

White Before Your Eyes

You have learned how to describe matter based on its physical and chemical properties. You have also learned some signs that can help you determine whether a change in matter is a physical change or a chemical change. In this lab, you'll use what you have learned to describe four substances based on their properties and the changes that they undergo.

OBJECTIVES

Describe the physical properties of four substances. Identify physical and chemical changes. Classify four substances by their chemical properties.

MATERIALS

- baking powder • baking soda • carton, egg, plastic-foam • cornstarch • eyedroppers (3) • iodine solution
- spatulas (4) • stirring rod • sugar • vinegar • water

SAFETY INFORMATION



PROCEDURE

1. Use Table 1 to describe the appearance of four substances and write down your observations.
2. Using a spatula, place a small amount of baking powder into three cups of your egg carton. Use just enough baking powder to cover the bottom of each cup. Record your observations about the baking powder's appearance, such as color and texture, in the "Unmixed" column of Table 1.

Substance	Unmixed	Mixed with Water	Mixed with Vinegar	Mixed with Iodine Solution
Baking Powder				
Baking Soda				
Cornstarch				
Sugar				

3. Use an eyedropper to add 60 drops of water to the baking powder in the first cup. Stir with the stirring rod. Record your observations in Table 1 in the column labeled "Mixed with water." Clean your stirring rod.
4. Use a clean dropper to add 20 drops of vinegar to the second cup of baking powder. Stir. Record your observations in Table 1 in the column labeled "Mixed with vinegar." Clean your stirring rod.

5. Use a clean dropper to add five drops of iodine solution to the third cup of baking powder. Stir. Record your observations in Table 1 in the column labeled "Mixed with iodine solution." Clean your stirring rod. Caution: Be careful when using iodine. Iodine will stain your skin and clothes.

6. Repeat steps 2–5 for each of the other substances (baking soda, cornstarch, and sugar). Use a clean spatula for each substance.

ANALYZE THE RESULTS

1. Examining Data What physical properties do all four substances share?

2. Analyzing Data In Table 2, write the type of change—physical or chemical—that you observed for each substance. State the property that the change demonstrates.

Substance	Mixed with Water		Mixed with Vinegar		Mixed with Iodine Solution	
	Change	Property	Change	Property	Change	Property
Baking Powder						
Baking Soda						
Cornstarch						
Sugar						

DRAW CONCLUSIONS

3. Evaluating Results Classify the four substances by the chemical property of reactivity. For example, which substances are reactive with vinegar (acid)?
