

A Chain Reaction

Name: _____ Date: _____ Period: _____

Purpose: To identify if a chemical reaction has occurred by observing any property changes.
Practice identifying chemical reaction types and writing chemical equations.

Research:

Sodium Chloride (_____) or table _____. Tastes good on _____.

Acetic Acid (_____) is a weak _____.

Hydrogen Chloride (_____) is a really _____ acid.

Copper Oxide (_____) is responsible for making a penny look _____.

Acids _____ metals.

Experiment:

Safety Issues:

- **Wear your safety goggles at all times**
- **Please clean up** after your experiment and put **ALL** of the materials back in the bin.
- **Wipe the table** of any chemicals before you leave the room.

- Materials:**
- Metal Scooper
 - Small Flask
 - Acetic Acid
 - Eye Dropper
 - Penny
 - Table Salt
 - Paper Towel
 - Goggles X4

Procedures: Remember **Safety First!!!**

1. Using the metal scooper, cover a penny with salt.
2. Using an eye dropper, cover salted penny with vinegar.
3. Wait 15 – 20 seconds and observe. Be sure to record your observations.
4. Quickly wipe off, record the results in the table.
5. Repeat steps 1 – 4 to the other side of the penny.
6. Rinse your penny with water and let dry. Can you predict what will happen next?

Data Collection: Table 1: Observations of Chemical Interaction			
Properties of the <u>Reactants</u>	Observations <u>during</u> the reaction	Properties of the <u>Products</u>	Drawing of the Penny <u>before</u> and <u>after</u>
<p><u>Acetic Acid:</u></p> <p><u>Sodium Chloride (salt):</u></p> <p><u>Copper Oxide (Crusty Penny):</u></p>			<u>Before:</u>
			<u>After:</u>

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Analysis:

1. What evidence supports the observation of a chemical reaction?

2. What happened to the penny? Did the penny's mass change? Why or why not?

Conclusion:

3. You just observed 2 different chemical reactions happening. The chain reaction began with the Sodium Chloride and Acetic Acid Reaction.

- a. The first reaction involved Sodium Chloride and Acetic Acid. They combined to produce Hydrogen Chloride and Sodium Acetate. Write a chemical equation using the following chemical formulas: **C₂H₄O₂** **HCl** **NaCl** **C₂H₃O₂Na**

_____ () + _____ () → _____ () + _____ ()

What type of reaction occurred above: **Explain why.** (See notes on page 83 for help)

- b. The second reaction happened right after the first and involved one of the products. Hydrogen Chloride reacts with Copper Oxide to produce Copper Chloride and Water. Write a chemical equation using the following chemical formulas:

H₂O **CuO** **HCl** **CuCl₂**

_____ () + _____ () → _____ () + _____ ()

What type of reaction occurred above: **Explain why.** (See notes on page 83 for help)
