Chapter 8
Study Guide

Name: _____

Date: _____ Per: _____

A. Chemical Reactions

1. Describe a chemical reaction: _____
2. The substances present before a chemical reaction occurs are called the _____.
3. The substances present after a chemical change has occurred are called the _____.
4. Chemical reactions occur because _____.
5. A _____ is a way of describing what occurs in a chemical reaction.
6. In a chemical equation the symbol "→" means _____, and the symbol "+" means _____.
7. In a chemical equation the _____ are placed on the left of the arrow, and the _____ on the right of the arrow.

B. Balancing Chemical Equations

8. The Law of Conservation of Matter states _____.
9. Why do we balance chemical equations? _____.
10. What must be equal in a balanced chemical equation? _____.
11. What is the difference between a subscript and a coefficient in a chemical equation? _____
    _____.
12. The number of atoms of an element in a compound is shown using _____.
13. The number of molecules present in a balanced chemical equation is shown using _____.
14. Name four rules of balancing equations:
    a. _____.
    b. _____.
    c. _____.
    d. _____.
15. What do each of the following symbols mean?
    a. (s) _____ c. (g) _____ e. (cr) _____
    b. (l) _____ d. (aq) _____
16. Balance each of the following equations:
    a. _____$CoCO_3$ → _____CoO + _____CO_2
    b. _____HCl + _____NaOH → _____H_2O + _____NaCl
    c. _____Al + _____Cl_2 → _____$AlCl_3$
    d. _____Zn + _____HCl → _____$ZnCl_2$ + _____H_2
    e. _____Ag + _____S → _____Ag_2S
    f. _____$Mg(ClO_3)_2$ → _____$MgCl_2$ + _____O_2
    g. _____$BaCl_2$ + _____H_3PO_4 → _____$Ba_3(PO_4)_2$ + _____HCl
    h. _____C_4H_{10} + _____O_2 → _____CO_2 + _____H_2O

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C. Types of Equations

Type of Equation	General Formula	Description	Example
Synthesis			
Decomposition			
Combustion			
Single Replacement			
Double Replacement			

17. Label each chemical equation based on its type.

$C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O$ _____

$N_2 + H_2 \rightarrow NH_3$ _____

$Cl_2 + 2NaBr \rightarrow 2NaCl + Br_2$ _____

$CrO_3 + H_2O \rightarrow H_2CrO_4$ _____

$Mg(ClO_3)_2 \rightarrow MgCl_2 + O_2$ _____

$BaCl_2 + H_3PO_4 \rightarrow Ba_3(PO_4)_2 + HCl$ _____

18. Draw a ball & stick model of the following equation. ***Be sure to balance the equation first.***

$$N_2 + H_2 \rightarrow NH_3$$

19. Write an equation to represent the reaction shown in the model below.