Lesson

# 23 The Water Cycle

4.3.a-B12

## Getting the Idea

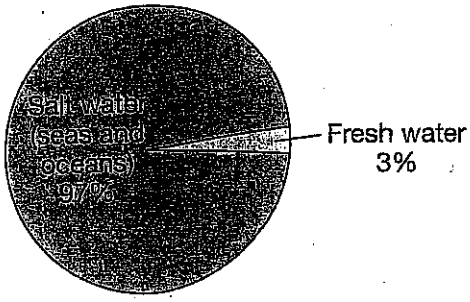
**Key Words**
glacier
water cycle
evaporation
water vapor
condensation
precipitation
runoff
groundwater

What makes planet Earth different from our solar system's other planets? The answer is water. Earth is the only planet with large amounts of surface water. Without water, life on Earth would not be possible. Energy from the sun keeps water moving and changing, but the amount of Earth's water stays about the same.

### Earth's Water Supply

Water covers almost three-fourths of Earth's surface. Most of this water is salt water in the oceans. The rest is freshwater—water that is not salty.

**Earth's Water**

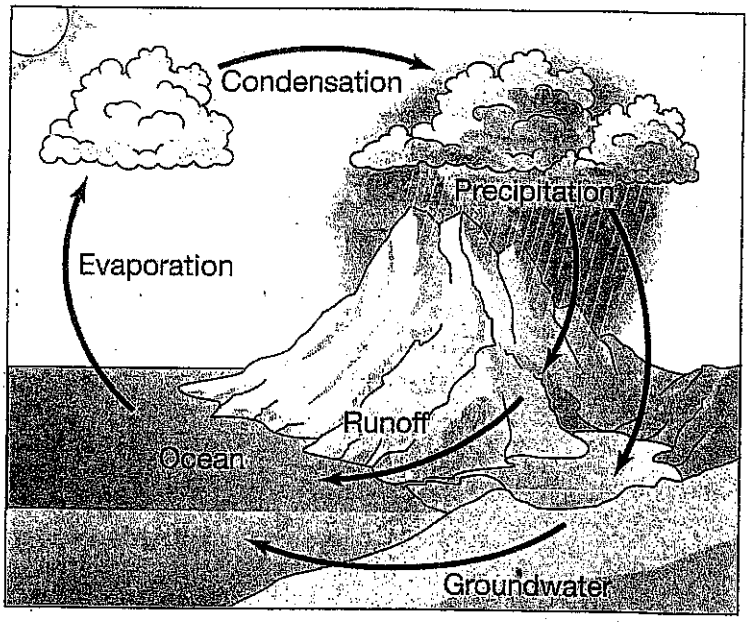



Most freshwater is frozen in ice caps near the North and South Poles and in slowly moving sheets of ice called **glaciers**. Some freshwater is found in lakes, rivers, streams, and ponds. The air also holds water, and water lies under Earth's surface.

## The Water Cycle

The **water cycle** is the movement of water from Earth's surface into the air and back again. You learned in Lesson 8 that water has three states—solid, liquid, and gas. You also learned that water can change from one state to another. Water changes state as it moves through the water cycle, as shown below.

**Water Cycle**




A cycle is a process that does not have a beginning or end. It repeats over and over. But you can think of the water cycle as having four steps.

*Step 1* The first step is **evaporation**—the change of a liquid to a gas. The sun drives the water cycle by warming liquid water on Earth's surface. The sun's heat makes some of the water evaporate. It changes to the gas form of water, or **water vapor**. The water vapor rises into the air.

*Step 2* The second step is **condensation**—the change of a gas to a liquid. As water vapor rises in the air, it cools off. When it gets cool enough, it condenses into tiny droplets of liquid water. These droplets form clouds.

*Step 3* Droplets of liquid water in clouds grow by combining with other droplets. When they become heavy enough, they fall to Earth as precipitation. **Precipitation** is water that falls to the ground from clouds. Precipitation can be in the form of rain, snow, sleet, or hail.

*Step 4* Some water falls on the oceans. Some falls on land. Water that flows over the ground after precipitation is called **runoff**. The force of gravity pulls the water downhill. It flows into bodies of water, such as rivers, lakes, and streams. These bodies of water flow into the oceans.

Some precipitation sinks into the ground. Water below Earth's surface is called **groundwater**. Over time, much of this water, too, flows into the oceans. There, evaporation keeps the water cycle going.

## DISCUSSION QUESTION

How is the sun important to the water cycle?

## LESSON REVIEW

1. In the water cycle, what happens during evaporation?

   **A.** Water vapor changes to liquid water.

   **B.** Water falls to the ground from clouds.

   **C.** Liquid water changes to water vapor.

   **D.** Water flows over the ground.

2. During condensation,

   **A.** water vapor changes to liquid water.

   **B.** liquid water changes to water vapor.

   **C.** water sinks into the ground.

   **D.** water falls to the ground from clouds.

3. Which one is a form of precipitation?

   **A.** groundwater

   **B.** snow

   **C.** runoff

   **D.** a cloud

4. The water cycle

   **A.** has a beginning and an end.

   **B.** has no beginning and no end.

   **C.** has only a beginning.

   **D.** has only an end.