

Name _____ Per _____ Seat# _____ Lab Group# _____



“Ch-ch-ch-changes!”

/50

First person to name the reference correctly gets a ticket! ☺

BACKGROUND:

Changing the state or shape of matter is an example of a **physical change**. Physical changes alter the form of a substance, but not its chemical composition or identity. Crushing a can and tearing paper are examples of physical changes. In a **chemical change**, however, the molecules in a substance combine or break apart to form a new substance. Burning wood and rusting iron are examples of chemical changes. Matter can be described based on its **physical** and **chemical properties**. In this lab, students will describe four substances based on their properties and the changes they undergo.

<u>MATERIALS:</u>	Baking Soda	Vinegar	Baking Powder	Corn Starch
	Goggles	Sugar	Spatula	Stirring Rod
	Disposable Pipets	Water	Transparency	Iodine solution

PROCEDURES:

1	Place baking powder into each square in the row labeled Baking Powder. Do not place any liquids on the first box with Baking Powder. This will be used as a control.
2	Use a clean dropper for each part and make sure you clean your stirring rod each time you use it. Record your observations for every part in Data Table #1 below
3	Add water onto the second square a few drops at a time, observe, and record your observations. Use a stirring rod to stir if necessary.
4	Add vinegar onto the third square a few drops at a time, observe, and record your observations. Use a stirring rod to stir if necessary.
5	Place 5 drops of iodine solution to the fourth square of baking powder. Record the results in the table below. Use a stirring rod to stir if necessary. Caution: Be careful when handling iodine. It will stain your skin and clothes.
6	Repeat steps 3-5 for each of the substances. Clean the spatula (or spoon) for each substance.
7	Fill in Data Table # 2 with physical or chemical change under the Change column, and the property or clue you observed that made it a chemical or physical change under the Property column (reactivity or solubility).

DATA:

Data Table 1: Qualitative Observations

	Unmixed	Mixed with Water	Mixed with Vinegar	Mixed with Iodine
Baking Powder				
Baking Soda				
Cornstarch				
Powdered Sugar				

DATA ANALYSIS:

Write *P* or *C* for physical or chemical change in the *Change* column.

Write the property or clue you observed the *Property* column (reactivity or solubility).

Data Table #2: Properties and Changes

	Mixed with Water		Mixed with Vinegar		Mixed with Iodine	
	<i>Change</i>	<i>Property</i>	<i>Change</i>	<i>Property</i>	<i>Change</i>	<i>Property</i>
Baking Powder						
Baking Soda						
Corn-starch						
Sugar						

POST LAB QUESTIONS: - You are answering the questions AS A LAB GROUP AND WILL BE PROVIDING FEEDBACK ABOUT YOUR GROUP MEMBERS' CONTRIBUTIONS.

Print one copy of the answers, staple all the lab handouts together and staple the printed page to the back of the packet. NOT EVERY QUESTION WILL BE GRADED. I will choose at least one question to read and grade thoroughly. You must RETYPE THE QUESTION and then answer it in full sentences. Make sure to number the retyped Questions so they match the numbering below.

1. Describe the difference between a physical change and a chemical change.
2. What clues, or observations, did you use to decide something was a chemical change?
3. What does fizzing indicate the formation of?
4. What does a color change indicate the formation of?
5. How were all of the **unmixed** substances (baking powder, baking soda, cornstarch, and sugar) similar to each other in terms of the physical properties that you *observed*?
6. What was the only **physical property** that you *tested*?
What is the definition of this physical property?
7. What was the only **chemical property** you tested?
What is the definition of this chemical property?
8. When you cook food, is this an example of a chemical or physical change?
Explain your reasoning.
9. Is it correct to say that chemical changes are not reversible, but physical changes are?
Give examples to explain your reasoning.
10. Explain why it was important to clean the metal spatula after you stirred each powder/liquid.