

## PHYSICAL PROPERTIES OF SUBSTANCES LAB

### MATERIALS:

Many different substances in numbered jars.

### PROCEDURE:

1. Pick one jar. Observe the substance inside.
2. Use your handout on "Physical Properties" and the Observation Chart to describe the substances physical properties. DO NOT undo the jars. Do not taste any of the substances.
3. Use your observations to guess what the substance is.
4. Repeat these steps for 5 other jars.

### OBSERVATIONS:

Fill in the chart on the next page.

### DISCUSSION QUESTIONS:

1. a) What ~~3~~<sup>2</sup> senses did you use to observe these substances? *Sight, sound*  
b) Which sense was the most useful for identifying physical properties? *Sight*
2. What is the difference between seeing and observing?
3. Why must you NEVER taste the substances? *can be dangerous/toxic*
4. Why is it important to be able to tell the difference between 2 different substances:  
a) at home?  
b) in the Science lab? *} safety*
5. Can you guess what these substances are?  
a) clear, colourless, odourless, tasteless liquid *Water (H<sub>2</sub>O)*  
b) white, shiny, odourless, salty-tasting solid *Salt (NaCl)*  
c) reddish-brown, shiny, smooth solid *Copper (Cu)*
6. Describe 2 jobs where good observation skills are important.  
*Forensic scientist (crime scene investigator)*  
*Nurses*

## Jar Legend

1. Copper (Cu)
2. Aluminum (Al)
3. Marble ( $\text{CaCO}_3$ )
4. Zinc (Zn)
5. Steel Wool
6. Iron (Fe)
7. Magnesium (Mg)
8. Carbon (C)
9. Tin (Sn)
10. Lead (Pb)
11. Calcium (Ca)
12. Aluminum Foil (Al)
13. Sand
14. Sea Salt (NaCl)

# PHYSICAL VS. CHEMICAL PROPERTIES

Name \_\_\_\_\_

A physical property is observed with the senses and can be determined without destroying the object. For example, color, shape, mass, length and odor are all examples of physical properties.

A chemical property indicates how a substance reacts with something else. The original substance is fundamentally changed in observing a chemical property. For example, the ability of iron to rust is a chemical property. The iron has reacted with oxygen, and the original iron metal is changed. It now exists as iron oxide, a different substance.

Classify the following properties as either chemical or physical by putting a check in the appropriate column.

	Physical Property	Chemical Property
1. blue color	✓	
2. density	✓	
3. flammability		✓
4. solubility	✓	
5. reacts with acid to form $H_2$		✓
6. supports combustion		✓
7. sour taste	✓	
8. melting point	✓	
9. reacts with water to form a gas		✓
10. reacts with a base to form water		✓
11. hardness	✓	
12. boiling point	✓	
13. can neutralize a base		✓
14. luster	✓	
15. odor	✓	