

Properties and Changes

KEY IDEAS

Matter can be classified as pure substances or mixtures.

Pure substances can be identified by their physical and chemical properties.

A physical change alters a substance's state or form, but not its composition.

A chemical change alters a substance's composition to create new substances.

The kinetic molecular theory explains the nature and behaviour of matter.



Chapter Preview

Have you ever wondered how something works or why a material behaves as it does? Why do balloonists burn propane with oxygen to get airborne? What makes heating ice and burning wood so different? Why do certain candies pop in your mouth, while others do not?

With the discovery of fire, humans have been determined to use and understand the matter found around them. All cultures, including those of British Columbia's Aboriginal peoples, have applied the chemistry of the materials in their environment to improve their living conditions. Aboriginal peoples discovered many uses for local materials. For example, they preserved food with salt, built homes with wood and bark from trees, created art with wood and metals, and used plants as medicine. They used the properties of matter to make materials useful to them.

In this chapter you will learn about the properties of matter and the changes that matter can undergo. This is an important first step in developing an understanding of modern chemistry.

TRY THIS: Popping Candy

Skills Focus: conducting, observing, analyzing

Materials: safety goggles, popping candy, bowl, spoon, water

1. Wearing your safety goggles, put a piece of popping candy in a bowl. Using a spoon, crush the candy with moderate pressure. Did you hear it pop?
2. Put another piece of candy in a bowl, add water, and stir. Was there any popping?
 - A. Do you know the names of the materials inside the candy? How do these materials make the candy pop?
 - B. How do you think this type of candy is manufactured?