

## CONCEPT 1

# Compounds account for the huge variety of matter on Earth.



### Activity

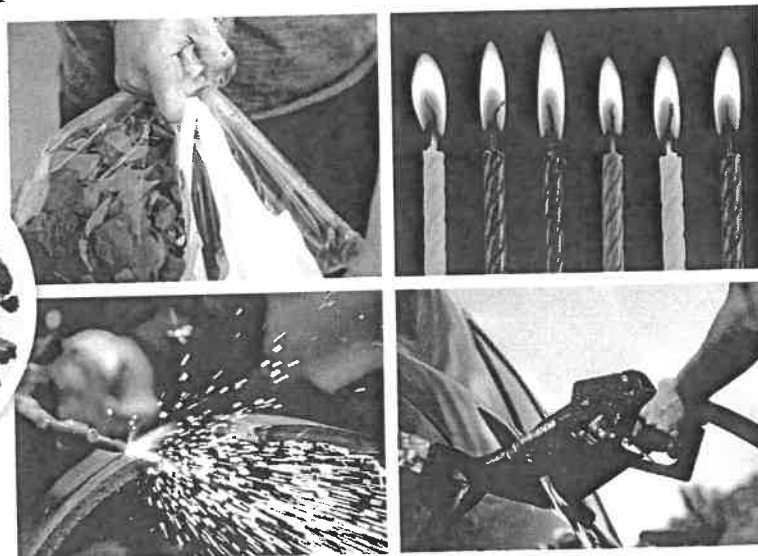
#### What is it made of?

For each of the following familiar compounds, list as many properties as you can. Then list properties of the elements that make up the compounds.

- table salt, or sodium chloride (made of sodium and chlorine)
- water (made of hydrogen and oxygen)
- carbon dioxide (made of carbon and oxygen)
- sugar, or sucrose (made of carbon, hydrogen, and oxygen)

Can you get clues about the properties of compounds from the properties of the elements that make them up? Explain your answer.

**Figure 2.22** Hydrogen and carbon alone can be combined in millions of ways to make compounds with very different properties. The plastic bag, candle wax, gasoline, and acetylene gas used in the torch are all made up of compounds containing hydrogen and carbon.



**A**ll of the compounds that exist on Earth are built from the elements of the periodic table. The periodic table lists 118 elements, and only 80 of these commonly form compounds. Yet there are 10 million known compounds—and scientists estimate that there could be billions of possible compounds. **Figure 2.22** shows just a few examples. The variety of ways in which elements chemically combine to form compounds accounts for the astonishing variety of matter.



### Before you leave this page . . .

1. Distinguish between elements and compounds.
2. Compare the number of elements with the number of compounds on Earth.