

SAFETY RULES FOR THE SCIENCE LAB

General

1. Always work under supervision and only on approved activities. Never change a _____ without your teacher's permission.
2. Make sure you _____ the procedure before you start an experiment.
3. Make sure you know how to use your _____ equipment properly before you start an experiment.
4. Always use appropriate _____ equipment, such as a lab apron or protective eyewear. Tell your teacher if you are wearing contact lenses.
5. Do not wear _____ clothing, sandals, or open-toed shoes.
6. Do not _____, drink, or chew gum in the laboratory.
7. Never engage in _____.
8. Know the location and use of all emergency _____ and emergency exits
9. In case of an emergency, follow _____ your teacher has taught you. Use whatever emergency equipment is appropriate to respond to the emergency. Act immediately to protect people first and then equipment.

Glassware

10. Never use broken or _____ glassware. Dispose of it in a "sharps" bucket or as your teacher directs. Use clean glassware, and after use wash it, or put it in an approved place to soak.

procedure loose read procedures protective horseplay chipped lab
 equipment eat

Chemicals

11. Know the safety precautions and _____ for all chemicals you are using before you start your lab.
12. If you come in contact with a substance, _____ the affected area immediately and thoroughly with water. If you get anything in your eyes, do not touch them. Wash them immediately and continuously for _____ and inform your teacher.
13. Hold containers _____ from your face when pouring liquids.
14. _____ labels on containers. Never use a chemical from a container that does not have a readable label. Take it to your teacher.
15. When in the lab, never put anything in your _____ such as fingers, equipment, hair, pencils, or chemicals that you are working with, even if they are _____ items.
16. Never return a chemical to its _____ container. Doing this could contaminate the original stock.
17. Never put any chemical down the sink or into the garbage _____ permission.
18. _____ up any spills according to your teacher's instructions.
19. If you are asked to smell a substance, never smell it directly. Hold the container at arm's length and _____ fumes toward you. Gradually bring the container closer to your nose until you can smell the fumes safely.
20. When diluting a concentrated acid with water, add the _____ to the water, not the water to the acid. This prevents sudden overheating of the water.

Acid away waft mouth original 15 min. clean rinse
 food without read hazards teacher's

Hot Plates and Open Flames

21. Handle hot objects carefully. Be especially _____ with a hot plate even if it looks as though it has cooled down.
22. Know how to _____ and operate a Bunsen burner.
23. _____ back long hair and avoid fuzzy clothing and long sleeves when you are in an area with open flames.

SAFETY EQUIPMENT IN THE LABORATORY

PERSONAL EQUIPMENT

1. Safety Goggles
 - Wear at _____ times during a lab
 - Never take them _____ during a lab if they fog up see the teacher and she will let you stand outside the room to air them out.
 - Goggles do not provide eye protection when worn on the _____ or around the neck.
 - Do not _____ the elastic
 - Teacher will let you know when _____ groups have completed the lab and you can remove your _____
2. Aprons
 - Only worn when there is a chance of spilling _____ on your clothing
 - Make sure aprons are tied _____
3. Hair elastic
 - All _____ hair must be tied back

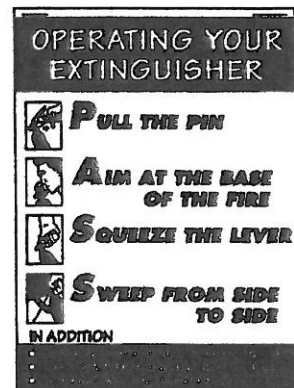
All chemicals off stretch long forehead firmly all goggles

CLASSROOM EQUIPMENT

1. Sink
 - _____ burns – 15 min
 - Rinse chemical spill on hand – _____
2. Eyewash station
 - Have partner _____ you over
 - Open _____ shaped cover
 - Rinse for _____ – have _____ time for you
 - Keep eyes _____ during washing to be sure the eyeball is properly _____.
3. Safety shower
 - Use when _____ amounts of _____ have spilled on you
 - Use when _____ area has been burned
 - _____ down on triangular-shaped handle

Pull washed 15 min open Lead 5 min chemicals large Partner rinse large dome











4. Safety Blanket
 - Tell person to _____, _____, and _____ if their clothing or hair is on fire
 - Use to _____ a clothing fire by wrapping the person
5. Fire Extinguisher
 - What does PASS stand for?
6. Fume Hood
 - used to prevent _____ from entering the general laboratory area.
 - With the sash down, they can also be used as a physical barrier against explosive chemical _____.



stop suppress fumes drop reactions roll

WHIMIS HAZARD SYMBOLS

Write the name and description of the symbol next to the picture of the symbol.

Pictogram	Name of Pictogram	Meaning of Pictogram	Examples of Hazard
		Easily explosive materials	
		Gas under pressure Can explode if heated	
		Easily catch on fire	
		Releases oxygen and promotes fire when combined with other substances.	
		Irritant of skin and eyes. Effects can be reversed with treatment	
		Exposure over a long-term can cause cancer	
		Causes immediate toxic effects that can result in death	
		Can cause chemical burns on skin	
		Contains living organisms or virus that can infect people	
		Substance can damage living organisms in the environment	

Names of pictogram

Corrosive material	Explosive hazard	Long Term Health Effects	Oxidizing material	Flammable
Environmental Damage	Less Severe Health Effects	Compressed Gas	Biohazardous Infectious Material	Immediate and Possible Fatal Effects

Examples of hazardous materials











Cigarette smoke, Asbestos, mercury	Ethanol	Car soap	Propane tank	Fire works
Hydrogen peroxide	gasoline	cyanide	Used needle, Blood samples	Sulphuric acid

WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

WHMIS: Stands for _____











- the _____ standard for materials hazard communication since 1988 (OLD system is called WHMIS 1988)
- a _____ binding requirement administered by Health Canada
- WHMIS includes a list of specific _____
- Each symbol or _____ identifies a different hazard.

WHMIS legally Canadian symbols picture

	Exploding bomb (for explosion or reactivity hazard)		Flame (for fire hazard)		Flame over circle (for oxidizing hazard)
	Gas cylinder (for gases under pressure)		Corrosion (for corrosive damage to metals as well as skin, eyes)		Skull and Crossbones (can cause death or toxicity with short exposure to small amounts)
	Health hazard (may cause or suspected of causing serious health effects)		Exclamation mark (may cause less serious health effects or damage the ozone layer*)		Environment* (may cause damage to the aquatic environment)
	Biohazardous Infectious Materials (for organisms or toxins that can cause diseases in people or animals)				

* The GHS system also defines an Environmental hazard group. This group (and its classes) was not adopted in WHMIS 2015. However, you may see the environmental classes listed on labels and Safety Data Sheets (SDS) including information about environmental hazards, as allowed by WHMIS 2015.

WHMIS Symbols
(Workplace Hazardous Materials Information System)


Symbol	Meaning	Example
		
		
		
		
		
		
		
		
		
		


Other Safety Hazard Symbols

Many products ranging from household cleaners to spray paints are labelled with another type of safety **hazard symbol** (Figure 1.5). You may have noticed these symbols on products used at home in the laundry room or with garden equipment. Each hazard symbol provides two kinds of warnings:

- whether the hazard is the container or its contents, shown by the shape of the border
- the type of hazard—explosive, corrosive, flammable, or poisonous—shown by an image at the centre of the symbol

The Borders

 **Dangerous Container**
The border that looks like a traffic yield sign means that the *container* is dangerous.

 **Dangerous Product**
The border that looks like a traffic stop sign means that the *contents* of the container are dangerous.

The Hazards





	Explosive This symbol means that the container can explode. If it is punctured or heated, pieces can cause serious injuries, especially to the eyes.		Flammable This symbol means that the product will catch on fire easily if it is near sparks, flames, or even heat.
	Corrosive This symbol means that the product inside the container will burn the throat or stomach if swallowed and will burn skin or eyes on contact.		Poisonous This symbol means that the product will cause illness or death if you eat or drink it. For some products, just smelling or licking them is enough to cause serious harm.

Figure 1.5 Watch for these symbols on products you use at home as well as those you see in the lab.

Safety Rules and Procedures

Become familiar with the following safety rules and procedures. Following them and your teacher's instructions will make performing the activities and investigations safe and enjoyable. Your teacher will also give you specific information about any other special safety rules that need to be followed in your school.

1 General rules

- Listen carefully to your teacher's instructions.
- Inform your teacher if you have any allergies, medical conditions, or other physical problems that could affect your work in the science classroom. Tell your teacher if you wear contact lenses or a hearing aid.
- Obtain your teacher's approval before beginning any activity you have designed.



- Know the location and proper use of the nearest eyewash station, deluge shower, fire extinguisher, fire blanket, first-aid kit, and fire alarm.
- Before starting an activity or investigation, read all of it. If you do not understand how to do a step, ask your teacher for help.
- Be sure you have checked the safety symbols and have read and understood the safety precautions.
- Begin an activity or investigation only after your teacher tells you to start.

2 Acting responsibly

- When you are told to do so, wear protective clothing, such as a lab apron and safety goggles. Always wear protective clothing when you are using materials or equipment that may be a safety problem.
- Tie back long hair, and avoid wearing scarves, ties, or long necklaces.
- Never chew gum, eat, or drink in your science classroom. Do not taste any substance.
- Handle equipment and materials carefully. Carry only one object or container at a time.
- Inform your teacher of any spills so they can be cleaned up properly.
- Wash your hands thoroughly after doing an activity or an investigation.
- Dispose of materials as directed by your teacher.
- If other students are doing something that you consider dangerous, report it to your teacher.

3 Working with sharp objects

- Always cut away from yourself and others when using a knife or scissors.
- Always keep the pointed end of scissors or any pointed object facing away from yourself and others if you have to walk with such objects.
- If you notice sharp or jagged edges on any equipment, take special care with it and report it to your teacher.
- Dispose of broken glass according to your teacher's instructions.

4 Working with electrical equipment

- Make sure your hands are dry when touching electrical cords, plugs, or sockets.
- Pull the plug, not the cord, when unplugging electrical equipment.
- Report damaged equipment, broken ground pins, or frayed cords to your teacher.
- Place electrical cords where people will not trip over them.

5 Working with heat

- Always use heatproof containers.
- Point the open end of a container that is being heated away from yourself and others.
- Do not allow a container to boil dry.
- Handle hot objects carefully. Be especially careful with a hot plate, even if you think it has cooled down.
- If you use a laboratory burner, make sure you understand fully how to light and use it safely.
- If you do receive a burn, inform your teacher, and apply cold water to the burned area immediately.

6 Working with chemicals

- If any part of your body comes in contact with a substance, wash the area immediately and thoroughly with water. Inform your teacher.
- If you get anything in your eyes, do not touch them. Wash them in the nearest eyewash station immediately and continuously for 15 minutes, and inform your teacher.
- If you are asked to smell a substance, never smell it directly. Hold the container slightly in front of and beneath your nose, and waft the fumes towards you.
- Hold containers away from your face when pouring liquids.

7 Designing and building

- Use tools safely to cut, join, and shape objects.
- Handle modelling clay correctly. Wash your hands after using modelling clay.
- Follow proper procedures when using mechanical systems and studying their operations.
- Use special care when observing and working with objects in motion.

