CHAPTER 23 LEARNING OBJECTIVES

Learning Objectives (sections 23.1-23.4)

You should be able to:

1. Describe what is meant by the term mineral, and provide a few examples of common minerals.

2. Define metallurgy and various terms employed in discussions of metallurgy, notably gangue, slag, calcination, roasting, smelting, refining, and leaching.

3. Distinguish among pyrometallurgy, hydrometallurgy, and electrometallurgy, and provide examples of each type of metallurgical process.

4. Describe the pyrometallurgy of iron. Specifically, you should know which ores are employed; the general design of a blast furnace; and the chemical reactions of major importance.

5. Describe the hydrometallurgy of aluminum, including the Bayer process for purification of bauxite.

6. Describe the process by which sodium metal is obtained from NaCl, including balanced chemical equations for the electrode processes.

7. Describe the Hall process for obtaining aluminum, including balanced chemical equations for the electrode processes.

8. Describe the electrometallurgical purification of copper, including balanced chemical equations for electrode processes.

9. Understand and explain the boldface terms in the Summary and Key Terms section of Chapter 23 (page 943).