Name_____

Single Replacement Reactions and Metal Activity

Data Table

Row	Metal	Column 1 $CuSO_4$ Solution	Column 2 $FeSO_4$ Solution	Column 3 $Mg(NO_3)_2$ Solution	Column 4 $AgNO_3$ Solution	Column 5 $ZnSO_4$ Solution
A	Cu					
B	Fe					
C	Mg					
D	Zn					

Post-Lab Questions *(Use a separate sheet of paper to answer the following questions.)*

1. Which metals reacted with (a) the most metal ion solutions and (b) the fewest metal ion solutions?

2. Compare the general trend in the reactivity of Cu, Fe, Mg, and Zn and rank the metals from most active (first) to least active (last).

3. Because silver metal is expensive, it was not used in this experiment. Based on the observed reactions of Cu, Fe, Mg, and Zn with silver nitrate, explain why it was not necessary to test silver in order to determine its activity.

4. Rewrite the activity series of the metals (Question #2) to include silver.

5. Write the balanced, *net ionic equation* for each single replacement reaction of a metal (M) with a metal ion (N^{x+}) observed in this activity. *Hint:* Substitute the symbols of the metals and metal ions into the following equation and remember to balance the charges.

$$M(s) + N^{x+}(aq) \rightarrow M^{y+}(aq) + N(s)$$

6. The substance that accepts electrons and is reduced in an oxidation–reduction reaction is called the oxidizing agent (it causes the oxidation of another substance). The substance that gives up electrons and is oxidized acts as a reducing agent (it causes the reduction of another substance). An active metal is a good reducing agent: *True or False?* Explain.