

TEACHING TRANSPARENCY WORKSHEET

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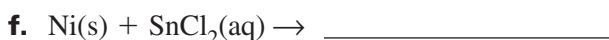
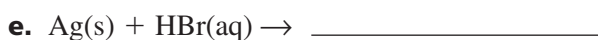
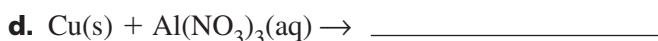
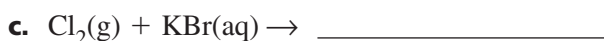
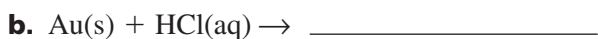
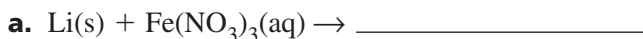
The Activity Series

Use with Chapter 9,
Section 9.2

1. For each of the following pairs of elements, underline the one that would replace the other element in a compound.

- | | |
|------------------------|---------------------|
| a. calcium, tin | e. iron, copper |
| b. bromine, fluorine | f. iodine, chlorine |
| c. aluminum, potassium | g. silver, lead |
| d. zinc, sodium | |

2. For each of the following reactants, use the activity series to determine whether the reaction would take place or not. If no reaction takes place, write *NR* in the blank. If a reaction does take place, write the formulas for the products of the reaction. (Hint: If an active metal replaces the hydrogen in water, the hydroxide of the active metal forms.)



3. Magnesium metal can be used to remove tarnish from silver items. Silver tarnish is the corrosion that occurs when silver metal reacts with substances in the environment, especially those containing sulfur. Why would magnesium remove tarnish from silver?

4. Use the activity series for metals to explain why copper metal is used in plumbing where the water might contain compounds of many different metals.

5. The last four metals in the activity series of metals are commonly referred to as the "coinage metals." Why would these metals be chosen over more active metals for use in coins? Why do you think some more active metals, such as zinc or nickel, are sometimes used in coins?

Soluble or Insoluble?

Use your solubility table to determine if the following chemicals are soluble or insoluble in water. Write the terms "aqueous" or "solid" next to each chemical.

1. $Ba(CH_3COO)_2$
 2. $LiOH$
 3. $K_2Cr_2O_7$
 4. FeS
 5. K_2SO_4
 6. NH_4NO_3
 7. $NaCl$
 8. $Ca(NO_2)_2$
 9. $Zn_3(PO_4)_2$
 10. Potassium Iodide
 11. Aluminum Chloride
 12. Lithium Sulfate
 13. Calcium Fluoride
 14. Silver Acetate
 15. Copper (I) Dichromate
 16. Zinc Sulfide
 17. Calcium Nitrate
 18. Iron (II) Chlorate
 19. Lead (IV) Iodide
 20. Silver chloride
21. Determine 3 chlorides that are soluble and 3 chlorides that are insoluble.
22. If you were testing water to see if any phosphate ions were present, what metal ions could you add to observe a precipitation reaction?
23. Anytime you see a chemical that has nitrate, sodium, potassium, or ammonium, what should you conclude about its solubility?

WORKSHEET ON SINGLE & DOUBLE REPLACEMENT REACTIONS

Predict the products. Write formulas & balance each reaction. If there is no reaction, then just put NO RXN.

Single Replacement: $A + BC \rightarrow B + AC$ or $A + BC \rightarrow C + BA$ (when A and C are negative ions)

1. Zinc + Hydrogen chloride \rightarrow
2. Magnesium + Hydrogen Sulfate \rightarrow
3. Copper (II) chloride + Fluorine \rightarrow
4. Silver + Sodium Hydroxide \rightarrow
5. Potassium iodide + Bromine \rightarrow
6. Calcium + Hydrogen hydroxide \rightarrow
7. Iron IV oxide + Hydrogen \rightarrow

Double Replacement: $AB + CD \rightarrow AD + CB$

1. Barium chloride + Aluminum sulfate \rightarrow
2. Calcium nitride + water \rightarrow
3. Calcium hydroxide + Hydrogen phosphate \rightarrow
4. Hydrogen sulfate + Sodium hydrogen carbonate \rightarrow
5. Calcium hydroxide + Ammonium chloride \rightarrow
6. Potassium iodide + Lead II Nitrate \rightarrow
7. Sodium acetate + Calcium sulfide \rightarrow

Complete each word equation, write formulas and balance the reaction equation. Then identify and place the type of reaction (single replacement or double replacement) in the blank provided.

1. Zinc + Silver nitrate \rightarrow
2. Aluminum + Hydrogen chloride \rightarrow
3. Magnesium oxalate + Ammonium carbonate \rightarrow
4. Calcium + Aluminum nitrate \rightarrow
5. Potassium fluoride + Lead (II) Nitrate \rightarrow
6. Calcium bromide + Silver nitrate \rightarrow
7. Ammonium phosphate + Barium acetate \rightarrow
8. Sodium chloride + Potassium \rightarrow
9. Magnesium nitrate + ammonium chloride \rightarrow
10. Iron (III) chlorate + calcium \rightarrow
11. Chlorine + Sodium bromide \rightarrow
12. Potassium chloride + Silver nitrate \rightarrow
13. Calcium hydroxide + Hydrogen nitrate \rightarrow
14. Lead II nitrate + Potassium chloride \rightarrow
15. Strontium carbonate + Hydrogen nitrate \rightarrow
16. Gold + Potassium nitrate \rightarrow
17. Zinc + Silver nitrate \rightarrow
18. Aluminum + Copper II sulfate \rightarrow

Solve on notebook paper! In addition to the writing the balanced reactions and the word equations, for any double replacement reaction write the net ionic reaction as well.

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