Evidence of a Chemical Change lab Name: _____

Purpose: One way of knowing that a chemical change has occurred is to observe that the properties of the products differ than those of the reactants. In this activity you will observe a sequence of changes that occur when a solution is treated with a series of different reactants. All of the reactions will take place in the same test tube. At each step, you will look for evidence that a new substance is formed as a result of a chemical change.

Procedure & Observations:

1. Add 25 drops of copper (II) nitrate to the test tube. Record what you see below:

2. Add 25 drops of sodium hydroxide to the test tube. Mix the solutions using the "knocking" method. Look in the test tube for a change in phase (state of matter). Record detailed observations below:

3. Place test tube in hot water bath for about 2 minutes. Record observations below:

4. Remove test tube from hot water bath. Add 25 drops of HCl to the test tube. Mix **thoroughly** using the knocking method. The solution should eventually turn clear. Record observations below:

5. Place a piece of Mg in the test tube. Leave it until the reaction for 2 minutes. Record observations below:

6. Place 2 drops of $AgNO_3$ (silver nitrate) in the test tube. Record observations below:

Clean-Up: Pour solution down sink. Refill pipets if necessary.

Balancing Equations: Write formulas & **balance** the following reactions you did in the lab...

rxn #2: copper (II) nitrate + sodium hydroxide were reactants in a ***double replacement*** reaction:

rxn #3: copper (II) hydroxide + heat ---> water + copper (II) oxide:

rxn #4: copper (II) oxide + hydrochloric acid were reactants in a ***double replacement*** reaction:

rxn #5a: copper (II) chloride + magnesium were reactants in a ***single replacement*** reaction:

rxn #5b: hydrochloric acid + magnesium were reactants in a ***single replacement*** reaction:

rxn #6: excess hydrochloric acid + silver nitrate were reactants in a ***double replacement*** reaction: