

Be an Engineer!

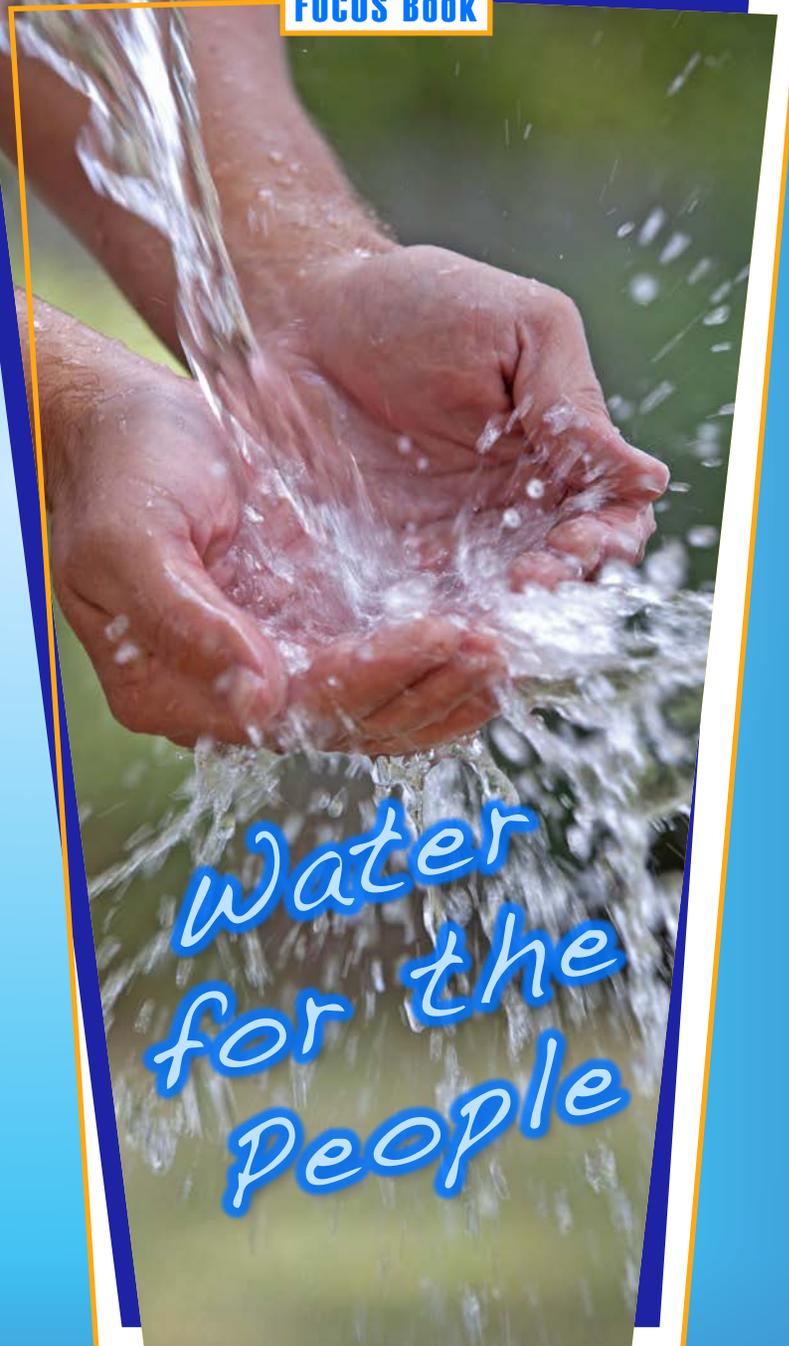
How do we get water from its source to where people need it? Suppose you work for the water company of a big city. Choose a source of drinking water you read about in this book. Design a way to get the water from the source to your city so people can use it. Think about the landscape over which the water will travel and the distance it will need to be transported. Also, where will the natural water become clean enough to drink?

Draw a map showing how you will bring water from its source to people in your city. Be sure to label the natural source, the distance the water travels, where it will be cleaned, and how it will reach the people who need it. You might include examples of places in your city where the water will be used.



Beyond the Book

Visit your town's water department or explore its website to learn where your drinking water comes from.



Water for the People



FOCUS Question

Where does the water we use come from?

Scale, Proportion, and Quantity

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Lifesaving Liquid

What can't you live without? What makes up more of your body than any other substance? What substance is part of every food you eat?

It's water! Water is one of our most precious natural resources. Every day, you take in water by drinking liquid and eating food. You need water to stay alive and to help your body function properly. If you don't get enough water, you'll get sick. Drinking water keeps you alive and healthy.

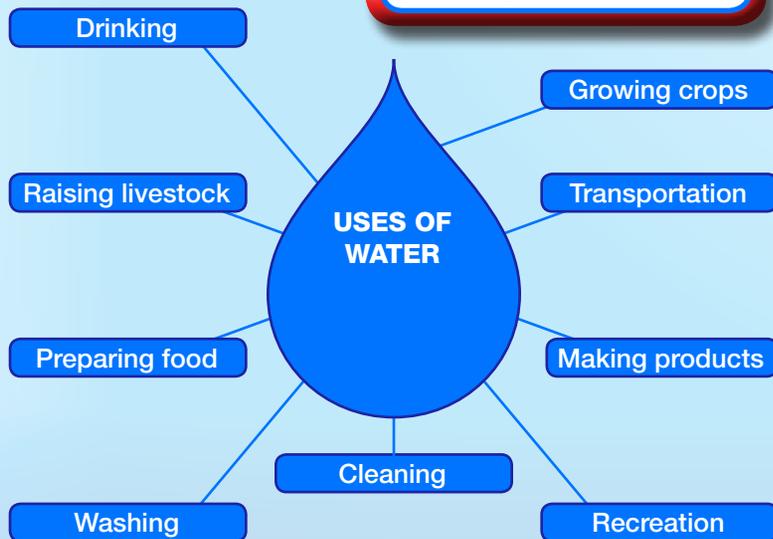


Water is important for drinking, but we use it in many other ways, too. For example, water is used around the world to cook food. We use water to grow crops and raise livestock. We use it to wash our bodies and clean the things we own.

People use water for making products like cars and clothing, and it's essential for transportation, such as when we ship goods across an ocean. We also use it for fun activities, including swimming, boating, water-skiing, and playing on waterslides.

wowser!

People in the United States use about 1.5 trillion liters (400 billion gal.) of water each day! That's enough water to fill over 600 million Olympic-sized swimming pools!



Where's My Water?

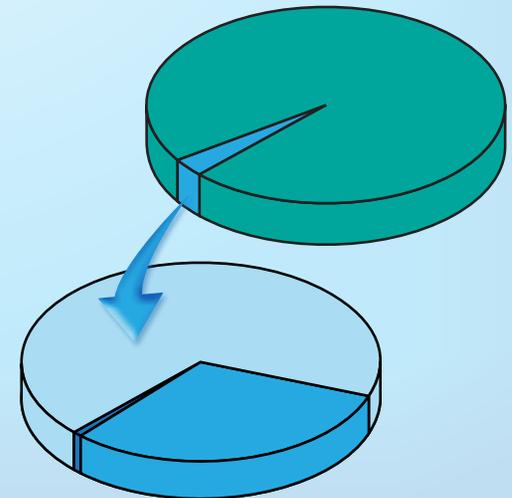
Most of Earth's water—about 97 percent—is salt water found in the oceans. Although there's a lot of it, we can't drink salt water. We need fresh water to drink.

The other 3 percent of Earth's water is fresh water. Most fresh water is locked away as ice or as *groundwater*—water that is found in soil or rock. So what's left for us to drink? Less than 1 percent of the world's fresh water is found above the ground. This water, called *surface water*, is found in lakes, rivers, and streams.

Where your drinking water comes from depends on where you live. Most drinking water comes from surface water or groundwater. Some places don't have either source nearby, so fresh water must be brought there.

EARTH'S WATER

- Total Water
 - Salt water 97%
 - Fresh water 3%
- Fresh Water
 - Ice 69%
 - Groundwater 31%
 - Lakes and rivers less than 1%



Rivers and Streams

In the United States, most drinking water comes from big rivers and smaller streams. Water from precipitation and runoff collects in rivers. Rain may fall into a river or fall on land and then flow downhill into the river. Rivers are also fed by springs that bring water up from the ground.

If you live in Seattle, for example, your drinking water comes from the Cedar and Tolt Rivers. The city of Richmond has the James River to thank for its drinking water. Minneapolis gets its drinking water from the Mississippi River.

Be Safe!

Never drink water right from a river or stream. Surface water often contains harmful substances and organisms that can make you sick. It needs to be cleaned before it is safe to drink.



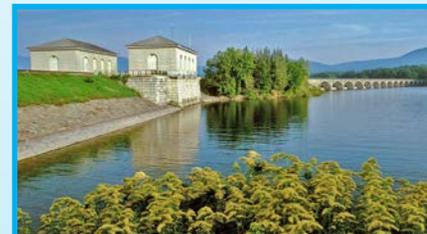
The Mississippi River supplies drinking water to fifty cities in the United States.

Lakes and Reservoirs

You can think of lakes and *reservoirs* as storage tanks for drinking water. Both of them are large bodies of surface water surrounded by land. A lake is often natural, while a reservoir is a lake made by people. To make a reservoir, people build a dam that blocks a river's flow and causes the water to collect in an area where people can use it.

Rivers and precipitation feed lakes and reservoirs. Groundwater also helps keep lakes and reservoirs full.

Chicago is on the shore of Lake Michigan. This large lake supplies the city with drinking water. New York



Ashokan Reservoir is a lake created by people to provide New York City with drinking water.

City's drinking water comes from nineteen reservoirs and three lakes far from the city.



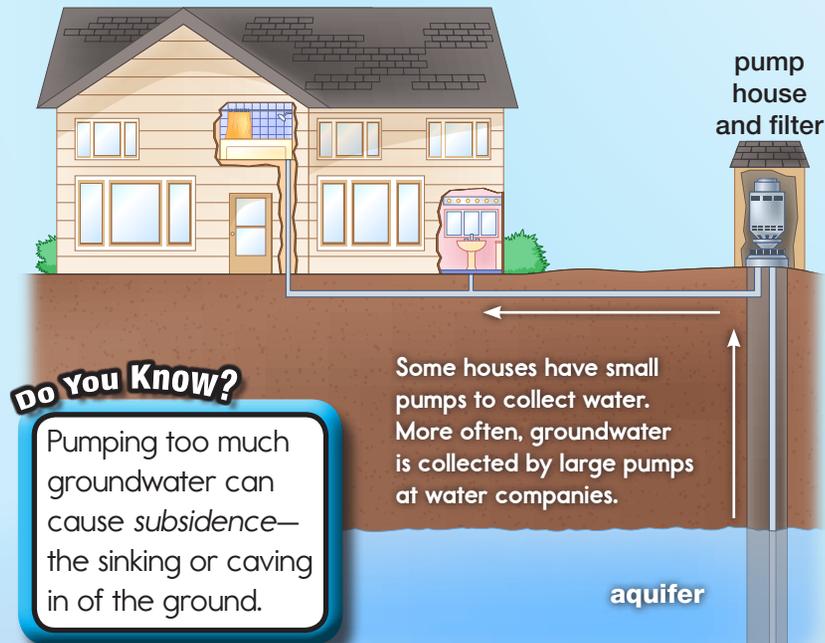
Chicago's drinking water comes from its neighbor, Lake Michigan.

Groundwater

Where does the city of Memphis get its drinking water? From more than 100 meters (325 ft.) under the ground! Many people depend on groundwater for drinking water, often those living in rural and dry places.

Rain and surface water sink deep into the ground. This water collects in *aquifers*—layers of water between rocks and soil. Wells and pumps bring groundwater up to the surface. Groundwater is harder to reach than surface water, so less of our drinking water comes from the ground.

USING GROUNDWATER



Salty Water

Many places don't have enough fresh surface water or groundwater. But they do have salt water. El Paso has groundwater that is too salty to drink. The city of Tampa has no shortage of ocean water. To make salty water safe to drink, the salt must be taken out.

A process called *desalination* removes salt from water. As water is pressed through special filters, salt gets trapped and removed from the water. Sometimes the water is heated until it evaporates, leaving the solid salt behind. Then the water vapor cools and becomes liquid again.

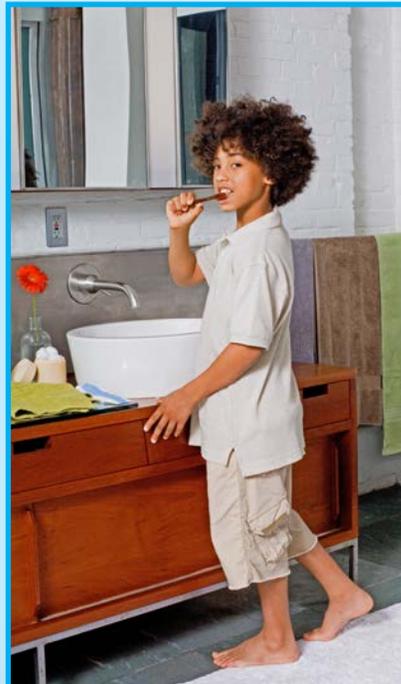


Every Drop Counts

Since our planet has so much water, why do we need to conserve, or protect and save, water?

There are billions of people on Earth, and we all need fresh water. Some people don't have enough of it, while others use it up faster than it can naturally be replaced. Getting fresh water to those who need it and making sure it is clean and safe for drinking takes a lot of time, money, and energy. For those reasons, we must use water wisely.

You can help by using less water. To reduce waste, turn off the water while you brush your teeth and always turn off faucets tightly when you are done. Take a shorter shower to save water. Learn what else you can do to conserve water and protect this precious resource!



Save water by turning off the faucet while brushing your teeth.

Read-Think-Write

Write your answers on separate paper. Use details from the text as evidence.

- 1 Why should you drink plenty of fresh water every day?
- 2 List five ways that people use water other than for drinking. Choose examples from this book.
- 3 Why are there two pie charts on page 4? Explain the purpose of each one.
- 4 Water found above the ground is called _____.
 - A surface water
 - B groundwater
 - C fresh water
- 5 The city of Sea Breeze is on the coast near the ocean. There are no rivers or lakes nearby, and there is no groundwater available. How can this city provide its residents with safe drinking water?

FOCUS Question

Where does drinking water come from? Select two cities from this book and describe each city's source of drinking water. Then explain why that source is the best way for the people in the city to get water.

