Although energy can be absorbed or released in a change, it is not destroyed or created. It simply assumes a different form. This is the law of conservation of energy. Accounting for all the energy present before and after a change is not a simple process. But scientists who have done such experimentation are confident that the total amount of energy remains the same.

Classification of Matter

The variety of forms in which matter exists is enormous. However, all matter can be classified into one of two groups: pure substances or mixtures. A pure substance can be an element or compound. The composition of a pure substance is the same throughout and does not vary from sample to sample. Mixtures, in contrast, contain more than one substance. They can vary in composition and properties from sample to sample and sometimes from one part of a sample to another part of the same sample. All matter, whether it is a pure substance or a mixture, can be classified in terms of uniformity of composition and properties of a given sample. Figure 1-8 illustrates the overall classification of matter into elements, compounds, and mixtures.

Mixtures

You deal with mixtures every day. Nearly every object around you, including most things you eat and drink and even the air you breathe, is a mixture. *A* **mixture** *is a blend of two or more kinds of matter, each*

FIGURE 1-8 This classification scheme for matter shows the relationships among mixtures, compounds, and elements.