CHAPTER 13

The Chemistry of Hydrocarbons

Did you know that you have bark from a willow tree in your medicine cabinet at home? The model at the bottom right of the opposite page shows a compound that is found naturally in willow bark. This chemical is called salicin. It is a source of pain relief for moose, deer, and other animals that chew the bark. For thousands of years, Aboriginal people in Canada and around the world have relied on salicin's properties for the same pain-relieving purpose.

The model at the bottom left of the opposite page shows a close relative of salicin. Scientists made, or *synthesized*, this chemical near the end of the nineteenth century. It is called acetyl salicylic acid (ASA). You probably know it better by its brand name, Aspirin™.

Chemists refer to salicin, ASA, and more than ten million other chemicals like them as organic compounds. An **organic compound** is a molecular compound of carbon. Despite the tremendous diversity of organic compounds, nearly all of them share something in common. They are structured from a "backbone" that consists of just two kinds of atoms: carbon and hydrogen.

Compounds that are formed from carbon and hydrogen are called **hydrocarbons**. In this chapter, you will explore the sources, structures, properties, and uses of hydrocarbons—an enormous class of compounds. As well, you will learn how scientists and engineers use the properties of hydrocarbons to produce a seemingly infinite variety of chemicals and products.

How can just two elements, carbon and hydrogen, account for 90% of all the biological matter on Earth?

Chapter Preview

Concepts and Skills You Will Need

Review the following concepts and skills before you begin this chapter:

- identifying characteristics of covalently bonded compounds (Chapter 3, sections 3.1, 3.3, 3.4.)
- relating physical properties to the polarity of molecules and intermolecular forces (Chapter 3, section 3.3; Chapter 8, section 8.2)
- drawing Lewis structures and structural formulas (Chapter 3, sections 3.2, 3.3)