FLINN SCIENTIFIC

Name_____

Data Table

Sequence of Chemical Reactions

Part	Observations (Record detailed data of colors, physical states, evolution of heat, gases, bubbles, precipitates, or odors. Also record any problems/mishaps which could affect percent recovery.)
A	Initial Mass of Copper =
B	
C	
D	
E	
F	
G	
	Final Mass of Copper =

Post-Lab Questions and Calculations

(Answer all questions on a separate sheet of paper. Show all calculations clearly.)

1. For each reaction, write a balanced stoichiometric equation. *Note*: Parts B, E, and G include a second reaction in which excess reagents are used up. Include these reactions as well.
   a. Include all physical states, using the following abbreviations: s = solid, l = liquid, g = gas, aq = aqueous
   b. Write the color of each material under the formula in the balanced equations.
   c. Label the reaction type for each equation (whether it is a double replacement, single replacement, decomposition, or synthesis reaction).
2. What is the maximum temperature to which the evaporating dish containing copper will be heated in Part G? How is this known?
3. What will happen if the copper is overheated during the drying process? How will this affect the percent recovery?
4. Comment on the physical appearance of the reclaimed copper. How could it be made to look more like the original copper?
5. Calculate the percent of recovery of the copper by means of the formula for percent yield.

$$\text{Percent yield} = \frac{\text{mass of copper recovered}}{\text{mass of copper used}} \times 100\%$$

6. Calculate the amount of copper lost (or gained) during the reaction series.
7. List some possible experimental errors that might lead to a mass of reclaimed copper *less* than that originally used.
8. List some possible experimental errors that might lead to a mass of reclaimed copper *greater* than that originally used.