Name:_____

Classifying Reaction Types

Purpose

- Perform a composition, decomposition, single displacement and double displacement reaction
- Make observations of chemical reactions and categorize them.
- Write and balance chemical equations.

This will take place over days.

Safety

- Always wear safety goggles when working in the lab.
- When cleaning up, pour all solutions in the designated chemical waste container.

Materials

- goggles
- 7 graduated cylinders (10 mL)
- 8 test tubes
- test tube rack
- steel wool
- scoopula
- magnesium ribbon
- crucible tongs
- Bunsen burner
- copper wire
- zinc strip
- pH strips
- water
- rubber stopper
- wooden splint
- matches
- catalase/potato piece
- hydrogen peroxide (5–6%)
- 1.0 M hydrochloric acid

0.1 M of the following:

- copper(II) sulfate solution
- potassium carbonate solution
- sodium oxalate solution
- copper(II) chloride solution
- calcium chloride (solid)
- calcium oxide (solid)

_____Teacher Checkpoint. Pre Lab

- Instructions: Make sure to write the proper formula for each of the chemicals we are going to be using.

Hydrochloric Acid_____

Copper (II)Chloride_____

Magnesium Metal_____

Zinc Metal_____

Sodium Carbonate_____

Copper(II)sulfate_____

Hydrogen Peroxide_____

Calcium Oxide_____

Procedure

REACTION A

1. Create a small puddle of water (about the size of a nickel).
2. Add a few crystals of copper(II)chloride.
3. Add a small piece of magnesium
4. Record observations before and after the reaction.

Observations

Reaction	Observation before reaction:	Observations after reaction:
A		
Possible Type of Reaction		
Balanced Equation		

REACTION B

1. Make a small puddle of water on a piece of paper.
2. Add a few crystals of sodium carbonate to one side of the puddle. Observe.
3. Add a few crystals of copper (II) sulfate to the other side of the puddle. Observe.
4. Push the crystals in the puddle.
5. Wait and observe.

Observations

Reaction	Observation before reaction:	Observations after reaction:
B		
Possible Type of Reaction		

Balanced Equation	

REACTION C

1. Create two "puddles" of water, about the size of a nickel.
2. In one puddle add about two match head amounts of Calcium Oxide.
3. Use the pH paper and test both "puddles" after 5 minutes.
4. Record all observations.

Reaction	**Observation before reaction:D**	**Observations after reaction:**
C		
Possible Type of Reaction		
Balanced Equation		

REACTION D 1 and 2

1. Place 10 mL of 1.0M hydrochloric acid solution in a test tube. Record your observations.
2. Take a piece of zinc and sand it with steel wool. Record your observations.
3. Place the zinc in the test tube. Record. This is reaction D-1.
4. Hold an empty test tube over the test tube with the zinc and acid. Capture any gas. Test the gas with a burning wood splint.
5. Record your observations. This is D-2.

Reaction	Observation before reaction:	Observations after reaction:
D-1		
Possible Type of Reaction		
Balanced Equation		

Reaction	Observation before reaction:	Observations after reaction:
D-2		
Possible Type of Reaction		
Balanced Equation		

REACTION E

1. Place 10 mL of hydrogen peroxide in a test tube. Record your observations.
2. Record observations of a small sample of potato (catalase). Add it to the test tube. Quickly place the rubber stopper LIGHTLY onto the test tube.
3. Observe what happens. Allow the reaction to carry on for about 10 seconds.
4. Light a wooden splint using a match. Blow out the flame. The splint should glow. Remove the stopper from the test tube and place the glowing splint into the test tube. Record your observations of the splint.

Reaction	Observation before reaction:	Observations after reaction:
E		
Possible Type of Reaction		
Balanced Equation		

1. For the products identified in reactions A–E, match the observations you made to the products predicted by your chemical equation. For example, if your reaction produced a yellow precipitate, then you would say: In reaction X, the yellow precipitate that formed was lead(II) iodide.

Reaction A

Reaction B

Reaction C

Reaction D-1

Reaction D-2

Reaction E

2. How do you know a chemical change occurred in each reaction?

3. If you measured the mass of the reactants before the reaction and the mass of the products after the reaction, what would you expect to find? Why? How does balancing an equation support this idea?

9.0 Balanced Reactions. I can balance chemical reactions._____

Exceeds Expectations, Meets Expectations, Emerging, Not there yet,

9.2 Types of Reactions. I can identify and predict types of reactions._____

Exceeds Expectations, Meets Expectations, Emerging, Not there yet,