Name _____ Class _____ Date _____

Chapter 7 Chemical Reactions

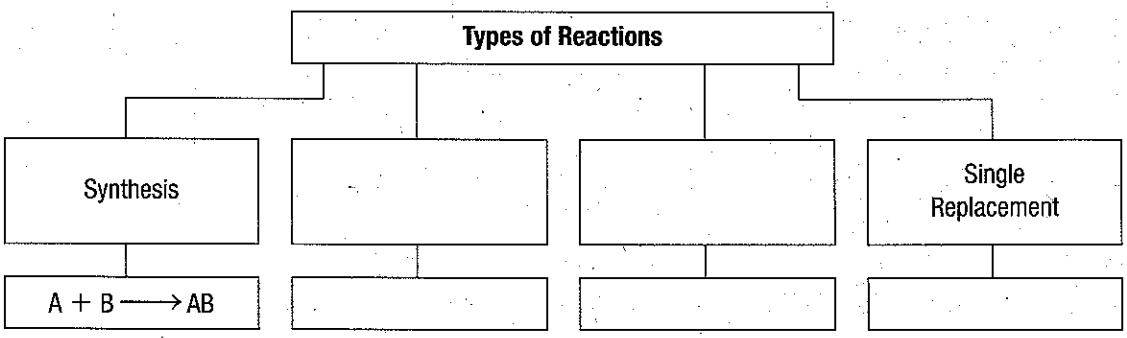
Section 7.2 Types of Reactions

(pages 199–205)

This section discusses how chemical reactions are classified into different types.

Reading Strategy (page 199)

Previewing Skim the section and begin a concept map like the one below that identifies types of reactions with a general form. As you read, add the general form of each type of reaction. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.



Classifying Reactions (pages 199–204)

1. Name five general types of chemical reactions. _____

_____

2. Circle the letter of each equation that represents a synthesis reaction.
   a. $2Na + Cl_2 \longrightarrow 2NaCl$
   b. $2NaCl \longrightarrow 2Na + Cl_2$
   c. $2H_2O \longrightarrow 2H_2 + O_2$
   d. $2H_2 + O_2 \longrightarrow 2H_2O$
3. Is the following sentence true or false? A decomposition reaction is the opposite of a synthesis reaction. _____
4. Write the equation for the decomposition of calcium carbonate into calcium oxide and carbon dioxide. _____
5. Circle the letter of the correct answer. Copper reacts with silver nitrate in a single-replacement reaction. What are the products of this reaction?
   a. copper(II) nitride and silver oxide
   b. copper(II) nitrate and silver
   c. copper(II) oxide and silver nitrate
   d. copper, nitrogen, and silver oxide

6. What is a double-replacement reaction? _____

_____

7. Complete the chart by filling in the general forms of the reactions shown.

General Forms	
Single-Replacement Reaction	**Double-Replacement Reaction**

8. Lead(II) nitrate reacts with potassium iodide to form lead(II) iodide and potassium nitrate. Write the balanced equation for this double-replacement reaction. _____

9. Circle the letter of the correct answer. Calcium carbonate, $CaCO_3$, reacts with hydrochloric acid, HCl, in a double-replacement reaction. What are the products of this reaction?

   a. calcium chloride, $CaCl_2$, and carbonic acid, H_2CO_3

   b. calcium hydride, CaH_2, chlorine, Cl_2, and carbon dioxide, CO_2

   c. calcium hydrogen carbonate, $Ca(HCO_3)_2$, and chlorine, Cl_2

   d. calcium perchlorate, $Ca(ClO_4)_2$, and methane, CH_4

10. Is the following sentence true or false? A combustion reaction is a reaction in which a substance reacts with carbon dioxide, often producing heat and light. _____

11. Methane, CH_4, burns in oxygen to form carbon dioxide and water. Write the balanced equation for this reaction. _____

12. Is the following sentence true or false? The reaction that forms water can be classified as either a synthesis reaction or a combustion reaction. _____

Reactions as Electron Transfers (pages 204–205)

13. What is an oxidation-reduction reaction? _____

_____

14. Calcium reacts with oxygen to form calcium oxide. Which reactant is oxidized in this reaction? _____

15. Is the following sentence true or false? When calcium reacts with oxygen, each calcium atom gains two electrons and becomes a calcium ion with a charge of 2–. _____

16. Is the following sentence true or false? Oxygen must be present in order for an oxidation-reduction reaction to take place.

_____

17. The process in which an element gains electrons during a chemical reaction is called _____.