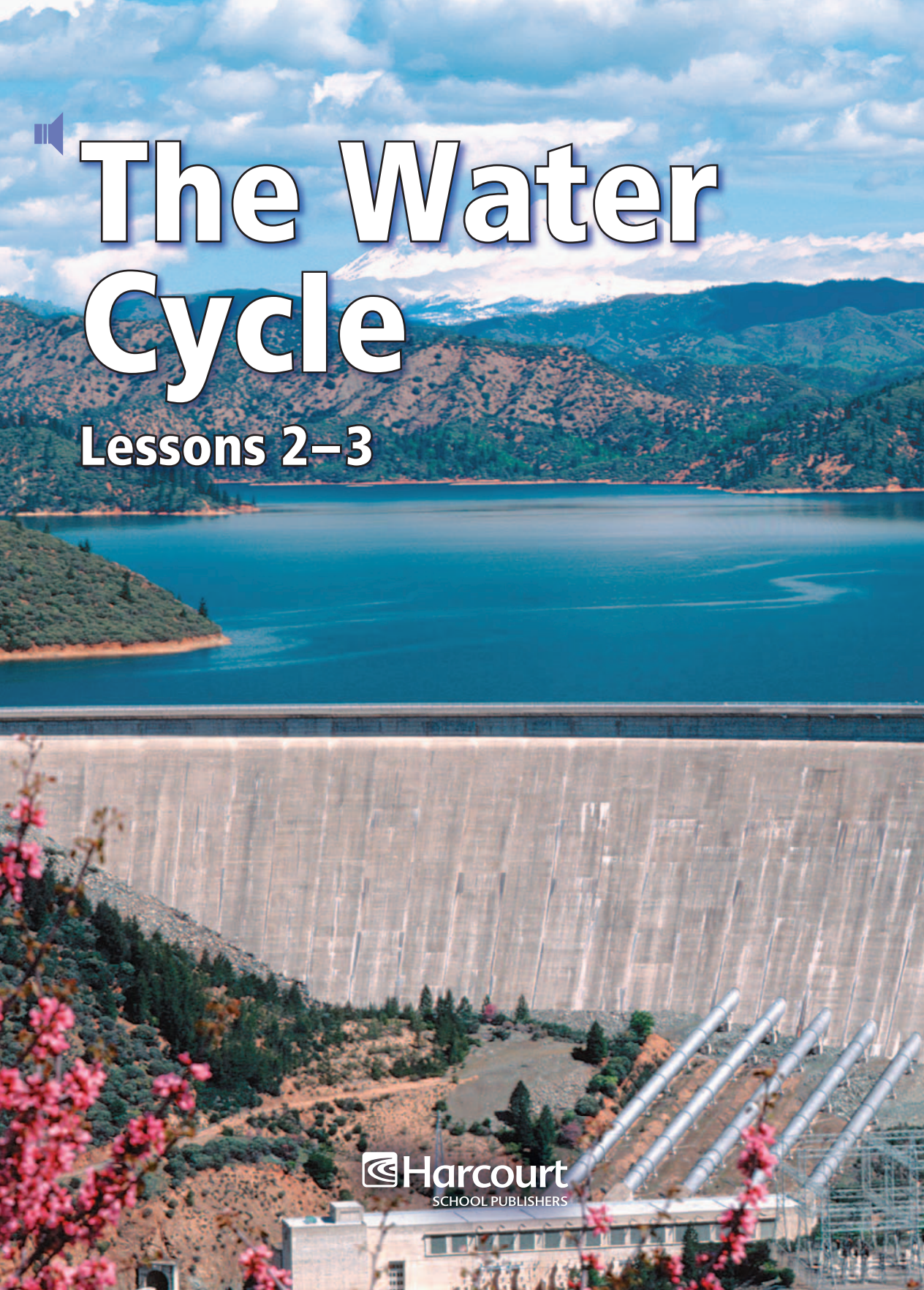
The Water Cycle
Lessons 2–3
Harcourt
SCHOOL PUBLISHERS

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The Water Cycle

Lessons 2–3

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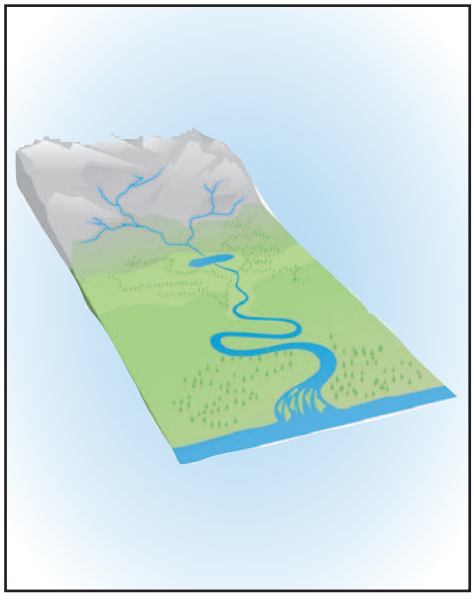
Lesson 2

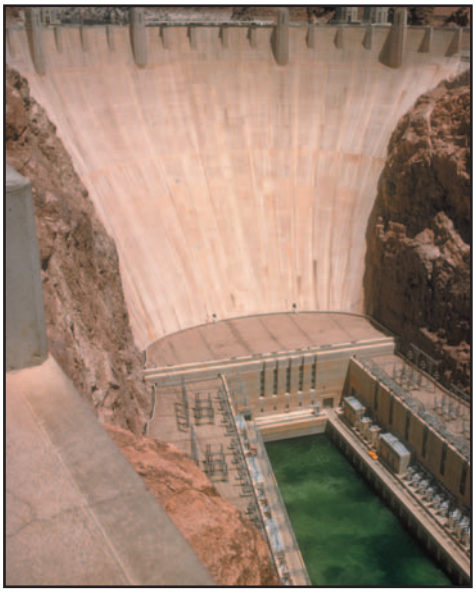
How Do Californians Get the Water They Need?

VOCABULARY

- watershed
- dam
- reservoir
- aqueduct
- groundwater



The mountain waters flow down through the creeks and rivers of the **watershed**.



A **dam** helps control a river.

The water we use in our homes was stored in a **reservoir**.

Los Angeles has two large **aqueducts**. They carry water to the city.

When someone pumps the handle on the well, **groundwater** comes out.

Focus Skill

READING FOCUS SKILL

MAIN IDEA AND DETAILS

The **main idea** is what the text is mostly about. **Details** tell more about the **main idea**.

The **main idea** is California's water. Look for **details** about where the water you need to live comes from. Learn how you can conserve it.

Water Resources

The human body is 60 to 75 percent water. That means you have about 40 liters, or 10 gallons, of water flowing around inside you!

Water is a useful resource. People need water for many different reasons. Fresh water is very important to human health. You need to drink plenty of water to stay healthy.

Fresh water is needed for growing plants for our food. We also use fresh water for bathing, washing clothes, and cooking.

Most crops need fresh water to grow.

Fresh water is important, but salt water is useful, too. Oceans provide many resources.

People who live in places that have very little fresh water may use ocean water. They must first remove the salt and other minerals from the water.

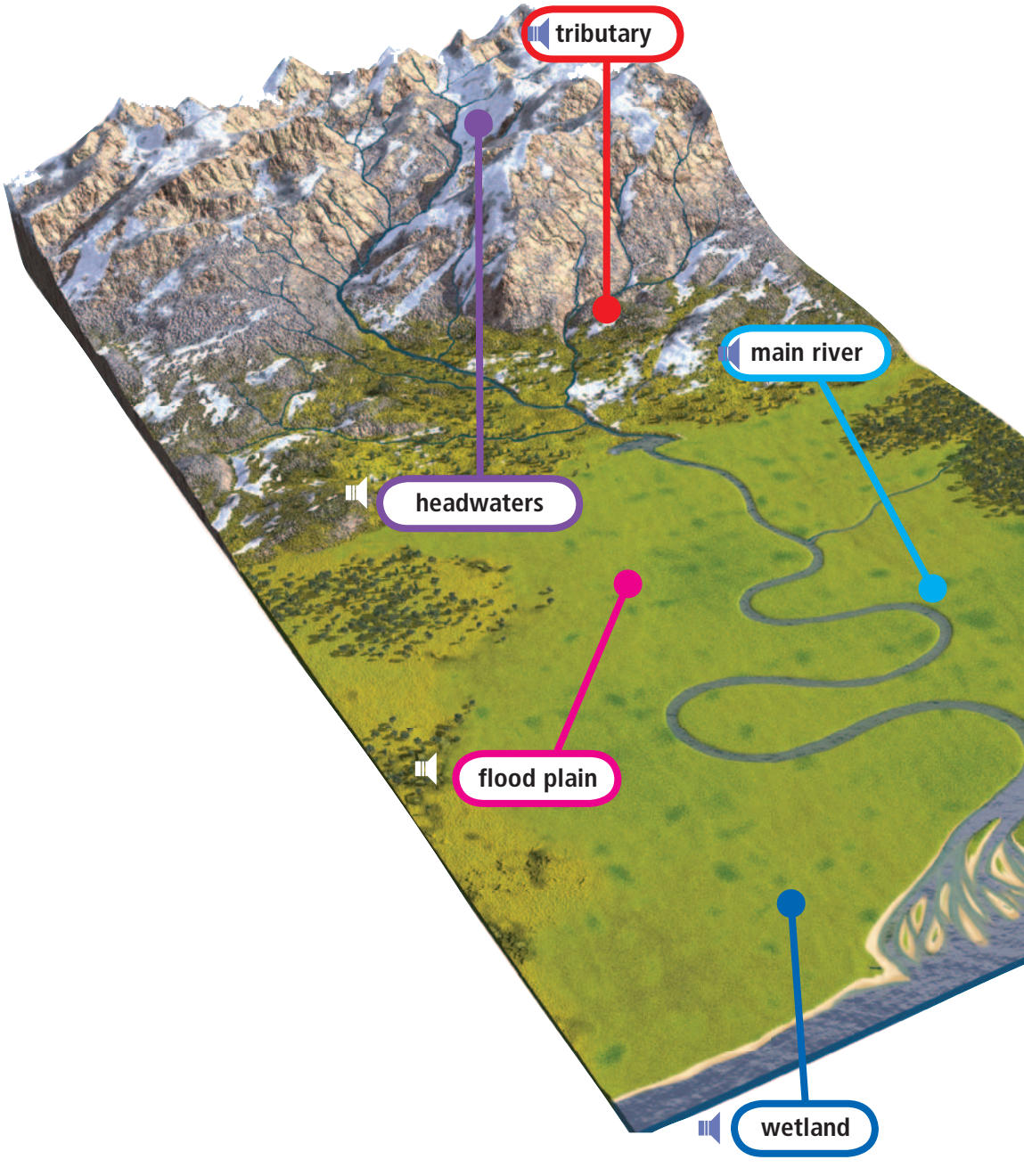
Saltwater animals, such as fish and shrimp, are important to many people's diets. Sea salt is another resource. It is used for cooking and preserving foods.

Oceans are also used for recreation. You can surf, sail, and scuba dive in salt water.

Focus Skill **How is fresh water useful?**

Local Water Sources

Where do people get fresh water? Many communities in California get water from lakes and rivers. Rain and snow keep lakes and rivers full.



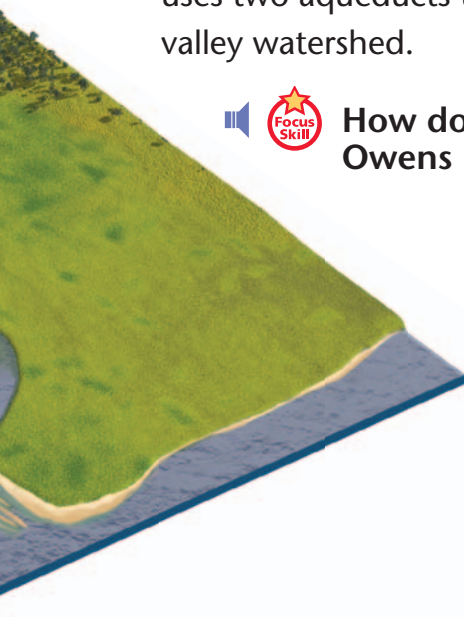
When rain or snow falls, it collects in a **watershed**. A watershed is an area of land with creeks and rivers.

When rain falls or snow melts on a mountain, the water runs into small creeks. The creeks join to form rivers. The creeks and rivers work together to drain the water from an area of land. The area that is drained is called a watershed.

Many communities build dams to store water for future use. A **dam** is a barrier that crosses a river and controls the flow of water. Water collects behind a dam to form a **reservoir**.

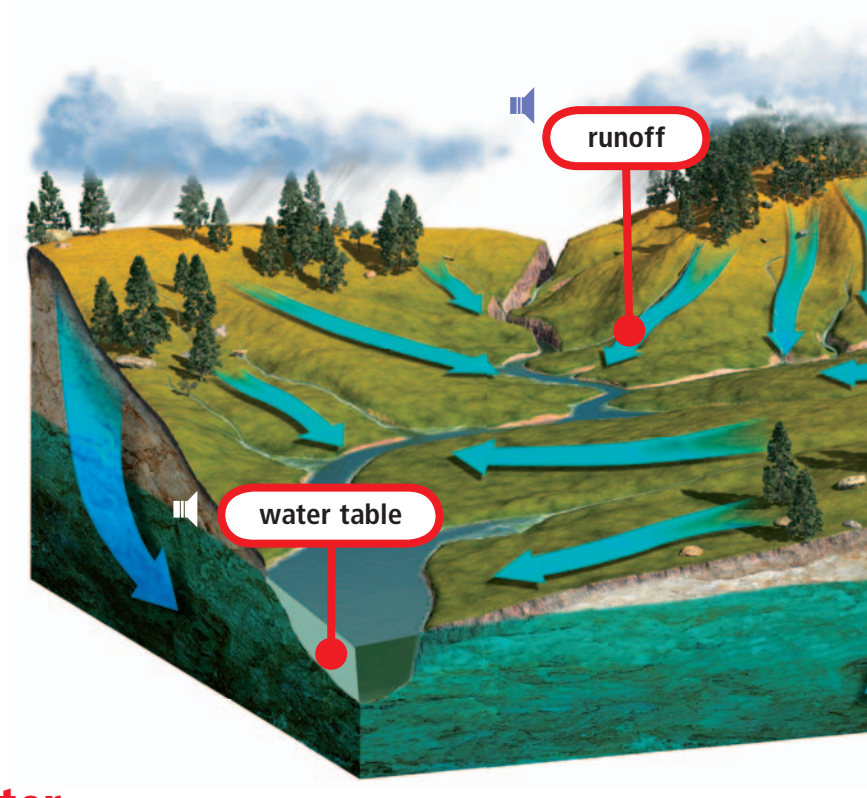
California's largest reservoir is Shasta Lake. Its water is cleaned and pumped to homes, businesses, and farms.

If communities need more water, they may bring it from a faraway watershed. They may use an **aqueduct** to transport the water. An aqueduct is a large pipe or channel. Los Angeles uses two aqueducts to bring water from the Owens River valley watershed.



Focus Skill

How does Los Angeles get water from the Owens River valley watershed?



Groundwater

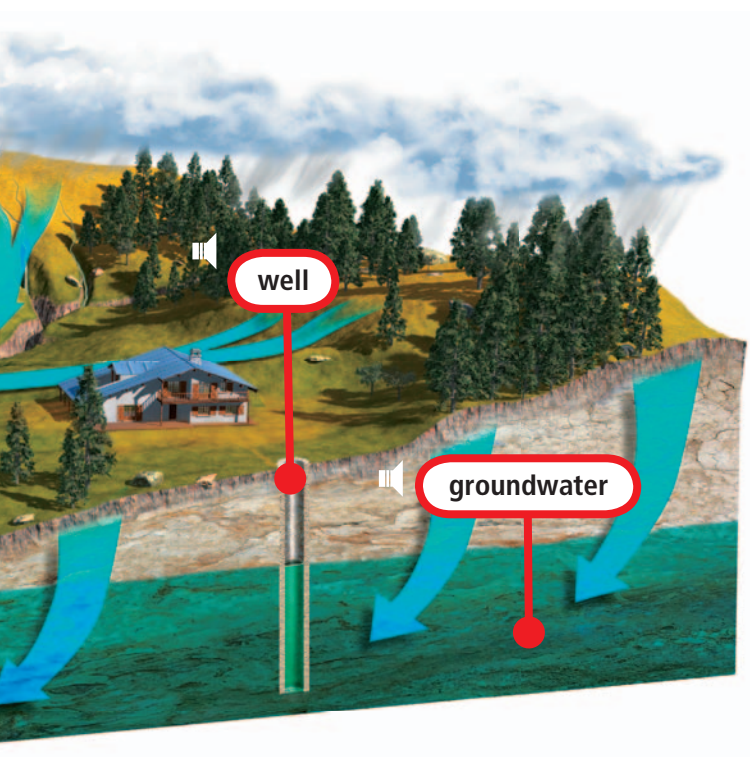
Not all of California's water comes from rivers and lakes. About 40 percent of California's population uses groundwater. **Groundwater** is water under Earth's surface. It is in the spaces between rocks and soil.

When water soaks into the ground, most of it slowly flows down to an area called the water table. You can think of the water table as a line under the ground.

The area above the water table has pockets of air. The ground below the water table is completely filled with water. It is called an aquifer. It stores groundwater.

Water can be pumped up from an aquifer through a well. A well is a hole that is drilled through the ground to the aquifer. A well can supply water for one home, one neighborhood, or a whole city.

Focus Skill **Where does groundwater collect?**



Review

Focus Skill

Complete this main idea statement.

1. Most communities in California get _____ from lakes and rivers.

Complete these detail statements.

2. A community may be able to take fresh water from rivers that drain a _____.
3. An _____ can transport water from another watershed.
4. The ground below the water table is called the _____ .

Lesson 3

How Can People Conserve Water?

VOCABULARY

- pollution
- water quality
- conservation
- reclamation

Factories sometimes release **pollution** into the water, ground, and air.

The **water quality** of polluted water is very poor. The water is not safe to drink.

Reclamation is a good way to conserve water. Farmers use reclaimed water on their crops.

When we recycle water and use less water, we practice **conservation**.

Focus Skill

READING FOCUS SKILL

CAUSE AND EFFECT

A **cause** is something that makes another thing happen. An **effect** is the thing that happens.

As you read, you will find examples of how people affect their water resources.

Water Pollution

People need clean water to stay healthy, But some of Earth's water is polluted. **Pollution** is any change to a resource that makes the resource unhealthful to use.

Water can become polluted when harmful wastes enter the water cycle. Some harmful wastes come from factories or mines. These can be dumped into rivers and lakes. Wastes can also get into groundwater. People who have yards or farms often use chemicals that can pollute groundwater.

Another souce of water pollution is sewage. Sewage is human waste. If sewage gets into the water that people use, they can get sick.

Scientists measure how safe water is for humans, animals, and plants. This measurement is called **water quality**. Water is safe to use if it has good water quality. Pollution harms water quality. Polluted water is dangerous to use.

Laws are written to help keep good water quality. Factories and cities must clean water after they use it. Also, they can't dump chemicals in rivers.

Focus Skill

What do harmful wastes do to water quality?

Groundwater Pollution

If the polluted water joins larger bodies of water, it pollutes them, too.

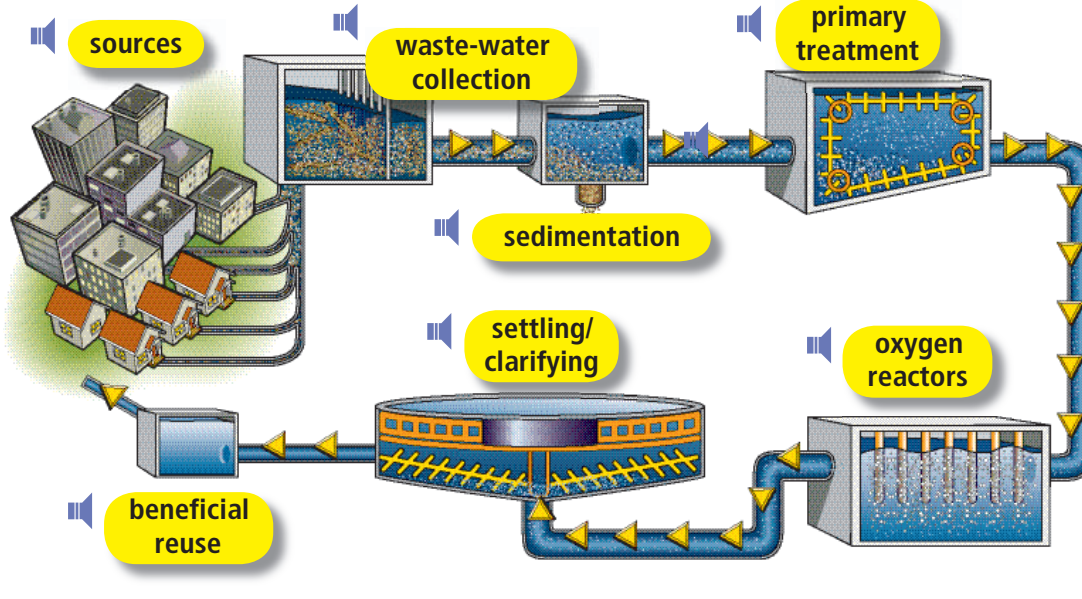
The polluted water reaches the ocean and pollutes it.

Water Conservation

There is limited fresh water in reservoirs and in the ground. Water is a resource that must be conserved, or protected. Water **conservation** is important in California because of droughts. A drought is a long period without rain. Also, the population of California is growing. More people need to share water resources.

We can reduce the amount of water we use. Water can also be recycled. Polluted water can be cleaned at a water treatment plant.

Steps in Waste-Water Treatment



Another way to conserve water is not to have a lawn. Lawns need great amounts of water. To save water, homeowners can grow plants that use less water.

Some communities practice water **reclamation**. Reclaimed water is not cleaned as well as drinking water. Reclaimed water can be used for fighting fires, flushing toilets, and watering certain plants. Reclaimed water is not for drinking.

Farmers can conserve water by dripping it onto the ground through small tubes instead of using sprinklers. This uses much less water.

You can conserve water, too. Take shorter showers. Do not run the water while you brush your teeth. Try to think of other ways to conserve our water.

Focus Skill **Why does California need to conserve water?**

Review

Focus Skill **Complete these cause and effect statements.**

1. Water becomes _____ when harmful substances enter the water cycle.
2. Because we have limited amounts, fresh water must be _____ , or protected.
3. To conserve water, _____ water can be used to water plants, flush toilets, and wash cars.
4. Polluted water can lower the water _____ of groundwater.

Glossary

aqueduct [AK•wuh•duhkt] A pipe or channel that is used to transport water.

conservation [kahn•ser•VAY•shuhn] The preserving and protecting of a resource.

dam [DAM] A barrier across a river, controlling its flow.

groundwater [GROWND•wawt•er] Water that is located in soil and rocks below Earth's surface.

pollution [puh•LOOSH•uhn] Any change to a resource that makes the resource unhealthful to use.

reclamation [rek•luh•MAY•shuhn] The recycling of water that has already been used by people.

reservoir [REZ•er•vwahr] A body of water stored for future use.

water quality [WAWT•er KWAWL•uh•tee] The measure of how safe water is for human use.

watershed [WAWT•er•shed] An area of land that is drained by a series of creeks and rivers.

Think About the Reading

1. How does the diagram on page 13 explain the effects of pollution?
2. What section would you read again to understand more about aquifers?

Hands-On Activity

Collect samples of sand, dirt, and small pebbles. Add this "pollution" to a sample of clean water in a cup. Place a coffee filter inside a funnel. Slowly pour the water into the coffee filter.

1. Does the filter hold back the pollution?
2. Does the water look pure, or do you need to filter it again?

School-Home Connection

With a family member, write a water conservation plan. Find three ways to conserve water in your home. Place in your home to remind your family to use less water.