

**Lab Skills & Chemistry****Station 1: Lab Equipment**

1. Using the equipment provided on the table, match the equipment with the names below. Write a description of what it is used for.

| <b>Name</b>             | <b>Description</b> |
|-------------------------|--------------------|
| ____ Beaker             |                    |
| ____ Hot plate          |                    |
| ____ Erlenmeyer flask   |                    |
| ____ Bunsen burner      |                    |
| ____ Eyedropper         |                    |
| ____ Graduated cylinder |                    |
| ____ Funnel             |                    |
| ____ Scoopula           |                    |
| ____ Weigh boat         |                    |
| ____ Thermometer        |                    |
| ____ Striker            |                    |
| ____ Test tube holder   |                    |
| ____ Digital Scale      |                    |
| ____ Safety glasses     |                    |
| ____ Test tube brush    |                    |
| ____ Test tube          |                    |

## Station 2: Making Observations

Define and give an example for each of the following:

➤ Qualitative observation:

○ Example:

➤ Quantitative observation:

○ Example:

○ Instruments we can use:

Identify the following as a qualitative or quantitative observation:

- 5 cm high \_\_\_\_\_
- Moves 5 km/hr \_\_\_\_\_
- Colourless \_\_\_\_\_
- Green and blue \_\_\_\_\_
- Feels slippery \_\_\_\_\_
- Tastes salty \_\_\_\_\_

At the table there are three objects. Make 2 qualitative observations and 2 quantitative observations for each of the objects. Complete the chart.

| OBJECT   | Qualitative observation | Quantitative observation |
|----------|-------------------------|--------------------------|
| <b>A</b> | 1.<br><br>2.            | 1.<br><br>2.             |
| <b>B</b> | 1.<br><br>2.            | 1.<br><br>2.             |
| <b>C</b> | 1.<br><br>2.            | 1.<br><br>2.             |

### Station 3: Models

Complete the chart below using the pre-built models at the tables.

White - Hydrogen

Black - Carbon

Blue - Nitrogen

Green - Fluorine

| Name            | Formula | Bohr Diagram | Ionic or Covalent |
|-----------------|---------|--------------|-------------------|
|                 |         |              |                   |
|                 |         |              |                   |
|                 | NaCl    |              |                   |
| Potassium Oxide |         |              |                   |

## Station 4: Summary Questions

1. List the 6 steps of the scientific method.
  - i.
  - ii.
  - iii.
  - iv.
  - v.
  - vi.
  
2. You plant two apple trees in your backyard. They get the same amount of rain and sunlight. You give special fertilizer to only one of the apple trees to see if it helps it grow faster.
  - What is the independent variable?
  
  - What is the dependent variable?
  
  - What are two controls in this experiment?
  
  - Write a hypothesis for this experiment

If... \_\_\_\_\_

Then ... \_\_\_\_\_

3. Identify the following as true or false.

\_\_\_\_\_ You may eat and drink during a lab as long as you keep the food clean.

\_\_\_\_\_ Goggles must be kept in place until *everybody* has finished the lab.

\_\_\_\_\_ The teacher appreciates your imaginative additions to the lab; feel free to improvise.

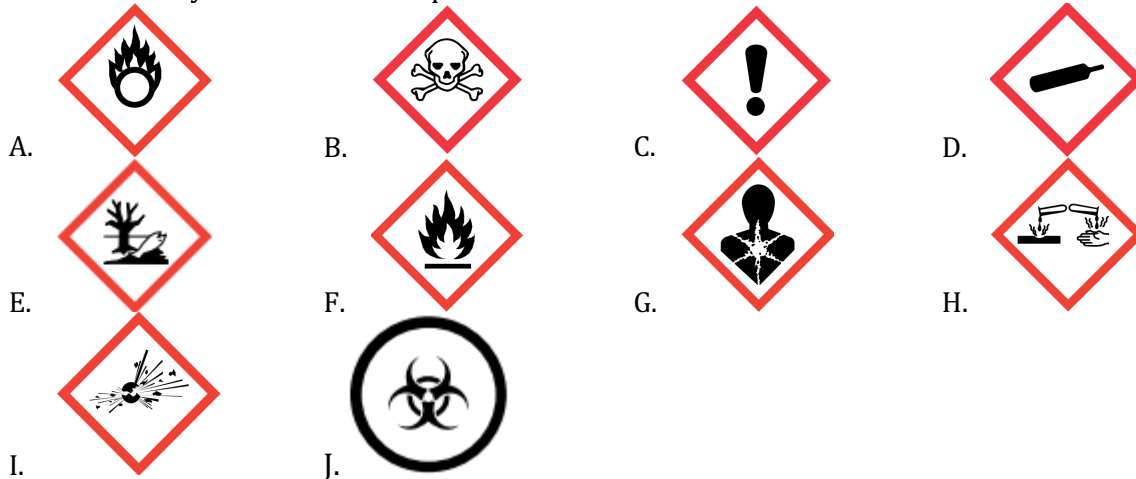
\_\_\_\_\_ If a chemical gets in your eye, you must rinse your eye under the *faucet in the sink*.

\_\_\_\_\_ Most people will not be calm enough to remember to stop, drop and roll if their clothing is on fire.

\_\_\_\_\_ Always cut toward *yourself* when using a knife or razor blade.

\_\_\_\_\_ Your hands *cannot* be wet if you are handling electrical cords.

4. Match the WHMIS symbol to the description.



- \_\_\_ Gas under pressure
- \_\_\_ Fire hazard that may burst into flames in air or water
- \_\_\_ React chemically to oxidize combustible materials
- \_\_\_ If inhaled, contacts the skin, or swallowed may be fatal, toxic or harmful
- \_\_\_ May cause or suspected to cause serious health effects after acute or repeated exposure to the substance
- \_\_\_ May cause acute toxicity, skin corrosion, serious eye damage/irritations, respiratory or skin sensitization, or target specific organ toxicity
- \_\_\_ For corrosive damage to metals, eyes, skin
- \_\_\_ For explosive or reactive hazards
- \_\_\_ For organisms or toxins that can cause disease in people or animals.
- \_\_\_ May cause damage to the aquatic environment.

5. Classify the following as an element, compound, heterogeneous mixture, or homogeneous mixture

- |                          |                               |
|--------------------------|-------------------------------|
| a. Granola _____         | e. $C_{12}O_{22}H_{11}$ _____ |
| b. Coffee _____          | f. Silver _____               |
| c. Sodium chloride _____ | g. Water _____                |
| d. Steel _____           | h. Zinc _____                 |

6. Classify the following as a physical or a chemical change

- a. Crushing a can: \_\_\_\_\_
- b. Burning a log: \_\_\_\_\_
- c. Mixing cake batter: \_\_\_\_\_
- d. Baking a cake: \_\_\_\_\_

7. Complete the following table:

| Element Name  | Element Symbol (charge) | Number of Protons | Number of Electrons | Number of Neutrons |
|---------------|-------------------------|-------------------|---------------------|--------------------|
| Potassium ion |                         |                   |                     |                    |
| Sulfur ion    |                         |                   |                     |                    |
|               | Xe                      |                   |                     |                    |
|               | Mg <sup>2+</sup>        |                   |                     |                    |
|               |                         | 56                | 54                  |                    |
|               | F <sup>-</sup>          |                   |                     |                    |

8. Write the names of these compounds. Indicate if it is ionic or covalent (I or C).

- a. CsBr \_\_\_\_\_
- b. CuCl<sub>2</sub> \_\_\_\_\_
- c. Cr<sub>2</sub>(CO<sub>3</sub>)<sub>3</sub> \_\_\_\_\_
- d. P<sub>4</sub>Cl<sub>7</sub> \_\_\_\_\_
- e. FeCl<sub>3</sub> \_\_\_\_\_

9. Write the formulas of these compounds. Indicate if it is ionic or covalent (I or C).

- a. Aluminum fluoride \_\_\_\_\_
- b. Chromium (IV) oxide \_\_\_\_\_
- c. Triphosphorus monobromide \_\_\_\_\_
- d. Sulfur tetraiodide \_\_\_\_\_
- e. Lead (IV) hydroxide \_\_\_\_\_