

Name \_\_\_\_\_

Period \_\_\_\_\_

Partner \_\_\_\_\_

Date \_\_\_\_\_

## Recognizing Chemical and Physical Change

### Prelab Questions

1. Classify each of the following as a SOLID, LIQUID, or GAS:

Sugar solution \_\_\_\_\_ Sugar powder \_\_\_\_\_

Water vapor \_\_\_\_\_ Carbon dioxide \_\_\_\_\_

Salt water \_\_\_\_\_ Baking soda \_\_\_\_\_

2. Classify each of the following as a CHEMICAL or PHYSICAL change:

Burning a match \_\_\_\_\_ Ice melting \_\_\_\_\_

Water boiling \_\_\_\_\_ Ripping a piece of paper \_\_\_\_\_

Digestion of food \_\_\_\_\_ Rusting of iron \_\_\_\_\_

### Procedure

- Put on your safety goggles and proper lab clothes. You must obey all lab rules.
- Record on this page the observations that you make when the chemicals are mixed.
- After completing each of the reactions, carefully clean the test tube or beaker before going on to the next station. Use the test tube brush provided. IF the tube is very milky rinse it with some acetic acid and then wash it.
- Before you leave the laboratory, wash your hands thoroughly with soap and water.
- Mix the chemicals for each reaction listed in the table. Use the amounts specified. The exact amount is not crucial since you are only making qualitative observations.

### Data Table

Reaction Mixture	Chemicals Mixed	Initial Observation
1	Ammonium chloride (1 scoop) + water (~10 mL's)	
2	Calcium chloride (1 scoop) + water (~10 mL's)	
3	Sodium bicarbonate (1 scoop) + acetic acid (1 pipet full)	
4	Calcium carbonate (1 scoop) + acetic acid (1 pipet full)	
5	Sodium hydroxide solution (1 pipet full) + phenolphthalein (1 drop)	
6	Acetic acid (1 pipet full) + phenolphthalein (1 drop)	
7	Sodium bisulfite solution (1 pipet full) + potassium iodate solution (1 pipet full)	
8	Starch (1 scoop) + water (~10 mL's) + iodine solution (1 pipet full)	

### **Post Lab Questions**

You may answer many of these questions by listing the reaction number.

It is important to be able to classify the changes that you observe in the lab.

1. In which of the mixtures did you observe a temperature change?
2. Did the temperature go up or down?
3. In which of the mixtures did you observe a color change?
4. In which of the mixtures did you observe the formation of a gas?
5. How did you know that a gas was produced?
6. In which of the mixtures did you observe the formation of a precipitate? A precipitate is a solid that settles out of a solution.
7. In which mixtures did you observe no reaction?
8. Give four examples of chemical changes that you observed in this experiment.

### **One Step Further**

Based upon what you saw, make an educated guess about what would happen if you mixed the following:

1. Magnesium carbonate + acetic acid
2. Sodium carbonate + acetic acid
3. Ammonium hydroxide + phenolphthalein
4. Hydrochloric acid + phenolphthalein
5. Sodium bicarbonate + hydrochloric acid
6. Hydrochloric acid + sodium hydroxide