



**FIGURE 1-16** The noble gases helium, neon, argon, krypton, and xenon are all used to make lighted signs of various colors.

referred to as metalloids. A **metalloid** is an element that has some characteristics of metals and some characteristics of nonmetals. All metalloids are solids at room temperature. They tend to be less malleable than metals but not as brittle as nonmetals. Some metalloids, such as antimony, have a somewhat metallic luster.

Metalloids tend to be semiconductors of electricity. That is, their ability to conduct electricity is intermediate between that of metals and that of nonmetals. Metalloids are used in the semiconducting materials found in desktop computers, hand-held calculators, digital watches, televisions, and radios.

## Noble Gases

The elements in Group 18 of the periodic table are the noble gases. These elements are generally unreactive. In fact, prior to 1962 no noble gas compounds had been identified. That year, the first noble gas compound, xenon tetrafluoride, was prepared. Their low reactivity sets noble gases apart from the other families of elements. Group-18 elements are gases at room temperature. Neon, argon, krypton, and xenon are all used in lighting. Helium is used in party balloons and weather balloons because it is less dense than air.

## SECTION REVIEW

1. Use the periodic table on the inside back cover to write the names for the elements that have the following symbols: O, S, Cu, Ag.
2. Use the periodic table to write the symbols for the following elements: iron, nitrogen, calcium, mercury.
3. Which elements are most likely to undergo the same kinds of reactions, those in a group or those in a period?
4. Describe the main differences between metals, nonmetals, and metalloids.