

Lesson 15

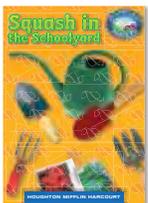


✓ TARGET VOCABULARY

organisms
directly
affect
traces
vast
habitats
variety
species
banned
radiation

Vocabulary
Reader

Context
Cards



Vocabulary in Context

1 organisms

Biologists study the **organisms**, or living things, on Earth.



2 directly

You can **directly** help the environment by planting trees. You can see results quickly.



3 affect

Smog and smoke **negatively affect** the air by making it unhealthy to breathe.



4 traces

Wash your hands thoroughly, or else **traces** of dirt and germs may remain.



COMMON
CORE

L.4.6 acquire and use general academic and domain-specific words and phrases

- ▶ Study each **Context Card**.
- ▶ Use a dictionary to help you understand the meanings of these words.

5 **vast**

The **vast** desert stretched for hundreds of miles in every direction.

6 **habitats**

Forests and oceans are types of **habitats** that support different plants and animals.

7 **variety**

The rain forest contains a wide **variety** of animals and plants.

8 **species**

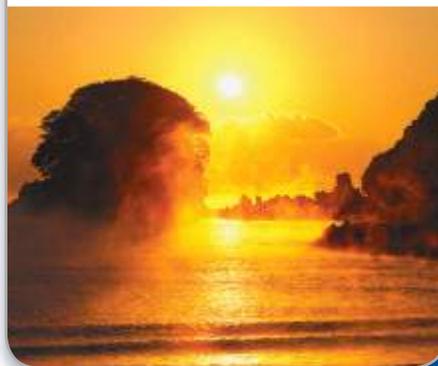
There are many different **species** of sharks, such as the hammerhead.

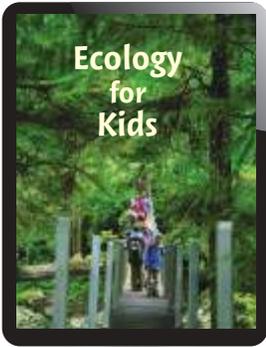
9 **banned**

Littering is **banned** in many public places. People should dispose of trash responsibly.

10 **radiation**

Invisible rays of energy called **radiation** are produced by the sun and other stars.



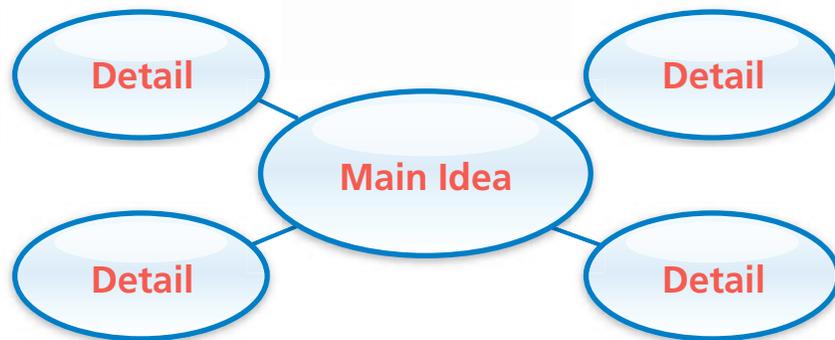


Read and Comprehend



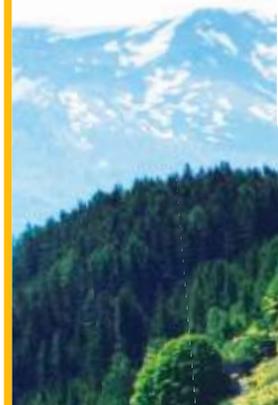
✓ TARGET SKILL

Main Ideas and Details As you read “Ecology for Kids,” look for the **main ideas**, or the most important points the author makes. Look for supporting **details** that give facts or examples of the main ideas. Note how the details the author chooses to include support the main reason for writing. Use a graphic organizer like this one to help you.



✓ TARGET STRATEGY

Monitor/Clarify As you read “Ecology for Kids,” **monitor**, or pay attention to, your understanding of the text. If something does not make sense, stop to **clarify** it, or make it clear.



PREVIEW THE TOPIC

The Environment

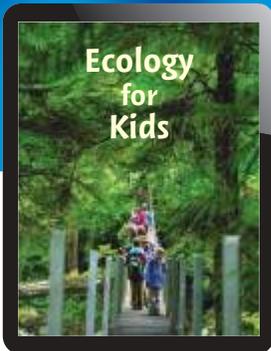
Life science is the study of all living things. Did you know that living things can affect their environment? This is a topic that ecologists study. Ecologists are scientists who study living things and their environment.

The Earth seems so large that you may not think your actions can affect it. In fact, everyone's actions do affect the environment. In "Ecology for Kids," you'll learn about the many ways humans affect the environment. You'll also learn what we can do to protect the earth.



Lesson 15

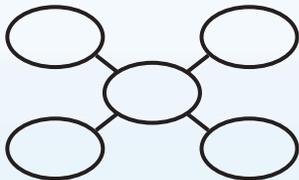
ANCHOR TEXT



✓ TARGET SKILL

Main Ideas and Details

Explain the main idea, or what the text is mostly about. Find details that support the main idea.



✓ GENRE

Informational text gives facts and examples about a topic. As you read, look for:

- ▶ headings that begin sections of related information
- ▶ photographs and captions
- ▶ facts and details about a subject or topic



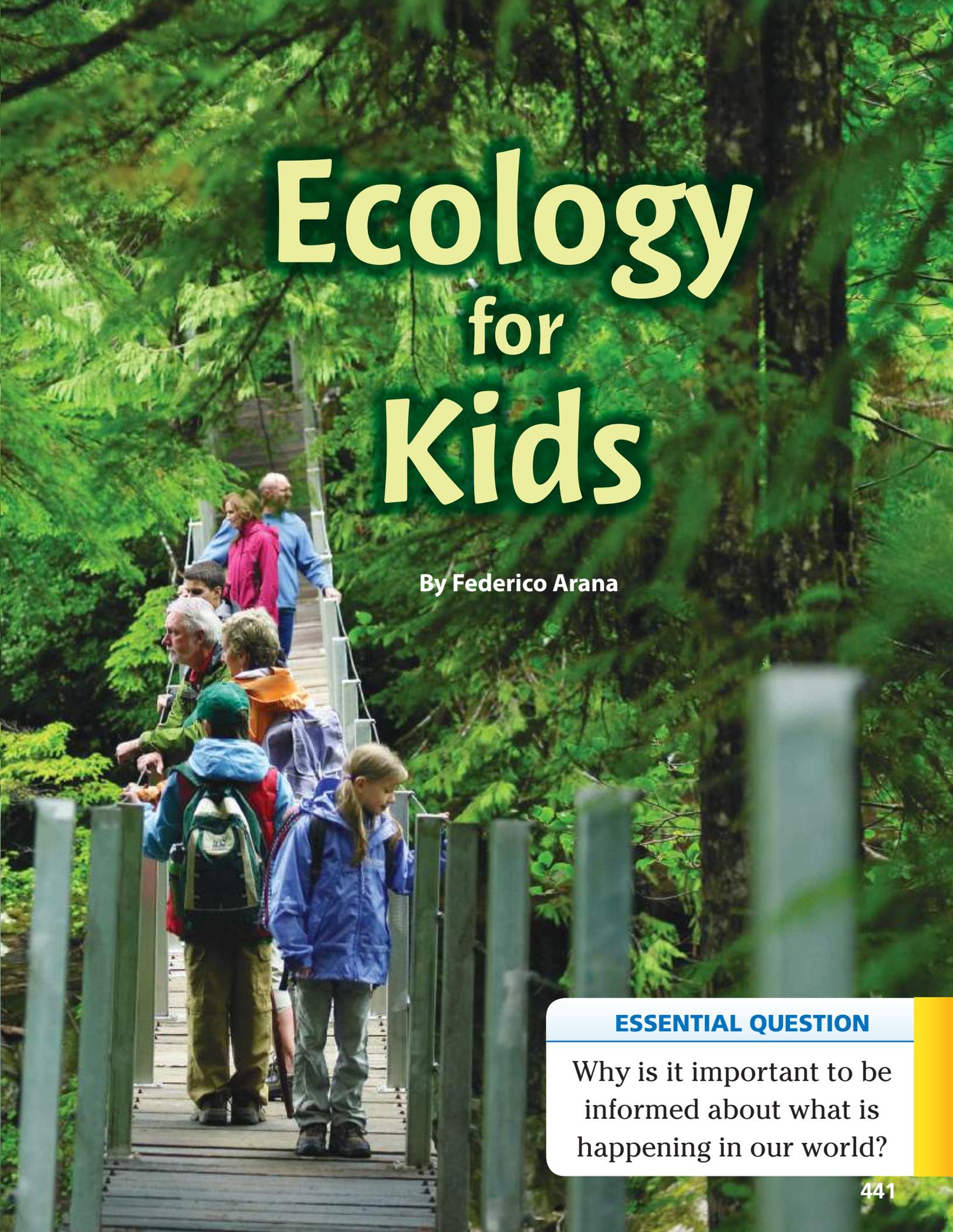
RI.4.2 determine the main idea and explain how it is supported by details/summarize;

RI.4.8 explain how an author uses reasons and evidence to support points; **L.4.3a** choose words and phrases to convey ideas precisely

MEET THE AUTHOR

Federico Arana

Federico Arana has spent his life studying the environment and, as a science teacher, knows all about ecology. He also spends his time painting and making music. Federico's paintings have been shown in Germany, Switzerland, the United States, and in his home country, Mexico. However, he knows that educating people about the dangers the environment faces is of great importance, and he has written numerous books to help people understand what they can do to save the planet.



Ecology for Kids

By Federico Arana

ESSENTIAL QUESTION

Why is it important to be informed about what is happening in our world?

Ecology

What does the word *ecology* mean? The term was invented by Ernst Haeckel (HEHK uhl), a German biologist. He joined two Greek words: *oikos*, meaning “house,” and *logie*, meaning “the study of.” Together they mean “the study of the house.” The “house” Haeckel had in mind is our planet, Earth. Earth is home for all living things—humans, animals, plants, fungi, and even tiny microbes.

To study a house is to learn how its residents use it. An ecologist is a scientist who studies the relationships between **organisms** and their environment. The environment is an organism’s surroundings. It may include water, gases, rocks, and temperature.

Ecologists also study the delicate balance of using the environment while protecting it.

An ecologist once asked a boy what he thought it meant to protect the environment.

The boy said, “You go into the forest and look for somebody who wants to cut down a tree. You take away his ax. You tell him about how important trees are. You say they are good for natural beauty, saving soil, putting oxygen into the air, and giving shelter to birds and other animals.”

Trees give us resources and natural beauty.



“Good answer,” said the ecologist, “but it may not be easy to find a woodcutter to talk to. Also, remember that sometimes it’s necessary to cut down a tree. If we cut down too many trees, the forest will disappear. If we don’t cut down any trees, we won’t get any resources from the forest. We have to find the right balance.”

“I get it,” the boy said. “We need the forest’s resources for wood and paper or we might not have desks or notebooks for school.”

“Exactly—and school is a good place to learn about ecology,” added the ecologist. “Then you will know how to protect the natural environment.”

Ecosystem

Scientists call Earth and its surrounding atmosphere the biosphere. To study it, they divide it into parts called ecosystems.

An ecosystem is a natural area where groups of living and nonliving things interact with their environment. Forests, lakes, swamps, and deserts are all examples of ecosystems.

One ecosystem and the organisms that live in it may depend on other ecosystems. For example, a bear that lives in a forest might use a lake to find fish to eat and water to drink.

In the same way, the problems of one ecosystem often **directly affect** the organisms of other ecosystems. Take, for example, the problems of the tropical rain forest.

This bear relies on two different ecosystems.

Destruction of the Forests

Four of Earth's seven continents have **traces** of what used to be **vast** tropical forests. Now, these forests are gone.

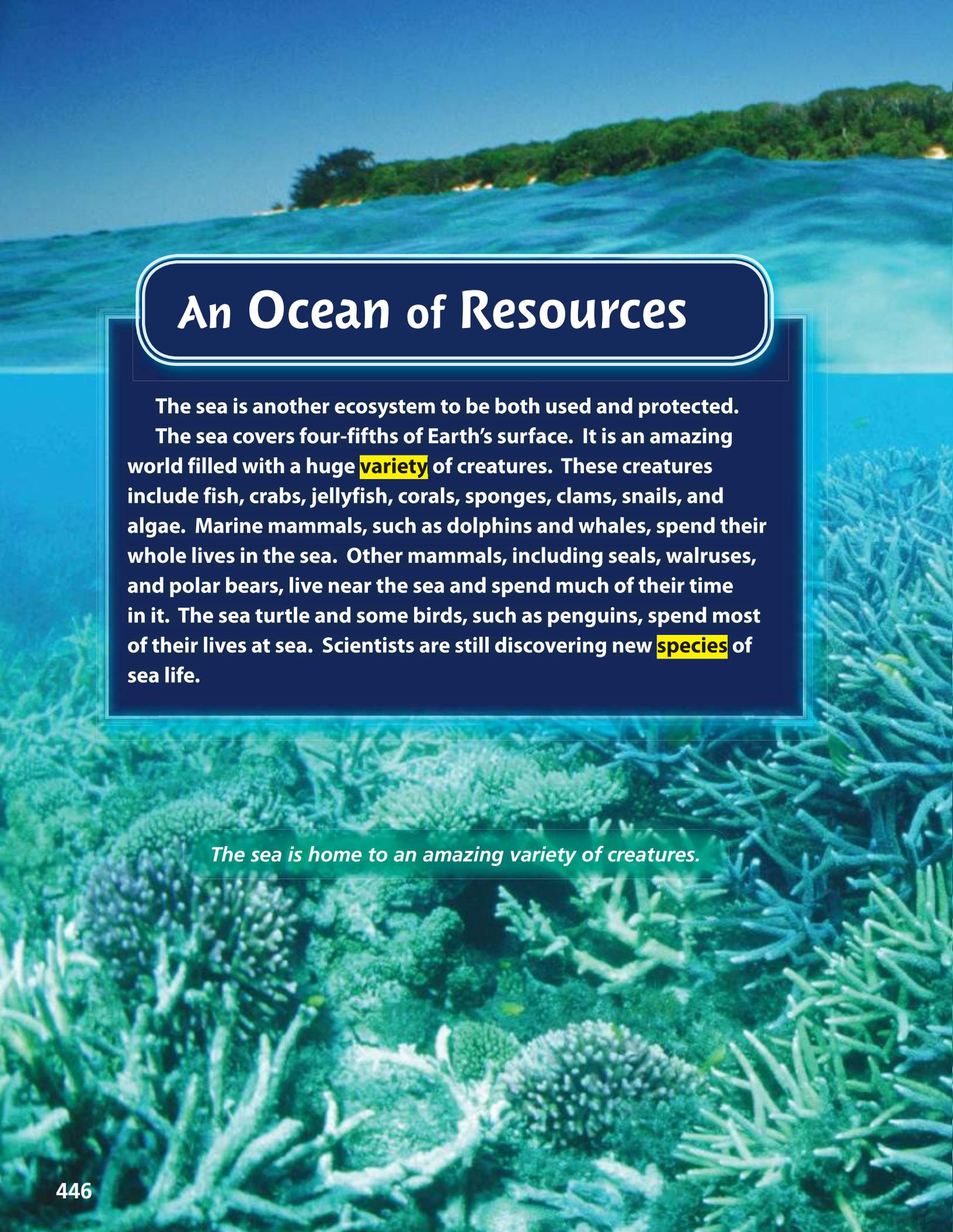
How did they disappear? A large part of the forests was cut down to clear lands for farming. This caused problems. The layer of soil upon which a forest rests is thin. Without deeply rooted trees, the soil is washed away by rain. Soon nothing remains but dry, sandy soil in which very little can grow.

Without plants to eat, animals must leave their **habitats**. Huge amounts of oxygen are also lost. The Amazon rain forest alone is thought to produce one-third of all the oxygen in Earth's atmosphere. In addition, many rain forest plants are used to produce medicines. Preserving the rain forest is important to all living things.

Clearing a tropical forest can create problems for the world.

ANALYZE THE TEXT

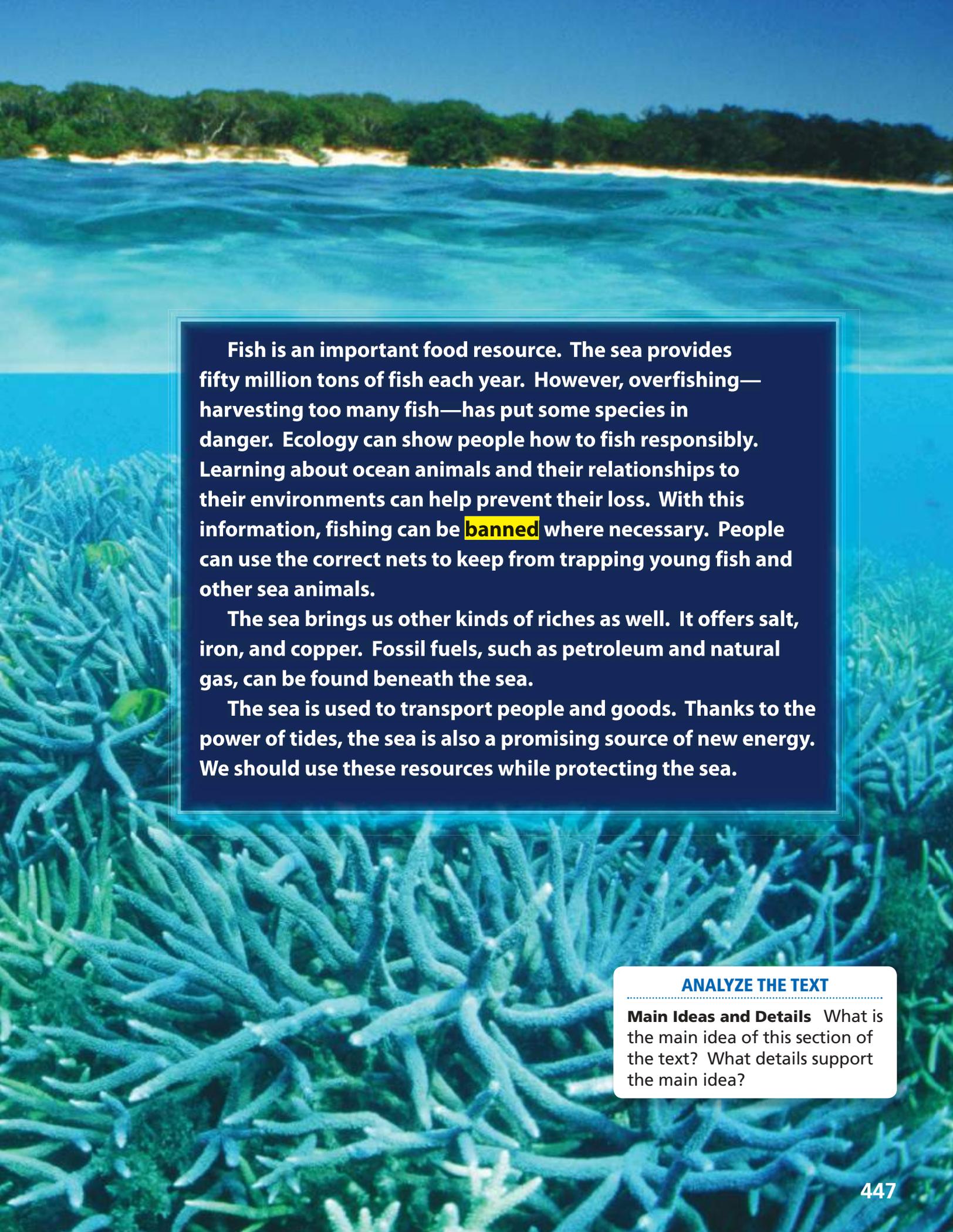
Author's Word Choice How does the author use precise, specific words to explain the problems in the rain forests?



An Ocean of Resources

The sea is another ecosystem to be both used and protected. The sea covers four-fifths of Earth's surface. It is an amazing world filled with a huge **variety** of creatures. These creatures include fish, crabs, jellyfish, corals, sponges, clams, snails, and algae. Marine mammals, such as dolphins and whales, spend their whole lives in the sea. Other mammals, including seals, walruses, and polar bears, live near the sea and spend much of their time in it. The sea turtle and some birds, such as penguins, spend most of their lives at sea. Scientists are still discovering new **species** of sea life.

The sea is home to an amazing variety of creatures.



Fish is an important food resource. The sea provides fifty million tons of fish each year. However, overfishing—harvesting too many fish—has put some species in danger. Ecology can show people how to fish responsibly. Learning about ocean animals and their relationships to their environments can help prevent their loss. With this information, fishing can be **banned** where necessary. People can use the correct nets to keep from trapping young fish and other sea animals.

The sea brings us other kinds of riches as well. It offers salt, iron, and copper. Fossil fuels, such as petroleum and natural gas, can be found beneath the sea.

The sea is used to transport people and goods. Thanks to the power of tides, the sea is also a promising source of new energy. We should use these resources while protecting the sea.

ANALYZE THE TEXT

Main Ideas and Details What is the main idea of this section of the text? What details support the main idea?

The Protective Ozone Layer

Another important part of Earth's biosphere is the atmosphere. This is the blanket of air covering Earth. Part of the atmosphere is the ozone layer. It protects us from the sun.

The sun's light lets us see and is needed for growth. Its heat controls the temperature of Earth. All living things need the sun's light and heat to live and grow.

The sun also produces powerful **radiation**, including X rays, ultraviolet rays, and microwaves. If the ozone layer were to disappear, Earth would receive too many of these harmful rays. This would hurt all living things.

People have banned the use of chemicals that can weaken the ozone layer. By thinking ecologically, we can safely use the sun's resources.

The ozone layer protects the Earth from the sun's harmful rays.



How Can You Protect Biosphere Earth?

One important way to protect the environment is to help stop pollution. Here are a few ideas:

Put trash in its place. Trash does not belong in the streets, the rivers, or the oceans. Trash and other kinds of pollution harm all living things.

Use solar-powered clocks and calculators when you can. If you use battery-power, recycle used batteries.

When you leave a room, turn off the light. When you are not using televisions, radios, and computers, turn them off, too. That way, your family will use less electricity and will save money.

A clean environment is everyone's responsibility.



Save water in every way you can. Take short showers. Turn off the water while you brush your teeth. If a faucet is dripping, ask an adult to fix it.

Finally, remember that many people make mistakes because they don't know about ecology and pollution. Instead of getting mad, teach them! You will help make a better environment for yourself and for your own children.

ANALYZE THE TEXT

Analyze an Argument What is the author's argument at the end of the selection? What evidence does he use to support it?

Dig Deeper

How to Analyze the Text

Use these pages to learn about Main Ideas and Details, Author's Word Choice, and Analyzing an Argument. Then read "Ecology for Kids" again to apply what you learned.

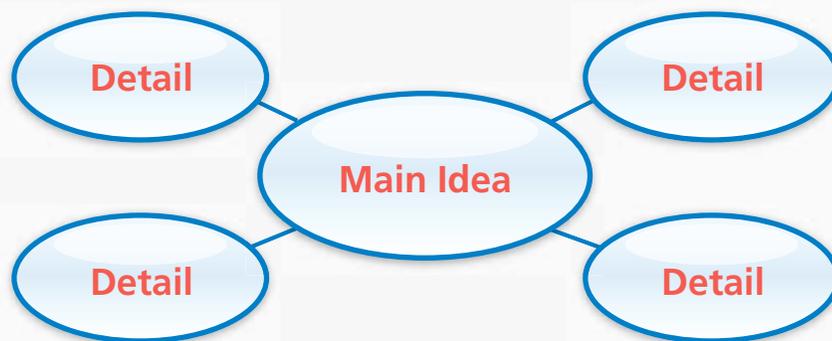


Main Ideas and Details

Informational texts such as "Ecology for Kids" contain a main idea and supporting details. The **main idea** is what the text is mostly about. To explain the topic of ecology, the author uses **details** and evidence to support the main idea.

When a main idea is stated, it's as if the author is saying, "This is what I'm writing about, and here's how I support my ideas." If a main idea is implied, or suggested, the reader must use clues to figure it out.

Look back at page 444 in "Ecology for Kids." In this section of text, the main idea is stated. Which sentence states the main idea? Which sentences support the main idea?



RI.4.2 determine the main idea and explain how it is supported by details/summarize; **RI.4.8** explain how an author uses reasons and evidence to support points; **L.4.3a** choose words and phrases to convey ideas precisely

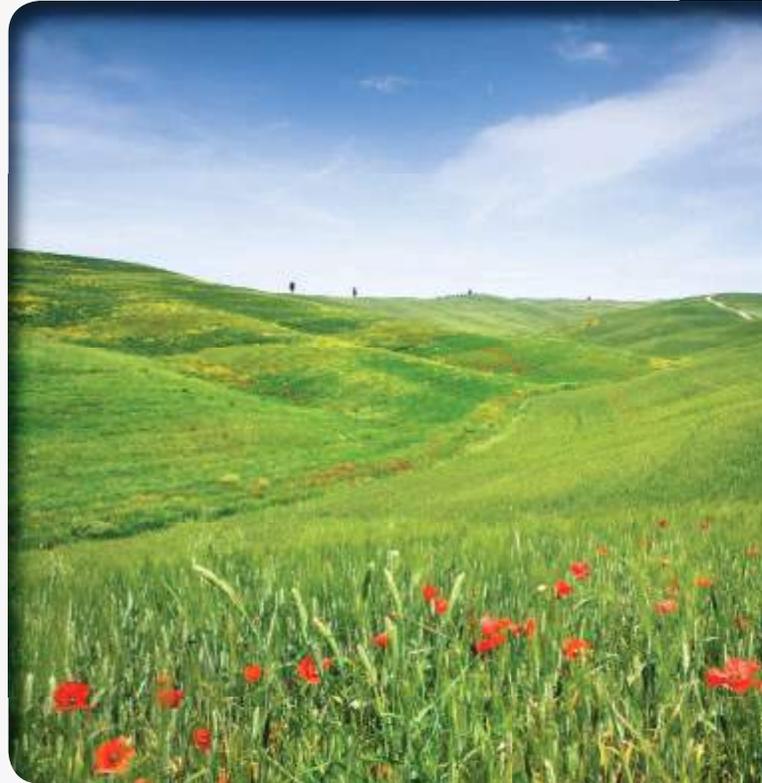
Author's Word Choice

Authors of informational text carefully choose words to express their ideas clearly and precisely. Look back at 442. The author uses the phrase *delicate balance* to describe what an ecologist studies. One meaning of *delicate* is “tricky or complicated.” The author’s word choice shows readers that an ecologist’s job can be challenging.



Analyze an Argument

When authors include **argument** in a piece of writing, they build a case for something they want readers to believe or do. The last section of “Ecology for Kids” makes an argument. Read the heading on page 450. How does the heading help you know what to expect from the author’s argument?



Your Turn



RETURN TO THE ESSENTIAL QUESTION



Review the selection with a partner to prepare to discuss this question: *Why is it important to be informed about what is happening in our world? As you discuss, take turns reviewing text evidence to explain the key ideas.*



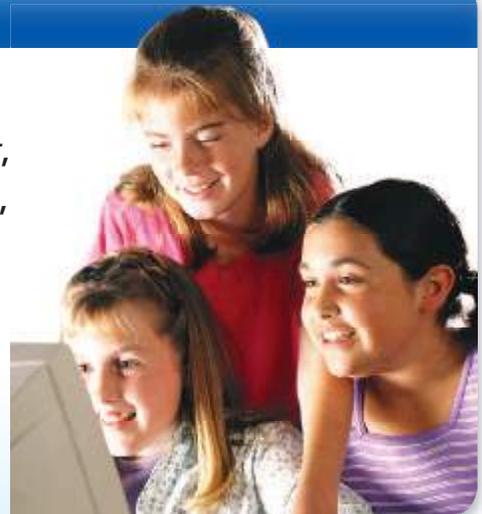
Classroom Conversation

Continue your discussion of “Ecology for Kids” by explaining your answers to these questions:

- 1 What is the most important idea the author wants you to understand about ecology?
- 2 How does information in the text connect to things that you do every day?
- 3 What actions can you take to help protect the environment?

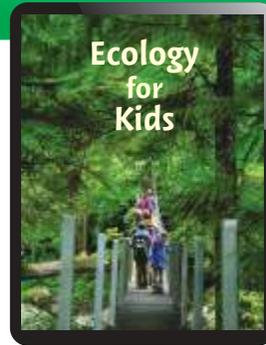
WHAT DOES IT MEAN?

Use Reference Sources Choose four of these words from the selection: *environment, resources, biosphere, atmosphere, ecosystem, pollution*. Find each word in the selection. Then look up each word in a print or digital dictionary. Write a new sentence for each word that includes a definition. Share your sentences with a partner.



WRITE ABOUT READING

Response Do you agree or disagree with the author of “Ecology for Kids” that we need to balance our use of natural resources with protecting the environment? What reasons and evidence does the author use to support his ideas? Write a paragraph to explain why you agree or disagree with the author. Use facts and text evidence from the selection to support your ideas.



Writing Tip

State your opinion at the beginning of your response. Use transition words and phrases to link the different reasons and evidence for your opinion.



RI.4.2 determine the main idea and explain how it is supported by details/summarize; **W.4.1b** provide reasons supported by facts and details; **W.4.1c** link opinion and reasons using words and phrases; **W.4.9b** apply grade 4 Reading standards to informational texts; **SL.4.1c** pose and respond to questions and make comments that contribute to the discussion and link to others' remarks;

SL.4.1d review key ideas expressed and explain own ideas and understanding; **L.4.4c** consult reference materials, both print and digital, to find pronunciation and determine or clarify meaning

Lesson 15

POETRY



✓ GENRE

Poetry uses the sound and rhythm of words to suggest images and express feelings.

✓ TEXT FOCUS

Rhyme is the repeated sounds at the end of two or more words. It helps give a poem rhythm and form.

Wonderful

Weather

Get ready for a variety of weather and poems. "Fog" uses a metaphor to form a picture in your mind. In the haiku "Spring Rain," and in "Umbrella," you may feel traces of a shower. Listen for the sounds in "Weather," and step into "Weatherbee's Diner" for weather that suits all kinds of habitats.

Fog

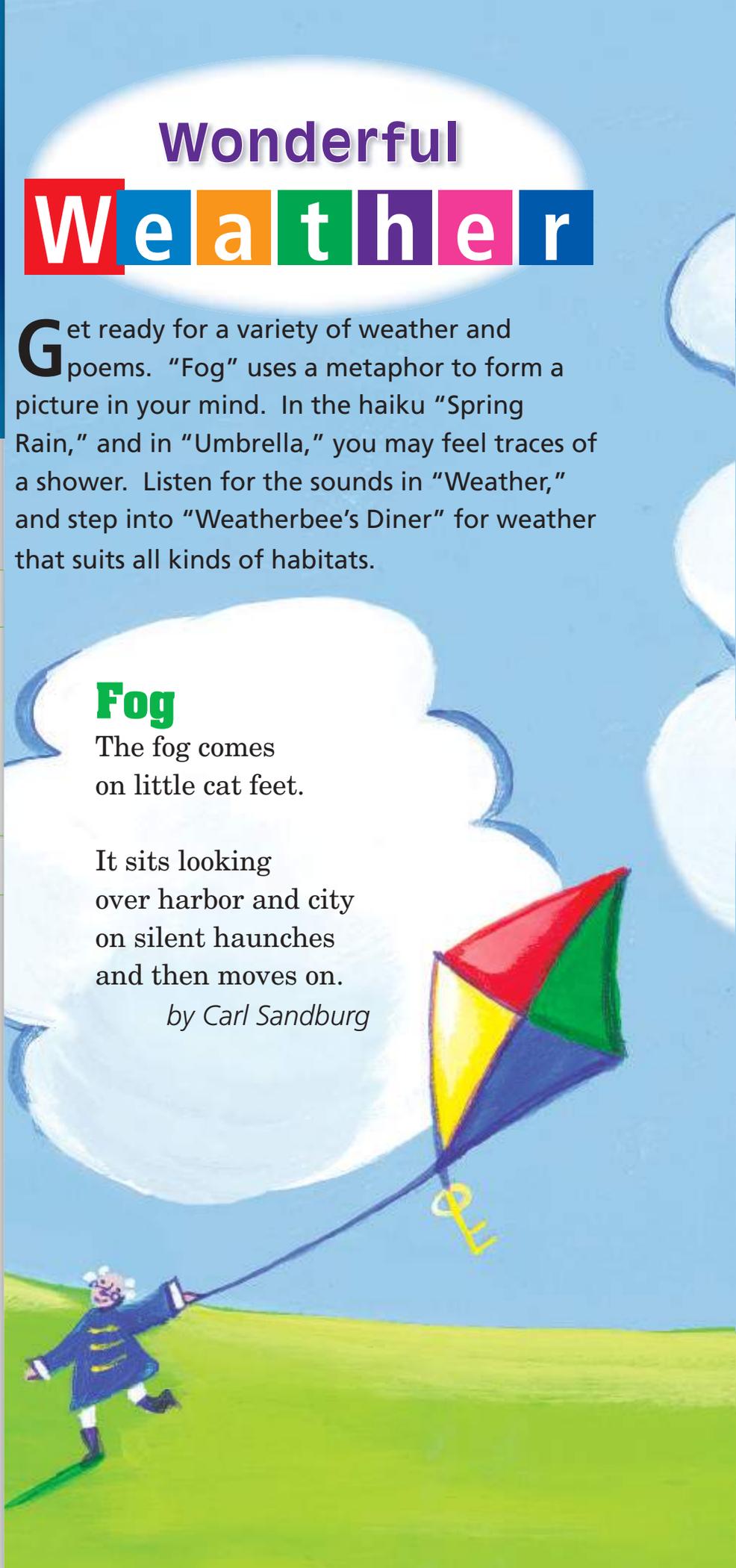
The fog comes
on little cat feet.

It sits looking
over harbor and city
on silent haunches
and then moves on.

by Carl Sandburg



RL.4.5 explain major differences between poems, drama, and prose/refer to their structural elements; **RL.4.10** read and comprehend literature



Spring Rain

In the rains of spring,
An umbrella and raincoat
Pass by, conversing.

by Buson

Weather

Weather is full
of the nicest sounds:
it sings
and rustles
and pings
and pounds
and hums
and tinkles
and strums
and twangs

and wishes
and sprinkles
and splishes
and bangs
and mumbles
and grumbles
and rumbles
and flashes
and CRASHES.

by Aileen Fisher

Umbrella

Out there — wet
In here — dry
Cozy little roof
Between me and the sky

by Rob Hale



Weatherbee's Diner

Whenever you're looking for something to eat,
Weatherbee's Diner is just down the street.

Start off your meal with a bottle of rain.

Fog on the glass is imported from Maine.

The thunder is wonderful, order it loud,
with sun-dried tornado on top of a cloud.

Snow Flurry Curry is also a treat.

It's loaded with lightning and slathered in sleet.

Cyclones with hailstones are great for dessert,
but have only one or your belly will hurt.

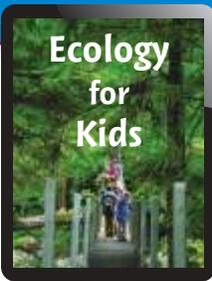
Regardless of whether it's chilly or warm,
at Weatherbee's Diner they cook up a storm!

by Calef Brown



Write a Weather Poem

Organisms of every species, from a vast herd of buffalo to a swarm of tiny fleas, are directly affected by the weather. How does the weather affect you? What do you think of the sun's radiation? Should snow be banned? Write a poem about the weather you like or don't like. Include your reasons.



Compare Texts

TEXT TO TEXT

Compare Nature Texts Talk with a partner about “Ecology for Kids” and “Wonderful Weather.” Discuss these questions: *Which text is about how the environment affects you? Which text is about how you can affect the environment? Which text is about both?* After you have discussed your ideas, work together to write an answer to each question. Use text evidence from each selection to support your answers.



TEXT TO SELF

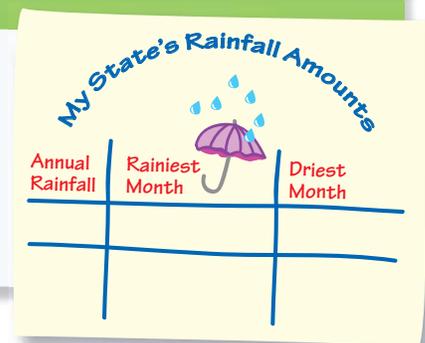
List Habits Reread the last page of “Ecology for Kids.” Identify the five things you can do to help protect the environment. Then make a list of the things you already do to protect the planet. Make a second list of what you would like to begin doing.

What I Do to
Help the Earth

What I Want
to Start Doing

TEXT TO WORLD

Chart Rainfall Water is an important resource. Research the amount of rain that falls in your community or state in a typical year. Record the information in a chart.



RI.4.1 refer to details and examples when explaining what the text says explicitly and when drawing inferences; **RI.4.2** determine the main idea and explain how it is supported by details/summarize; **RI.4.9** integrate information from two texts on the same topic; **W.4.7** conduct short research projects that build knowledge through investigation; **W.4.9b** apply grade 4 Reading standards to informational texts

Grammar



What Is an Irregular Verb? Verbs that do not add *-ed* to show past action are called **irregular verbs**. The spellings of irregular verbs can change in many different ways from present-tense to past-tense forms, so you must remember the spelling of each form.

I **give** now.

I **gave** earlier.

I **have given** already.

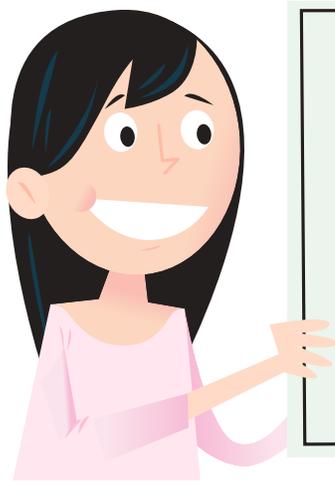
Present	Past	Past with Helping Verb
break	broke	(has, have, had) broken
bring	brought	(has, have, had) brought
come	came	(has, have, had) come
begin	began	(has, have, had) begun
eat	ate	(has, have, had) eaten
give	gave	(has, have, had) given
grow	grew	(has, have, had) grown
know	knew	(has, have, had) known
make	made	(has, have, had) made
say	said	(has, have, had) said
take	took	(has, have, had) taken
tell	told	(has, have, had) told

Try This!

Copy each sentence. Fill in the blank with the correct form of the verb in parentheses.

- 1 Our field trip _____ at 8 A.M. yesterday. (begin)
- 2 Our teacher had _____ maps of the county park. (bring)
- 3 The bus _____ us to the park. (take)
- 4 A ranger _____ a talk about the park's ecology. (give)

The use of an incorrect verb form can confuse your readers. When you proofread your writing, be sure you have used the correct forms of irregular verbs to show past action. Also be sure that you have used correct forms of the helping verbs *has*, *have*, and *had*.



Incorrect Verb Form

The science teacher has **brung** a poster of a typical food web. Yesterday I **made** a drawing of a food web for our pond.

Correct Verb Form

The science teacher has **brought** a poster of a typical food web. Yesterday I **made** a drawing of a food web for our pond.



Connect Grammar to Writing

As you edit your persuasive essay, look closely at each irregular verb form you use. Correct any errors you notice. Using verb forms correctly is an important part of good writing.



W.4.1a introduce a topic, state an opinion, and create an organizational structure; **W.4.1b** provide reasons supported by facts and details; **W.4.1c** link opinion and reasons using words and phrases; **W.4.1d** provide a concluding statement or section; **L.4.3a** choose words and phrases to convey ideas precisely

Opinion Writing

Reading-Writing Workshop: Revise

✓ Ideas In a **persuasive essay**, good writers focus their writing by stating a clear opinion. As you revise your persuasive essay, include strong reasons that are supported with facts and examples. Connect your opinions and reasons with phrases such as *for instance* and *in addition*. Be sure to end with a concluding statement that restates your opinion.

Julio replaced vague words with specific ones. Then he added phrases to connect opinions and reasons. He also added a strong concluding sentence.



Writing Process Checklist

Prewrite

Draft

► Revise

- Did I state my opinion clearly?
- Did I support it with reasons, facts, and examples?
- Did I use strong, specific words to make my points persuasive?
- Did I use irregular verbs correctly?

Edit

Publish and Share

Revised Draft

One reason why we
~~Our class~~ should get an ant farm
 is that ^{fascinating} ~~because~~ ants are ~~cool~~. ^{For instance,} Ants are stronger
^{In addition,} than elephants for their size. ^{They have}
 a complex social structure. The ants work
 together to build homes and ^{forage} ~~look~~ for
 food. They also take care of the queen.

A classroom ant farm is a great idea
 because we would learn about ants
 and teamwork!

Why Room 6 Needs an Ant Farm

by Julio Cordoza

Chadbourne Elementary has a “no pets in the classroom” rule. This makes sense. A lot of people are allergic to animals such as hamsters and rabbits. But wouldn't it be great if we could have classroom pets no one is allergic to? The students in Room 6 think so. That's why we want to have a classroom ant farm.

One reason why we should get an ant farm is that ants are fascinating. For instance, ants are stronger than elephants for their size. In addition, they have a complex social structure. The ants work together to build homes and forage for food. They also take care of the queen. A classroom ant farm is a great idea because we would learn about ants and teamwork!

Reading as a Writer

Which words and phrases did Julio use to link his opinion with the reasons for his opinion? How can you link your opinions with reasons?

In my final paper, I replaced weak and vague words with stronger, more specific words. I also made sure I used irregular verbs correctly.

