



• The Water Cycle

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The Water Cycle

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Where Is Water Found on Earth?



VOCABULARY



fresh water



glacier



groundwater



Fresh water is water that has very little salt in it. Rivers and most lakes have fresh water.



▶ A **glacier** is a huge sheet of ice. It is frozen fresh water.



▶ **Groundwater** is water under the ground. It can come from rain that soaked into the soil.



READING FOCUS SKILL

MAIN IDEA AND DETAILS

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

Look for **details** about why water is important and where you find water.

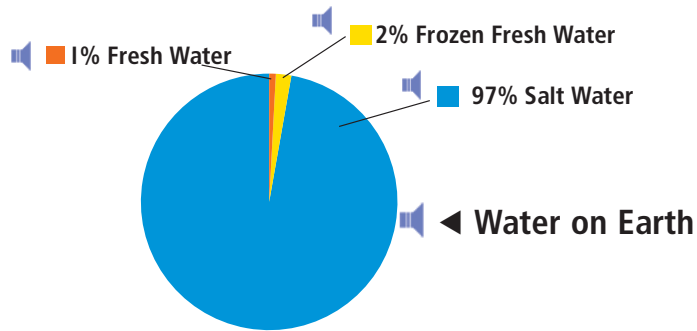
Why Water Is Important

All living things need water. People, plants, and animals need water to live.

Water is important to the environment, too. Rain and snow are water. Water forms rivers, lakes, and oceans.

Deer need water to stay alive. ▼





Water covers almost three-fourths of Earth. Most of the water is in oceans. Ocean water is salt water.

Only a small part of Earth's water is fresh water. **Fresh water** is water that has very little salt in it. People, plants, and animals need fresh water to live.

Why is water important?

Freshwater lake ▼



🔊 Fresh Water

🔊 Most fresh water is frozen in glaciers. A **glacier** is a huge sheet of ice.

🔊 Rain and melted snow are also fresh water. They may flow into streams, rivers, and lakes. Rain also soaks into the ground. This is called **groundwater**.

🔊  Tell where you can find fresh water.



🔊 ◀ Glacier

🔊 ▼ Lake Powell



Salt Water

Most water on Earth is salt water. Salt water is in oceans, seas, and gulfs.

Salt water in oceans is important. Sunlight can warm the ocean. This warm water can help keep some land warm.



Tell why salt water is important.



◀ Salt water nearly surrounds Florida

Review



Complete this **main idea** statement.

1. All living things need _____.

Complete these **detail** statements.

2. Most fresh water is frozen in _____.

3. Almost all water on Earth is _____.



What Is the Water Cycle?

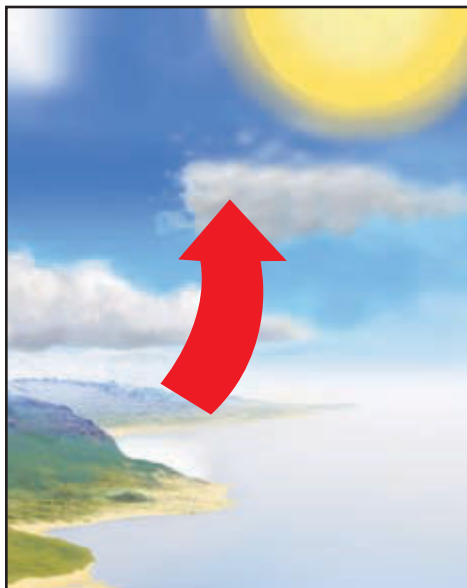
VOCABULARY

- condensation
- evaporation
- water cycle
- precipitation

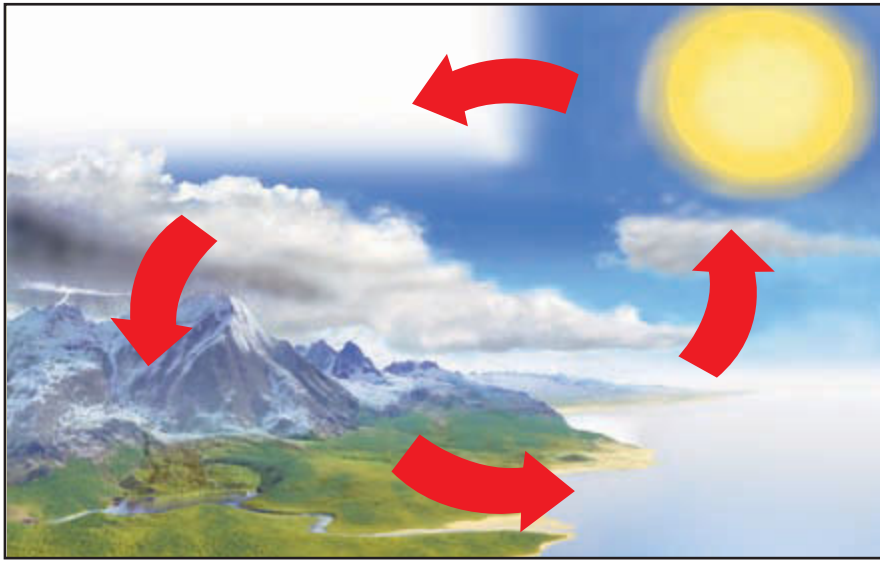


Condensation

happens when a gas changes to a liquid. Clouds may form when water condenses.



Evaporation happens when a liquid changes to a gas. You can't see water after it evaporates.



▶ The **water cycle** is the movement of water from Earth's surface into the air and back again.



▶ **Precipitation** is rain, snow, sleet, or hail. Water in clouds falls to Earth as precipitation.



READING FOCUS SKILL

SEQUENCE

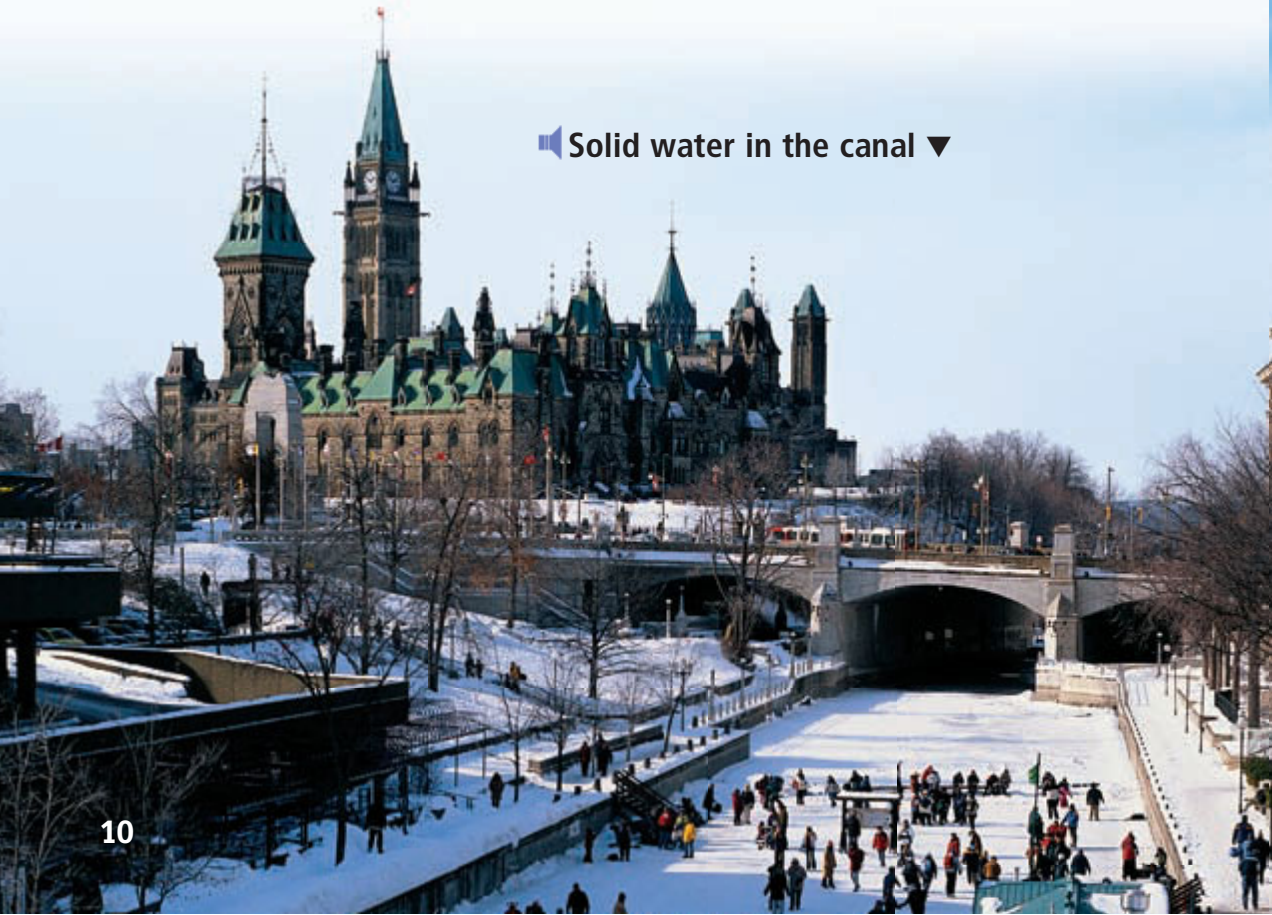
A **sequence** is the order in which things happen.

▶ Look for the **sequence** in which water changes during the water cycle.

Forms of Water

▶ All water on Earth is liquid, solid, or gas. Solid water is called ice. Water in the form of gas is called *water vapor*.

▶ Solid water in the canal ▼



■ The form that water takes depends on how warm it is. Water is solid at 0°C (32°F) or colder. It becomes liquid above 0°C . When water is heated above 100°C (212°F), it becomes water vapor.



■ What happens to solid water as it gets warmer?

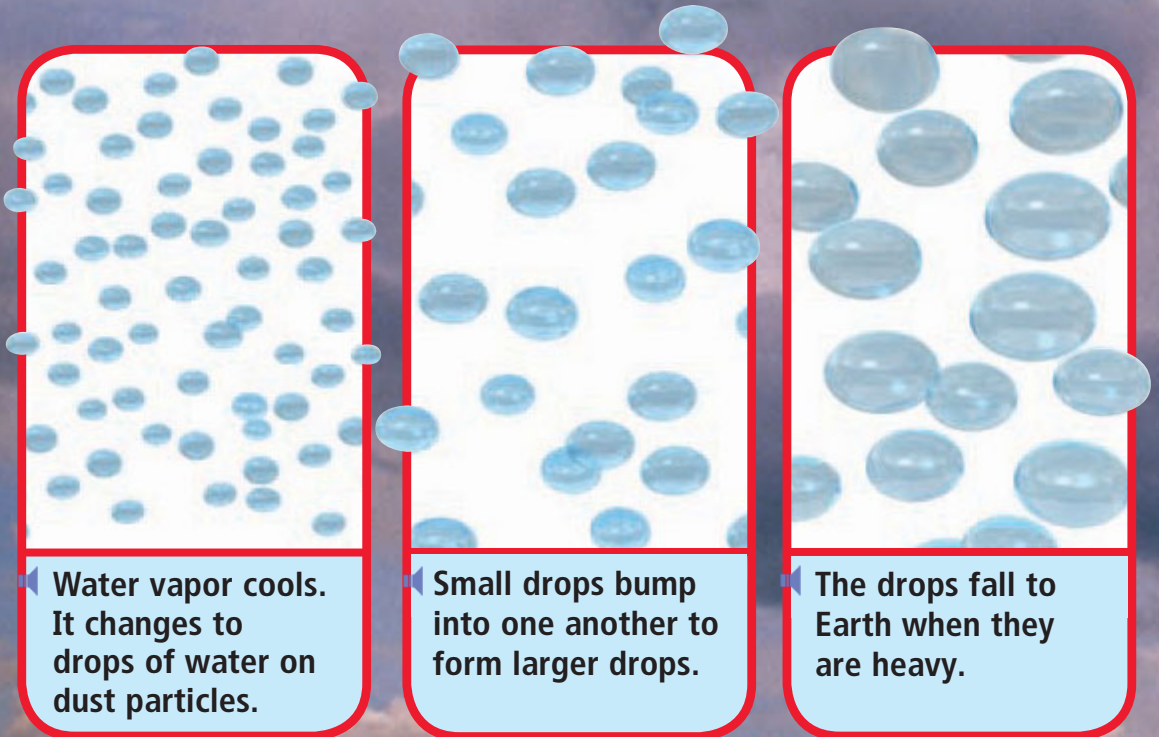
■ Liquid water in the canal ▼




How Water Changes Forms

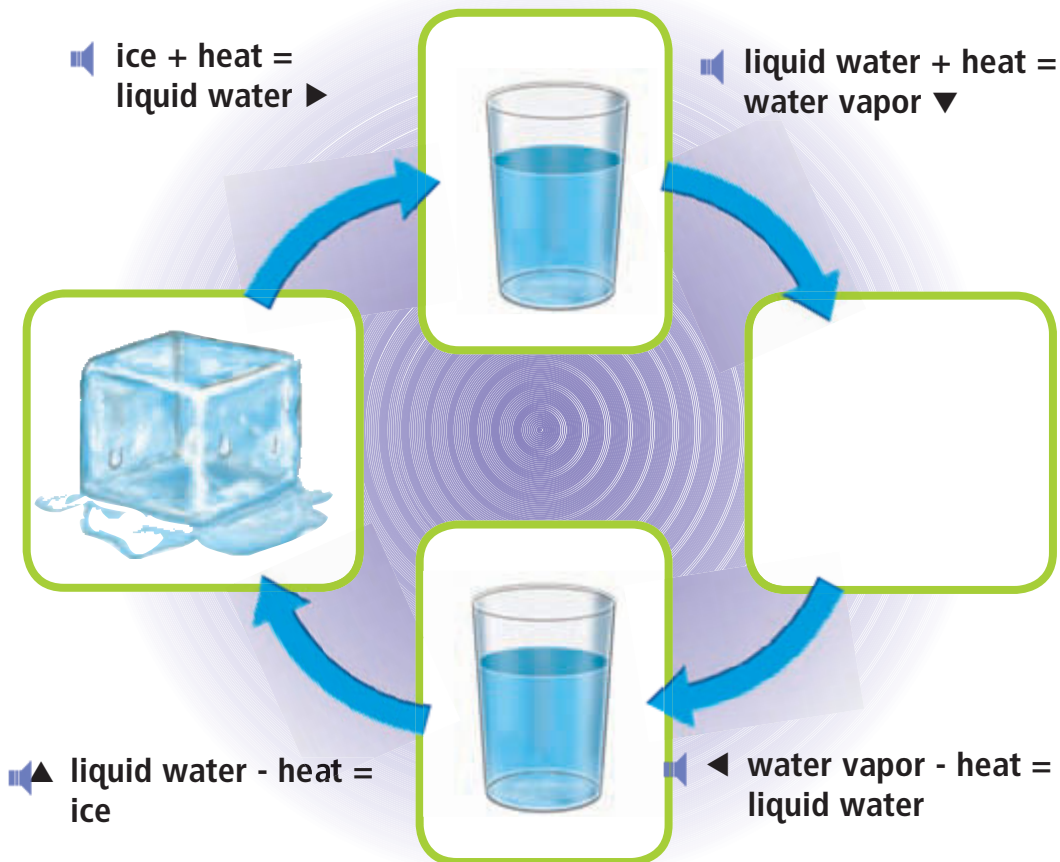
Heat causes water to change its form. When water vapor loses enough heat, it changes from a gas to a liquid. This change is called **condensation**.

How Clouds Form



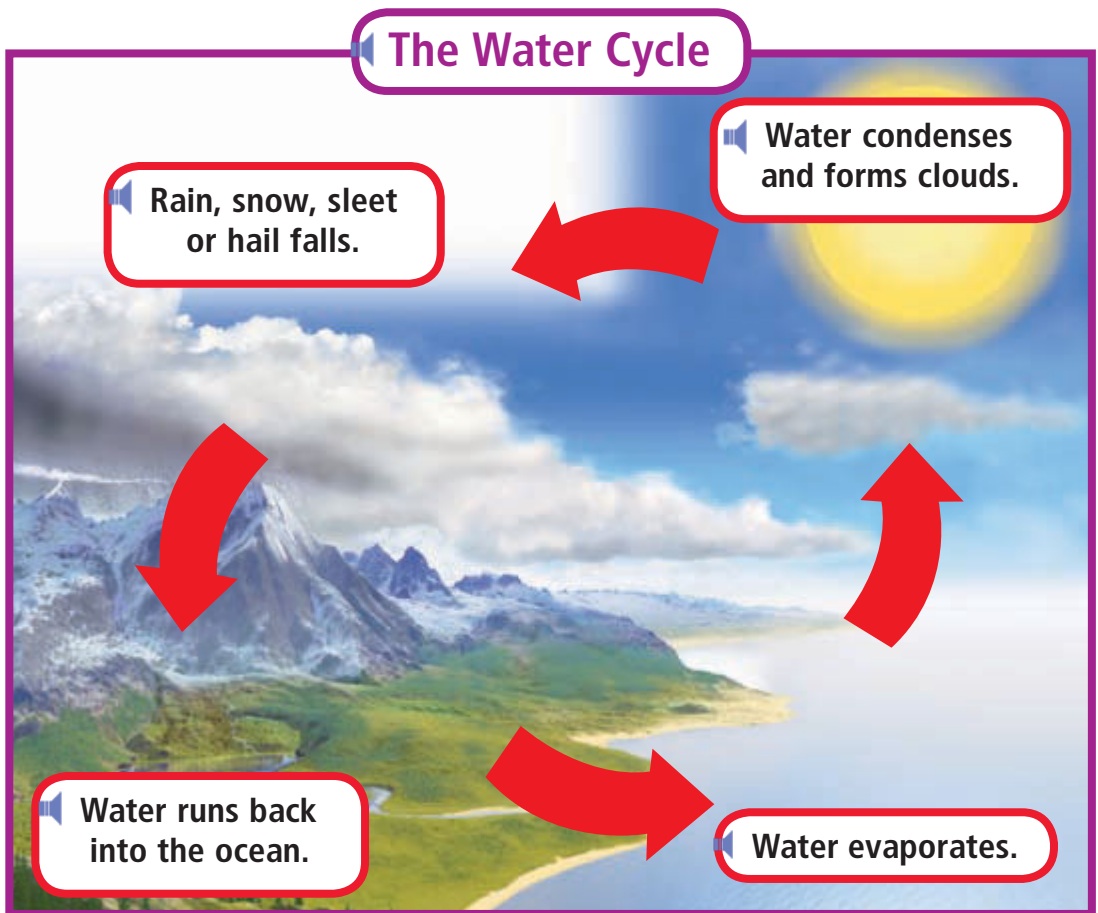
When liquid water gains enough heat, it changes from a liquid to a gas. This change is called **evaporation**.

 Tell what happens when water vapor loses enough heat.



The Water Cycle

- ▶ The movement of water from land into the air and back again is called the **water cycle**.
- ▶ First, the sun warms water on Earth. This makes water evaporate. It changes to water vapor.



Next, the water vapor cools. When it cools, it changes into small drops of water. These drops form clouds. When the drops get heavy, they fall to Earth as precipitation.

Precipitation is rain, snow, sleet, or hail.

Then the water cycle starts again.



Tell what happens after water evaporates.

▲ **Precipitation**

Review



Complete each **sequence** statement.

1. When liquid water gains enough heat, it changes to a gas called _____.
2. When liquid water loses enough heat, it changes to a _____ called ice.
3. When condensation happens, gas becomes a _____.
4. When evaporation happens, a liquid becomes a _____.



What Is Weather?

VOCABULARY

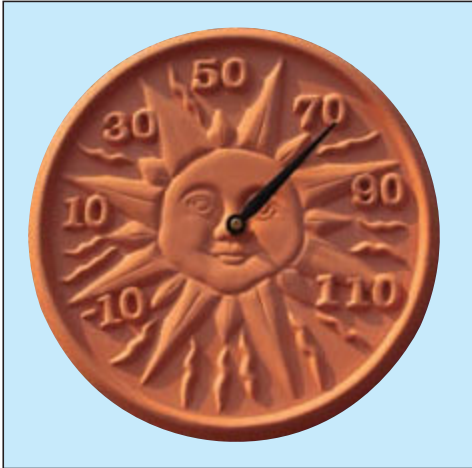
- atmosphere
- oxygen
- weather
- temperature
- anemometer



- The **atmosphere** is the air around Earth. **Oxygen** is a gas in the atmosphere. People need oxygen to live.



Weather is what the air outside is like. Weather may be sunny, cloudy, rainy, hot, or cold.



Temperature is the measure of how hot or cold something is. A thermometer measures the temperature.



An anemometer is a tool that measures the speed of wind.



READING FOCUS SKILL

COMPARE AND CONTRAST

When you **compare and contrast**, you tell how things are alike and different.

- Look for ways to **compare and contrast** the weather.

The Air Around You

- The air around Earth is called the **atmosphere**. You cannot see air. But you can feel it moving when the wind blows.

- Moving air, or wind, makes kites fly. ▼



▶ The atmosphere is important because it has oxygen. **Oxygen** is a gas that people and animals need to live.

▶ Water vapor is another gas in the atmosphere. It may form clouds. Rain, snow, and other precipitation fall from clouds.

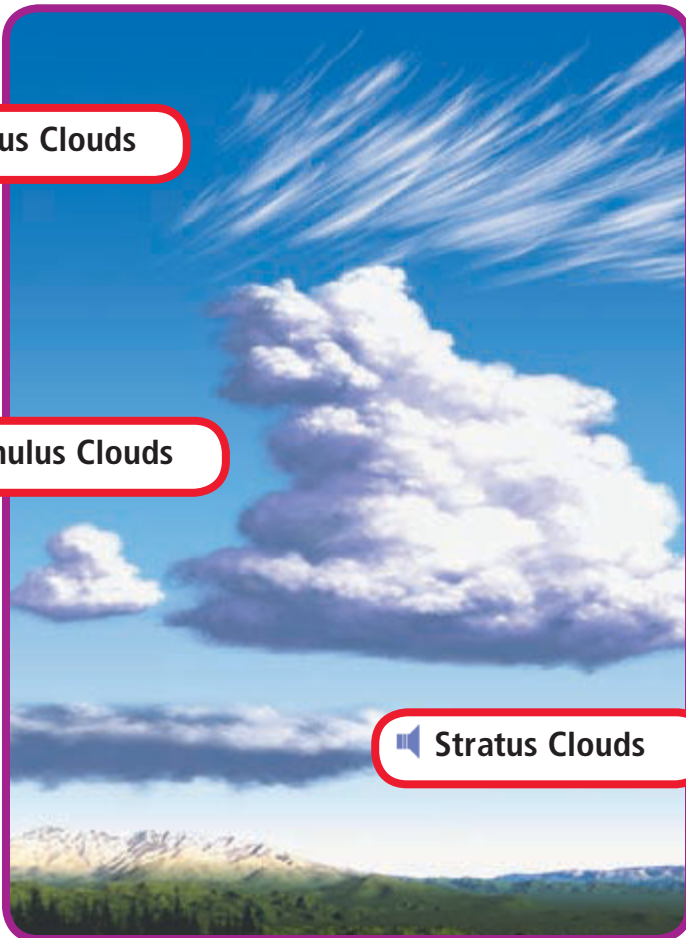
▶  **Tell how gases in the atmosphere are different.**

▶ Compare these types of clouds. ▼

▶ Cirrus Clouds

▶ Cumulus Clouds

▶ Stratus Clouds



Weather Patterns

- **Weather** is what the atmosphere is like at a certain place and time. Different places may have different kinds of weather.
- Some weather is helpful. For example, rain can bring water for crops. But some weather is harmful. Too much rain can cause floods. Floods destroy homes.

■ A cloudy day ▼



Weather can change in a few hours or over many months. Changes in the weather that repeat are called weather patterns.



Tell how the weather patterns below are different.

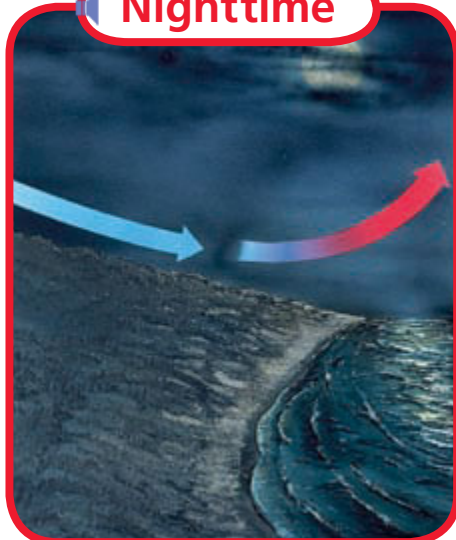
Weather Patterns

Day time



Cool air over water moves toward land.

Nighttime



Cool air over land moves toward water.

Gathering Weather Data

Weather tools help gather data about the weather. A thermometer is a tool that measures temperature. **Temperature** is the measure of how hot or cold something is. An **anemometer** is a tool that measures wind speed.



Tell how a thermometer and an anemometer are alike.



▼ Weather tools



Severe Weather

Sometimes, weather changes can be dangerous. Dangerous weather changes are sometimes called severe weather. The kind of weather depends on the temperature, the amount of wind, and the precipitation.

A drought is a time with very dry weather. In a drought, the weather is dry for a long time.

A flood happens when a lot of rain falls in a short amount of time. Rivers can overflow and cause problems.



Tell how droughts and floods are different.



Flood



Drought

Thunderstorms and Heat Waves

A heat wave happens when the temperature is very hot for a long time. Heat waves may last from a few days to several weeks.

Thunderstorms often occur when the temperature is hot. Thunderstorms can bring heavy rain and lightning. Hail and high winds can happen in these storms.



Tell how thunderstorms and heat waves are alike.

Heat Wave



Thunderstorm



Tornadoes and Hurricanes

A tornado is a spinning column of air that touches the ground. Tornadoes happen in some strong thunderstorms.

Hurricanes are the largest storms on Earth. They form over oceans when the water is warm. Hurricanes can cause tornadoes and thunderstorms to form.



Tell how tornadoes and hurricanes are different.

Tornado



Hurricane



Blizzards and Ice Storms

Blizzards happen in the winter when it is cold and below freezing. They bring heavy snow and strong, cold winds.

Ice storms happen when the temperature is close to freezing. Rain freezes on things. The ice can make it hard to walk or drive.



How are blizzards and ice storms alike?

Ice Storm



Blizzard



Predicting Weather

People use tools, such as maps, to predict weather. Weather maps can show temperatures and the chance of rain. They help people predict what the weather will be like later.

 What can different weather maps show?



▲ Weather map

Review



 Complete each **compare and contrast** statement.

1. Some weather is helpful and some is _____.
2. A thermometer and an anemometer are both _____.
3. A thermometer measures _____, and an anemometer measures _____.

GLOSSARY




- ▶ **anemometer** (an•uh•MAHM•uh•ter) A weather instrument that measures wind speed
- ▶ **atmosphere** (AT•muh•sfeer) The air around Earth
- ▶ **condensation** (kahn•duhn•SAY•shuhn) The process by which water vapor changes into liquid water
- ▶ **evaporation** (ee•vap•uh•RAY•shuhn) The process by which liquid water changes into a water vapor
- ▶ **fresh water** (FRESH WAH•ter) Water that has very little salt in it
- ▶ **glacier** (GLAY•sher) A huge sheet or block of ice
- ▶ **groundwater** (GROWND•wah•ter) An underground supply of water
- ▶ **oxygen** (AHK•si•juhn) A gas that people need to live and plants give off into the air
- ▶ **precipitation** (pree•sip•uh•TAY•shuhn) Rain, snow, sleet, or hail
- ▶ **temperature** (TEM•per•uh•cher) The measure of how hot or cold something is
- ▶ **water cycle** (WAH•ter SY•kuhl) The movement of water from Earth's land, through rivers toward the ocean, to the air, and back again
- ▶ **weather** (WEH•ther) What is happening in the atmosphere at a certain place and time

Think About the Reading

-  **1.** Where can you find water? Why is water important?
-  **2.** What is the water cycle? How does the water cycle affect you?

Hands-On Activity

Observe how water changes its form.

-  **1.** Fill a clear plastic cup halfway with water. Mark the water level on the outside of the cup. Place the cup in the freezer.
-  **2.** After a day, remove the cup from the freezer. Observe and record any changes.
-  **3.** Set the cup in a warm spot for a few days. Observe and record changes.

School-Home Connection

Tell a family member what you have read about how people gather weather data. Together, look in the newspaper or online to find out the five-day forecast. Then compare the actual weather each day with the weather that was predicted.

GRADE 3

Book 9

WORD COUNT

925

GENRE

Expository Nonfiction

LEVEL

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