

Name: \_\_\_\_\_

Section: \_\_\_\_\_

## Report Form – Chemical Reactions

Write your observations for the evidence of the reaction, no reaction, or specific observation requested.

### Part A: Combination (Synthesis) Reaction

Observation:

### Part B: Decomposition Reactions

a. How long did splint burn?

b. How long did splint burn?

### Part C: Single Replacement Reactions

1. Observation:

2. Observation:

3. Observation:

### Part D: Double Replacement Reactions

1. a. Observation

b. Observation

2. a. Observation

b. Observation

3. a. Observation

b. Observation

4. Observation:

How many drops of NaOH?

5. Observation:

How many drops of NaOH?

FOR PARTS A AND B: TRANSLATE EACH WORD EQUATION INTO A BALANCED CHEMICAL EQUATION.

A. Magnesium metal<sub>(s)</sub> + oxygen<sub>(g)</sub> yields magnesium oxide<sub>(s)</sub>

B. Sodium hydrogen carbonate<sub>(s)</sub> is heated to form sodium carbonate<sub>(s)</sub> + water<sub>(l)</sub> + carbon dioxide<sub>(g)</sub>

**Question:** Note the differences in length of time the splint burned in Part B #2 with and without heating the sodium hydrogen carbonate. Explain why, in terms of the chemical reaction.

FOR PART C, WRITE THE BALANCED MOLECULAR, COMPLETE IONIC, AND NET IONIC EQUATIONS FOR EACH. (Note: silver has a 1+ charge when in a compound)

C. 1. Copper<sub>(s)</sub> + silver nitrate<sub>(aq)</sub> yields copper (II) nitrate<sub>(aq)</sub> + silver<sub>(s)</sub>

Balanced:

Complete Ionic:

Net Ionic:

2. Magnesium<sub>(s)</sub> + hydrochloric acid<sub>(aq)</sub> yields magnesium chloride<sub>(aq)</sub> + hydrogen<sub>(g)</sub>

Balanced:

Complete Ionic:

Net Ionic:

3. Calcium<sub>(s)</sub> + water<sub>(l)</sub> yields calcium hydroxide<sub>(s)</sub> + hydrogen<sub>(g)</sub>

Balanced:

Complete Ionic:

Net Ionic:

**Question:** In Part C, #2 and #3, did your observations concerning the flaming wooden splint agree with the reactions you wrote for this part? Explain.

FOR PART D WRITE THE BALANCED MOLECULAR, COMPLETE IONIC, AND THE NET IONIC EQUATIONS FOR EACH (Note: silver has a 1+ charge and zinc has a 2+ charge when in a compound)

D. 1a. Silver nitrate<sub>(aq)</sub> + potassium iodide<sub>(aq)</sub> yields silver iodide<sub>(s)</sub> + potassium nitrate<sub>(aq)</sub>

Balanced:

Complete Ionic:

Net Ionic:

1b. Silver nitrate<sub>(aq)</sub> + sodium phosphate<sub>(aq)</sub> yields silver phosphate<sub>(s)</sub> + sodium nitrate<sub>(aq)</sub>

Balanced:

Complete Ionic:

Net Ionic:

2a. Zinc nitrate<sub>(aq)</sub> + sodium carbonate<sub>(aq)</sub> yields zinc carbonate<sub>(s)</sub> + sodium nitrate<sub>(aq)</sub>

Balanced:

Complete Ionic:

Net Ionic:

2b. Zinc nitrate<sub>(aq)</sub> + sodium phosphate<sub>(aq)</sub> yields zinc phosphate<sub>(s)</sub> + sodium nitrate<sub>(aq)</sub>

Balanced:

Complete Ionic:

Net Ionic:

3a. Aluminum nitrate<sub>(aq)</sub> + potassium iodide<sub>(aq)</sub> yields aluminum iodide<sub>(aq)</sub> + potassium nitrate<sub>(aq)</sub>

Balanced:

Complete Ionic:

Net Ionic:

**Question:** Does your observation for 3a agree with this net ionic equation?

3b. Aluminum nitrate<sub>(aq)</sub> + sodium phosphate<sub>(aq)</sub> yields aluminum phosphate<sub>(s)</sub> + sodium nitrate<sub>(aq)</sub>

Balanced:

Complete Ionic:

Net Ionic:

4. Nitric acid<sub>(aq)</sub> + sodium hydroxide<sub>(aq)</sub> yields sodium nitrate<sub>(aq)</sub> + water<sub>(l)</sub>

Balanced:

Complete Ionic:

Net Ionic:

5. Sulfuric acid<sub>(aq)</sub> + sodium hydroxide<sub>(aq)</sub> yields sodium sulfate<sub>(aq)</sub> + water<sub>(l)</sub>

Balanced:

Complete Ionic:

Net Ionic:

**Question:** In Part D, #4 and #5 start with equal amounts of 0.1 M acids. Looking at the balanced chemical reactions for these parts, why did the sulfuric acid need more sodium hydroxide to turn the phenolphthalein pink than the nitric acid?