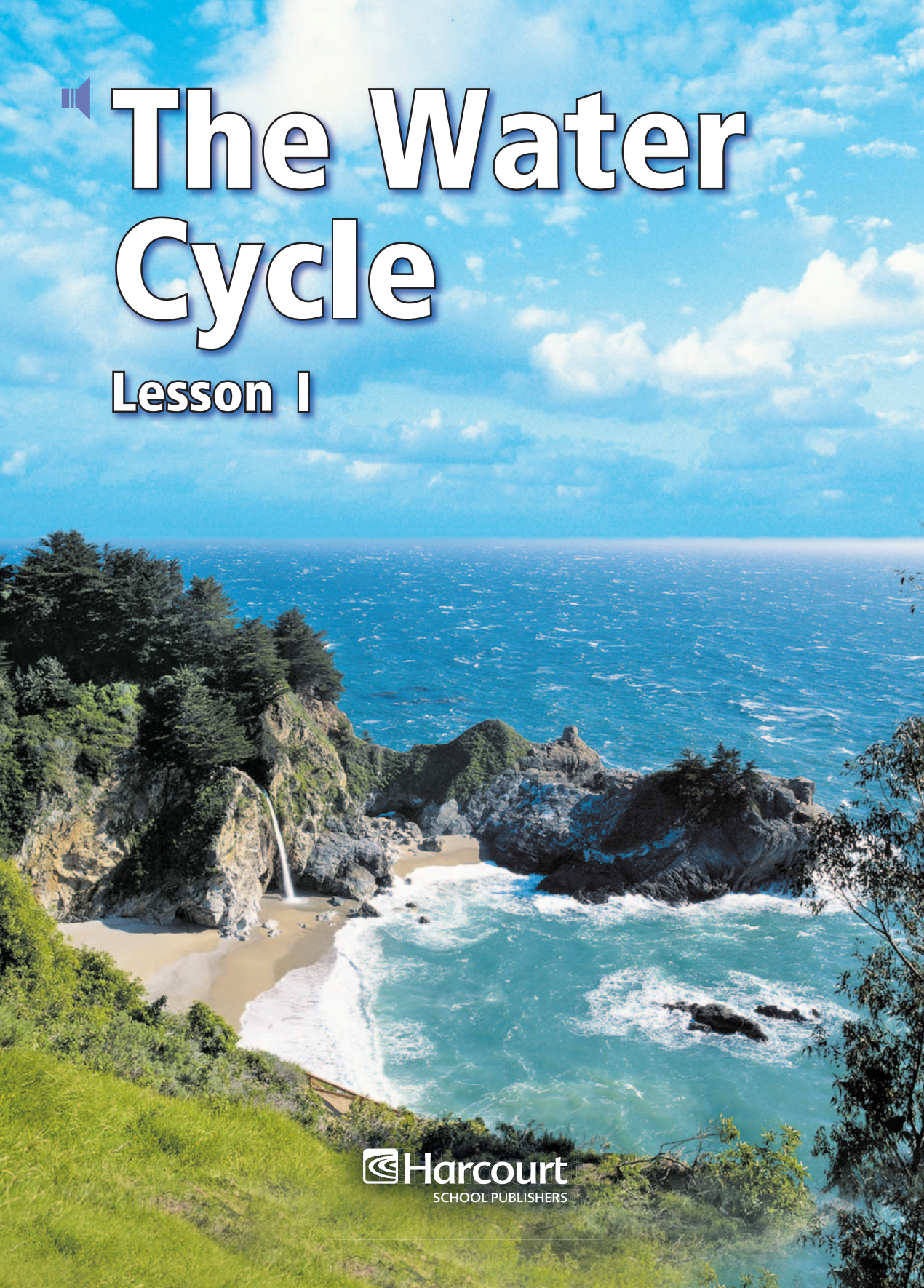




The Water Cycle

Lesson 1



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The Water Cycle

Lesson 1

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How Does Water Move from Earth to the Air
and Back Again? 2

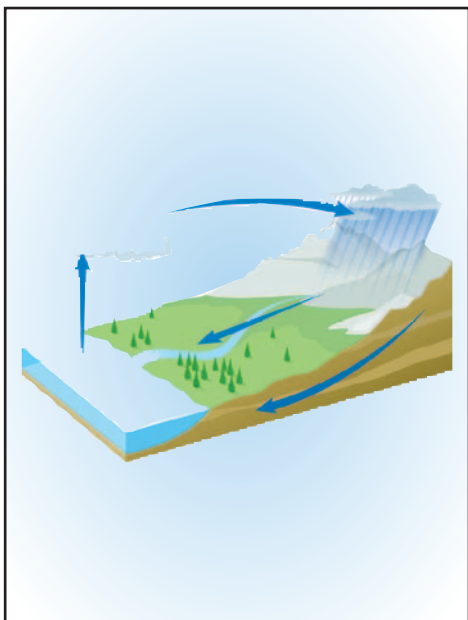


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How Does Water Move from Earth to the Air and Back Again?

VOCABULARY

- water cycle
- water vapor
- evaporation
- condensation



I see a stage of the **water cycle** when rain falls on Earth.



When water boils, it turns into a gas. **Water vapor** is the gas form of water.



When the sun comes out after rain, **evaporation** makes the ground dry again. The water changes into a gas.



You see **condensation** when dew forms on grass. Water vapor in the air changes into liquid water.



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 the water cycle. Look for details about how water moves between Earth and the air.



The Water Planet

Sometimes Earth is called the water planet. This is because water covers much of Earth's surface. There are two types of water: fresh water and salt water.



Most of Earth's water is in the oceans. Ocean water is salty. Some lake water is salty, too. Most of Earth's water (97 percent) is salt water.



Most of Earth's surface is covered with water. That is why Earth looks blue from space.



■ The rest of Earth's water—3 percent—is fresh water. People need fresh water for drinking, for washing, and for growing food.

■ Most fresh water is frozen in ice caps and glaciers. Glaciers are huge sheets of ice. This water is far from most cities and towns. That means it cannot be used by many people.

■ Fresh water can also be found underground. To get this water, people pump it up to Earth's surface. Other sources of fresh water are rivers and freshwater lakes.

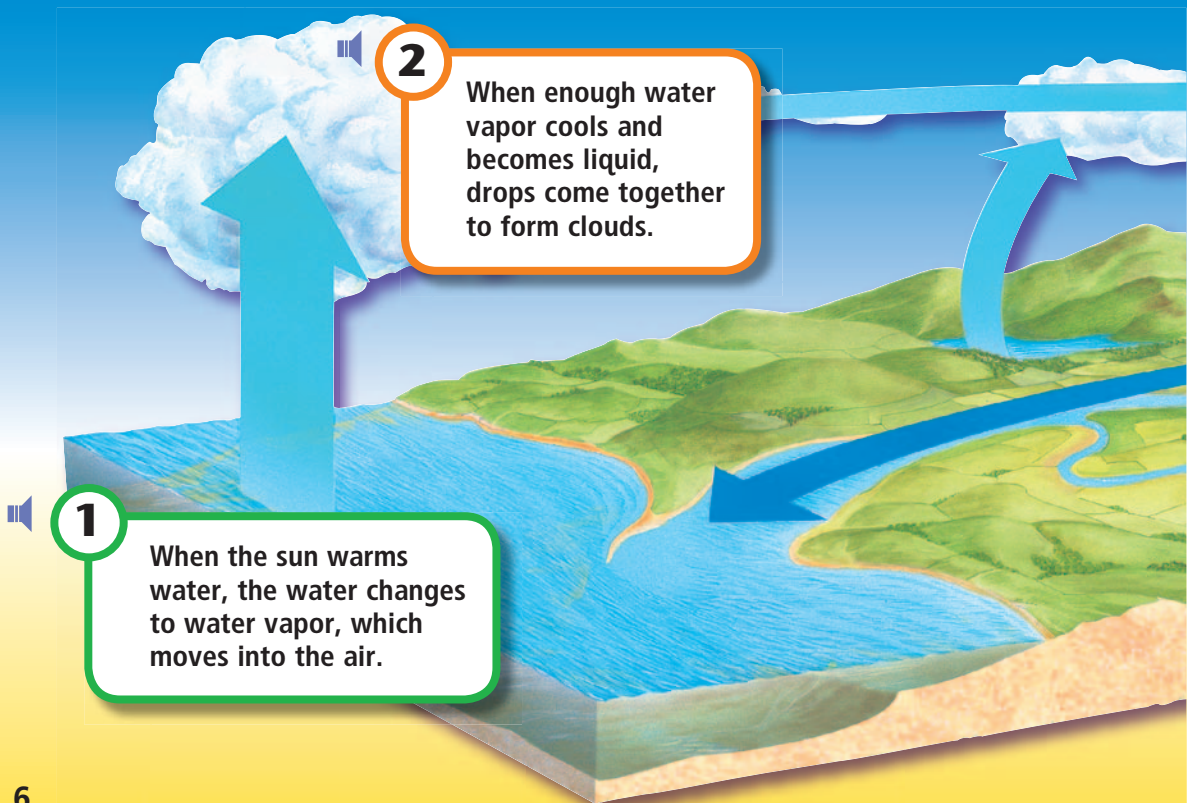
■  **Where is most of Earth's water found?**

The Water Cycle

Water is always moving. It moves from Earth's surface to the air. Then the water moves back down to Earth's surface. This never-ending process is called the **water cycle**.

 Imagine a puddle of water on the street. Energy sunlight warms the water. This makes the water change state from a liquid to a gas. The gas is called **water vapor**. The water vapor rises into the air.

 When water vapor in the air cools, it becomes liquid water again. It forms drops that become heavy enough to fall back to Earth. Most of the water falls into oceans, lakes, and rivers. Some falls onto land. This water soaks into the ground or go into lakes and rivers.

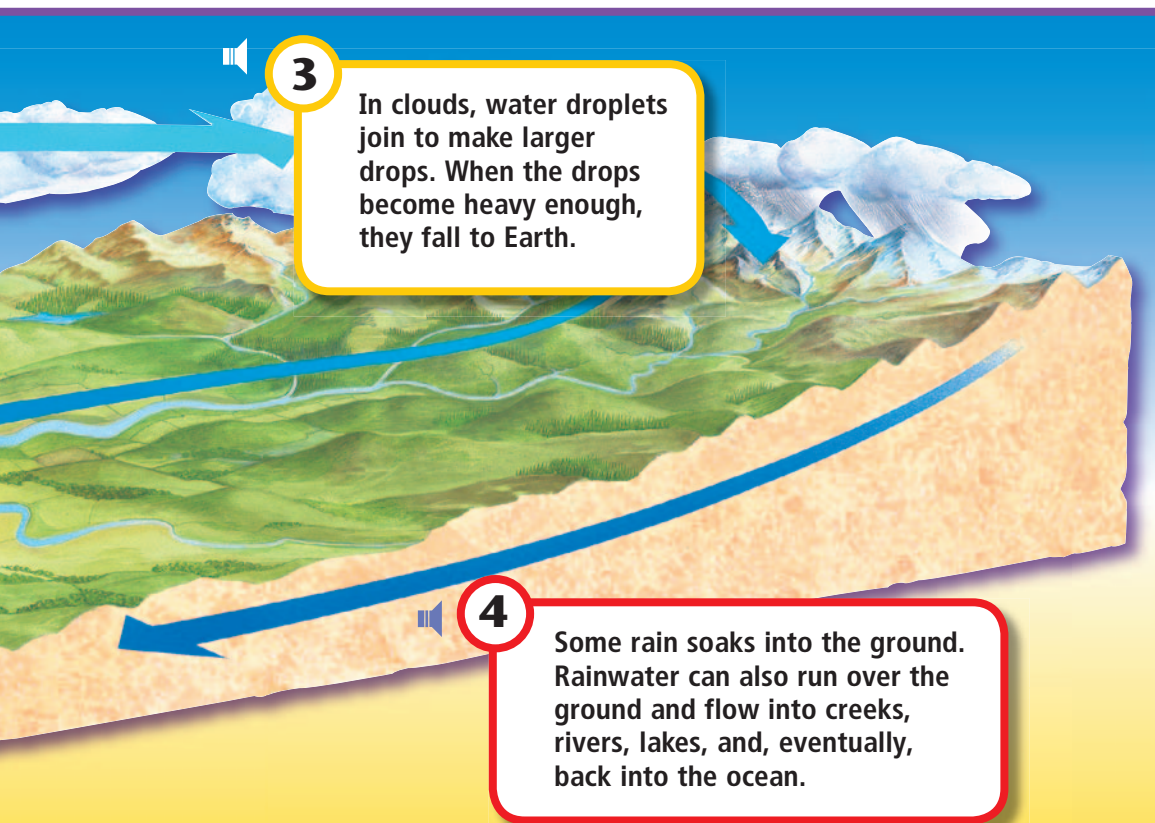


Some of the fallen water becomes water vapor again as the sun heats it. This is how the water cycle continues.

Most of the water moving through the water cycle comes from the oceans. The energy from the sun heats ocean water and turns it into water vapor. Winds carry the water vapor over land. There it falls as rain, snow, sleet, or hail. Most rainwater comes from the oceans. Why isn't rain salty?

When ocean water turns into water vapor, the salt stays in the ocean. The salt is too heavy to move into the air. Only the fresh water becomes water vapor.

 **How does water vapor become liquid water again?**



Evaporation

What happens when you lay a damp towel in the sun? The towel dries. Where did the water go?

 The water evaporated. **Evaporation** is the process by which a liquid changes into a gas. Water evaporates because heat changes it into water vapor.

 It is hard to see evaporation, because water vapor is invisible. Remember the damp towel in the sun? The towel became dry when the water was gone. The water evaporated and became part of the air.



 You cannot see the water evaporating from the oceans.



Sweat from your skin can evaporate.

■ A large amount of water evaporates from Earth's oceans, rivers, and lakes. This happens every day. Water also can evaporate from plants. It evaporates from your skin when you sweat.

■ Water vapor mixes with other gases in the air. It becomes part of the air.

■  **What is needed to change liquid water into water vapor?**

Condensation

When water vapor becomes part of the air, it moves with the air. Air can carry water vapor very long distances. Water vapor is also carried high into the atmosphere.

 As air and water vapor rise, they cool. When the water vapor gets cold enough, it condenses. It changes back into a liquid. **Condensation** is the process by which a gas changes into a liquid.



 Water is heated in the teapot. The liquid boils and becomes a gas. The gas is called water vapor. Then the water vapor cools. It condenses into tiny droplets of water as it leaves the pot. This condensed water is called steam.

When water vapor condenses in the air, the liquid mixes with tiny pieces of dust. The water and dust form clouds or fog. Fog is a cloud that forms near the ground.

As more water condenses, the water droplets grow heavier. When the water droplets grow heavy enough, they fall to Earth as rain.

If the air is cold enough, the rain water freezes. It falls as snow, sleet, or hail.

 **What happens when water vapor cools?**



Condensed water in cold air may fall as snow.



Review



Complete this **main idea** statement.

1. _____ is constantly moving from the surface of Earth to the air and then back again.

Complete these **detail** statements.

2. Most water on Earth is _____ water.
3. When water condenses, it changes from a gas to a _____.
4. _____ is the changing of a liquid into a gas.

Glossary

-  **condensation** [kahn•duhn•SAY•shuhn] The process by which a gas changes into a liquid.
-  **evaporation** [ee•vap•uh•RAY•shuhn] The process by which a liquid changes into a gas.
-  **water cycle** [WAWT•er SY•kuhl] The constant movement of water from Earth's surface to the atmosphere and back to Earth's surface.
-  **water vapor** [WAWT•er VAY•per] The gas form of water.

Think About the Reading

-  1. How does the illustration on pages 6 and 7 help you understand the water cycle?
-  2. What sections would you read again to understand how evaporation is different from condensation?

Hands-On Activity

Find a large, clear glass jar and a lid. Fill a small paper cup with salty water. Place the jar lid upside down in full sunlight. Put the cup of salt water on the lid. Put the jar upside down over the cup, and fit it into the lid. The jar does not need to be screwed on. Predict what will happen.

-  1. After 45 minutes, check the jar. What do you see on the walls inside the jar?
-  2. Taste the water on the jar walls. Is it salty?

School-Home Connection

With a family member, place a damp washcloth in a sunny location. After 2 hours, check the cloth. Does it feel drier? Explain to your family member what happened to the water.