

SCIENCE LAB SAFETY



Topic 1: Lab Safety

*In science, a **lab** is a place where people do experiments.*

In this lesson you will learn

- The definition of a chemical
- ~~That mixing chemicals together sometimes changes them.~~
- That chemicals can be dangerous if they are not used properly.
- How to protect yourself from harm when using chemicals.

Working with Chemicals

- A chemical is any **solid, liquid, or gas**.
- All chemicals can be **dangerous** if they are not used properly. Some chemicals are much more dangerous than others.
- When working with chemicals, it is important to know how they can be dangerous and how to **protect** yourself from harm.



Solid



Liquid



Gas



Lab Safety Rules

1. Always read and follow instructions exactly. If you don't know what to do, ask the teacher.
2. NEVER taste anything unless your teacher says it is okay.
3. Never use cracked or broken glassware. Do not touch broken glass. Tell the teacher and let her clean it up.



Lab Safety Rules

4. Learn the dangers of each chemical by knowing what each danger symbol means (WHMIS and HHPS)



Flammable



Corrosive



Toxic



Explosive

5. Do not eat or drink during an experiment.



6. Tie back long hair and do not wear loose clothing (jackets, necklaces, etc.)



Lab Safety Rules

7. Tell your teacher immediately if a spill or accident happens.



8. Wear safety protection if needed (eye goggles, gloves).



9. Work slowly and carefully. Do not run or goof around.

Lab Safety Rules

10. Clean up your work space when you are done. Return all equipment.



11. Know the location of safety equipment in the classroom.



What would you do if...

1. You accidentally spill a chemical on the table
2. You see a classmate eating during a lab
3. You don't know what to do during a lab
4. You notice that a beaker is cracked
5. You don't know what the dangers of a chemical are

Safety With Chemicals

- Each chemical has its own dangers, but you do not need to memorize them all. All you have to do is know what the safety picture on the label means.
- There are 2 sets of pictures that tell you about the dangers of chemicals.
 - HHPS = Hazardous Household Products Symbols
 - WHMIS = Workplace Hazardous Materials Information System



Hazard = Another word for danger

- How do you know if a chemical is dangerous? In what way is it dangerous?

HHPS

- HHPS = Hazardous Household Product Symbol
- Hazard = another word for danger

any solid, liquid, or gas.

Chemical: A material that can be mixed with other materials, sometimes making a new material



This symbol means the container is dangerous. It can explode if heated or punctured causing flying bits of metal or plastic that can lead to serious injuries.



Usually you will see the triangle with the explosive symbol inside it. Examples include aerosol cans, such as hair spray or spray paint.



This symbol means the product inside the container is dangerous. The octagonal stop sign usually appears with one of three cautions.



Product is corrosive and will burn skin, eyes, throat, or stomach. Examples include oven cleaner and toilet bowl cleaner.













Product is flammable and will catch fire easily if it is near heat, flames, or sparks. Examples include gasoline and hair spray.



Product is poisonous and will cause illness or death if ingested. Examples include furniture polish and windshield washer fluid.

WHMIS

- Workplace Hazardous Materials Information System

	Exploding bomb (for explosion or reactivity hazards)		Flame (for fire hazards)		Flame over circle (for oxidizing hazards)
	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 closely associated one) was not adopted in WHMIS 2015. However, you may see