'Physical and Chemical Properties', 'Toxicological Information', and 'Environmental Information'. The form is filled with text and numbers, providing comprehensive safety information for the chemical.

# Chemicals and Labeling

- ▣ All chemicals need to be labeled properly including all secondary containers.
- ▣ Make sure to educate staff and students on location of SDS's and are aware of the new Global Harmonization System

# GHS: Label Pictograms

<p><b>Health Hazard</b></p> 	<p><b>Flame</b></p> 	<p><b>Exclamation Mark</b></p> 
<ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Flammables</i></li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Irritant</i> (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non Mandatory)</li> </ul>
<p><b>Gas Cylinder</b></p> 	<p><b>Corrosion</b></p> 	<p><b>Exploding Bomb</b></p> 
<ul style="list-style-type: none"> <li>• Gases under Pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Skin <i>Corrosion</i>/burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Explosives</i></li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p><b>Flame over Circle</b></p> 	<p><b>Environment (Non Mandatory)</b></p> 	<p><b>Skull and Crossbones</b></p> 
<ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>



# 1 Sulfuric Acid



3 **Danger!** May be harmful if swallowed.  
Causes severe skin burns and eye  
4 damage. Fatal if inhaled. Harmful to  
aquatic life.



Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

5

**IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

**In case of fire** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

See Material Safety Data Sheet for further details regarding safe use of this product.

6 Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA Telephone : +18003255832

1 Product Identifier

2 Pictograms

3 Signal word, "Danger!"

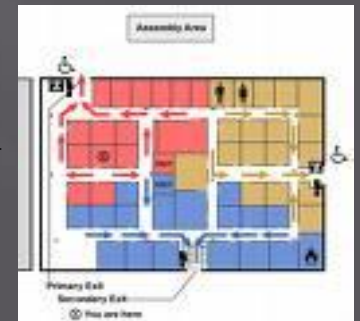
4 Hazard Statements

5 Precautionary Statements

6 Supplier Information

# Know the safety equipment

- Eye wash fountain
- Safety shower
- Fire extinguisher
- Emergency exits



# Never remove chemicals from the laboratory

This guy put chemicals in his locker!



# References

- ▣ Consumer Product Safety Commission  
Guidelines for Playgrounds
- ▣ Occupational Safety and Health  
Administration

# Any Questions?

