

**decomposition** the breakdown of substances into simpler molecular substances

**combustion** the burning of a substance

## QUICK Lab

### Combustion

1. Place a **candle** on a **jar lid**, and secure the candle with **modeling clay**. Have your teacher light the candle.
2. Hold the jar near the candle flame. Do not cover the flame with the jar. Describe the jar. Where did the substance on the jar come from?
3. Now, place the jar over the candle. What is deposited inside the jar? Where did this substance come from?



## Decomposition and Combustion

The breakdown of substances into simpler molecules is called **decomposition**. For example, when fungi and bacteria decompose organic matter, carbon dioxide and water are returned to the environment. You may have witnessed another way to break down organic matter—using fire. **Combustion** is the process of burning a substance, such as wood or fossil fuels. Like decomposition, combustion of organic matter releases carbon dioxide into the atmosphere.

## The Nitrogen Cycle

Nitrogen is also important to living things. Organisms need nitrogen to build proteins and DNA for new cells. The movement of nitrogen between the environment and living things is called the *nitrogen cycle*. This cycle is shown in **Figure 3**.

### Converting Nitrogen Gas

About 78% of the Earth's atmosphere is nitrogen gas. Most organisms cannot use nitrogen gas directly. However, bacteria in the soil are able to change nitrogen gas into forms that plants can use. This process is called *nitrogen fixation*. Other organisms may then get the nitrogen they need by eating plants or eating organisms that eat plants.

**Figure 3** Without bacteria, nitrogen could not enter living things or be returned to the atmosphere.

