

Name: \_\_\_\_\_

## **Mystery Powders: Physical & Chemical Properties**

### **Objective:**

Students will complete various tests of white powders to develop an understanding of physical and chemical properties. Once students observe the reactions of those powders, they will be given a Mystery Powder. Based on the observations of the reactions of the mystery powder, students should be able to identify the mystery powder.

### **Materials:**

- Small white cup
- Medicine cup
- Clothes pin
- Piece of aluminum foil
- Vinegar (at lab station)
- Iodine (at lab station)

### **Procedures:**

Obtain a medicine cup with 4 teaspoons of a Powder. Complete the following tests for that Powder. Record all observations in the Data Table.

1. **Physical Properties:** Record the physical properties (color, texture, and shape, etc.) of your powder. PLEASE DO NOT TASTE ANY CHEMICALS IN A SCIENCE LAB!!!
2. **Reaction to Water:** Put 1 teaspoon of your powder in a small white cup. Mix 1 teaspoon of water into the powder in the small white cup.
3. **Reaction to Heat:** Make a small "cup" out of aluminum foil for your powder. Place 1 teaspoon of the powder in the foil "cup." Spread the powder out thin. Heat on hot plate for 1-2 minutes. WARNING!!! Foil will be HOT. Use a clothes pin to remove the hot foil cup from the hot plate.
4. **Reaction to Iodine:** Place 1 teaspoon of your powder in a small white cup. Add 3 drops of iodine to the powder in the small white cup.
5. **Reaction to Vinegar:** Place 1 teaspoon of your powder in a small white cup. Add 3 drops of vinegar to the powder in the small white cup.

**\*\*\*Repeat procedures for ALL white powders and record observations in the Data Table.**

Wash and dry all cups and return to front (teacher) table.

## Data Table

Powder	Physical Properties	Reaction to Water	Reaction to Heat	Reaction to Iodine	Reaction to Vinegar	Everyday use for this Powder
Baby Powder						
Corn Starch						
Sugar						
Salt						
Baking Powder						
Baking Soda						
Plaster						
Mystery Powder						

I think the mystery powder is \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_.

1. What is a physical property? Give an example from this lab.
2. What is a chemical property? Give an example from this lab.
3. How do you know that there has been a chemical reaction when you mix baking soda and vinegar together?