



Science 9

unit 1: science skills & safety



book 2: safety & equipment in the laboratory

name: _____ block: _____

Feb 4th, 2019

- ① Hand in Safety Poster
- ② Collect NEW Journal + duotang

Prepare For Lab

- ✓ Always use caution in the lab.
- ✓ Handle chemicals carefully.
- ✓ No food or drinks in the lab!
- ✓ Read and follow all directions.
- ✓ Learn emergency procedures.
- ✓ Know where emergency equipment is stored.
- ✓ Push lab stools in out of the way—Keep _____ clear!

In Case of Accident

- ✓ Always notify your teacher.
- ✓ Dispose of broken glass as directed by Miss Zukowski.
- ✓ Clean up any spills immediately.
- ✓ Report any spills, accidents or injury immediately!
- ✓ For a chemical spill on you skin, wash with soap + water ~10min.
- ✓ For a chemical splash in you eyes, hold eyes open, wash for 15min.
- ✓ In case of a large area of spill use safety shower.
- ✓ In case of fire: List 4 items that can be used depending on the size of the fire.
fire blanket, water, fire extinguisher, large bowl

Dress For Lab

- ✓ No shorts, skirts, or open shoes.
- ✓ Roll up long sleeves.
- ✓ Long hair MUST be tied back.
- ✓ No dangling jewelry.
- ✓ Wear safety goggles, lab coat, or apron.
- ✓ No books, backpacks or purses in the lab area.

End of Lab

- ✓ Clean and put away all equipment at the end of the lab period.
- ✓ Dispose of waste according to instruction.
- ✓ Always wash bench+hands after each lab!

Lab Safety

The Lab Burner

- ✓ Never leave a lit Bunsen burner unattended.
- ✓ Use caution when handling heated glassware.
- ✓ Do not place hot glassware directly on the lab desk or in cold water.
- ✓ Never heat a closed container.
- ✓ Keep flammable away from open flames.
- ✓ Point the end of a test tube being heated away from yourself and your partner.

Handling Chemicals

- ✓ Don't use chemicals that aren't labeled.
- ✓ Don't taste anything in the lab unless instructed to do so.
- ✓ Smell by waving.
- ✓ No unauthorized experiments!
- ✓ Always add acids to water—never add water to acid.
- ✓ Never return spilled or unused chemicals to the original bottle!
- ✓ Don't touch your face, eyes, or mouth while working in the lab.
- ✓ No food, or drink allowed in the lab.

Laboratory Safety Rules

Safety matters

1. Students are not to enter the lab (ie: be at lab benches with lab materials) unless a teacher is present. Students are NEVER to enter the lab prep room.
2. Never run or "muck around" in the laboratory. During a lab, you **MUST** remain at your own bench.
3. There is no food or drink permitted in the laboratory. At desks is OK.
4. Water bottles & bags/backpacks are to be left at your desk during labs.
5. **NEVER** taste or smell any substance in the lab, unless instructed to do so safely by your teacher.
6. Always listen carefully and follow instructions specifically. If there is anything you don't understand, ask your teacher. It is very important for your safety that you understand all instructions.
7. **Always** clean up and return equipment to the correct place when finished an experiment.
8. Keep benches and floor areas tidy. This means all chairs must be pushed in when working at the lab benches, and extra books/equipment is never to be placed on the floor.
9. Breaks and accidents (even minor) must **always** be reported to your teacher immediately.
10. NEVER attempt to pick up broken glass. Inform your teacher, and keep others clear of the area.
11. Laboratory equipment and chemicals are ONLY to be used as directed by your teachers' instructions.
12. Waste products/remains from experiments are to be disposed of as instructed by your teacher. Remember, not everything is safe to rinse down the sink, or throw away in the bin.
13. Be sure any burning material (eg. Match) is put out completely before throwing away.
14. All hot equipment is to be placed to a heatproof mat, NOT directly on the benchtop.
15. **ALWAYS** wear safety glasses during experiments with hazardous materials or when heating.
16. Long hair and loose clothing must be tied back during experiments.
17. Long pants & closed toed shoes must be worn during experiments
18. **ALWAYS** wash your hands after any experiments in the laboratory.
19. Use gas taps & water for **EXPERIMENTS** only.
20. Bench tops are to be cleaned and disinfected following EVERY practical experiment.
21. When heating or mixing substances, NEVER point towards yourself or others.
22. Never mix chemicals or do your own experiments unless you have permission from your teacher. This is wasteful, and could be very dangerous.
23. Always rinse/clean glassware following an experiment.
24. Always use tongs to pick up equipment/objects that have been heated
25. If you need to leave a Bunsen Burner, ALWAYS turn it to the visible orange/yellow safety flame.

Misbehaviour & breach of safety rules in the laboratory will result in immediate consequences, including a ban from participation in any further practical experiments.

choose 1 rule for poster

Unit 1 - Science Skills + Safety Page 2



Lab Safety Poster Project



Directions: Before you can do any more labs in this class, you need to be aware of the lab safety rules. For this project, you are going to make a poster to illustrate *one safety rule*.

Your poster must include:

- illustration of the lab safety rule
- reason why lab safety rule is important
- Show the consequences of not following the rule

You will have time in class today to brainstorm and start drawing sketches for your poster, but the remainder will be completed for homework.

Have a plan, work hard, and be sure to follow the rubric below!

You may tear out this page to hand in this rubric when you hand in your poster!

Safety Poster Rubric

	Novice (1pt)	Apprentice (2pt)	Practitioner (4pts)	Expert (5pts)
Organization and Presentation	<ul style="list-style-type: none"> • Poorly Presented • Unplanned • Thrown Together • Cluttered • Confusing 	<ul style="list-style-type: none"> • Neat • Illustration covers less than 50 % of paper • Needs better use of space 	<ul style="list-style-type: none"> • Attracts attention • Effort is evident • Illustration covers 50 % of paper 	<ul style="list-style-type: none"> • Attracts attention • Poster shows balance between rule and illustration • Well Planned • Good use of space • Illustration covers more than 50% of paper • Shows Care to detail
Statement of Rule	<ul style="list-style-type: none"> • Rule is unclear and or incorrectly stated 	<ul style="list-style-type: none"> • Limited information or not clearly stated • Details not evident or accurate 	<ul style="list-style-type: none"> • Clearly stated • Sufficient facts and details 	<ul style="list-style-type: none"> • Precise and Thorough • Clearly and accurately stated • All details and key facts included
Illustration Represents Rule	<ul style="list-style-type: none"> • Illustration does not reflect the rule 	<ul style="list-style-type: none"> • Illustration somewhat reflects objective chosen • Lacks detail 	<ul style="list-style-type: none"> • Illustration reflects rule chosen • Matches adequate detail of rule 	<ul style="list-style-type: none"> • Illustration reflects accurately rule • Clearly matches much detail
Use of Color, Texture and Creativity	<ul style="list-style-type: none"> • Limited use of color and texture • Little creative energy • Bland 	<ul style="list-style-type: none"> • Good use of Color • Lacks "Pizzazz" • Contains a few original touches 	<ul style="list-style-type: none"> • Colorful • Draws attention the information • Some originality- take off on other examples • Thoughtfully presented 	<ul style="list-style-type: none"> • Vivid • Well planned use of color and texture • Draws attention the information • Doesn't overwhelm it • Original • Unique • Clever
Errors	3 spelling/grammar errors	2 spelling/grammar errors	1 spelling/grammar errors	No spelling/grammar errors

TOTAL _____/25

Think Safety First Worksheet

Directions: Work with a partner and take turns identifying *what is the potential accident?* and "*What is the prevention action that should be taken?*" Use this worksheet to record each 'sperson's response during the "Think Safety First" game.

1. You are using a microscope to view a wet mount of skin cells.

Accident: drop, mount breaks → microscope → broken glass

Prevention: always carry a microscope → drop/break; cut yourself

3. Your lab station is messy, covered with papers and supplies. You need to handle a beaker with 2 hands.

Accident: papers are too close to b.b. + catch fire

Prevention: clean your lab station - as little clutter as possible

5. While measuring chemicals for a solution, you accidentally spill a large amount.

Accident: could be a toxic/hazardous chemical

Prevention: always use a fume hood when pouring

7. You are using a Bunsen burner to heat a chemical. You need your notebook, which is on the other side of the flame.

Accident: reaching over/around you could burn yourself for knock it over

Prevention: turn bunsen burner off. or walk around your bench.

2. You wash your hands, and don't dry them. You pick up a beaker to carry it to your lab station.

Accident: beaker slips out of your hands + breaks

Prevention: always dry hands + carry glassware carefully

4. The class before you left a beaker sitting on a hot plate at you lab station. The hot plate is off.

Accident: the beaker may still be hot -> you don't know what is inside

Prevention: inform teacher. handle hot beaker with beaker tongs.

6. You need to measure the mass of a large, heavy rock. You decide to use a spring scale.

Accident: the scale may snap, spring could fly + hit someone

Prevention: estimate mass, then choose appropriate equipment.

8. You discover that the test tube you are using has a crack in it.

Accident: if you use it, it could break + cut you

Prevention: report all breaks + damaged materials to your teacher





Dress the Part in the Laboratory

A scientist works in a laboratories. Laboratories are where scientists run most of their experiments and make most of their observations, measurements and discoveries. Your idea of a laboratory is probably a large room equipped with Bunsen burners, sinks, glassware, balances and chemicals and occupied by people in white coats and safety glasses. This is the type of laboratory that chemists tend to work in and the type of laboratory that you will eventually work in at school.

There are several pieces of clothing that have been developed specifically for use in the science laboratory. These pieces of clothing are referred to as Personal Protective Equipment (PPE) *

You have probably already used protective goggles, a lab apron, and protective gloves while working in the classroom science lab. In this activity you will identify different pieces of protective equipment, and think of situations in which you should use them.

Directions: Below are three pictures of protective equipment for the science lab. First, write the name of each item, then write a scenario in which you would need that protection.



Name: Safety goggles/glasses

When to Wear: when we are working with chemicals, heat, or sharp objects.



Name: Protective Gloves

When to Wear: when working with very toxic substances.



Name: Lab Apron

When to Wear: when doing labs to protect you + clothing.










Name: closed toed shoes

When to Wear: anytime an experiment is performed.

SAFETY EQUIPMENT **in an emergency you do not have to ask to use it.*

- Every laboratory has a number of items "built in" to the facility for use in case of an accident or simply to ensure the safest laboratory operation possible.
- It is important to know the name and the function an location of each of these items.
- If you think you might need to use any of the equipment in this table for an emergency, don't hesitate. Call out to inform others of the situation and immediately use the equipment as instructed.
- You **DO NOT HAVE TO ASK TO USE EMERGENCY SAFETY EQUIPMENT!** *(unless it IS NOT an emergency)*

What does it look like?	What is it called?	How do I use it?
	Fume Hood	• Fans + vents are used to remove chemical vapours/gas
	Fire Extinguisher	P A S Pull pin Aim hose at bottom Squeeze handle Sweep side to side
	Fire Blanket	• pat + smother flames on a <u>person</u> (stop, drop, roll)
	Eye wash station	• push handle • hold eyes open • wash 15min

What does it look like?	What is it called?	How do I use it?
	Emergency Gas Shut off	(inside pre room) • Turn handle to 90° \perp to shut off <u>all</u> gas
	Sharps Disposal	• broken glass is swept up • do not touch • never in garbage.
	Safety Shower	• large spills on a large section of your body • rinse ~15min

Working with various chemicals...

- If any part of your body comes in contact with a substance tell teacher + wash ~~and~~ thoroughly with water + soap.
- If you get anything in your eyes, do not touch them. Wash them immediately and continuously for 15min inform your teacher
- Always handle substances carefully. If you are asked to smell a substance, never inhale. Hold the container slightly in front of and beneath your nose, and wave with your hand.
- Clean bench thoroughly after doing an activity or an investigation. - put equipment away - disinfect.
- Dispose of materials as directed by your teacher. Never discard materials in the garbage or down sink.



ASSIGNMENT #1: SAFETY EQUIPMENT MAP

Question Where is the safety equipment located in your chemistry laboratory?

Procedure Draw an outline map of your science laboratory, including every item from the table above.

It is important to know the location of the fire extinguisher, fume hood, broken glass container, broom and dustpan, fire blanket, first-aid kit, eye wash station, safety shower, goggles and aprons.

Have a look around your classroom:

Can you see/identify where this equipment is located?

In the space below draw a map of the classroom and label where the equipment listed above is located.

Back of Room

Front of Room

What is the evacuation route from your classroom in the event of an emergency?

WORKING WITH CHEMICALS: WHMIS











What does WHMIS stand for?

W orkplace H azardous M aterials I nformation
S ystem (WHMIS) is the Canadian system for communicating information about the safety requirements for working with chemicals.

What is WHMIS?

It is a system for providing health and safety information on hazardous products intended for classify, label or train in workplaces (including schools).

Safety Symbols

①		Explosion Hazard		Flammable material		Oxidizing
④		Compressed Gas		Corrosive (causes severe burns)		Harmful or Fatal
③		Health Hazard (inhalation)		Harmful		Harmful to the Environment
⑩		Biohazardous (or infectious) material				

* The GHS system also defines an Environmental hazards 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 (SDSs) including information about environmental hazards, as allowed by WHMIS 2015.

Household Chemical Symbols

=> common products



Explosive



Corrosive



Flammable



Toxic

The shape of the frame around the hazard symbol tells you what part of the product is dangerous:

If it's a triangle, it means the container is dangerous

If it's an octagon, it means the substance are dangerous.

SAFETY WITH MATERIALS

A safety data sheet (SDS) must be provided with every chemical purchased in Canada.

These sheets contain hazard information and safety risks + precautions associated with each and every chemical. can also be found online

This image shows an **excerpt from an SDS** for hydrochloric acid solution. This is only an excerpt.

An actual SDS may contain more than 15 sections, each of which may be quite detailed.



QUICK CHECK-IN

Task: Read over the SDS provided for your material and answer the questions below:

1. What are the purposes of a SDS?
2. What types of materials are required to have a SDS?
3. How is the information on an SDS categorized?
4. What is the name of your material?
5. What are the general hazard categories for this substance?
6. What are four of the chemical and physical properties of your material?
7. What first-aid measures are recommended if one of the following occurs:
inhalation
 - a. inhalation:
 - b. skin contact:
 - c. eye contact:
 - d. ingestion:
8. What precautions are listed for safe handling and storage?

WHMIS









MATERIAL SAFETY DATA SHEET	
1. Product Identification	Hydrochloric Acid
2. Synonyms: Material Name	Hydrochloric Acid
2. Composition Information on Ingredients	Hydrogen Chloride: 38% by weight Water: 62% by weight
3. Hazard Identification	Physical and health effects: <ul style="list-style-type: none">• Skin Contact: Corrosive, irritant, penetration causing itching, reddening, scaling, or blistering• Eye Contact: Corrosive, irritant causing redness, watering, and itching• Inhalation: Irritation of respiratory tract, coughing, choking, or shortness of breath• Potential chronic health effects:<ul style="list-style-type: none">• May be toxic to fish, bees, aquatic invertebrates, upper respiratory tract, skin, eyes, circulatory system, and earth
4. First Aid Measures	<ul style="list-style-type: none">• Eye Contact: Remove contact lenses, clear with cold water for 15 minutes, get medical attention immediately• Skin Contact: Remove affected clothes, rinse with cold water for 15 minutes, get medical attention immediately• Inhalation: Remove to fresh air, if breathing is difficult give oxygen, if not breathing give artificial respiration• Ingestion: If swallowed, do not induce vomiting, loosen tight clothing, get medical attention immediately
5. Handling and Storage	<ul style="list-style-type: none">• Storage: Keep container tightly closed in a cool, well-ventilated area
6. Stability and Reactivity Data	<ul style="list-style-type: none">• Is highly reactive with metals• Reactive with oxidizing agents, organic materials, alkalis and water









Classwork Today...if you don't finish, it is HOMEWORK:



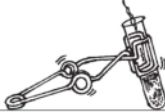






1. Safety Poster should be completed and handed in
2. Bunsen Burner worksheet completed and handed in
3. Finish all assignments & worksheet in "BOOK 2" (blue book)...quiz on Friday (book is DUE)

equipment in the lab

Visit the lab stations around the room and look at the lab equipment that is on display to complete the chart below.

PICTURE	NAME	FUNCTION
	ERLENMEYER FLASK Holding liquids - Shape avoids loss due to splashing - Common sizes include 125, 250 and 500 mL	
	DROPPER Used to transfer small quantities of liquids	
	TEST TUBE HOLDER Holding hot test tubes - Used for heating test tubes over a flame Used for removing test tubes from hot water baths	
	SAFETY GLASSES Used to protect eyes from chemicals and broken glass due to heating	
	FLUTED FUNNEL Funneling liquids - Useful for pouring liquids through small openings Can contain filter paper for separating solids from suspension by filtration	
	BEAKER Holding liquids - May be graduated (sometimes in two directions) - May have a white spot for labeling Various sizes including 125, 250 and 500 mL	
	SCOOPULA Moving samples of solids - Sometimes called a spatula Should NOT be used as a stirring rod (stirring rods should be glass)	
	BUNSEN BURNER Used to heat substances to high temperatures in the lab. Can reach temperatures up to 1400°C... <i>be careful!</i>	

PICTURE	NAME	FUNCTION
	TEST TUBE Holding liquids or solids - Can be heated directly or in a water bath - May be used to mix small quantities of chemicals - Large variety of sizes	
	THERMOMETER Measuring temperatures - Bulb should be submerged in the liquid being measured - Temperature ranges vary - Unit usually degrees Celsius (°C)	
	WASH BOTTLE Used to rinse various pieces of lab glassware such as test tubes and flasks	
	WATCH GLASS Holding or covering - Useful for holding a sample of chemical - May cover a beaker or flask to prevent evaporation - Holds chemicals while drying	
	ELECTRONIC BALANCE Used to measure mass - Typically in grams (g)	
	GRADUATED CYLINDER Measuring volumes of liquids - Sizes vary - Commonly 10, 25, 50, 100 mL	
	STIRRING ROD Used to mix chemicals and liquids	
	TEST TUBE RACK Used to hold test tubes during a lab experiment	

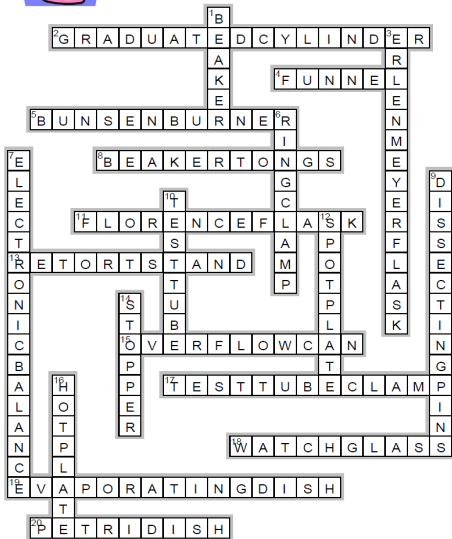
Picture	Name	Function
	HOT PLATE	In lab experiments, hot plates are used to heat glassware or its contents.
	BUNSEN BURNER	Used to quickly heat substances to high temperatures in the lab. Creates a very hot flame from a mixture of gas and air
	TEST TUBE HOLDER/TONGS	Used for holding test tubes while heating over a flame Used for removing HOT test tubes from hot water baths
	(DISPOSEABLE) PIPETTE	Used for measuring a small volume of liquids & release in drops Accurate because of measured lines (graduations)
	EVAPORATING DISH	Used for evaporating liquid to leave a solid product behind Ceramic material allows it to be heated to very high temperatures
	PETRI DISH	A small glass or plastic pan with lid Used for experimenting or holding samples during a lab
	SPOT PLATE	A laboratory tool made either from ceramics or plastics Made of many depressions where only small amount of reactants can be added at a time.
	FORCEPS	Used to pick up and hold small items Made of metal or plastic Also called tweezers
	STOCK BOTTLE	A container made of glass or plastic Contain chemicals in liquid or powder form for laboratories

ANSWER KEY

Name: _____
Date: _____



LAB EQUIPMENT - PART 1 DIAGRAM Crossword



ACROSS

- Identify O in the diagram.
- Identify S in the diagram.
- Identify Q in the diagram.
- Identify M in the diagram.
- Identify R in the diagram.
- Identify T in the diagram.
- Identify P in the diagram.
- Identify J in the diagram.
- Identify B in the diagram.
- Identify A in the diagram.
- Identify C in the diagram.

DOWN

- Identify L in the diagram.
- Identify K in the diagram.
- Identify F in the diagram.
- Identify G in the diagram.
- Identify I in the diagram.
- Identify N in the diagram.
- Identify D in the diagram.
- Identify E in the diagram.
- Identify H in the diagram.



Homework

ASSIGNMENT #2: Complete the following worksheets to review your lab safety & equipment knowledge. You may write your answers in the space provided.

Lab Equipment Matching

Match the lab equipment with its function. Using the word bank below place the name of the lab equipment below its function.

Graduated cylinder	Funnel	Thermometer	Watch glass
Glass stirring rod	Dropper	Test tube holder	Wash Bottle
Beaker	Test tube rack	Beaker tongs	Safety glasses
Erlenmeyer flask	Test tube	Scoopula	Electronic balance

LAB EQUIPMENT FUNCTIONS

to aid in pouring a liquid from a wide-mouth container into a small opening; to filter substances when filter paper is used

for measuring and pouring liquids; for heating or mixing substances

for lifting hot beakers

for holding one or more test tubes

for measuring and pouring liquids; not for heating or mixing

for rinsing or adding water

for moving samples of solid, not used for stirring

for transferring a small amount (drops) of liquid

for measuring weight

for mixing or stirring substances, made of glass to resist heat, stains and corrosion

for holding or covering chemicals; holds chemicals while drying and cover beaker to prevent evaporation

to protect the eyes

for heating or mixing a small amount of chemicals

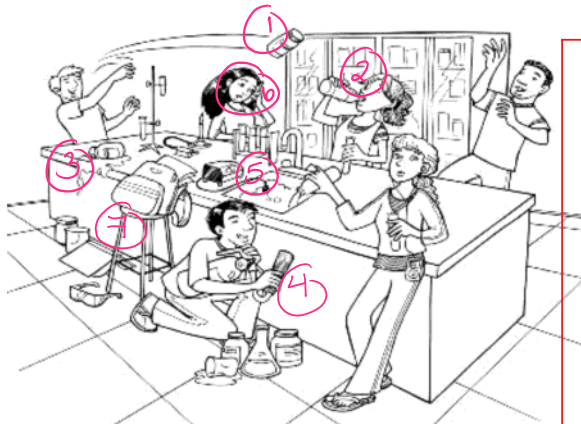
for measuring and pouring liquids; for heating or mixing substances; shape avoids loss due to splashing

for holding individual test tubes

for measuring temperature

What is wrong with this picture?

There are many unsafe situations in the science lab shown below. In the first column of the chart, identify seven unsafe situations. In the second column, describe an injury that might occur as a result of each situation.



Unsafe situation	Possible injury
1. throwing things	
2. drinking in lab	
3. spilt chemical	
4. playing with fire extinguisher	
5. electronics in water	
6. on phone	
7. messy lab bench.	

...various answers

Answers

Accept any seven of the following answers:

UNSAFE SITUATION	POSSIBLE INJURY
heating a test tube without wearing safety goggles	eye damage caused by broken glass if test tube shatters or acid or base burns if liquid boils suddenly
not tying back long hair while using a Bunsen burner	burns caused by hair catching on fire
eating and drinking in the lab while dissecting a specimen	ingestion of harmful substances caused by contamination of food
drinking unknown chemicals from a beaker	ingestion of harmful substances
washing an electrical equipment with water	electrocution the next time the electrical equipment is plugged into the wall
horseplay or fooling around in the lab	head or other injuries
spills on the floor	head or other injuries from slipping and falling
working in a crowded work area; starting a lab without clearing off the work area	spillage, causing acid burns or falls
chemical spill on the table	acid burn if spill is corrosive
working with broken glassware	getting a cut
pouring acid into a test tube without using a test tube rack	acid burn

Safety do's and don'ts

Each of the following situations could happen in a science classroom.

Describe the unsafe practices and explain what should be done.

1. You mix two chemicals and notice that a bright yellow gas is produced. You were told to make some observations, so you hold the beaker up close to your face so you can see the gas and smell the fumes.

Unsafe practice: _____

Correct thing to do: _____

2. Your partner's shirt catches on fire while using the Bunsen burner. You tell your partner to stay still while you run to get a cup of water from the kitchen.

Unsafe practice: _____

Correct thing to do: _____

3. After finishing a lab, you have some chemicals left over. You tell your partner to take them home, so you carefully pour them back into the container you got them from.

Unsafe practice: _____

Correct thing to do: _____

4. You accidentally spill some water on the classroom floor. You tell your partner to clean it up, so you only water and it will quickly evaporate.

Unsafe practice: _____

Correct thing to do: _____

5. You were talking with your partner and did not hear the teacher's instructions on how to do the lab. You figure that it will be okay if you and your partner do what everybody else is doing.

Unsafe practice: _____

Correct thing to do: _____

6. You need to use some copper (II) sulfate, which is a blue liquid. You find a flask with blue liquid in it and use that. There is no label on the flask, so you assume it is the only one with a blue liquid in it.

Unsafe practice: _____

Correct thing to do: _____





ANSWERS

1. Unsafe practice: improper way of smelling sample
Correct thing to do: hold the beaker at arm's length and waft the fumes toward the nose
2. Unsafe practice: not taking immediate action
Correct thing to do: tell partner to stop, drop, and roll; inform the teacher; use the fire blanket
3. Unsafe practice: pouring chemical back into the original container
Correct thing to do: dispose of the chemical as instructed by your teacher
4. Unsafe practice: spill on the floor; someone could slip and fall
Correct thing to do: clean up the spill immediately
5. Unsafe practice: not listening to instructions
Correct thing to do: listen to the teacher's instructions; ask the teacher if you are unclear as to what you should be doing
6. Unsafe practice: using a chemical that is not clearly labelled; do not know for sure what chemical you are using
Correct thing to do: only use chemicals in clearly marked containers

What is WHMIS?

In the second column, write the name of each WHMIS symbol. Then choose the correct meaning of the symbol from the list below. Write the meaning in the third column.

- ◆ Likely to cause illness or death if ingested or spilled on skin
- ◆ Will readily burst into flame
- ◆ May cause harmful health effects
- ◆ Will corrode substances with which it comes in contact, including human flesh

WHMIS symbol	Name of the symbol	What the symbol means
1. 	1. Corrosive material: will corrode substances with which it comes in contact, including human flesh	
2. 	2. Health Hazard: will cause a risk to a person's health if exposed to. Respiratory danger (inhalation)	
3. 	3. Flammable and combustible material: will readily burst into flames	
4. 	4. Poisonous and infectious material causing immediate and serious toxic effects: likely to cause illness or death if ingested or spilled on skin	