

Chemical Reactions Ws #4: Single Replacement Reactions

A. Use the "Reactivity series of Metals" reference sheet or the trend in electronegativity in the Halogens to answer the following questions.

1. Would it be safe to drop a gold ring into a solution of Copper nitrate? Explain
2. What would happen if you mixed a solution of Copper nitrate with an Iron rod?
3. Why do you think the hydrogen from steam can replace more metals in a single replacement reaction than can the hydrogen from cold water?
4. Which is the most reactive of the transition metals?
5. Which family contains the most reactive metals?
6. What is the trend in electronegativity for the halogens and how does this relate to their reactivity?
7. Which halogen will replace bromine in a reaction, but not fluorine?

B. Write correct formulas for the products in these single replacement reactions. Use the "Reactivity series of Metals" reference sheet or the trend in electronegativity in the Halogens to determine if each reaction will occur. Be sure to balance each equation. If no reaction will occur, write "No Rxn" If a transition metal is present, show both possible reactions.

1. $\text{Al} + \text{Pb}(\text{NO}_3)_2 \rightarrow$
2. $\text{Cl}_2 + \text{NaI} \rightarrow$
3. $\text{Cr} + \text{H}_2\text{O} (\text{l}) \rightarrow$
4. $\text{Fe} + \text{AgC}_2\text{H}_3\text{O}_2 \rightarrow$
5. $\text{Pb} + \text{Sn}(\text{OH})_2 \rightarrow$
6. $\text{Al} + \text{CuCl}_2 \rightarrow$
7. $\text{Br}_2 + \text{CaI}_2 \rightarrow$
8. $\text{Al} + \text{HCl} \rightarrow$
9. $\text{Mg} + \text{HCl} \rightarrow$
10. $\text{Ag} + \text{NaOH} \rightarrow$
11. $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow$
12. $\text{Fe} + \text{CuSO}_4 \rightarrow$
13. $\text{Cl}_2 + \text{MgI}_2 \rightarrow$