Name _____ Date _____ Class _____

SECTION 2 Reinforcement

Classifying Chemical Reactions

Chapter 19.2 Review

Directions: *Match the types of chemical reactions in Column II with the description in Column I. Write the letter of the correct reaction in the blank at the left.*

Column I

_____ 1. A precipitate, water, or a gas forms when two ionic compounds in solution are combined.

_____ 2. Two or more substances combine to form another substance.

_____ 3. One element replaces another in a compound.

_____ 4. One substance breaks down into two or more substances.

_____ 5. A type of synthesis reaction that produces heat and light.

Column II

a. synthesis reaction

b. decomposition reaction

c. combustion

d. single-displacement reaction

e. double-displacement reaction

Directions: *Write the name of the type of chemical reaction in the space provided.*

_____ 6. $4Fe(s) + 3O_2(g) \rightarrow 2Fe_2O_3(s)$

_____ 7. $Zn_2(s) + 2HCl(aq) \rightarrow ZnCl_2(aq) + H_2(g)$

_____ 8. $MgCO_3(aq) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2O(l) + CO_2(g)$

_____ 9. $NiCl_2(s) \rightarrow Ni(s) + Cl_2(g)$

_____ 10. $4C(s) + 6H_2(g) + O_2(g) \rightarrow 2C_2H_6O(s)$

_____ 11. $C_{12}H_{22}O_{11}(s) \rightarrow 12C(s) + 11H_2O(g)$

_____ 12. $2LiI(aq) + Pb(NO_3)_2(aq) \rightarrow 2LiNO_3(aq) + PbI_2(s)$

_____ 13. $CdCO_3(s) \rightarrow CdO(s) + CO_2(g)$

_____ 14. $Cl_2(g) + 2KBr(aq) \rightarrow 2KCl(aq) + Br_2(g)$

_____ 15. $BaCl_2(aq) + 2KIO_3(aq) \rightarrow Ba(IO_3)_2(s) + 2KCl(aq)$

_____ 16. $2Mg(s) + O2(g) \rightarrow 2MgO(s)$

_____ 17. $AgNO_3(aq) + KI(aq) \rightarrow AgI(s) + KNO_3(aq)$

_____ 18. $2Li(s) + H_2O(l) \rightarrow 2LiOH(aq) + H_2(g)$

_____ 19. $C(s) + O_2(g) \rightarrow CO_2(g)$

Name _____ Date _____ Class _____

Directed Reading for Content Mastery

Section 1 • Chemical Changes
Section 2 • Classifying Chemical Reactions

Directions: *Complete the paragraphs using the words in the list below.*

amounts **atoms** **chemical reaction** **coefficients** **equation** **forms** **products** **reactants** **substance**

A 1. _____ is a change in which one or more substances are converted into new substances. A chemical 2. _____ is a way to describe a chemical reaction using chemical formulas and other symbols. In a chemical equation, the substances on the left side of the arrow that react are the starting substances called 3. _____. The substances on the right side of the arrow are the substances produced from the reaction, called 4. _____. The arrow means *produces*, or 5. _____.

In a chemical equation, the numbers to the left of the formulas for reactants and products are called 6. _____. They represent the number of units of each 7. _____ taking part in a chemical reaction. Knowing the number of units helps chemists to add the correct 8. _____ of reactants to a reaction. A balanced chemical equation has the same number of 9. _____ of each element on both sides of the equation.

Directions: *Decide if each statement below is true or false. If false, change the italicized term to make the statement correct and write your answer in the blank at the left. If the statement is correct, write* **true** *in the blank.*

_____ 10. In a *single-displacement* reaction, water, a gas, or a precipitate forms when two ionic compounds in a solution are combined.

_____ 11. An insoluble compound formed during a double-displacement reaction is called a *precipitate.*

_____ 12. In a *single-displacement* reaction, one element replaces another element in a compound.

_____ 13. Most chemical reactions can be divided into *five* main groups.

Chapter 19.2 – Chemical Reaction Types

1. _____ $CuCl_2$ -----> $Cu + 2\,Cl_2\uparrow$

2. _____ $Fe + S$ -----> FeS

3. _____ $N_2\uparrow + 3\,H_2\uparrow \xrightarrow{\Delta}$ $2\,NH_3\uparrow$

4. _____ $H_2CO_3 \xrightarrow{\Delta}$ $2\,H_2O\uparrow + CO_2\uparrow$

5. _____ $2\,KBr + H_2SO_4$ -----> $K_2SO_4 + 2\,HBr$

6. _____ $H_2SO_4 + BaCl_2$ -----> $2\,HCl + BaSO_4\downarrow$

7. _____ $3\,Mg + N_2\uparrow$ -----> $2\,Mg_3N_2$

8. _____ $NaCl + AgNO_3$ -----> $NaNO_3 + AgCl\downarrow$

9. _____ $2\,Al + 6\,HCl$ -----> $2\,AlCl_3 + 3\,H_2\uparrow$

10. _____ $3\,Na + I_2$ -----> $2\,NaI$

Types of Chemical Reactions

Composition Reaction

Two or more substances combine to form a more complex product

$2Mg + O_2 \quad 2MgO$

Decomposition

Compounds that are broken into simpler substances.

$2H_2O \quad 2H_2 + O_2$

Single Replacement

One element replaces another element in a compound

$3C + 2Fe_2O_3 \quad 4Fe + 3CO_2$

Double Replacement

A chemical reaction between two compounds in which parts of each are interchanged to form two new compounds

$AB + CD = AD + CB$