

## Section 10.1

### Objectives

- **Describe** how groundwater storage and underground movement relate to the water cycle.
- **Illustrate** an aquifer and an aquiclude.
- **Relate** the components of aquifers with the presence of springs.

### Review Vocabulary

**hydrologic cycle:** a never-ending natural circulation of water through Earth's systems

### New Vocabulary

infiltration  
zone of saturation  
water table  
zone of aeration  
permeability  
aquifer  
aquiclude  
spring  
hot spring  
geyser

## Movement and Storage of Groundwater

**MAIN Idea** Groundwater reservoirs provide water to streams and wetlands wherever the water table intersects the surface of the ground.

**Real-World Reading Link** Have you ever noticed that a stream flows even when it has not rained in a long time? Rainfall contributes to the flow in a stream, but much of the water comes from beneath the ground.

## The Hydrosphere

The water on and in Earth's crust makes up the hydrosphere, named after *hydros*, the Greek word for *water*. You learned about the hydrosphere in Chapter 1 in the context of Earth's systems, including the geosphere, hydrosphere, atmosphere, and biosphere. About 97 percent of the hydrosphere is contained in the oceans. The water contained by landmasses—nearly all of it freshwater—makes up only about 3 percent of the hydrosphere.

Freshwater is one of Earth's most abundant and important renewable resources. However, of all the freshwater, between 70 and 80 percent is held in polar ice caps and glaciers. All the rivers, streams, and lakes on Earth represent only a small fraction of Earth's liquid freshwater, as shown in **Table 10.1**. Recall from Chapter 9 that water in the hydrosphere moves through the water cycle.

<b>Table 10.1</b>			
<b>World's Water Supply</b>			
<b>Concepts In Motion</b> <b>Interactive Table</b> To explore more about Earth's water supply, visit <a href="http://glencoe.com">glencoe.com</a> .			
Location	Percentage of Total Water	Water Volume (km <sup>3</sup> )	Estimated Average Residence Time of Water
Oceans	97.2	1,230,000,000	thousands of years
Ice caps and glaciers	2.15	28,600,000	tens of thousands of years and longer
Groundwater	0.31	4,000,000	hundreds to many thousands of years
Lakes	0.009	123,000	tens of years
Atmosphere	0.001	12,700	nine days
Rivers and streams	0.0001	1200	two weeks

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