Chemistry Name_____ Date_____ Per____

Classifying Chemical Reactions Lab

I. Purpose: Chemists try to make sense of the great variety of possible chemical reactions by sorting reactions into groups and classifying them. This allows a chemist to find patterns and to predict the products of a chemical reaction. In this lab you will observe and write balanced reactions for five general types of chemical reactions.

II. Procedure:

Reaction #1: Single Replacement

Place a small piece of copper wire in a well plate. Add 2 - 5 drops of 0.1 M silver nitrate solution. Observe what happens. If you don't observe much immediately, come back to the lab station at a later time and observe.

Reaction #2: Double Replacement

Add a finger of milk of magnesia (magnesium hydroxide) to a test tube. Add 1-2 drops of universal indicator. Add hydrochloric acid (HCl) dropwise and record observations. Note: Universal indicator changes color with changing pH. Magnesium hydroxide is a base.

Reaction #3: Combination

Steel wool is made of iron. Hold a small amount of steel wool in the tongs. Light the burner and place the steel wool into the flame (not the tongs!). Let any ashes fall onto the watch plate. What is in air that reacts with iron? Record observations.

Reaction #4: Decomposition

Place several drops of hydrogen peroxide (H_2O_2) into a well plate that has a small amount of manganese dioxide (MnO_2) at the bottom. MnO_2 is not a reactant. Instead it acts as a catalyst to speed up the reaction. Record observations.

Reaction #5: Combustion (Teacher Demo)

Observe what happens when isopropyl alcohol ($CH_3CH_2CH_2OH$) combusts in air.

III. Observations:

Record detailed observations for each reaction.

IV. Conclusions:

For each reaction write a balanced chemical equation.

For each reaction use colors to draw the reactions at the particulate level.