CHAPTER 19 Content Outline for Teaching

Elements and Their Properties

Underlined words and phrases are to be filled in by students on the Note-taking Worksheet.

Section 2 Nonmetals

A. Properties of **nonmetals**—usually gases or brittle solids at room temperature; are not malleable or ductile; usually poor conductors of heat and electricity; usually not lustrous
   1. Ionic compounds—form when nonmetals gain electrons from metals and become negative ions
   2. Covalent compounds—form when nonmetals share electrons with other nonmetals

B. Hydrogen—most common element in universe
   1. A **diatomic molecule**—two atoms of the same element in covalent bond
   2. Highly reactive element found mostly on Earth as part of water compound

C. The Halogens—include bromine, iodine, fluorine, chlorine, and astatine
   1. A **salt** forms when a halogen gains one electron from a metal
   2. Use of halogens
      a. Chlorine—disinfectant and bleach
      b. Bromine—dyes in cosmetics
      c. Iodine—hormone regulation
   3. Sublimation—a solid changes directly into a gas without first becoming a liquid

D. The Noble Gases—exist as isolated, stable atoms
   1. Helium—used in blimps and balloons
   2. Neon, argon, and krypton—used in lights

Discussion Question

What are some ways that nonmetals differ from metals? They are usually gases or brittle solids; not malleable or ductile; usually poor conductors; usually not lustrous

END