



Principles of Ecology

section 2 Cycling of Matter

Before You Read

By looking at calendars, you can observe cycles, such as the cycle of the school year and summer vacation. On the lines below, write about cycles in your life. Read about the cycles in nature.

Read to Learn

Cycles in the Biosphere

The law of the conservation of mass states that matter is not created or destroyed. Instead, matter is cycled through the biosphere. **Matter** is anything that takes up space and has mass.

Matter provides the nutrients needed for organisms to function. A **nutrient** is a chemical substance that an organism needs to perform life processes. An organism obtains nutrients from its environment. The bodies of all organisms are built from water and nutrients. Common nutrients include carbon, nitrogen, and phosphorus.

How do nutrients cycle through the biosphere?

Nutrients cycle through the biosphere through organisms. Producers begin the cycle. In most ecosystems, plants obtain nutrients from air, water, and soil. Plants convert the nutrients into organic compounds that they use. Most capture energy from the Sun and convert it into carbohydrates. When a consumer eats a producer, the nutrients in the producer pass to the consumer. For example, the nutrients in green grass pass to the cow that eats the grass. The cycle continues until the last consumer dies. Detritivores return the nutrients to the cycle, and the process begins again.

MAIN Idea

Nutrients move through the biotic and abiotic parts of an ecosystem.

What You'll Learn

- the importance of nutrients to living organisms
- the biogeochemical cycles of nutrients

Mark the Text

Identify Main Ideas

Circle the names of the cycles described in this section. Underline the text that summarizes the steps in each cycle.

FOLDABLES

Take Notes Make a five-tab foldable, as shown below. As you read, take notes and organize what you learn about five cycles in the biosphere.

