

Below Level



SCIENCE • GRADE 5

California Content Standards
Earth Sciences: 3.A
Earth Sciences: 3.B
Earth Sciences: 3.C
Earth Sciences: 3.D
Earth Sciences: 3.E

Earth's Water

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Earth's Water

California's Content Standards Met

GRADE 5 SCIENCE

EARTH SCIENCES: 3—Water on Earth moves between the oceans and land through the process of evaporation and condensation. As a basis for understanding this concept:

- a. Students know most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.
- b. Students know when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.
- c. Students know water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.
- d. Students know that the amount of fresh water located in rivers, lakes, underground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.
- e. Students know the origin of the water used by their local communities.

GRADE 5 ENGLISH LANGUAGE ARTS

1.0 WORD ANALYSIS, FLUENCY, AND SYSTEMATIC VOCABULARY DEVELOPMENT

Vocabulary and Concept Development 1.6—Use sentence and word context to find meaning of unknown words.

2.0 READING COMPREHENSION

Comprehension and Analysis of Grade-Level-Appropriate Text 2.2—Analyze text that is organized in sequential or chronological order.

Comprehension and Analysis of Grade-Level-Appropriate Text 2.4—Draw inferences, conclusions, or generalizations about text and support them with textual evidence and prior knowledge.

Comprehension and Analysis of Grade-Level-Appropriate Text 2.5—Distinguish the main idea and supporting details in expository text.

Below Level



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Student Book

Earth's Water

Print pages 5 – 18 of this PDF for the student book.

How to Make the Student Book

- The student book is contained on pages 5–18 of this PDF. It begins on the next page.
- To make one student book, or a two-sided master copy that can be photocopied, you will print on both sides of seven sheets of 8.5" x 11" paper.
- Do a test printout of one book first to familiarize yourself with the procedure.
- Follow these instructions carefully.

First—Select the Paper

Since you will be printing on both sides of the sheets of paper, select a good quality white paper. We recommend using at least a 22lb sheet.

Second—Check Printer Settings

Be sure you have the correct page setup settings for your computer and printer. You will print these pages in landscape format.

Third—Print EVEN Pages

Open the PDF of the book you want to print. Select print from your file menu. In your printer's dialogue box enter pages 5–18 to print. Then select EVEN pages only. It is important to print only the EVEN pages first. Click "Print" to print the even pages. (**Important note:** The first page that prints will be blank. DO NOT discard this page. It will be needed to print the cover in the next step.)

Forth—Print ODD Pages

When the even pages have printed, flip the stack of pages over to print the odd pages. Place the stack back in your printer. Select print from the file menu again. In your printer's dialogue box, select ODD pages. Click "Print" to print the odd the pages.

Fifth—Fold the Book

You now have a complete book. Check to be sure the pages are in the correct order with the book's cover as the top page. Then fold the stack of paper in half.

Sixth—Staple the Book

Use an extended-length stapler to staple the pages together. Place three staples in the spine of the book.

Please note that printers vary in how they output pages. Do a test printing with one book and adjust the procedure as necessary.

If you want to make a one-sided master copy, print ALL pages 5–18 at once. Then select "one-sided to two-sided" on the copy machine.

Earth's Water

California's Content Standards Met

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GRADE 5 SCIENCE

EARTH SCIENCE: 1—Water on Earth moves between the oceans and land through the process of evaporation and condensation. As a basis for understanding this concept:

- Students know most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.
- Students know when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.
- Students know water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.
- Students know that the amount of fresh water located in rivers, lakes, under-ground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.
- Students know the origin of the water used by their local communities.

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SCIENCE • GRADE 5

California Content Standards

Earth Sciences: 3.A, 3.B, 3.C, 3.D, 3.E

Earth's Water

by
Caitlin Scott





SCIENCE • GRADE 5

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*What do you think you will
learn from this book?*

INTRODUCTION

The Blue Planet

Water covers three-fourths of Earth's **surface**. That's why our planet is sometimes called the blue planet. Fresh water falls as rain on both the land and on the oceans. When water falls on land, it **dissolves** salts and minerals found on the surface of Earth.

Then water carries these salts and minerals to the oceans. When water reaches the ocean, it does not flow in and out. The salts and minerals become trapped. The salt stays in the ocean. For this reason, the oceans contain salt water.

surface: the outside of something
dissolve: to make or become a liquid

Water in rivers and lakes is always moving. Water flows both into and out of them. Because of this movement of water, salts and minerals are not trapped. So rivers and lakes contain fresh water.

However, ninety-seven percent of the water on Earth is too salty to drink. Fortunately, fresh water is a **renewable resource**. That is because of the water cycle. Read on to learn more about this life-saving cycle.

renewable resource: something that can be replaced by nature

The Water Cycle

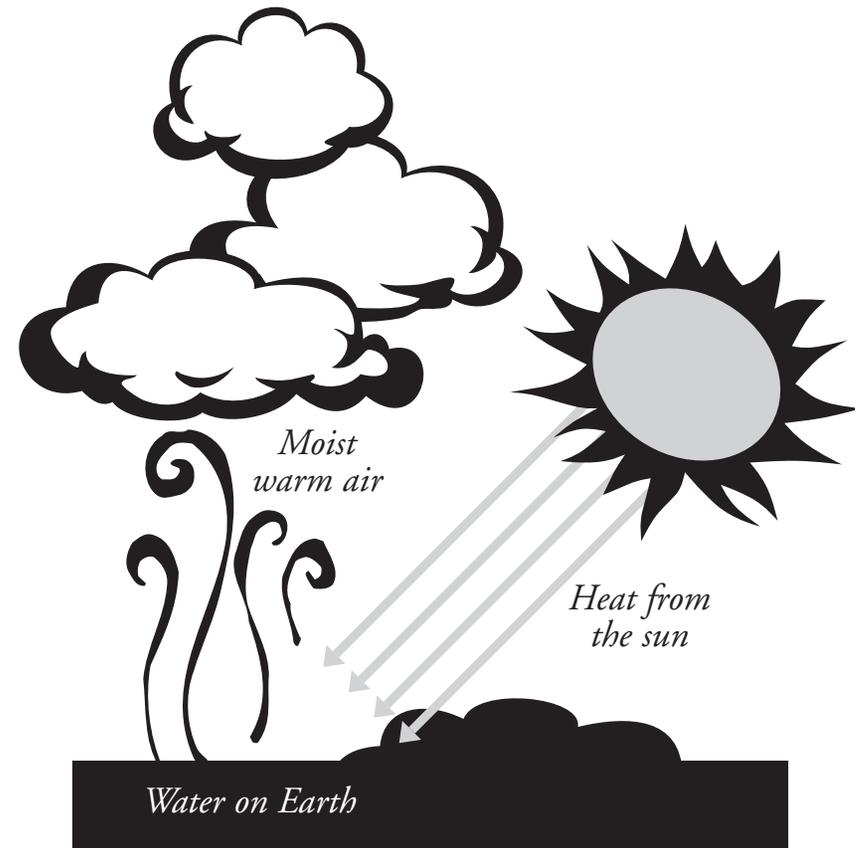
Water can be found as a solid, a liquid, or a **gas**. Water as a solid is ice. Rain is water as a liquid. Water as a gas is called water **vapor**.

The sun heats liquid water on Earth. It changes the water into water vapor. The water vapor mixes with air and rises.

As water vapor rises it cools. It changes into a liquid again. Tiny water drops form. When these drops are close together, we can see them. They form a cloud.

A cloud is just water in the air. Water then falls from a cloud and land on Earth again. This is called the water cycle.

gas: matter that has no shape; gases spread out to fill the space around them; most cannot be seen
vapor: a gas formed from something that is usually a liquid



Clouds form when warm, moist air rises off Earth's surface.

The water cycle has four parts.

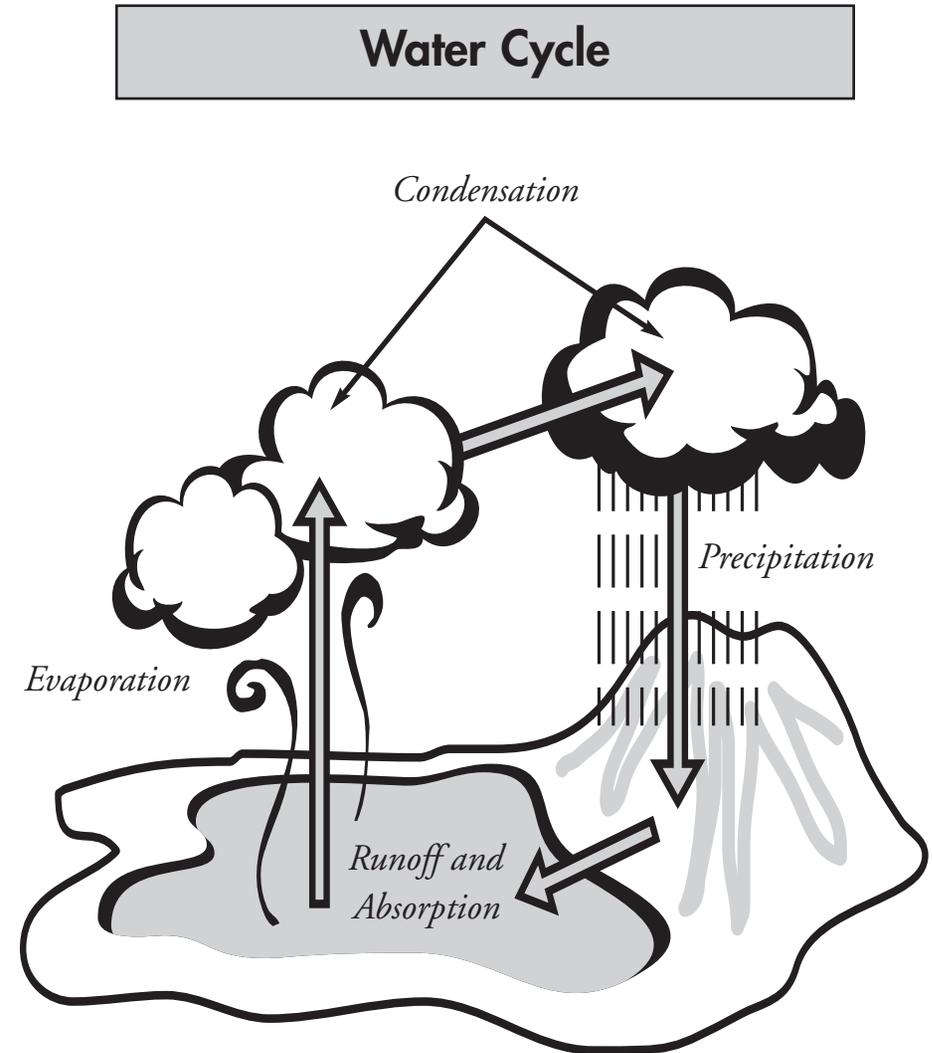
Evaporation—Water changes to a gas, or water vapor. It rises up into the air.

Condensation—The water vapor rises and moves over land. The air cools. The gas begins to change back to a liquid. Tiny water droplets form clouds.

Precipitation—When there is enough water, it falls back to Earth. It can be rain, snow, sleet, and hail.

Runoff and Absorption—Water that falls may be collected in ocean, lakes, or rivers. Some is absorbed, or soaked, into the ground.

Can you guess what happens next?
Evaporation. The cycle starts all over again.



How would you describe the water cycle to a friend?

Evaporation

Evaporation occurs when water is warmed by the sun. The water changes from a liquid to a gas. As a gas, water vapor moves up into the air.

Have you ever spilled water on your clothes? Did the water spot go away? Yes. Your clothes dried out. The water changed from a liquid to a gas. It evaporated. But you didn't see the water going into the air. Even though you can't see it, water evaporates all the time.

Explain what causes evaporation.



*When water boils, it turns from a liquid to a gas.
You can see the gas as steam.*

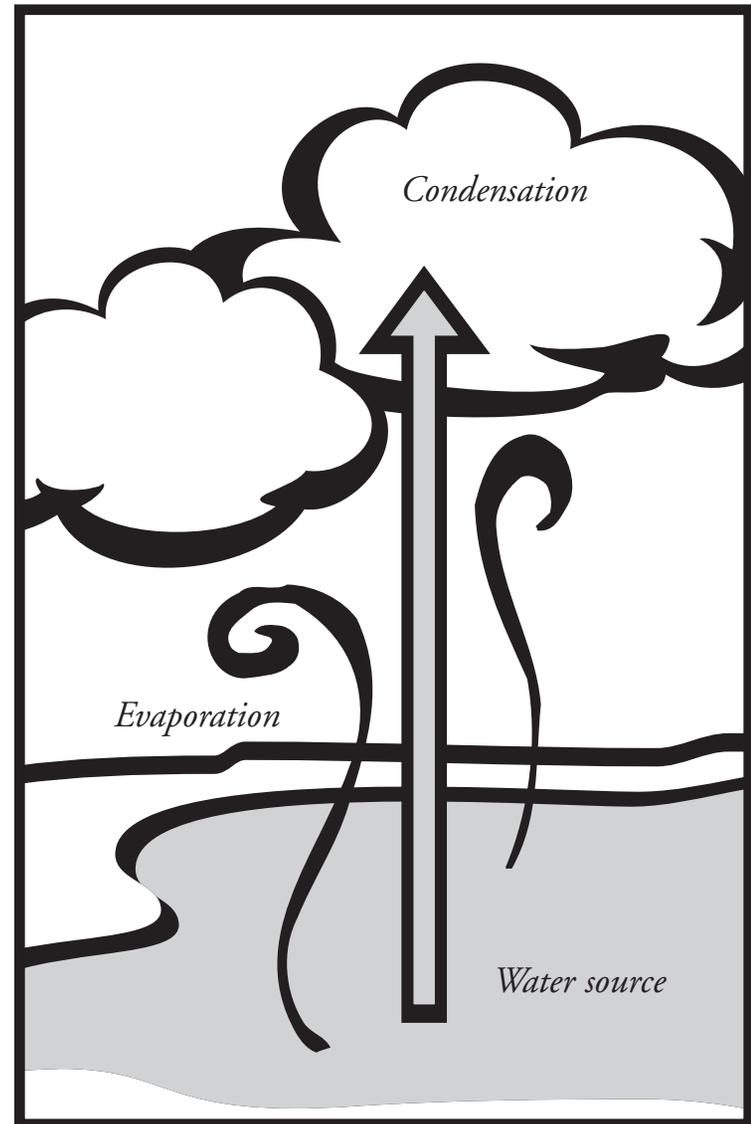
Condensation

Have you ever breathed on a cold window?
Your breath made fog on the window.
This is condensation.

Condensation takes place when water vapor in the air forms tiny water drops. It is the second step of the water cycle. First, water evaporates. Next, it condenses. This forms clouds.

What happens next in the water cycle?
That's right—precipitation! Rain, snow, sleet, or hail fall back to Earth.

How do clouds form?



Precipitation

Water can't stay in the air forever. As the clouds move higher, they get colder.

More gas becomes liquid. The liquid water falls back to Earth.

Rain

If it is warm outside, the water that falls is rain. Rain occurs at temperatures that are above freezing.

In some parts of the United States, it rains a lot. In other parts, it is very dry.

Average Rainfall in U.S. Cities	
City	Average Annual Rainfall in Inches
Astoria, Oregon	70
El Paso, Texas	8
Las Vegas, Nevada	4
Miami, Florida	60
New Orleans, Louisiana	60
Phoenix , Arizona	7

Snow

Snow is water that freezes in a cloud. As it falls to the ground, it stays frozen.

It snows a lot in the northern parts of the United States. It also snows a lot high up in the mountains.

Snowiest U.S. Cities	
City	Average Annual Snowfall in Inches
Blue Canyon, California	241
Marquette, Michigan	129
Sault Ste. Marie, Michigan	117
Syracuse, New York	112
Caribou, Maine	110

*Where does it snow the most in the United States?
Which place has more snow Marquette,
Michigan or Syracuse, New York?*

Sleet

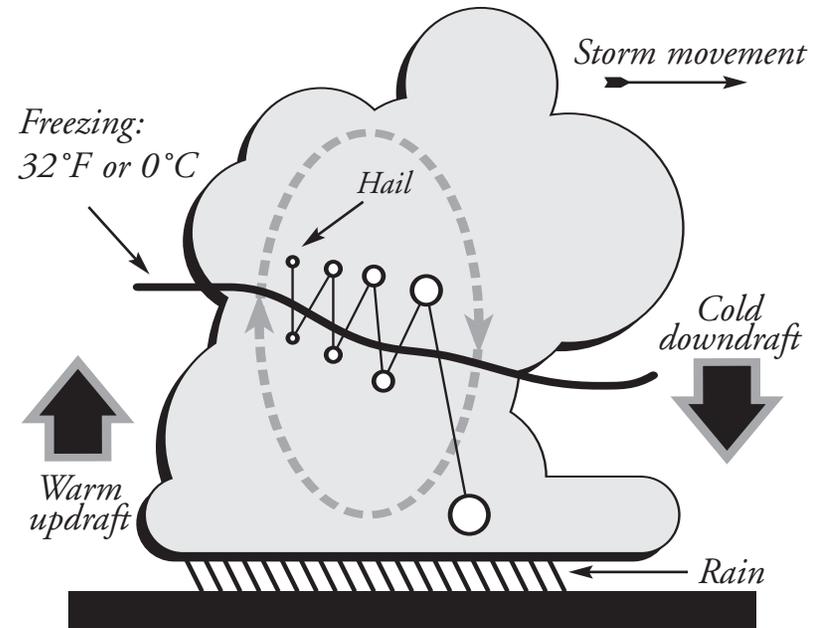
Sleet is also water that freezes in a cloud. But sleet doesn't stay frozen. It passes through warmer air. It melts as it falls. Then it goes through colder air again. It freezes again just before it hits the ground.

Hail

Hail is a little like sleet. Water freezes in a cloud and falls to warmer air. The water starts to melt. But then, strong winds from a **thunderstorm** blow it back up to the colder air. It freezes again. This can happen many times. Each time, the frozen water gets larger. Finally, it gets too heavy to stay up. It falls to the ground as hail.

thunderstorm: a rainstorm that has thunder and lightning

How Hail Forms



Hail moves up and down in a storm cloud. It grows larger and larger each time it passes through air that is above and below freezing.

Describe how water changes from one state to another.

Runoff and Absorption

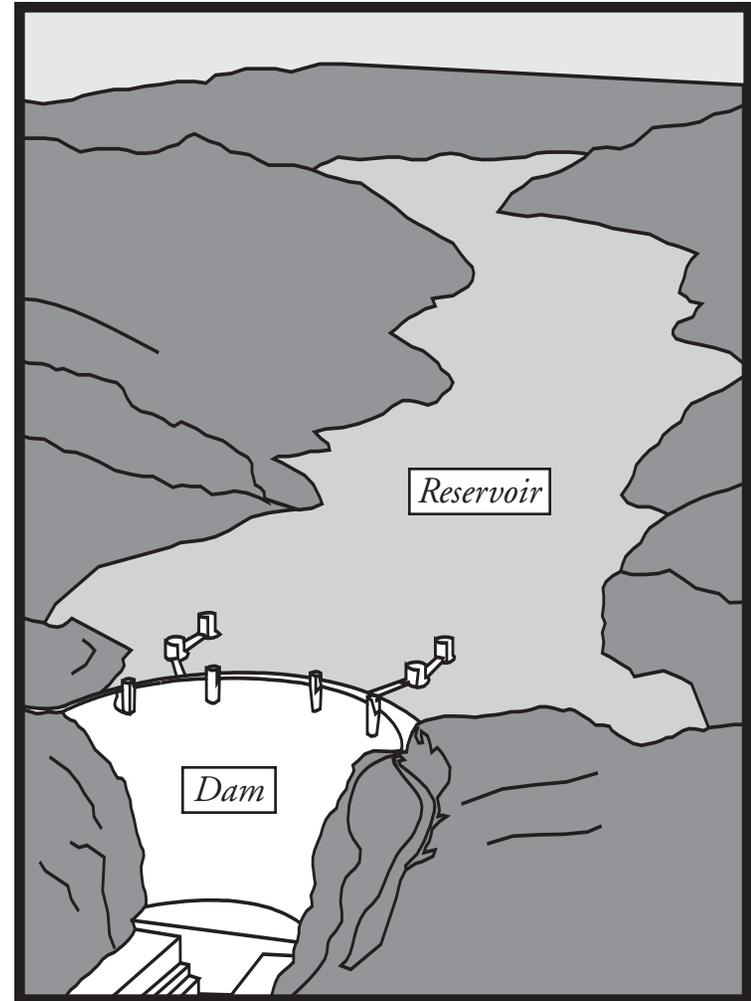
The last step of the water cycle is runoff and absorption. When water falls to the ground, it is collected and stored until it evaporates again.

Water is stored on Earth in lakes, rivers, seas, or the oceans. Water is also stored underground.

Sometimes people collect water in **reservoirs**. Then, they clean the water and use it for drinking, cooking, and cleaning.

*Where does the water in your community come from?
Where is it stored?*

reservoirs: places where water is stored



Lake Mead in Nevada is a reservoir created by the Hoover Dam.

Protecting Our Water Supply

Clean, fresh water is a basic need of life. People can't live without fresh water. It is a big part of our lives. We use it everyday.

Yet, did you know that only a very small amount of Earth's water can be used by people? The rest is salt water or frozen. This means we must take care of the fresh water we have.

California's water comes from rain and snow. This water collects in lakes, rivers, and streams. If these areas are polluted, our water will not be safe to drink. Our government passes laws to manage and protect our water. These laws are important.

However, it is also important that we each do our part to save water. We must use our water wisely and not waste it. Here are some water-saving tips.

- Turn off the tap when you brush your teeth.
- When you clean your fish tank or empty your pet's drinking water, don't throw the old water away. Use it to water plants.
- Get cool water from a pitcher instead of the tap. Drops of water go down the drain when you fill a glass at the tap.

What does your community do to protect the water supply?

Glossary

gases—matter that has no shape; gases spread out to fill the space around them; most cannot be seen

reservoirs—places where water is stored

thunderstorm—a rainstorm that has thunder and lightning

vapor—a gas formed from something that is usually a liquid

To Find Out More . . .

Want to learn more about Earth's water?

Try these books

A Drop Around the World by Barbara McKinney Shaw. Dawn Publications, 1998.

The Magic School Bus Wet All Over by Pat Relf and Carolyn Bracken. Scholastic, 1996.

Access these Web sites

The National Weather Service
<http://www.nws.noaa.gov/>

The Environmental Protection Agency,
Office of Water
<http://www.epa.gov/water/>

Write for more information

The National Weather Service
1325 East West Highway
Silver Spring, MD 20910

U.S. Environmental Protection Agency
Office of Water (4101M)
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

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ENGLISH-LANGUAGE ARTS • GRADE 5

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Below Level

English-language Arts Activities

Earth's Water

Print pages 20–24 of this PDF for the reading activities.

Identify a Purpose

TRY THE SKILL

As you choose something to read, you usually have a purpose in mind, such as these:

- to gain or understand information
- to learn how to do something
- to gather information in order to form an opinion
- to be entertained

For example, you read this book to gain information about how water in the air affects your life. You also learned how to perform several experiments, so you had two purposes for reading.

As you look through books, magazines, and articles, think about your purpose for reading. Choose reading material that matches your purpose.

Read the description of each selection. Then identify its main purpose.

1. This selection tells why we need to keep pollution out of the air.
 - Ⓐ to inform
 - Ⓑ to tell how to do something
 - Ⓒ to persuade
 - Ⓓ to entertain

2. This selection tells how you can use evaporation to get salt from ocean water.
 - Ⓐ to inform
 - Ⓑ to tell how to do something
 - Ⓒ to persuade
 - Ⓓ to entertain
3. This selection tells about a time when all the water on Earth evaporated.
 - Ⓐ to inform
 - Ⓑ to tell how to do something
 - Ⓒ to persuade
 - Ⓓ to entertain
4. This selection tells how acid rain forms.
 - Ⓐ to inform
 - Ⓑ to tell how to do something
 - Ⓒ to persuade
 - Ⓓ to entertain

Identify Main Idea

TRY THE SKILL

The main idea is the most important point the author is trying to make. Every paragraph should have a main idea. For example, read this paragraph from the book.

Evaporation occurs when water is warmed by the sun. The water changes from a liquid to a gas. As a gas, water moves up into the air.

The main idea of this paragraph is—“Evaporation occurs when the sun warms water and changes it to a gas.”

Here is another. What is the main idea of this paragraph?

Air rises and falls. As air rises, tiny water drops form. When these drops are close together, we can see them. They form a cloud. A cloud is just water in the air.

“A cloud is just water in the air.”

To practice determining the main idea, read this paragraph below. Then write the main idea in your own words.

Condensation takes place when water in the air forms tiny water drops. It is the second step of the water cycle. First, water evaporates. Then it condenses. This forms clouds.

Choose another paragraph from this book to read. Then write the main idea of the paragraph on the back of this sheet of paper.

Context Clues

TRY THE SKILL

To figure out the meaning of an unknown word, look for words in the same sentence or nearby sentences that give you clues.

Look for word clues in each sentence at the right to figure out which word from the box should complete it. Then write the correct word on the line.

evaporated: water that changed from a liquid to a gas and rose in the air

gases: matter that has no shape; gases spread out to fill the space around them; most cannot be seen

liquid: a state in which matter flows freely when poured; liquids take the shape of whatever holds them

condensed: water in the air that formed tiny water drops

reservoirs: places where water is stored

thunderstorm: a rainstorm that has thunder and lightning

1. He poured the _____ into the bottle and stored it on the shelf.
2. The farmer dug a large ditch in the ground to make a _____ to hold water.
3. All cars create _____ which spread out into the air.
4. The _____ passed through with heavy rain and lightning.
5. The water that I spilled from the glass _____ and spread out into the air.
6. My glasses fogged up when I went outside because the water _____.

Steps in a Process

TRY THE SKILL

Complete this diagram by writing each step in the water cycle in the appropriate place. Then explain each step.



Answer Key

Check Understanding

1. A
2. C
3. Evaporation occurs when water changes to a gas and rises into the air. Wet clothes on a clothesline that dry out is an example.

Identify Main Idea

Condensation takes place when water in the air forms tiny water drops.

Context Clues

1. liquid
2. reservoir
3. gases
4. thunderstorm
5. evaporated
6. condensed

Steps in a Process

