

Name:

SCIENCE 10: INTRODUCTORY WORK BOOKLET

1. Scientific Method
2. Lab Safety
3. W.H.M.I.S



Name:

Partner:

Designing an Experiment

Design an **experiment** to answer each experimental question. You should identify **dependent variable, independent variable, and controlled variables**. (2 marks each)

1. Does tomato juice make hair grow faster?
2. Does the amount of sugar affect the size of bread?
3. Does cellphone use affect student grades in high school?
4. Do wounds heal faster when they are covered by Band-Aids?
5. What causes leaves to fall in autumn (light, temperature, or both)?

Example: Does footwear have an affect on a runner's speed?

Experiment:

- Find 4 different types of footwear: Nike basketball shoes, casual shoes, running shoes, boots
- Have the same person run 100m in each shoe.
- Record the time it takes the person to run in each shoe.
- Analyze which footwear provides the greatest speed (shortest time) and attempt to provide an explanation.

Dependant variable: Type of shoe (what we change)






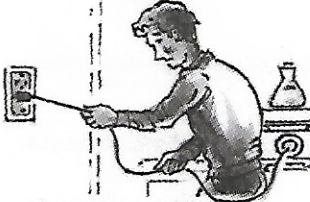
Independent variable: Speed or time (what we measure)

Controlled variables: Runner, track, weather, timer

Safety in the Science Class

Use with textbook pages xvi-xvi and 91-93.

Identify the problem in each scenario shown below. Describe how to fix the problem.

	Scenario	Describe the problem	Describe how to fix the problem
1.		<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
2.		<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
3.		<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
4.		<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
5.		<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
6.		<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

Safety First

Use with textbook pages xvi-xvii and 91-93.

For each scenario, describe what you would do to carry out safe practice in the science classroom.

1. You have read over the procedures to the investigation, but are still unsure about what to do.

2. You did not have a chance to finish your lunch because you were playing basketball with your friends. You plan to eat your sandwich and drink your juice during your lab.

3. You are wearing a scarf around your neck and a blouse with loose and baggy sleeves. You are about to turn on the Bunsen burner.

4. You wash your hands before starting your lab. You reach for the electrical cord to plug it in.

5. You picked up your equipment from the side counter and notice that one of the glass beakers is cracked and broken.

6. You accidentally spilled some chemicals on your hand and begin to rub your eyes.

7. After you are done with the lab, the hot beaker is still sitting on the hot plate. You need to start cleaning up.

WHMIS Symbols

Use with textbook page xv.

1. Label the following WHMIS 2015 symbols by placing the name for the symbol inside the box.

a)

b)

c)

d)

e)

f)

g)

h)

i)

j)

2. Pictograms are used for the WHMIS symbols. What do they convey?

3. Ammonia is commonly found in many laboratories. Below are three WHMIS symbols that are found on the safety label for ammonia.



a) What are the hazards associated with these WHMIS symbols?

b) Describe two safety precautions you should take when using ammonia.

c) Suggest a place to store ammonia.

4. You have been told that a chemical can cause damage to some of your internal organs if there is prolonged exposure to the skin. Also that it should be kept away from heat sources because it is highly flammable.

a) What two WHMIS symbols would be on a safety label for this chemical?










b) What are the hazards associated with these WHMIS symbols?

c) Describe two safety precautions you should take when using this chemical.

The Meaning Behind WHMIS Symbols

Use with textbook page xv.

Match each description on the left with the best WHMIS pictogram on the right. Each WHMIS pictogram may be used more than once.

Description	WHMIS Pictogram
1. ___ fire hazards	A. 
2. ___ is highly reactive	B. 
3. ___ oxidizing hazards	C. 
4. ___ explosion hazards	D. 
5. ___ may eat away at metals	E. 
6. ___ harmful to eyes and skin	F. 
7. ___ catches fire spontaneously	G. 
8. ___ harmful to the environment	H. 
9. ___ compressed gas under pressure	I. 
10. ___ may cause serious health effects	
11. ___ has negative impact on aquatic life	
12. ___ may cause cancer and birth defects	
13. ___ may cause fire by promoting combustion	
14. ___ may explode if container is heated or punctured	
15. ___ may cause damage to organs or allergic reactions	
16. ___ may cause explosion due to reactivity, fire, or heat	
17. ___ causes severe skin burns and serious damage to eyes	
18. ___ may cause death or toxicity with exposure to small amounts	

19. Identify the four WHMIS symbols that are associated with health hazards.
Draw them.

20. Identify the four WHMIS symbols that are associated with physical hazards.
Draw them.

21. Identify the WHMIS symbol that is associated with environmental hazards.
Draw it.
