SECTION 3

Elements

Objectives

- Use a periodic table to name elements, given their symbols.
- Use a periodic table to write the symbols of elements, given their names.
- Describe the arrangement of the periodic table.
- List the characteristics that distinguish metals, nonmetals, and metalloids.

As you have read, elements are pure substances that cannot be decomposed by chemical changes. The elements serve as the building blocks of matter. Each element has characteristic properties. The elements are organized into groups based on similar chemical properties. This organization of elements is the *periodic table,* which is shown in **Figure 12** on the next page.

Introduction to the Periodic Table

Each small square of the periodic table shows the symbol for the element and the atomic number. For example, the first square, at the upper left, represents element 1, hydrogen, which has the symbol H. As you look through the table, you will see many familiar elements, including iron, sodium, neon, silver, copper, aluminum, sulfur, and lead. You can often relate the symbols to the English names of the elements. Some symbols are derived from the element's older name, which was often in Latin. Still others come from German. For example, wolfram comes from the German name for tungsten. **Table 2** lists some elements and their older names.

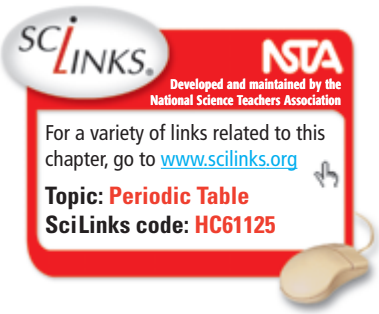

TABLE 2 *Elements with Symbols Based on Older Names*

Modern name	Symbol	Older name
Antimony	Sb	stibium
Copper	Cu	cuprum
Gold	Au	aurum
Iron	Fe	ferrum
Lead	Pb	plumbum
Mercury	Hg	hydrargyrum
Potassium	K	kalium
Silver	Ag	argentum
Sodium	Na	natrium
Tin	Sn	stannum
Tungsten	W	wolfram