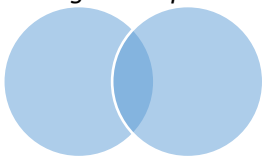
#NPS LITERACY
STRATEGIC.
AUTHENTIC.
ENGAGED.

NPS Learning in Place English
Grade: Third Grade

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Read ***A Mr. Rubbish Mood from Judy Moody Saves the World*** **Vocabulary, Background, and Comprehension** pp. 10-13 Complete practice book pg.3 *Think about what you read on page 12. Write a paragraph to explain how to compost to someone who has never composted before.*	Read ***A Mr. Rubbish Mood from Judy Moody Saves the World*** pp. 14-28 *Make a list of all the things you throw away or recycle in one day. Choose one of the items and decide if you can reduce or reuse it. Write an explanation of how you would do that.*	Reread ***A Mr. Rubbish Mood from Judy Moody Saves the World*** pp. 14-28 Complete practice book pg. 8 *Who is more convincing in the story, Judy or her family**?** Write a paragraph to defend your opinion and use examples from the text.*	Read ***Saving the Rain Forest*** pp. 30-32 *Write a letter to the editor of a newspaper that tells readers why the rain forests are in danger and three ways they can help.*	Read ***Saving the Rain Forest*** pp. 30-32 *What is one thing that you can do to help the environment? Write a paragraph explaining your idea and why it would help.*
Week 2	Read ***The Albertosaurus Mystery*** **Vocabulary, Background, and Comprehension** pp. 38-41 Complete practice book pg. 17 *Using as many of the Vocabulary in Context words on pp 38-39, create a paragraph telling what you already know about dinosaurs. Make sure the paragraph makes sense.*	Read ***The Albertosaurus Mystery*** pp. 42-58 *Make a list of questions that you have about dinosaurs after reading the story. You should have at least 5 questions that cannot be answered in the story.*	Reread ***The Albertosaurus Mystery*** pp. 42-58 Complete practice book pg. 22 *From the text you can conclude that the albertosaurs lived together. Write a paragraph to defend this conclusion using clues from the story.*	Read ***Finding Fossils For Fun*** pp. 60-62 *After reading about people who are hunting for fossils, do you think you would like to be a fossil hunter? Write a paragraph explaining why or why not.*	Reread ***Finding Fossils For Fun*** pp. 60-62 *Using what you have read in **The Albertosaurus Mystery** and **Finding Fossils For Fun**, write a how to paper explaining how to hunt for fossils. Make sure you do not leave out any steps.*
Week 3	Read ***A Tree is Growing*** **Vocabulary, Background, and Comprehension** pp. 68-71	Read ***A Tree is Growing*** pp. 72-94 *Imagine that a tree could talk. Create a list of*	Reread ***A Tree is Growing*** pp. 72-94 Complete practice book pg.36	Read ***Poems About Nature*** pp. 96-98 *In what ways are you like a tree? In what ways are you different from a tree?*	Reread ***Poems About Nature*** pp. 96-98 *Write a poem about a tree following the style of your favorite poem*

	Complete practice book pg.31 *Using as many of the Vocabulary in Context words on pp 68-69, create a paragraph telling what you already know about trees. Make sure the paragraph makes sense.*	*questions that you would ask a tree. Make sure you have at least 5 questions.*	*Draw a picture of a tree that is near your home or school. Label the parts of the tree using words from the story.*	*Complete a Venn diagram answering these questions.* 	*from "Poems About Nature." Make sure you use words that help the reader see, hear, smell and feel the tree.*
Read 14.2	*Read a book of choice and record it on the reading log each day.*				
Materials	Access to the books is in the NPS link. If you have your book at home: Journeys Textbook Volume2 and Journeys Practice Book Volume 2 Reading Log Book of choice to read each day Paper/pencils				

READ 14.2 READING LOG			
Date	**Number of Pages Read**	**Title**	**#summary**
3-12-20	10	*Cinderella*	#mistreatedgirlmeetsprincelosesshoeandliveshappilyeverafter

Name _____ Date _____

Author's Purpose

A Mr. Rubbish Mood
Introduce Comprehension:
Author's Purpose

Read the selection below.

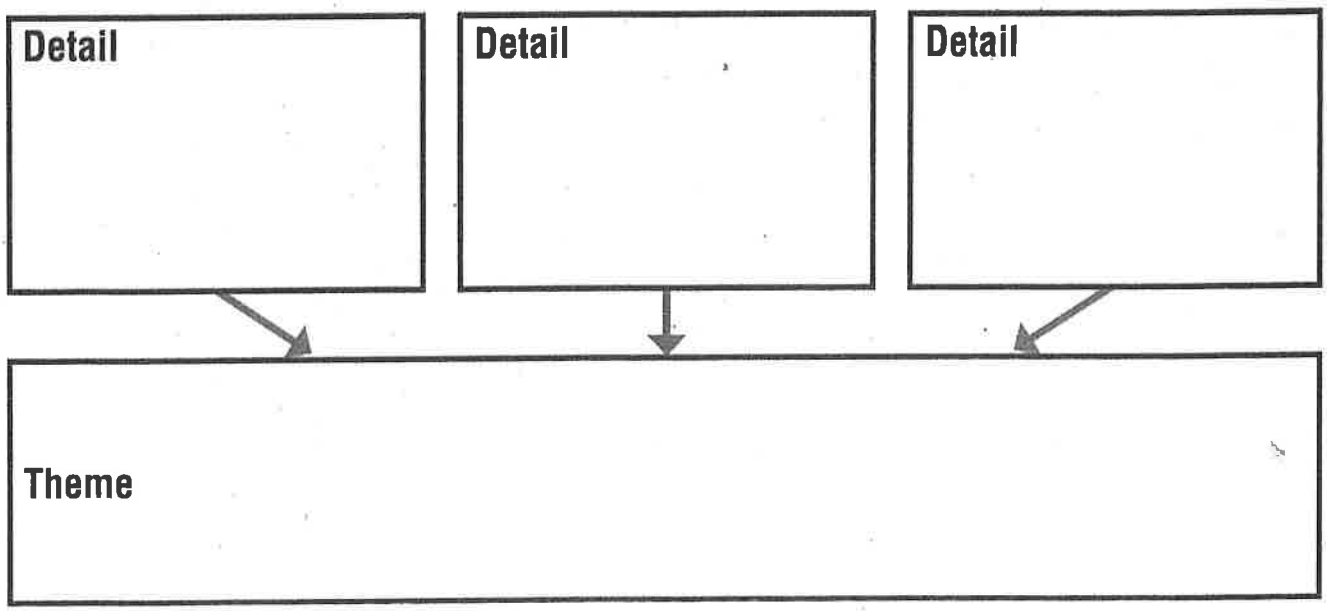
Have you heard of the three *R*'s? They are reduce, recycle, and reuse. To reduce means to make less of something. You can reduce the amount of trash you throw away by doing a few simple things. Use both sides of a sheet of paper. Keep leftover food in containers instead of wrapping them in foil or plastic. Use batteries that you can recharge.

You can recycle many things, too. Remember to recycle your magazines and comic books. Recycle plastic milk jugs, metal soda cans, and glass bottles and jars.

The things you recycle are turned into new items. Recycled paper is used to make newspapers, cereal boxes, and wrapping paper. Glass you recycle gets turned into new glass jars and bottles.

Try to reuse things, too. Do you have a shirt that is too small? You can give it to someone younger. You can also cut it up and use it as a rag. There are many ways to reduce, recycle, and reuse items. Use the three *R*'s to help protect our planet.

Complete the Inference Map to show details in the selection that help you infer the author's theme. Write complete sentences.



Name _____ Date _____

Author's Purpose

Read the selection below.

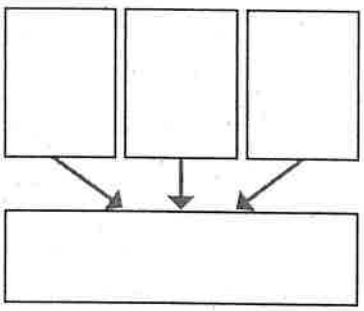
You break a wheel off your skateboard. You get take-out in plastic containers. What do you do next? You may throw these things in the trash. Think before you do!

Do you know what happens to an item after you throw it away? A garbage collector picks up your trash. The trash may get taken to a landfill. Most landfills are lined with a thick plastic or clay. Then trash is dumped on top. There are many problems with landfills. One problem is that we are running out of room! When a landfill is full, it is difficult to find land for a new one. Would you want to live next to a smelly landfill?

You may ask, "What about burning the trash?" If you burn the trash, you wouldn't need a lot of land for a dump. But once again, there are problems. Burning trash creates a lot of smoke and harmful chemicals. This leads to air pollution.

What is the best way to solve the trash problem? Recycle, reduce, and reuse in order to make less trash!

Use an Inference Map to determine the author's theme. Then use it to help you answer the questions below.



1. Why did the author write this text?

_____

2. What is the author's viewpoint about trash? Use details from the selection to support your answer.

_____

_____

Name _____ Date _____

Conclusions

The Albertosaurus Mystery

Introduce Comprehension: Conclusions

Read the passage.

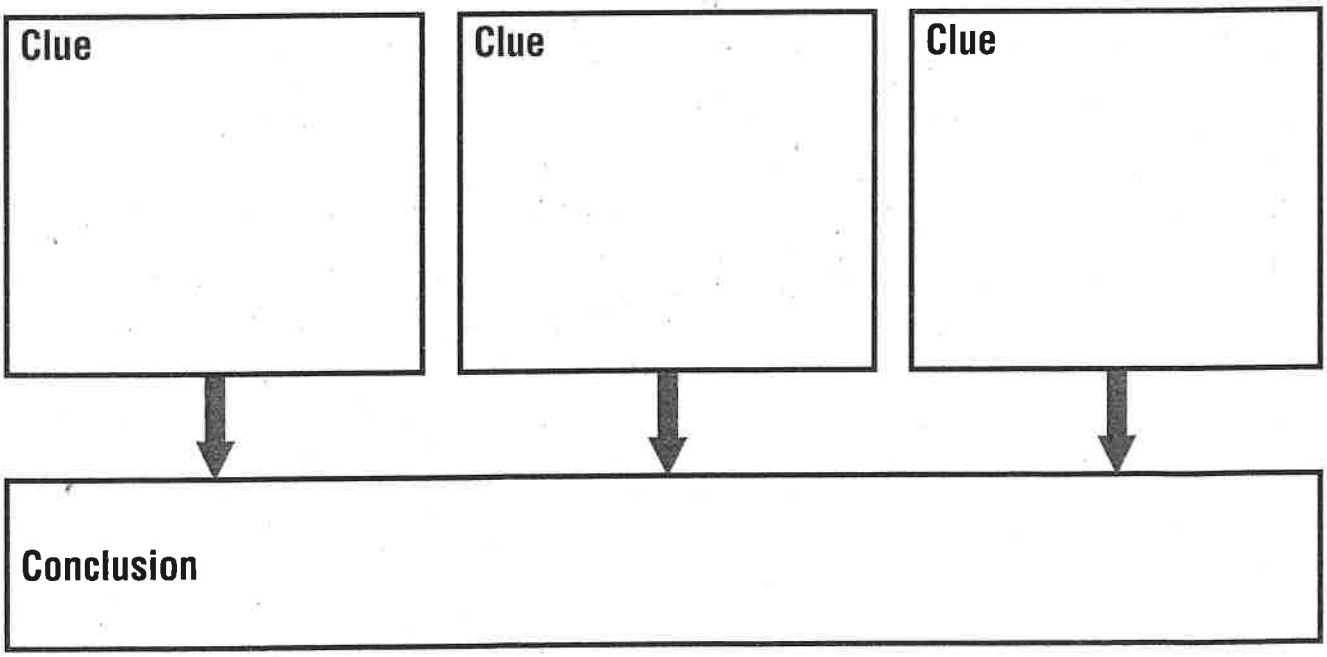
Mary Anning was born into a poor family in England in 1799. Her father collected fossils for fun. He taught his wife and children about fossils. After he died, the family sold fossils to make a living. They found many fossil sea animals in the cliffs near their house.

Mary led the family in fossil hunting. She made valuable discoveries. She found the first plesiosaur, a dinosaur that lived in the sea. Scientists did not believe her at first because she was a poor woman. When they studied her fossils, however, they knew how important her discoveries were.

Mary became famous in her lifetime. People came from far away to see her. However, museums often showed her fossils without giving her credit.

Today, Mary Anning's story is well known. She has been called "the greatest fossilist the world ever knew."

On the Inference Map, write three clues and the conclusion.



Name _____ Date _____

Conclusions

The Albertosaurus Mystery

Deepen Comprehension: Conclusions

Read the selection.

Frozen Dinosaurs

When you think of dinosaurs, do you think about hot places? Do you think about steamy forests and hot grasslands? Most scientists used to think that way, too. However, scientists have found dinosaur fossils in the coldest places on Earth, near the north and south poles.

The first polar dinosaurs were found in 1960. Scientists still have questions about these creatures. Did they live in the cold weather all year, or only for part of the year? How did dinosaurs survive in the cold? Was it as cold near the poles then as it is today?

Small and Speedy

Many of the dinosaurs found in cold climates were only two feet tall or smaller. They had large eyes, perhaps so they could see well during the long winter nights. They ate plants, and they ran fast on two feet. Some other polar dinosaurs were meat-eaters, though.

Searching for Clues

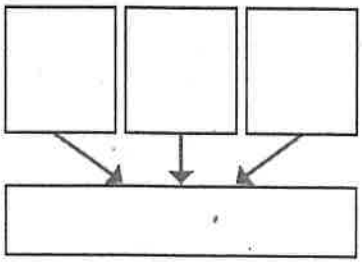
Scientists are searching for more clues about cold-weather dinosaurs. It is hard to dig for fossils in frozen places. But it is also hard to stop a scientist from wanting to know more. By looking at cold-weather dinosaur fossils, we may learn more about how dinosaurs lived.

On a separate sheet of paper, use an Inference Map to write details and a conclusion about the text. Then answer the question about making a generalization.

1. What generalization can you make about dinosaurs?

_____

_____



Name _____ Date _____

Text and Graphic Features

Read the passage and study the text and graphic features. Then complete the Column Chart.

A Forest of Green Giants

The tallest forests in the world are in California. They are forests of big redwood trees. Many of the redwoods are taller than a thirty-story building!

The Hunt for the Tallest Trees

Michael Taylor and Chris Atkins hunt for tall trees as a hobby. For years, they have traveled through California measuring trees. In 2006, the two men found the three tallest trees ever measured.

Naming the Old Giants

The trees that Taylor and Atkins found are over *two thousand years old!* The men named one of the trees Helios, after the Greek god of the sun. They named the shortest one of the group Icarus after a boy in a Greek story. The boy flew too close to the sun. The father of Helios was named Hyperion. That is the name the tree hunters gave to the tallest tree in the world.

Tree	Height
Hyperion	379 feet
Helios	375 feet
Icarus	371 feet

Feature	Location	Purpose

Name _____ Date _____

Text and Graphic Features

Read the selection and study the text and graphic features.

A River Giant

The Amazon River of South America is the largest river in the world. It is a little shorter than the Nile River, but it carries far more water to a much larger area of land than the Nile does.

Water for Millions

Hundreds of streams and smaller rivers are part of the Amazon River system. The river passes through six countries and provides water and a shipping route to almost half of South America!

Did You Know?		
• The Amazon flows 4,000 miles from Peru to the Atlantic Ocean.	• It pours nearly 400 billion gallons of water into the ocean each day.	• There are no bridges that cross the Amazon River.

Use a Column Chart with the headings Feature, Location, and Purpose to help you understand the text and graphic features. Then answer the questions.

1. How is the information about bridges connected to the main idea of the article?

_____

_____

2. Based on the article and the text and graphic features, what conclusions can you draw about the Nile River?

_____

_____

Lesson 16

TARGET VOCABULARY

recycle
project
dripping
carton
complicated
pollution
rubbish
hardly
shade
global

Vocabulary Reader

Context Cards

Vocabulary in Context

1 recycle
When people recycle old bottles, the glass can be used again.

2 project
This garden is a neighborhood project. Many people work on it.

3 dripping
This faucet is dripping water. Each drop of water is wasted.

4 carton
A carton, or light cardboard container, can be recycled after use.

- Study each Context Card.
- Make up a new context sentence that uses two Vocabulary words.

5 **complicated**

One complicated, or difficult, part of recycling can be sorting plastic.

6 **pollution**

Noise pollution, or too many loud sounds, can be bad for our hearing.

7 **rubbish**

The more rubbish, or trash, people make, the more room it takes up.

8 **hardly**

Some light bulbs use a lot of energy. This bulb uses hardly any energy.

9 **shade**

The shade from this tree keeps the house cool in the summer.

10 **global**

Air pollution is a global problem. It affects people all over the world.

Background

TARGET VOCABULARY **Don't Dump It** Some towns burn rubbish, but burning waste causes air pollution. Other towns bury trash, but there is hardly any room left in landfills. Too much trash is a global problem. The solution is not complicated. People need to recycle! Make recycling a family project. Rinse and sort those dripping bottles and cans into bins. Flatten that carton and tie it up with newspapers. Recycle kitchen scraps by making compost. It will become fertilizer for your garden.

How to Compost

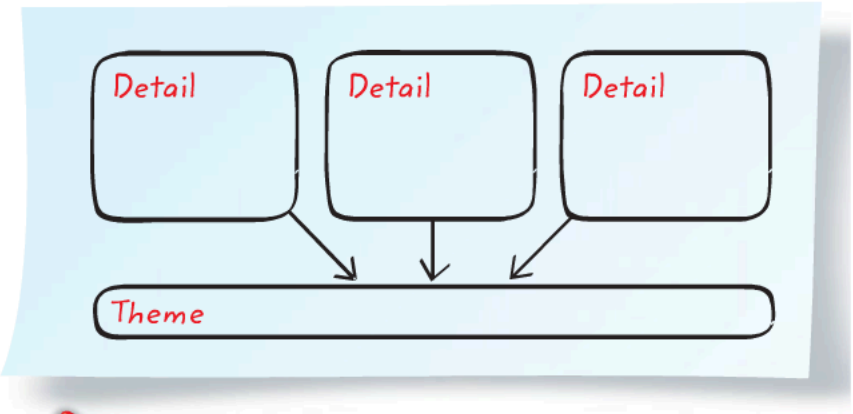
1. Green yard waste, fruit and vegetable scraps, coffee grounds, tea leaves
2. Dry leaves, straw, sawdust, wood chips, dried grass, shredded cardboard or newspaper
3. Moist soil, ash, fertilizer

Compost in the sun, not the shade. Add water and mix the pile every now and then to give it air.

Comprehension

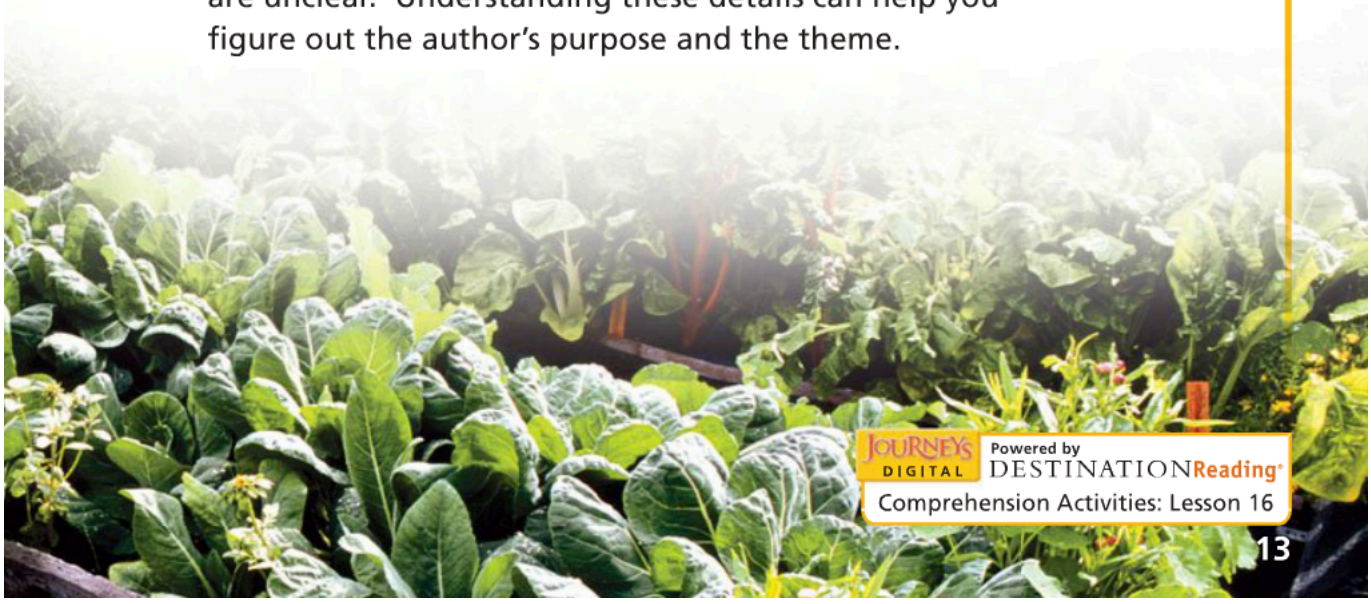
TARGET SKILL Author's Purpose

Story details give clues about why the author wrote "A Mr. Rubbish Mood." They also give clues to help you figure out the author's theme, or message. Use a chart like this to list details that give clues about the theme. Use the clues to write in your own words what the theme is.



TARGET STRATEGY Monitor/Clarify

As you read, monitor and clarify any story details that are unclear. Understanding these details can help you figure out the author's purpose and the theme.



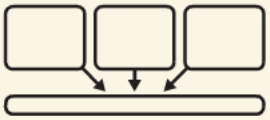
Main Selection

TARGET VOCABULARY

recycle	pollution
project	rubbish
dripping	hardly
carton	shade
complicated	global

TARGET SKILL

Author's Purpose Use text details to tell why an author writes a book.



TARGET STRATEGY

Monitor/Clarify As you read, find a way to clear up what doesn't make sense.

GENRE

Humorous fiction is a story written to entertain readers. Who is the narrator in this story, the author or a story character? How would the story change if it were told from a different point of view?

MEET THE AUTHOR

Megan McDonald

Once while Megan McDonald was visiting a school, some students asked her, "Are you ever in a bad mood?" This got her thinking about creating a character with lots of different moods. Judy Moody was born! Many of Judy Moody's adventures actually happened to McDonald when she was a child.

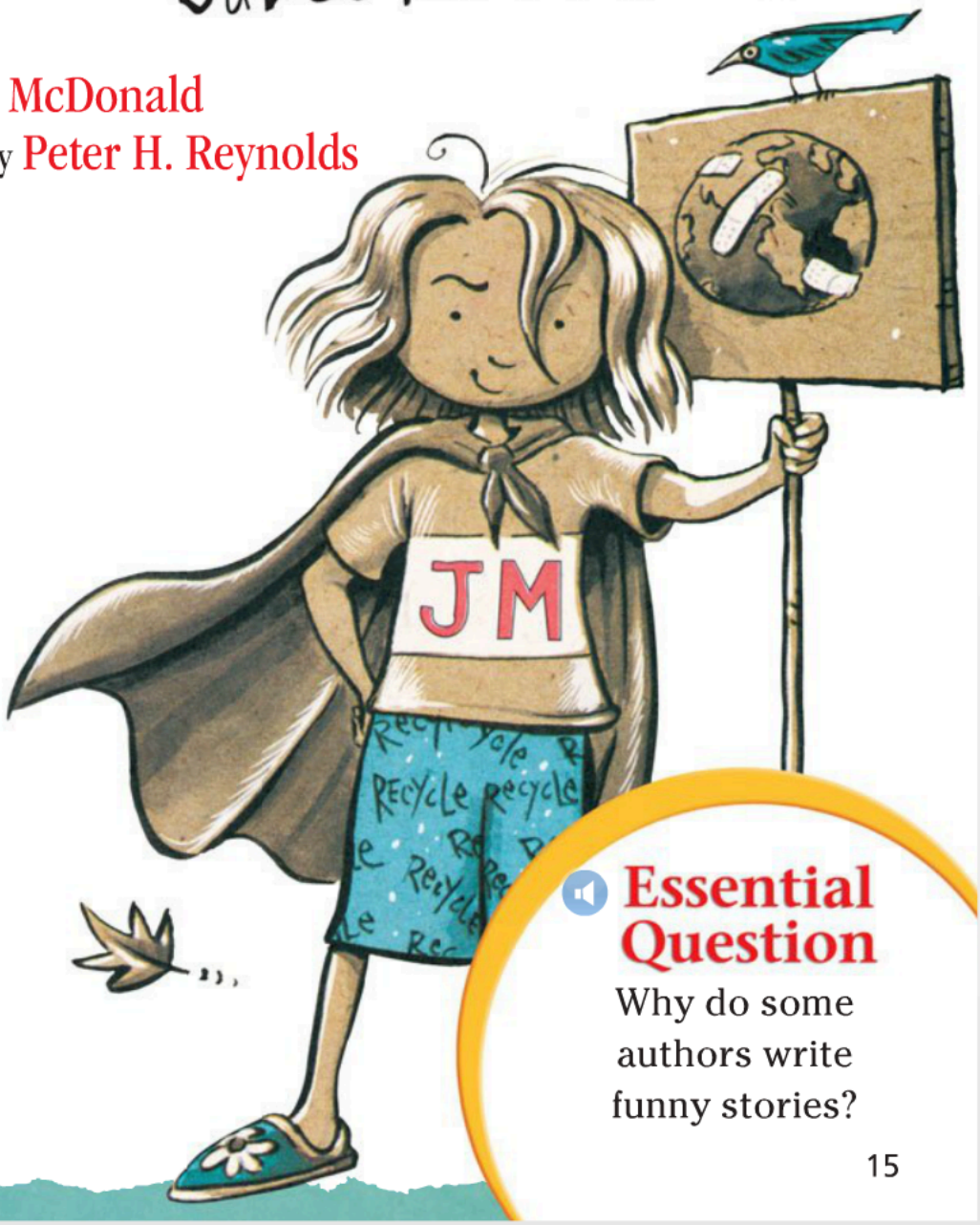
MEET THE ILLUSTRATOR

Peter H. Reynolds

Peter Reynolds and his twin brother started writing their own books when they were about seven. Reynolds has been drawing and telling stories ever since. After illustrating more than seven Judy Moody books, he feels like Judy Moody's family is part of his own family.

A Mr. Rubbish Mood from Judy Moody Saves the World!

by Megan McDonald
illustrated by Peter H. Reynolds



Essential Question

Why do some authors write funny stories?

It was still dark out when Judy woke up early the next morning. She found her flashlight and notebook. Then she tiptoed downstairs to the kitchen and started to save the world.

She hoped she could save the world before breakfast. Judy wondered if other people making the world a better place had to do it quietly, and in the dark, so their parents would not wake up.

She, Judy Moody, was in a Mr. Rubbish mood. Mr. Rubbish was the Good Garbage Gremlin in her brother Stink's comic book, who built his house out of French-fry cartons and pop bottles. He recycled everything, even lollipop sticks. And he never used anything from the rain forest.

Hmmm . . . things that came from the rain forest. That would be a good place to start. Rubber came from the rain forest. And chocolate and spices and things like perfume. Even chewing gum.

Judy collected stuff from around the house and piled it on the kitchen table. Chocolate bars, brownie mix, vanilla ice cream. Her dad's coffee beans. The rubber toilet plunger. Gum from Stink's gumball machine. Her mom's lipstick from the bottom of her purse. She was so busy saving the rain forest that she didn't hear her family come into the kitchen.

"What in the world . . . ?" Mom said.

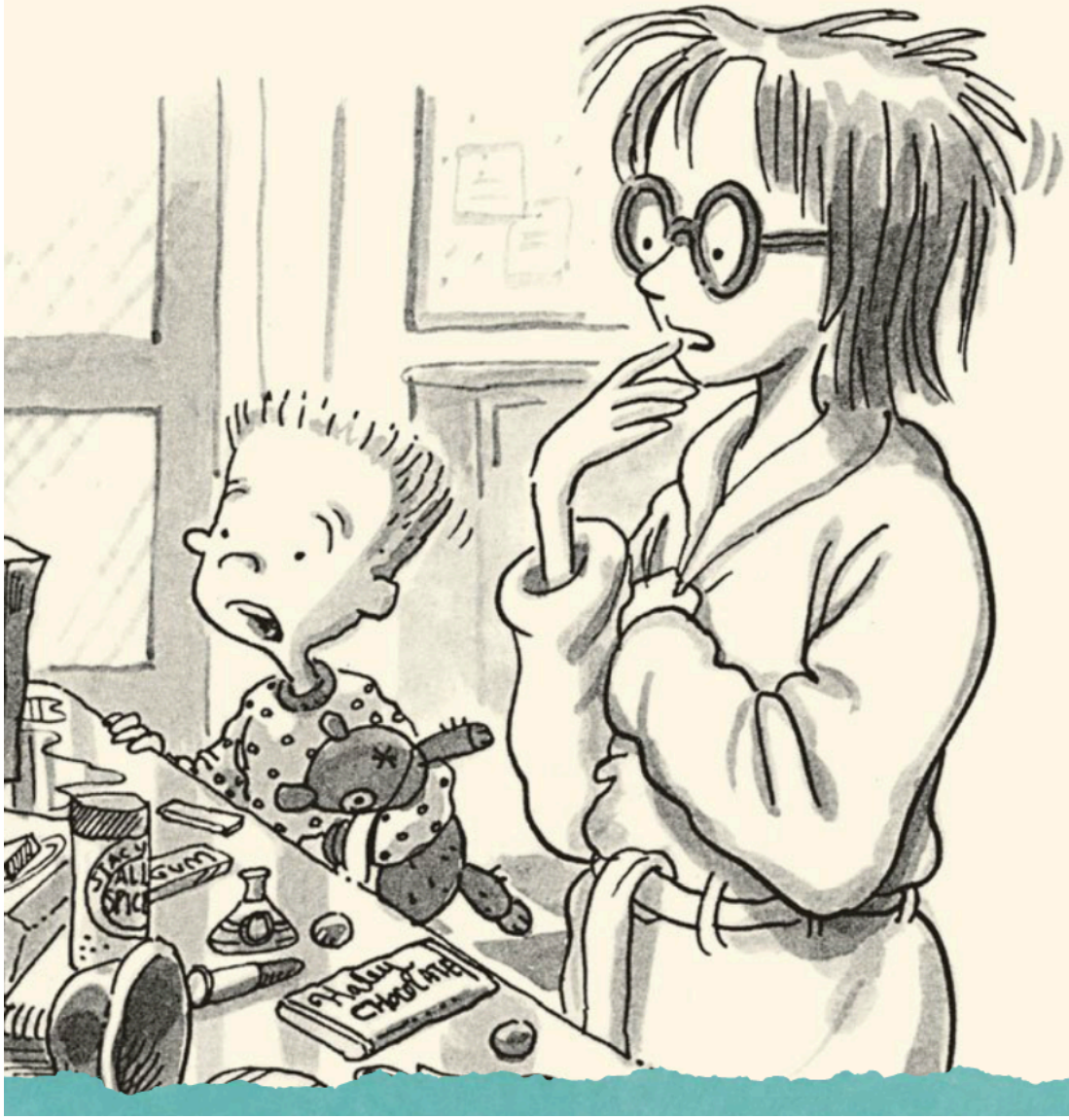
"Judy, why are you in the dark?" Dad asked, turning on the lights.

"Hey, my gumball machine!" Stink said.

Judy held out her arms to block the way. "We're not going to use this stuff anymore. It's all from the rain forest," she told them.

"Says who?" asked Stink.

"Says Mr. Rubbish. They cut down way too many trees to grow coffee and give us makeup and chewing gum. The earth is our home. We have to take action to save it. We don't need all this stuff."



"I need gum!" yelled Stink. "Give me back my gum!"

"Stink! Don't yell. Haven't you ever heard of noise pollution?"

"Is my coffee in there?" Dad asked, rubbing his hair.

"Judy? Is that ice cream? It's dripping all over the table!" Mom carried the leaky carton over to the sink.

"ZZZZ-ZZZZZ!" Judy made the sound of a chain saw cutting down trees.

"She's batty," Stink said.

Dad put the brownie mix back in the cupboard. Mom took the toilet plunger off the kitchen table and headed for the bathroom.

Time for Plan B. Project R.E.C.Y.C.L.E. She, Judy Moody, would show her family just how much they hurt the planet. Every time someone threw something away, she would write it down. She got her notebook and looked in the trash can. She wrote down:

"Stink! You shouldn't throw gooey old oatmeal in the trash!" Judy said.

"Dad! Tell her to quit spying on me."

"I'm a Garbage Detective!" said Judy. "*Garbologist* to you. If you want to learn what to recycle, you have to get to know your garbage."

"Here," said Stink, sticking something wet and mushy under Judy's nose. "Get to know my apple core."

"Hardee-har-har," said Judy. "Hasn't anybody in this family ever heard of the Three R's?"

"The Three R's?" asked Dad.

"Re-use. Re-cycle."

"What's the third one?" asked Stink.

"Re-fuse to talk to little brothers until they quit throwing stuff away."

"Mom! I'm not going to stop throwing stuff away just because Judy's having a trash attack."

"Look at all this stuff we throw away!" Judy said. "Did you know that one person throws away more than eight pounds of garbage a day?"

"We recycle all our glass and cans," said Mom.

"And newspapers," Dad said.

"But what about this?" said Judy, picking a plastic bag out of the trash. "This bread bag could be a purse! Or carry a library book."

STOP AND THINK

Author's Craft The word *gooey* on page 22 is an example of onomatopoeia. Find another example of onomatopoeia on page 22.


JM2-B
Radley

"What's so great about eggshells?" asked Stink. "And smelly old ground-up coffee?"

"You can use them to feed plants. Or make compost." Just then, something in the trash caught her eye. A pile of wooden craft sticks? Judy pulled it out. "Hey! My Laura Ingalls Wilder log cabin I made in second grade!"

"It looks like a glue museum to me," said Stink.

"I'm sorry, Judy," Mom said. "I should have asked first, but we can't save everything, honey."

"Recycle it!" said Stink. "You could use it for kindling, to start a fire! Or break it down in toothpicks."

"Not funny, Stink."

"Judy, you're not even ready for school yet. Let's talk about this later," said Dad. "It's time to get dressed."

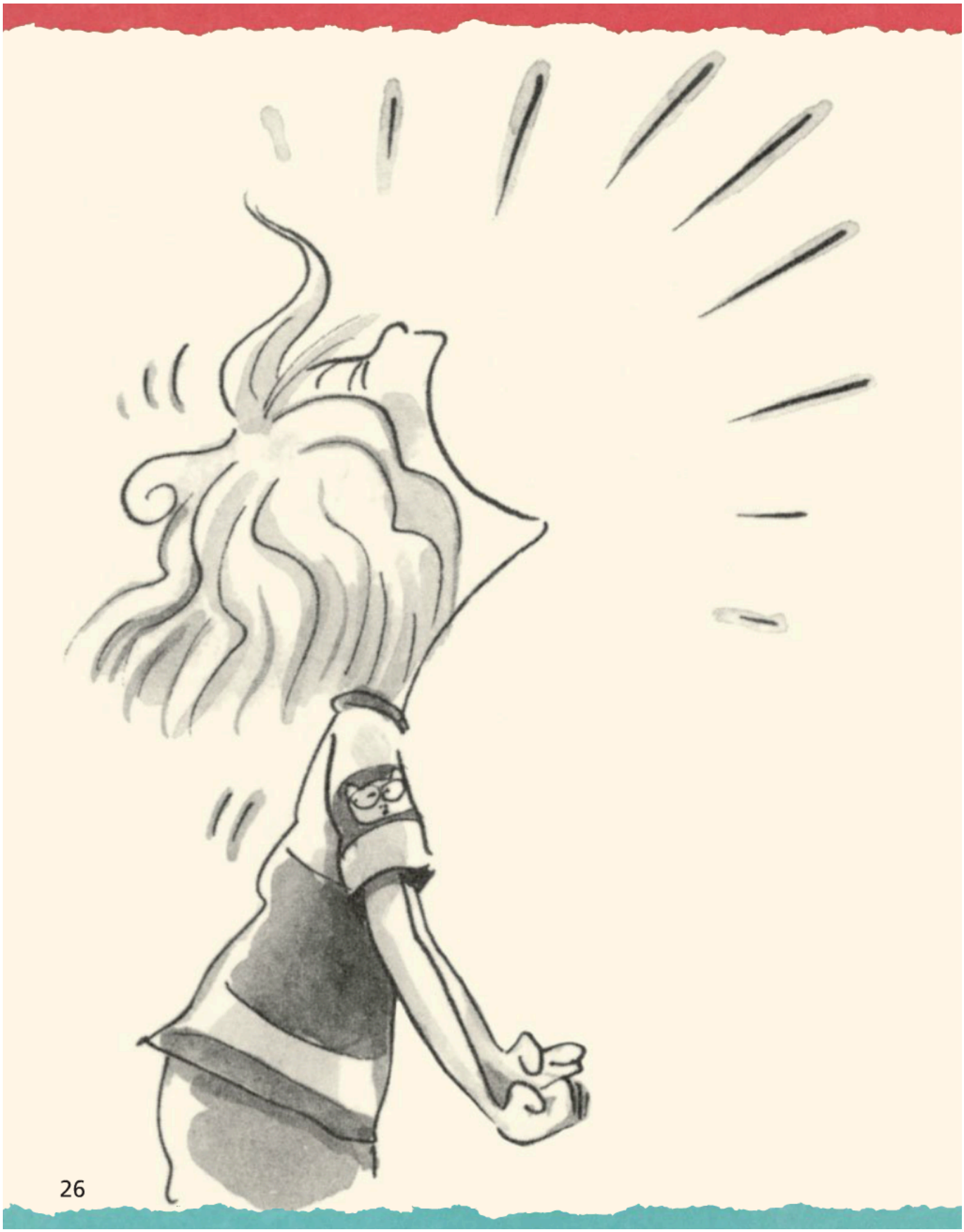
It was no use. Nobody listened to her. Judy trudged upstairs, feeling like a sloth without a tree.

"I won't wear lipstick today if it'll make you feel better," Mom called up the stairs.

"And I'll only drink half a cup of coffee," Dad said, but Judy could hardly hear him over the grinding of the rain forest coffee beans.

STOP AND THINK

Monitor/Clarify Does Stink believe Judy should use her log cabin for kindling or toothpicks, or is there another reason he said this?



Her family sure knew how to ruin a perfectly good Mr. Rubbish mood. She put on her jeans and her Spotted Owl T-shirt. And to save water, she did not brush her teeth.

She clomped downstairs in a mad-at-your-whole-family mood.

"Here's your lunch," said Mom.

"Mom! It's in a paper bag!"

"What's wrong with that?" Stink asked.

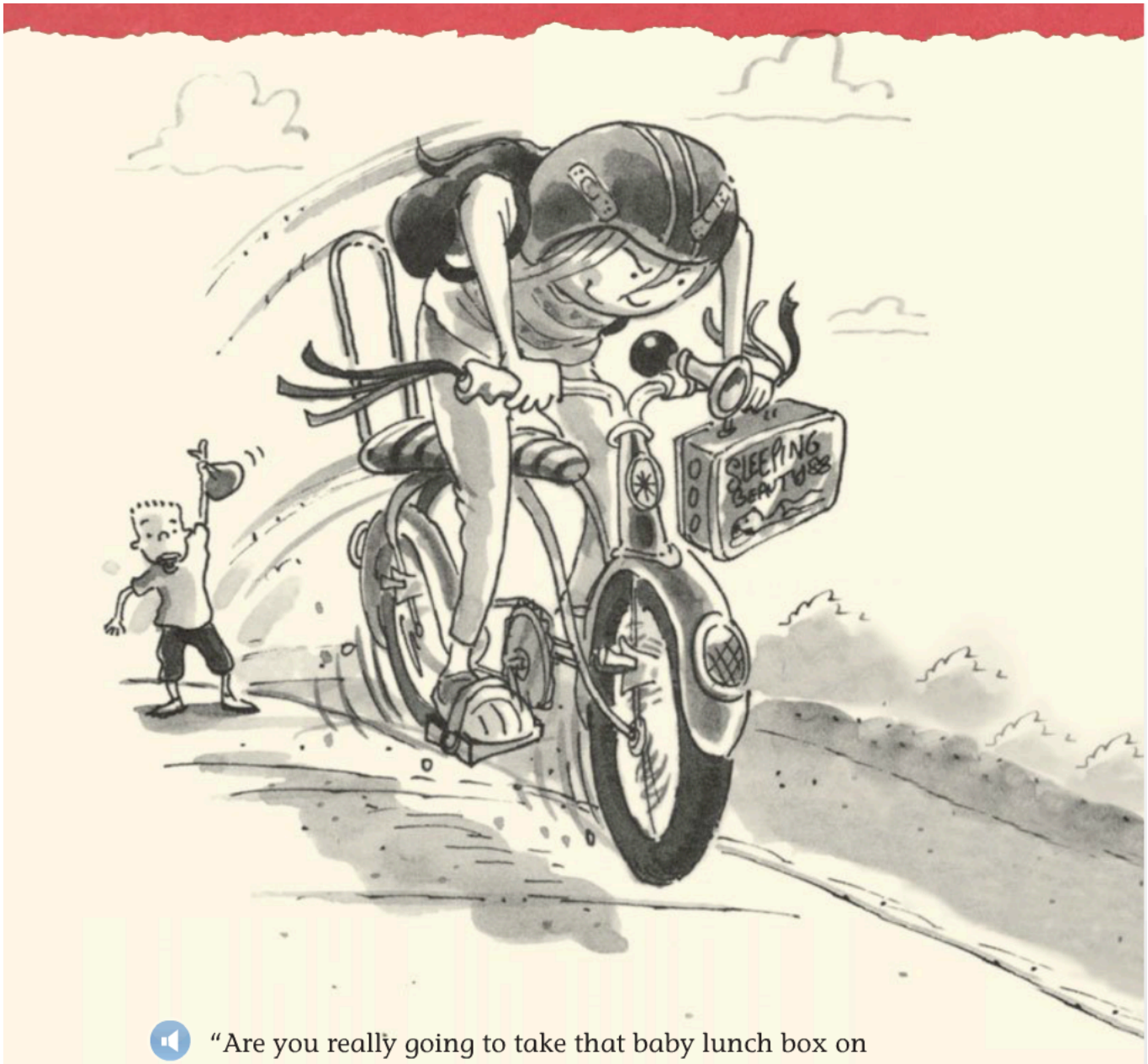
"Don't you get it?" said Judy. "They cut down trees to make paper bags. Trees give shade. They help control global warming. We would die without trees. They make oxygen and help take dust and stuff out of the air."

"Dust!" said Mom. "Let's talk about cleaning your room if we're going to talk about dust."

"Mo-om!" How was she supposed to do important things like save trees if she couldn't even save her *family* tree? That did it. Judy went straight to the garage and dug out her Sleeping Beauty lunch box from kindergarten.

STOP AND THINK

Author's Purpose Who is more convincing in the story, Judy or her family? What might this tell you about the author's opinion of recycling?



"Are you really going to take that baby lunch box on the bus? Where the whole world can see?" asked Stink.

"I'm riding my bike today," said Judy. "To save energy."

"See you at school, then." Stink waved his *paper-bag* lunch at her. If only she could recycle her little brother.

"Go ahead. Be a tree hater," called Judy.

Making the world a better place sure was complicated.

Connect to

Science

TARGET VOCABULARY

recycle	pollution
project	rubbish
dripping	hardly
carton	shade
complicated	global

GENRE

Informational text gives factual information about a topic. This is a magazine article.

TEXT FOCUS

Headings are titles for different parts of a selection. Look at the headings in this article. What do you think the article will be about? After you read, see if your predictions were correct.

SAVE the Rain Forest

by Patricia Ann Lynch

What Is a Rain Forest?

A rain forest gets huge amounts of rain. That's why it's called a rain forest! More than 100 inches of rain fall there each year. In contrast, Los Angeles, California, gets only about 15 inches of rain per year.

Orange-Banded Daggerwing

Rain Forest Plants

A rain forest has hundreds of kinds of trees and flowers. Under your feet is a carpet of leaves. Moisture is dripping everywhere. Hardly any light reaches the ground because tall trees form a canopy, or upper layer, high above. It hides the sky and provides shade.

Rain Forest Animals

A rain forest is noisy! Birds squawk. Thousands of insects buzz and hum. Monkeys chatter in the trees. Beetles grow as big as your hand. Some frogs grow as big as a milk carton!

Why Are Rain Forests in Trouble?

Rain forests are important to life on Earth. They recycle. Tree roots use dead plants as food. Rain turns into clouds that make more rain. Trees take in carbon dioxide and give off the air we breathe.

Yet rain forests are in trouble. People cut down trees to get wood and land to farm. Most trees are not replaced. Many scientists think this may be a cause of global warming. Loggers also may leave rubbish behind. This is a kind of pollution.

The balance of life in a rain forest is complicated. Plants and animals depend on one another. If one dies out, others do, too.

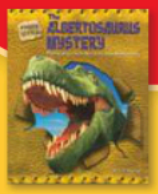
Golden-Browed Chlorophonia

The Children's Rain Forest

In 1987, children in a Swedish school were studying rain forests. They learned that rain forests were in trouble. The class started a project to save a rain forest in Costa Rica. The class bought about 15 acres of land. This was the start of the Children's Rain Forest. This project works to save rain forests around the world.

Harvested logs in an **Indonesian** rain forest

Lesson 17



TARGET VOCABULARY

fossils
clues
remains
prove
evidence
skeletons
uncovering
buried
fierce
location

Vocabulary Reader

Context Cards

Vocabulary in Context

1 **fossils**
This man has found dinosaur fossils. He will learn a lot from the old bones.

2 **clues**
Fossils give clues that help scientists solve mysteries about dinosaurs.

3 **remains**
These are the remains of a large dinosaur. One bone is all that is left.

4 **prove**
Scientists are trying to prove, or show, that dinosaurs and birds are related.

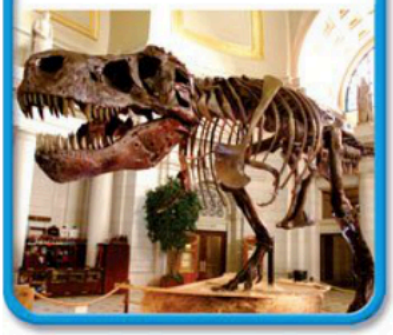
- Study each Context Card.
- Ask a question that uses one of the Vocabulary words.

5 **evidence**

Egg fossils give evidence, or facts, about how dinosaurs raised their young.

6 **skeletons**

Scientists rarely find whole dinosaur skeletons like this one.



7 **uncovering**

Uncovering fossils takes time. The soil must be removed from around them.

8 **buried**

Many dinosaur bones buried, or covered, in mud turned into fossils.

9 **fierce**

Many people think of dinosaurs as fierce animals that fought all the time.

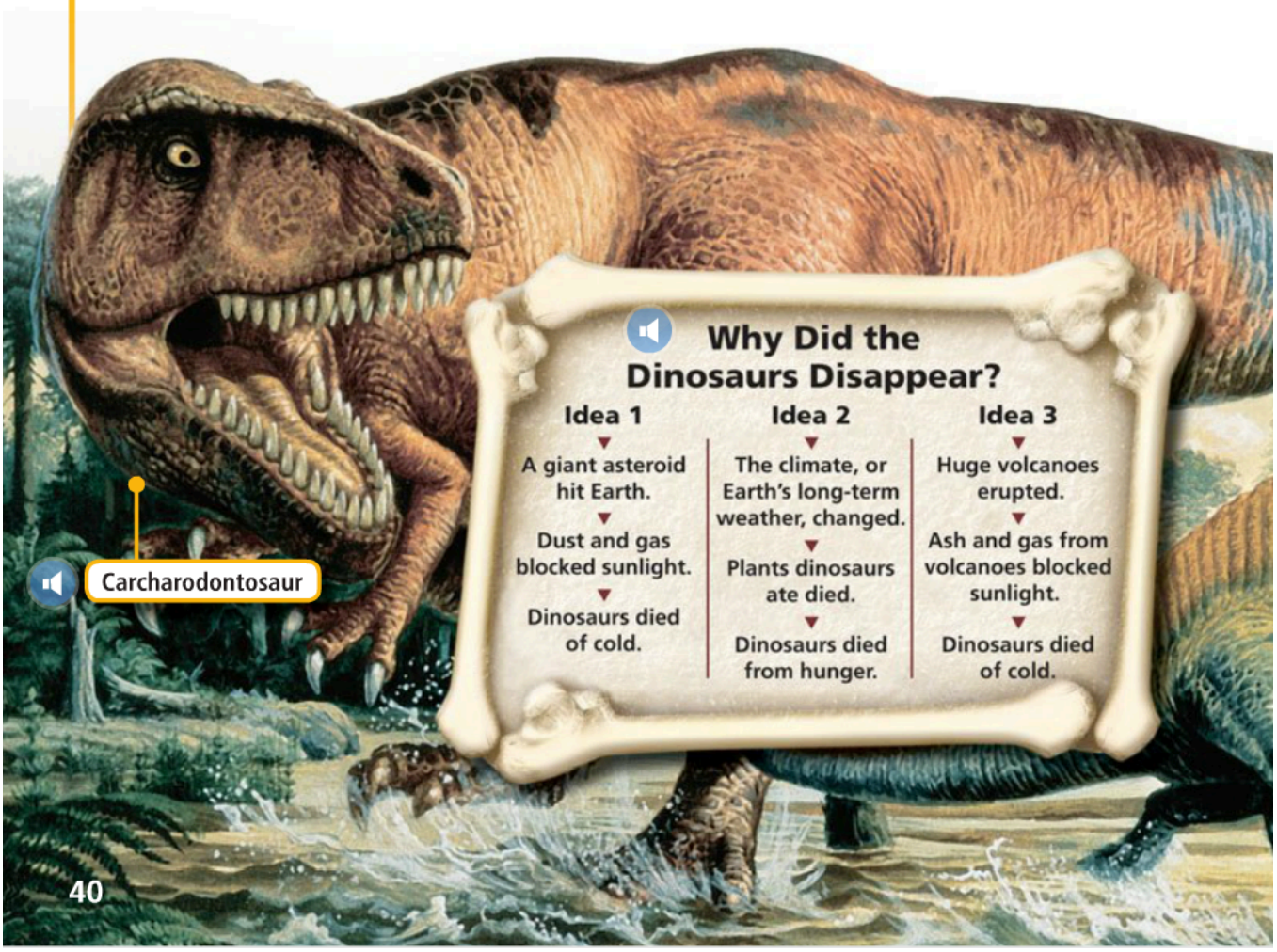
10 **location**

Sometimes many dinosaur bones are found in the same location.

Background

TARGET VOCABULARY **Dig and Discover** Paleontologists are like science detectives. They use dinosaur fossils buried in the ground as clues to solve mysteries. Each new fossil provides evidence to help prove ideas, such as whether a dinosaur was fierce or gentle.

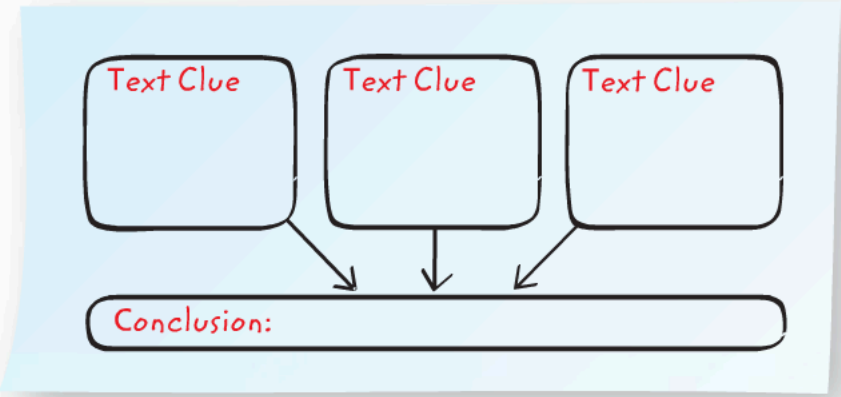
Sometimes paleontologists are lucky and find entire skeletons in a single location. Other times the remains of a creature may be only a few bones or teeth. Scientists can learn more about the past by uncovering fossils.



Comprehension

TARGET SKILL Conclusions

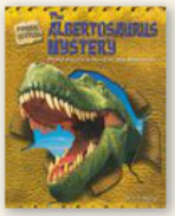
As you read *The Albertosaurus Mystery*, use text clues to draw conclusions, or make smart guesses, about what it's like to be a fossil hunter. Write text clues in a chart like this. Then use the text clues to help you draw a conclusion.



TARGET STRATEGY Visualize

Use details from *The Albertosaurus Mystery* to help you visualize, or picture, what the author describes. Then draw conclusions about what it's like to hunt fossils.

Main Selection

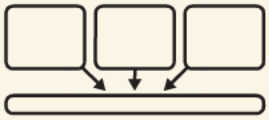


TARGET VOCABULARY

fossils	skeletons
clues	uncovering
remains	buried
prove	fierce
evidence	location

TARGET SKILL

Conclusions Use text details to figure out ideas the author doesn't state.



TARGET STRATEGY

Visualize As you read, use selection details to picture what is happening.

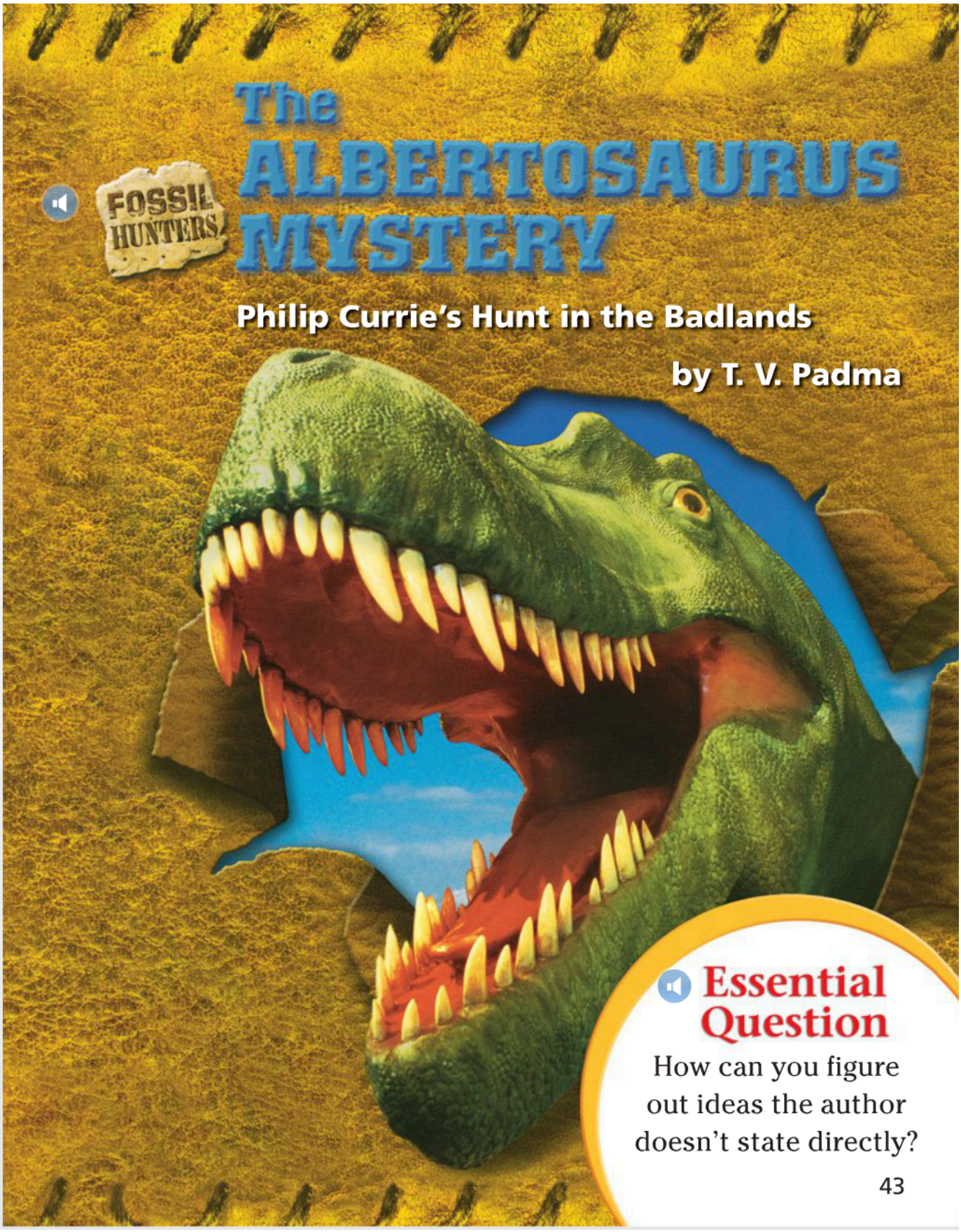
GENRE

Informational text gives factual information about a topic.

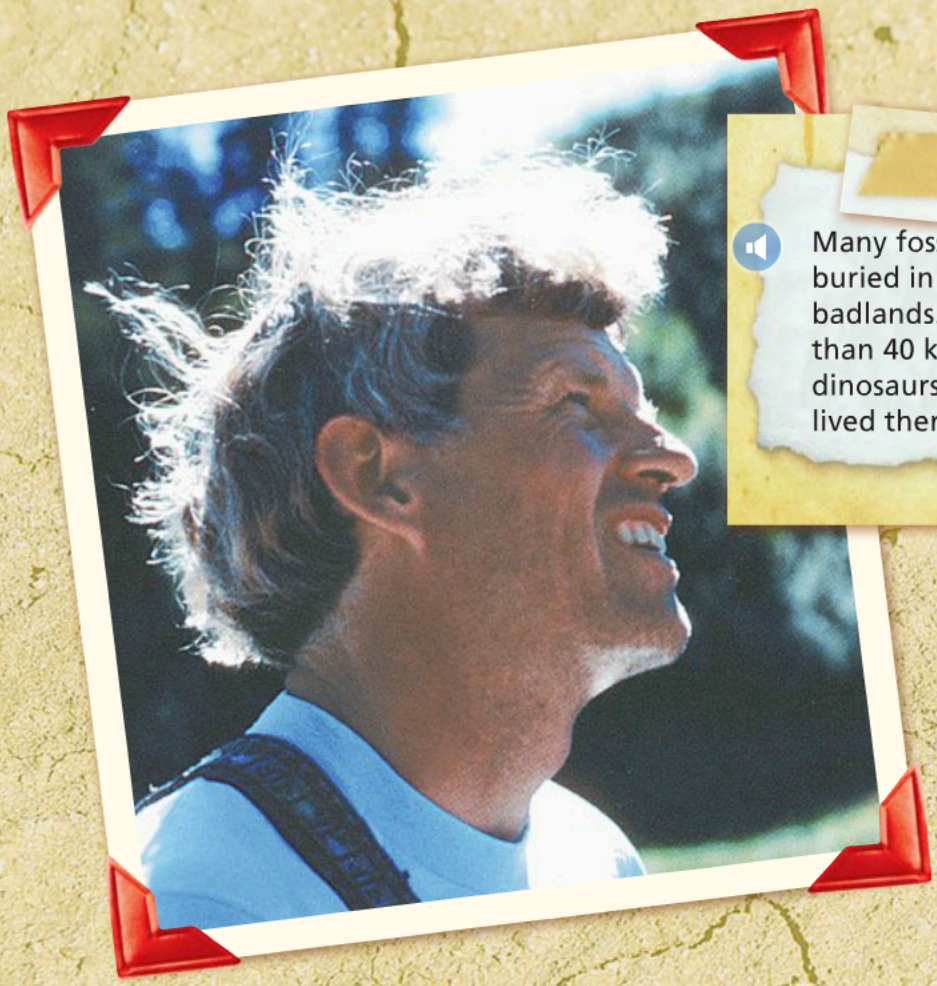
MEET THE AUTHOR

T. V. PADMA

T. V. Padma, whose full name is Dr. Padma Venkatraman, has a lot of different interests. She loves science, math, nature, animals, space, the ocean, fossils, music, history, and poetry. Padma was born in India. She lives in Rhode Island now, where she enjoys canoeing, hiking, and horseback riding.


FOSSIL HUNTERS
The ALBERTOSAURUS MYSTERY
Philip Currie's Hunt in the Badlands
by T. V. Padma
Essential Question
How can you figure out ideas the author doesn't state directly?

Searching Without a Map



Many fossils are buried in Canada's badlands. More than 40 kinds of dinosaurs once lived there.

Philip Currie was thirsty and tired. It was one of the hottest summer days of 1997. He and his team were looking for fossils that belonged to a dinosaur called *Albertosaurus* (al bur toh SOHR uhs).

The badlands of western Canada are full of hills.
Philip didn't know which hill held Brown's fossils.

Almost 90 years earlier, a famous fossil hunter named Barnum Brown had found a fossil field in western Canada's badlands. Many albertosaurs were buried in it. Philip was trying to find this place again.

It was like looking for a needle in a haystack. Brown had not made a map or written down where he had found the fossils. Philip had few clues—just some notes and four old photos.

Discovery!

The team was running out of water. Everyone except Philip went back to the camp. He continued on with the search. Sand flies and mosquitoes bit him. His head hurt.

Philip had seen the remains of Brown's campsite earlier in the day. He knew the bones must be close.

STOP AND THINK

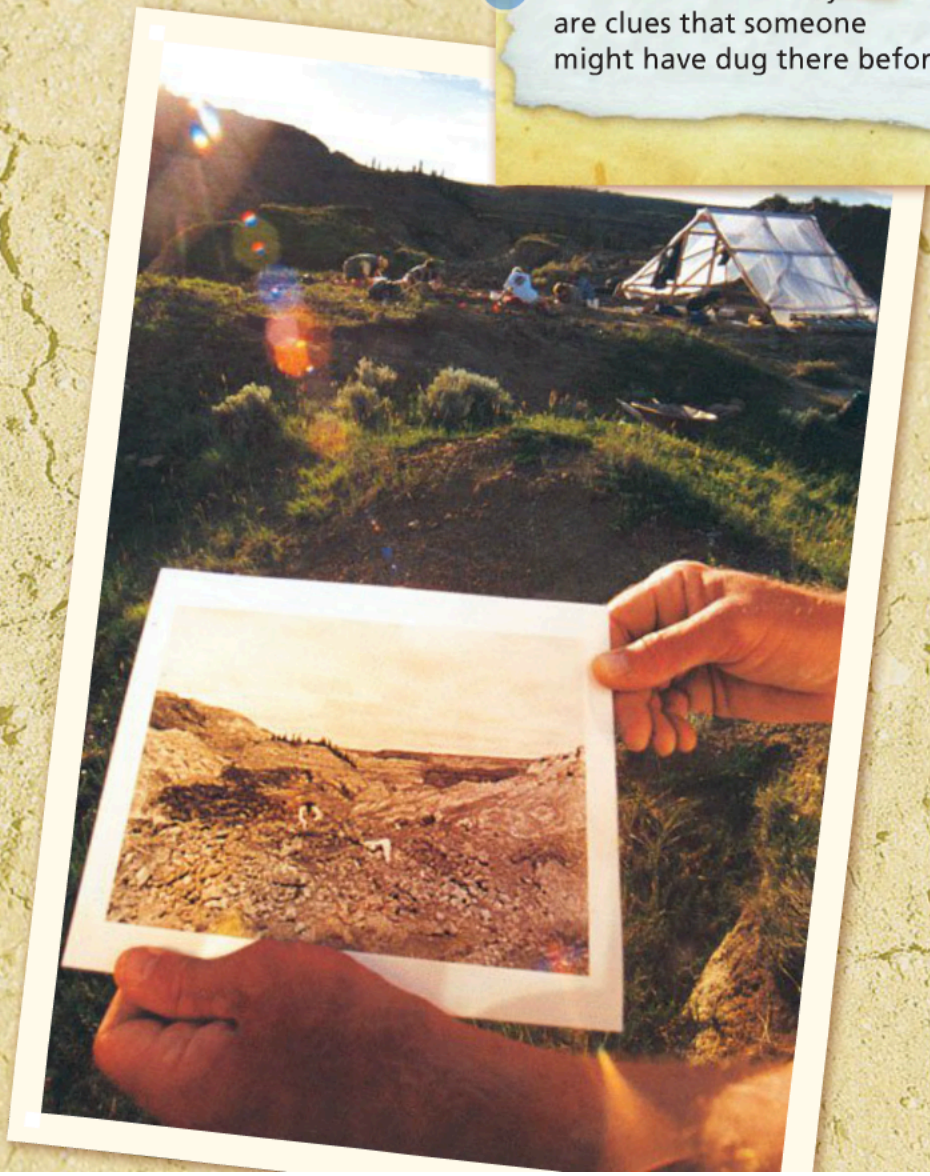
Author's Craft Why does the author use short, choppy sentences on this page?

Philip was trying to find the location of *Albertosaurus* fossils shown in Brown's old photograph.

All alone, Philip climbed another hill. He stopped to hold up a photo. It looked just like the scene in front of him. He also could see that years ago someone had dug into the rock there. Philip had found Brown's bone bed!

Brown's photo was old, but Philip could see that the hills still looked the same.

Holes or cuts in rocky hills are clues that someone might have dug there before.



Barnum the Bone Hunter

Barnum Brown grew up in Kansas in the late 1800s. His family dug and sold coal. Young Barnum saw his first fossil when the family plow accidentally pulled one out of the ground.

Brown went on to study fossils. He found that he liked digging up bones more than learning about them in class. So he left Columbia University to become a bone hunter for the American Museum of Natural History in New York City.

Brown was very good at finding fossils. Henry Fairfield Osborn, the head of the museum, joked that Brown could "smell fossils." News writers called him "Mr. Bones."

At the American Museum of Natural History in New York City, Brown helped put together the bones he found.

Finding the First T. rex

In 1908, Brown found this *T. rex* skeleton. It can be seen at the American Museum of Natural History.

In the early 1900s, Brown dug up *Tyrannosaurus rex* (tuh ran uh SOHR uhs REKS) skeletons, first in Wyoming, and later in Montana. These were the first *T. rex* skeletons ever found.

For several years, Brown returned to Montana to dig for fossils. The bones he found there were often stuck in hard rock. He sometimes used dynamite to get them out.

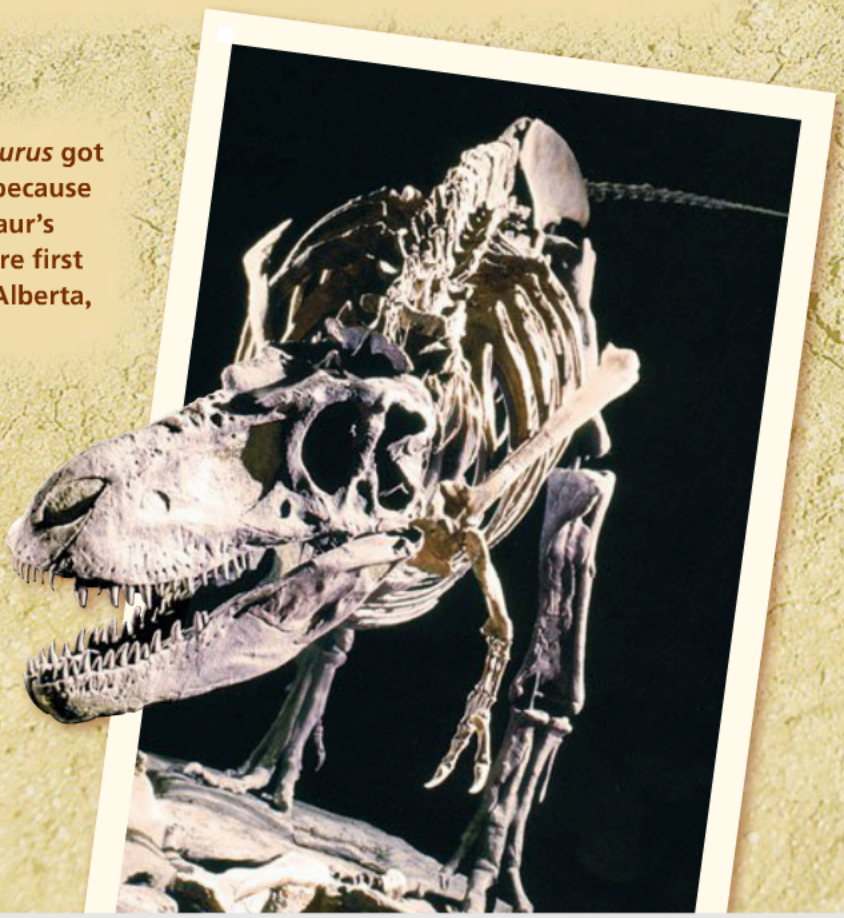
Then in 1910 a terrible thing happened in Brown's life. His wife died. Brown tried to forget his sadness by hunting for more fossils. He rafted down Red Deer River Canyon in Canada. He camped in the area, and looked for bones. Soon, Brown made a surprising discovery.

Finding Many Meat-Eaters

In Canada, Brown found a place where many skeletons were buried. The skeletons belonged to *Albertosaurus*, a large meat-eating dinosaur. It was the first time anyone had found the bones of so many meat-eating dinosaurs in the same spot.

Brown dug up some of the bones. He wrote only a few lines about his find but didn't say how unusual it was. He didn't say why he thought so many individuals of the same species were together. He didn't tell what this discovery might mean.

The *Albertosaurus* bones were sent to the museum and put away. There they lay in a basement storage room for many years with other dinosaur fossils.



***Albertosaurus* got its name because the dinosaur's fossils were first found in Alberta, Canada.**

A Fierce Family

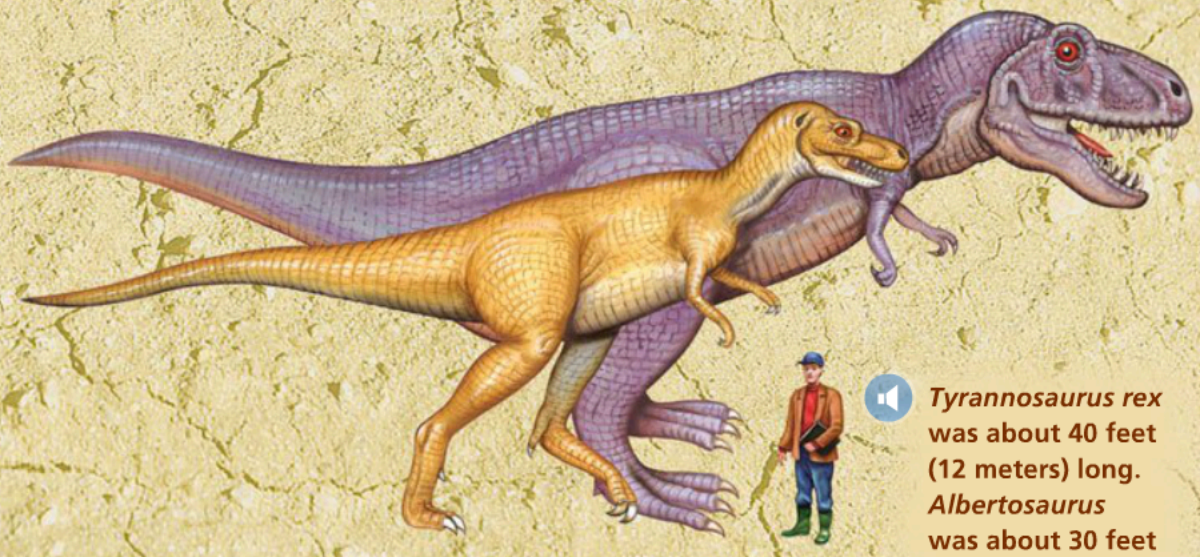
Albertosaurus was part of a family of fierce, meat-eating dinosaurs called tyrannosaurids. *Tyrannosaurus rex* was also part of this family.

Albertosaurus was smaller than *Tyrannosaurus rex*, but it was strong. *Albertosaurus* could see and smell well. It had many sharp teeth. Its huge, powerful jaws could crush bone.

Like *Tyrannosaurus rex*, *Albertosaurus* lived and hunted alone. At least, that's what paleontologists thought. One man was about to change their thinking, however. He had some ideas about these ancient creatures.

STOP AND THINK

Visualize What words and phrases help you visualize how *Albertosaurus* looked and acted?



Tyrannosaurus rex **was about 40 feet (12 meters) long.** ***Albertosaurus*** **was about 30 feet (9 meters) long.**

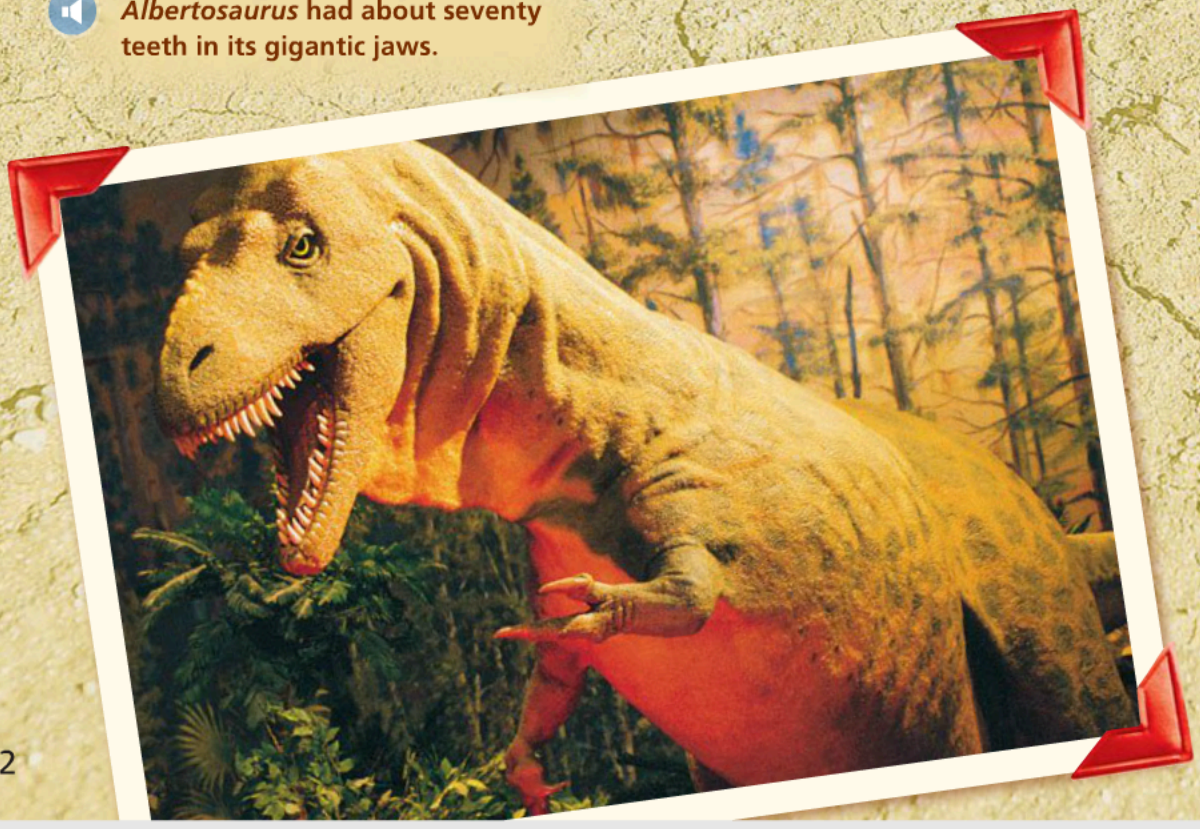
Philip Currie's Question

In 1976, Philip Currie read what Brown wrote about the site full of albertosaurs. At that time, most paleontologists thought tyrannosaurids lived alone. If so, asked Philip, why were many of these animals buried together? Had they died together? Had they lived together?

Some plant-eating dinosaurs had lived in groups. Maybe some of the meat-eaters that hunted them did, too, thought Philip. After all, big groups of animals were hard to hunt alone. Maybe albertosaurs hunted in packs.

Philip was busy learning about many kinds of fossils and dinosaurs, however. He put his questions away for many years, just as Brown had put away his fossils.

Albertosaurus **had about seventy teeth in its gigantic jaws.**



The Bones in the Basement

◀ The American Museum of Natural History, where Brown's *Albertosaurus* fossils were stored.

This fossil foot bone from an *Albertosaurus* was first discovered by Barnum Brown in Alberta, Canada, and then rediscovered by Philip Currie in New York City. ▶

Philip thought about his questions again 20 years later. This time, however, something happened that made him hunt for answers.

Philip came across some *Albertosaurus* bones in the basement of the American Museum of Natural History—the museum where Barnum Brown had worked. He could tell that the bones were from the badlands in Canada where Brown had been searching for fossils.

Philip saw that Brown had found at least nine albertosaurs in one spot. He also saw that Brown had taken only a few bones from each animal. More bones were still buried in the badlands, waiting to be discovered.

The Bones in the Badlands

Place where Philip rediscovered the *Albertosaurus* fossil site first found by Barnum Brown

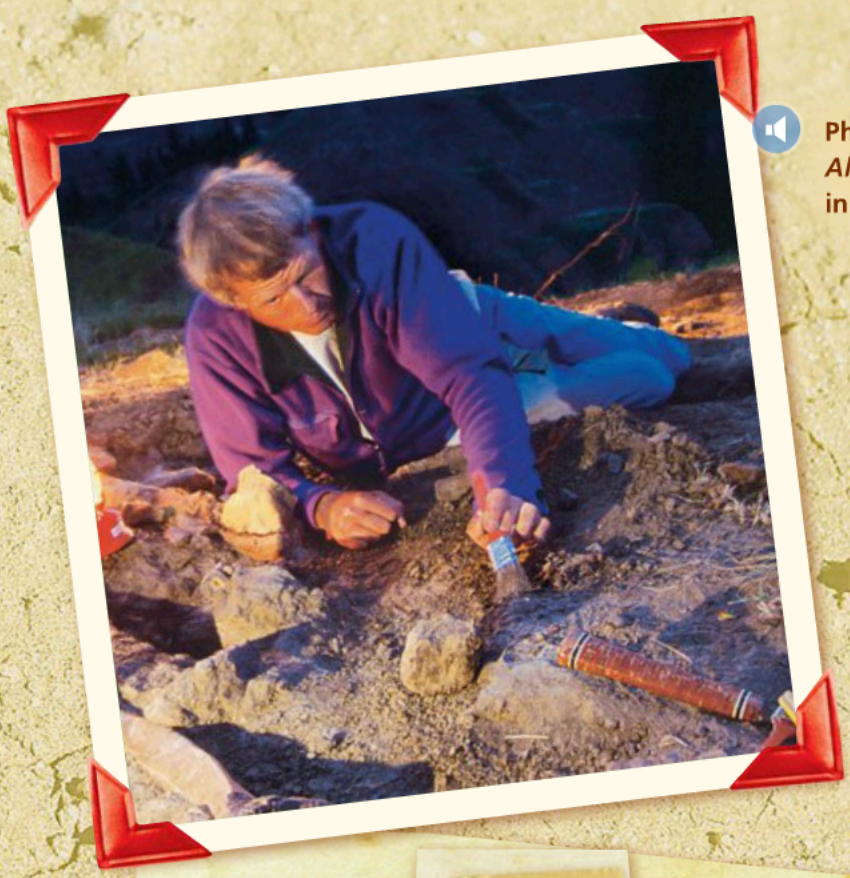
Philip discovered more than bones at the museum. He also found Brown's field notes and a photo of Brown's site. Using these clues, Philip was able to find the bone bed.

STOP AND THINK

Conclusions Why did finding so many albertosaur fossils in one place make the team believe that albertosaurs had lived together?

Locating the spot was just the first step, however. Philip and his team worked for months to dig out each fossil. At least 22 albertosaurs were buried in the rock.

After the work was done, a new question came up. Did finding many fossils together prove that the animals had lived, died, and even hunted as a group?



Philip uncovering *Albertosaurus* bones in the badlands

In the days of Barnum Brown, fossil hunters were not always able to keep good records. Today, paleontologists carefully record their finds with photographs, drawings, maps, and reports.

What May Have Happened

Philip knew there could be other reasons for the fossils being together. Many of these ideas only brought up more questions, however.

For example, the albertosaurs could have died in quicksand. Yet different kinds of dinosaurs could die in quicksand. Philip had found the fossils of only one kind—*Albertosaurus*.

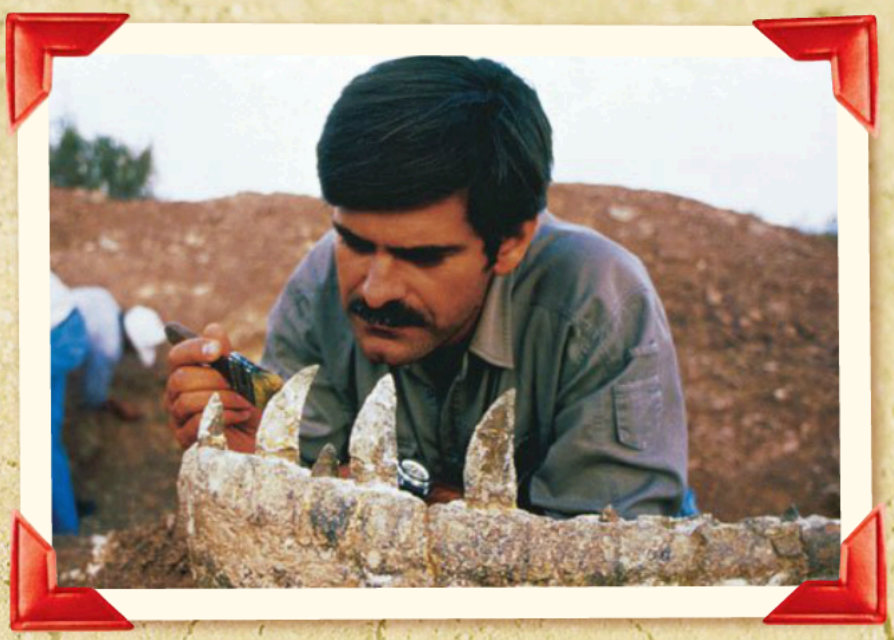
Maybe the albertosaurs had gathered to lay eggs. If so, however, the fossils should have been about the same age and size. Yet Philip had found small, young animals as well as large, old animals.

Philip's hunt had ended. Yet he needed more evidence to show that the meat-eaters had lived together.

A reconstructed nest of fossilized dinosaur eggs

Scientists know that dinosaurs laid eggs because fossil eggs of several kinds of dinosaurs have been found.

More Groups of Meat-Eaters



Rodolfo Coria uncovers teeth on a huge dinosaur jawbone.

More evidence came when a paleontologist named Rodolfo Coria phoned Philip. Coria was calling from Argentina. He also had found a spot where a group of meat-eating dinosaurs was buried. So perhaps meat-eaters did live in groups after all.

Scientists found more places with groups of meat-eating dinosaurs. These places were all over—Arizona, Montana, South Dakota, Utah, Mongolia, and Zimbabwe.

Philip also looked carefully at the footprints of meat-eating dinosaurs in the Peace River Canyon of Canada. The footprints showed that meat-eating dinosaurs may have traveled together.

Digging Deeper

Did some meat-eating dinosaurs spend time living and hunting together? Scientists still aren't sure. They can only make smart guesses based on the fossils they have found.

Other questions are still unanswered as well. Why did the albertosaurs at Brown's site die? What killed so many animals at one time? A big storm? A forest fire?

Philip Currie says that a paleontologist is like a detective. The mysterious death happened millions of years ago. No one saw it. Using clues, the scientist tries to tell what happened, how, and why. As long as there are fossils waiting to be found, the investigation continues.

By studying fossils, experts can create models like this life-size *Albertosaurus*.

Connect to

Science

TARGET VOCABULARY

fossils	skeletons
clues	uncovering
remains	buried
prove	fierce
evidence	location

GENRE

Informational text gives factual information about a topic. This is a website. After you read, discuss your opinion of fossil hunting. Does it sound interesting? Include details from the article to support your opinion.

TEXT FOCUS

A **chart** is a drawing that lists information in a clear way. Look at the chart on page 61. In which column would you look to find out what to bring on a fossil hunt? How did you know where to look?

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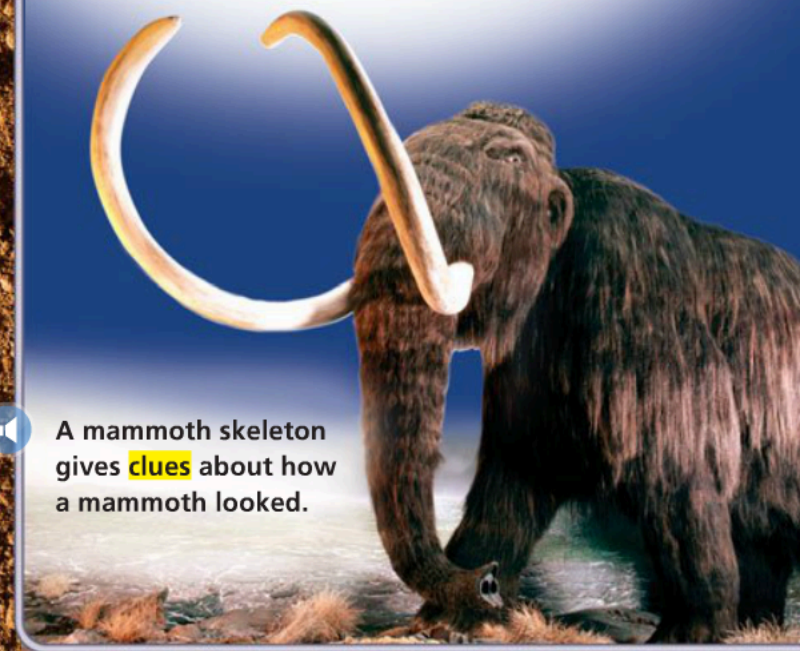
FINDING FOSSILS FOR FUN

by Alice Cary

Have you ever hunted for fossils? People often find them by accident. In 2007, a Florida high school student and her friends went to a creek to take photos for a school project. They saw lots of bones in the water. The girls were surprised! They had found the remains of an Ice Age mammoth.

Scientists began digging at the creek. Soon they were uncovering other animal skeletons.



A mammoth skeleton gives clues about how a mammoth looked.

Tools Help

search

Fossils

Fossils are evidence of ancient life. Sometimes dirt or sand covers leaves and bones. Layers of dirt and sand protect these remains from damage. The layers build up as time passes. After many years, the remains harden and become fossils.

You may find fossils buried near you! The chart gives you tips for hunting them.

Hunting Guide

Where to Look	What to Hunt	Tools	Searching Tips
layers of rock	eggs, nests	hammer and chisel	Work carefully so you don't miss anything.
layers of sand or mud	footprints, leaf impressions	notebook, pen, camera	Take notes to keep track of where each discovery was found.
deserts, canyons, cliffs, hills, and mountains	shells	plastic box or newspapers and rubber bands for carrying finds	

File Edit View Favorites Tools Help

Anyone Can Find Fossils!

You're never too young to find fossils. David Shiffler loved fierce dinosaurs. In 1995, when he was only three years old, David dug up a green rock. He called it a dinosaur egg.

David's father took the rock to a museum a few months later. David was right! He had found a piece of dinosaur egg! Scientists could prove it. The egg was about 150 million years old!

Hunt Fossils Safely

- Take an adult.
- Choose a safe location.
- Get permission to hunt before you start.
- Wear safety glasses.

COOL CLICKS!

Museums with Fossils

Fossils in the News

Fossil Finds

Lesson 18

TARGET VOCABULARY

pollen
store
clumps
passages
absorb
throughout
coverings
spines
tropical
dissolve

Vocabulary Reader

Context Cards

Vocabulary in Context

1 **pollen**
This bee carries pollen from flower to flower, which helps seeds grow.

2 **store**
A baobab tree can store, or keep, lots of water in its trunk.

3 **clumps**
The flowers on some trees grow in clumps, or bunches.

4 **passages**
A leaf has small passages, or tubes, that allow water to spread all over.

- Study each Context Card.
- Make up a new context sentence using two Vocabulary words.

5 **absorb**

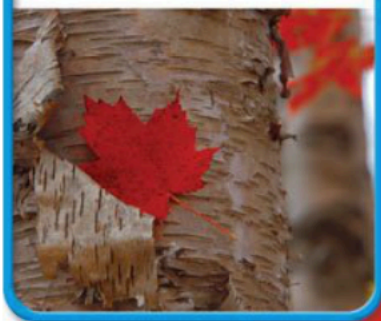
A plant's roots absorb water. They soak it up.

6 **throughout**

Sap passes throughout a tree. It travels to every part.

7 **coverings**

Different kinds of trees have different coverings, or outer layers.



8 **spines**

Many kinds of cacti are covered in sharp spines.

9 **tropical**

Some plants grow in warm, damp, tropical climates near the equator.

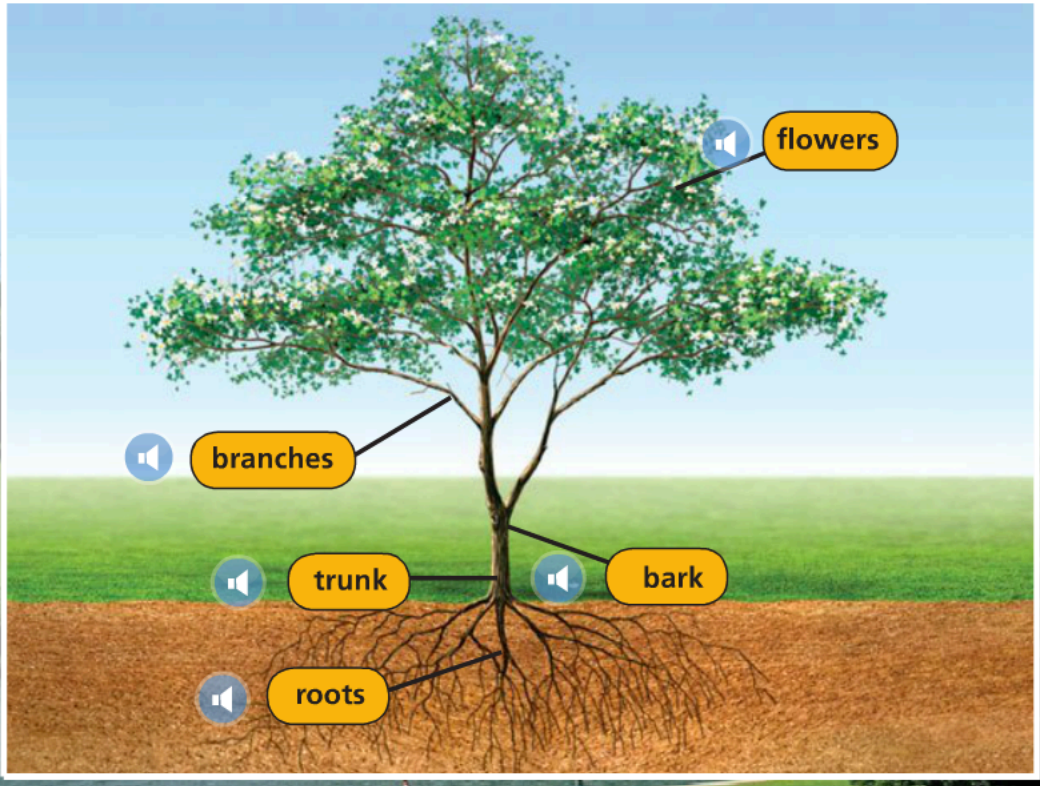
10 **dissolve**

If you add salt to water, it will dissolve, or mix, with the water.

Background

TARGET VOCABULARY **Tree Talk** All trees have roots that absorb water. Minerals dissolve in that water. The water and minerals then travel through passages in the trunk. Some trees in dry climates have special trunks that help them store water. When a tree needs a drink, the stored water spreads throughout the branches. Tropical rain forests do not have this problem. Rain there is so plentiful, trees and giant clumps of green plants rarely go thirsty!

Trees have many different kinds of coverings. Some have spines for protection. Others have thick bark. Some trees have flowers, which produce pollen.



Comprehension

TARGET SKILL **Text and Graphic Features**

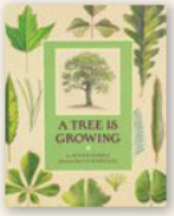
The author of *A Tree Is Growing* uses text and graphic features to make ideas about trees clear. Use a chart like this to list some features and the purpose of each feature.

Text or Graphic Feature	Page	Purpose

TARGET STRATEGY **Question**

When you have a question or are confused about what you are reading, look for pictures, diagrams, or charts that show what the text describes. Ask yourself, *How can this text or graphic feature help me better understand what I am reading?*

Main Selection

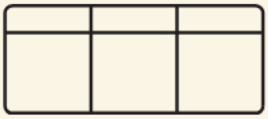


TARGET VOCABULARY

pollen	throughout
store	coverings
clumps	spines
passages	tropical
absorb	dissolve

TARGET SKILL

Text and Graphic Features Tell how words and art work together.



TARGET STRATEGY

Question Ask and answer questions before you read, while you read, and after you read to stay more focused on the text.

GENRE

Informational text gives factual information about a topic.

MEET THE AUTHOR

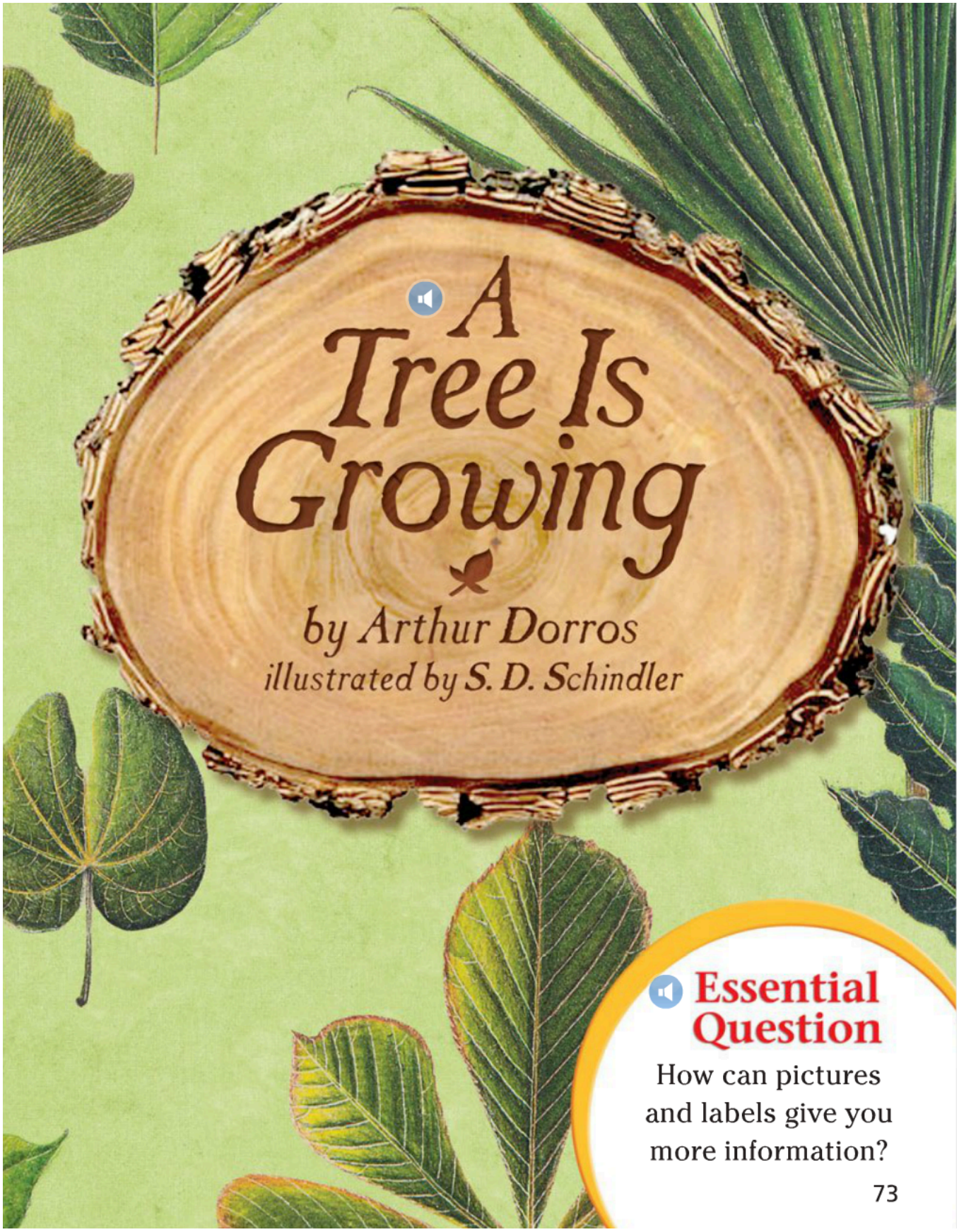
Arthur Dorros

Arthur Dorros loves trees. When he was five, he planted a maple seedling. The tree grew taller than a two-story house! The author believes that everyone has stories to tell. He encourages children all over the country to write.

MEET THE ILLUSTRATOR

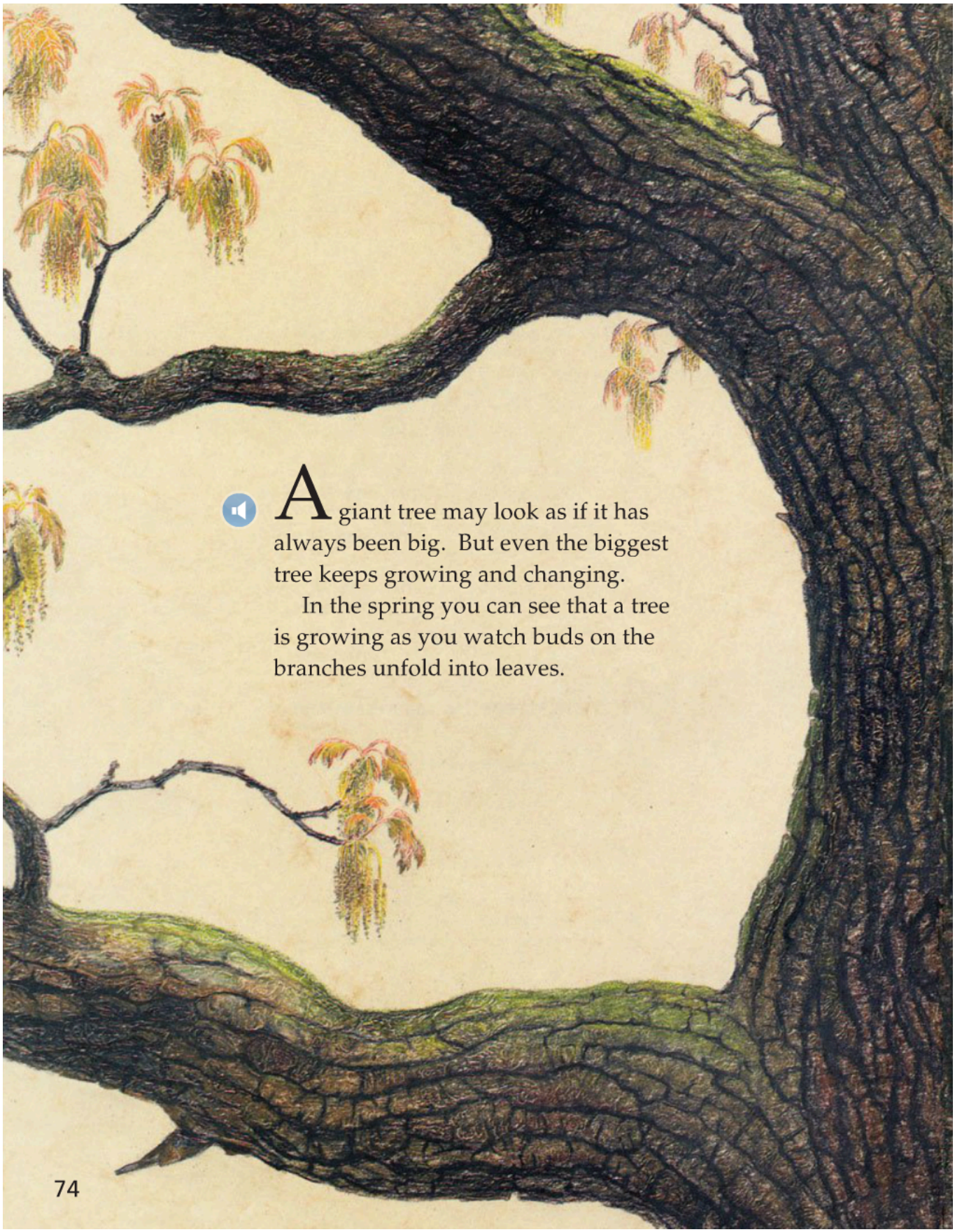
S. D. Schindler

When S. D. Schindler was just four years old, he won a red wagon in a coloring contest. S. D. Schindler loves nature as much as he loves art. He used plants and animals from the woods near his home as models for the illustrations in *A Tree Is Growing*.



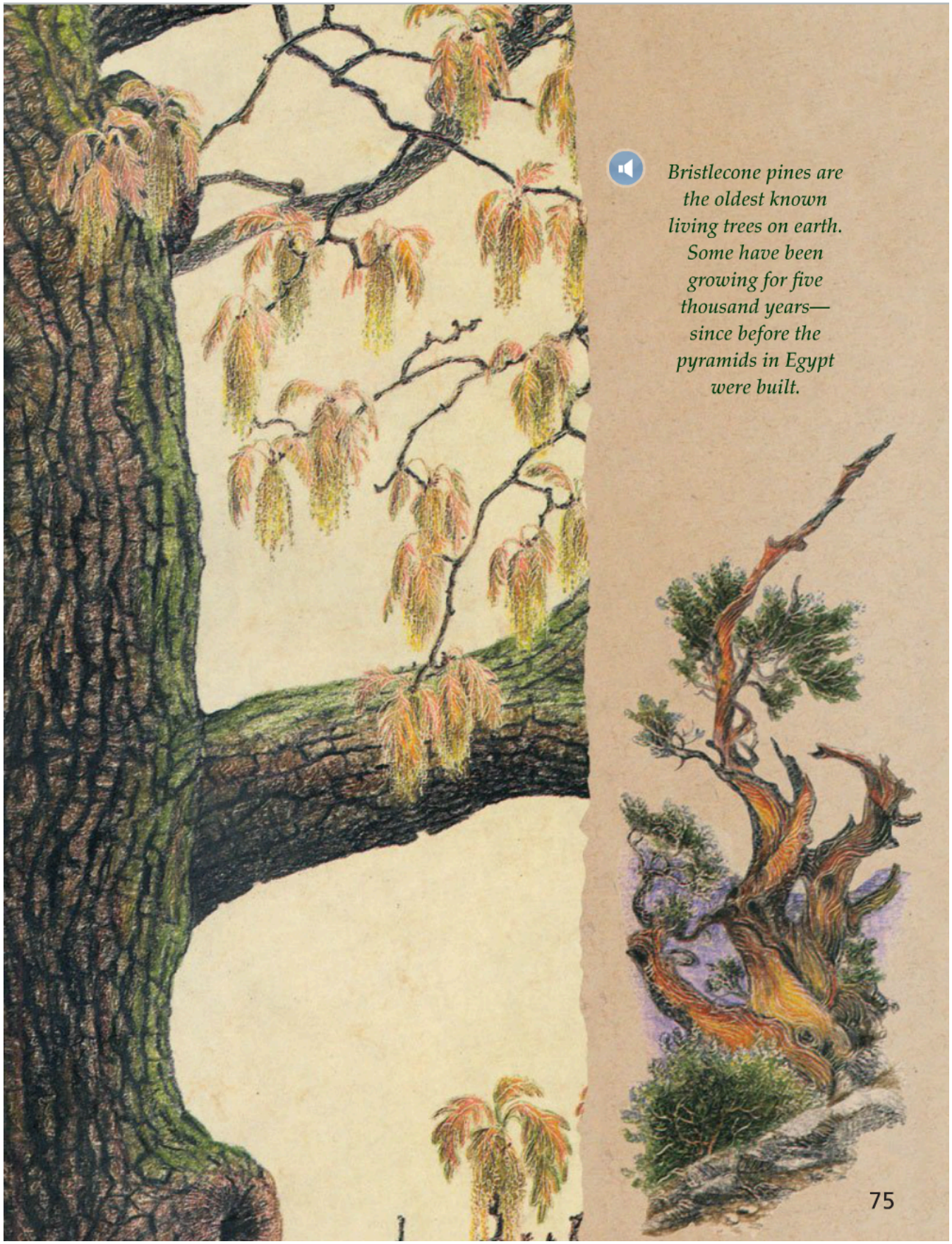
Essential Question

How can pictures and labels give you more information?

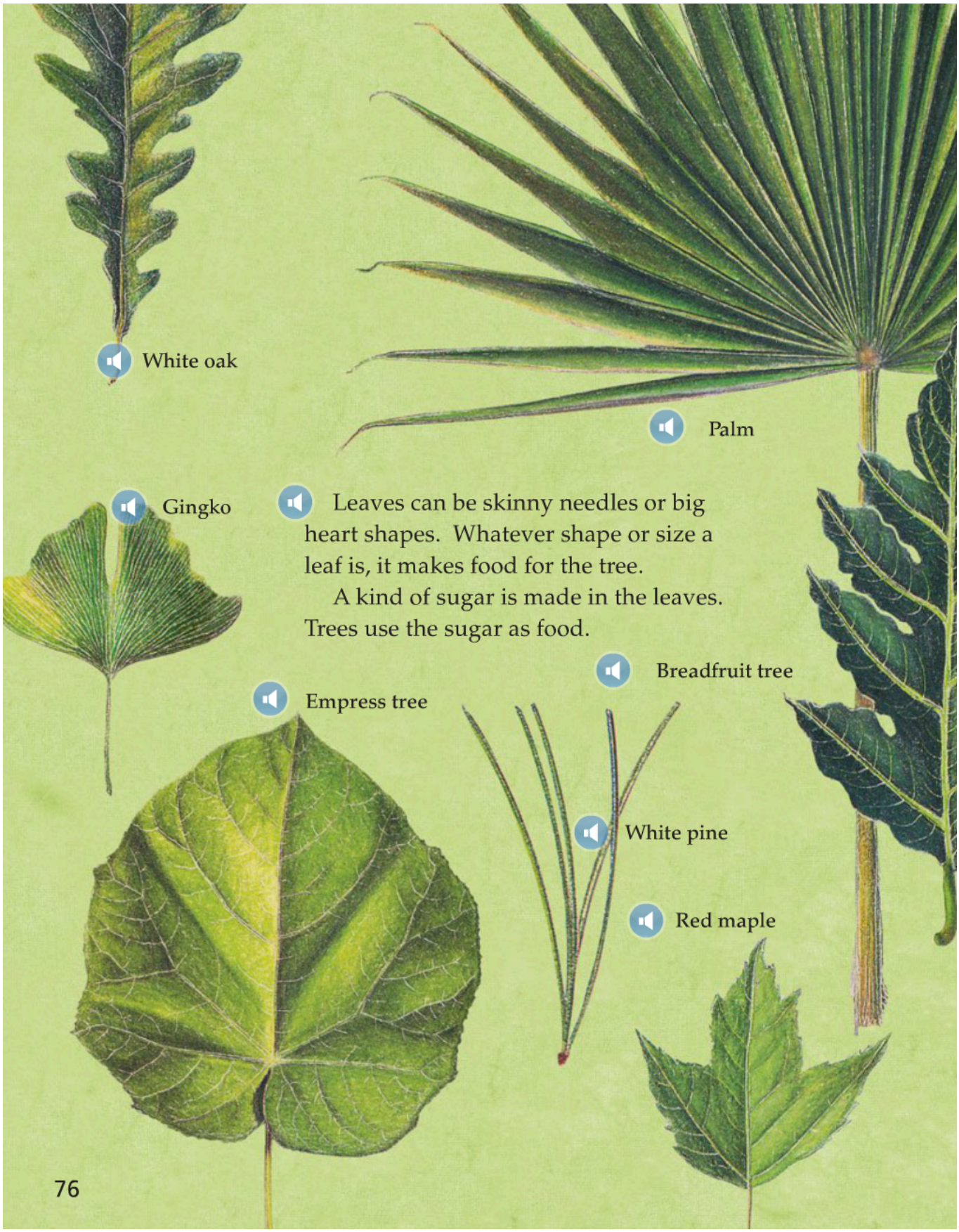


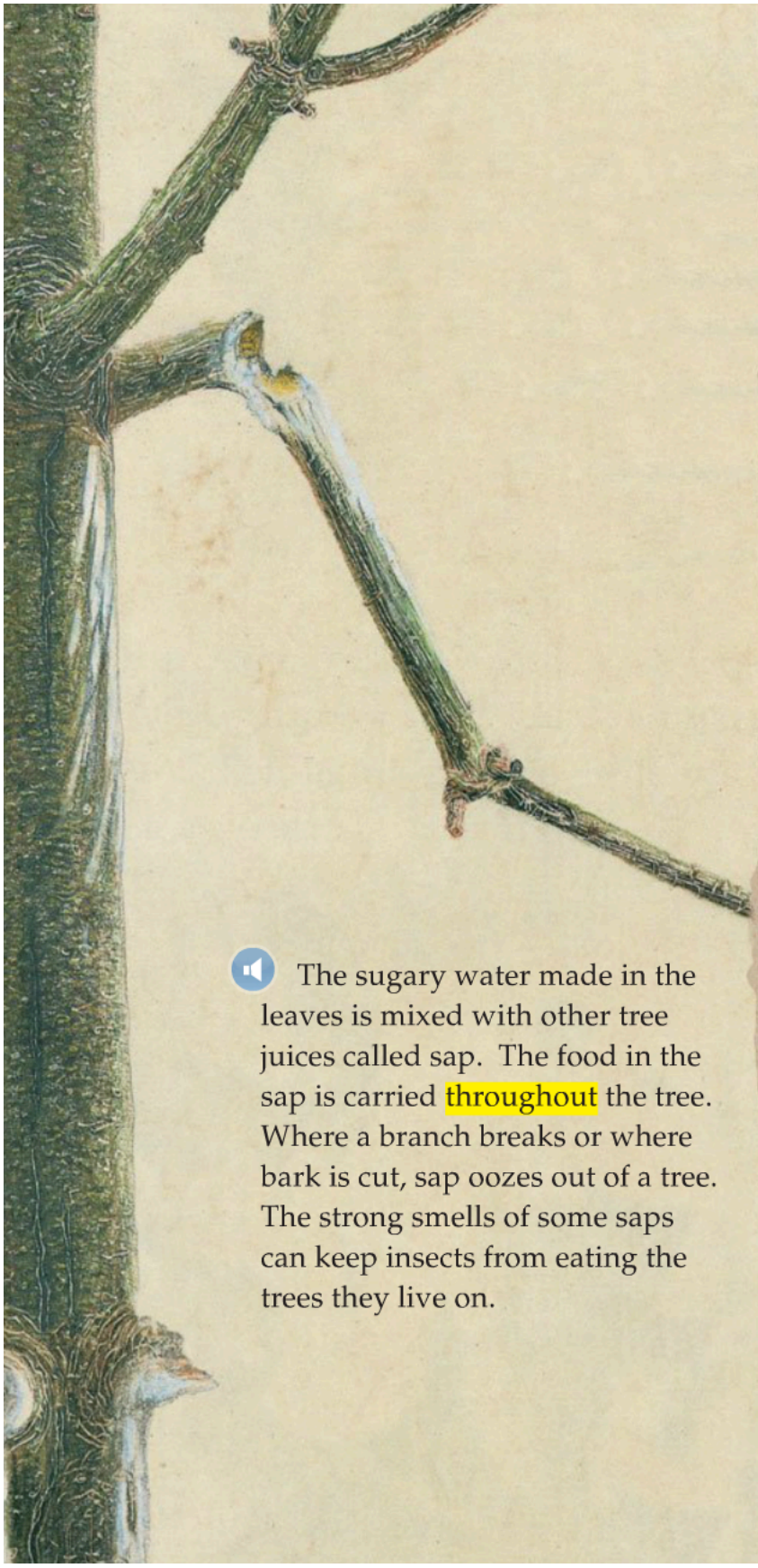
A giant tree may look as if it has always been big. But even the biggest tree keeps growing and changing.

In the spring you can see that a tree is growing as you watch buds on the branches unfold into leaves.



Bristlecone pines are the oldest known living trees on earth. Some have been growing for five thousand years—since before the pyramids in Egypt were built.


White oak
Palm
Gingko
Leaves can be skinny needles or big heart shapes. Whatever shape or size a leaf is, it makes food for the tree.
A kind of sugar is made in the leaves. Trees use the sugar as food.
Breadfruit tree
Empress tree
White pine
Red maple



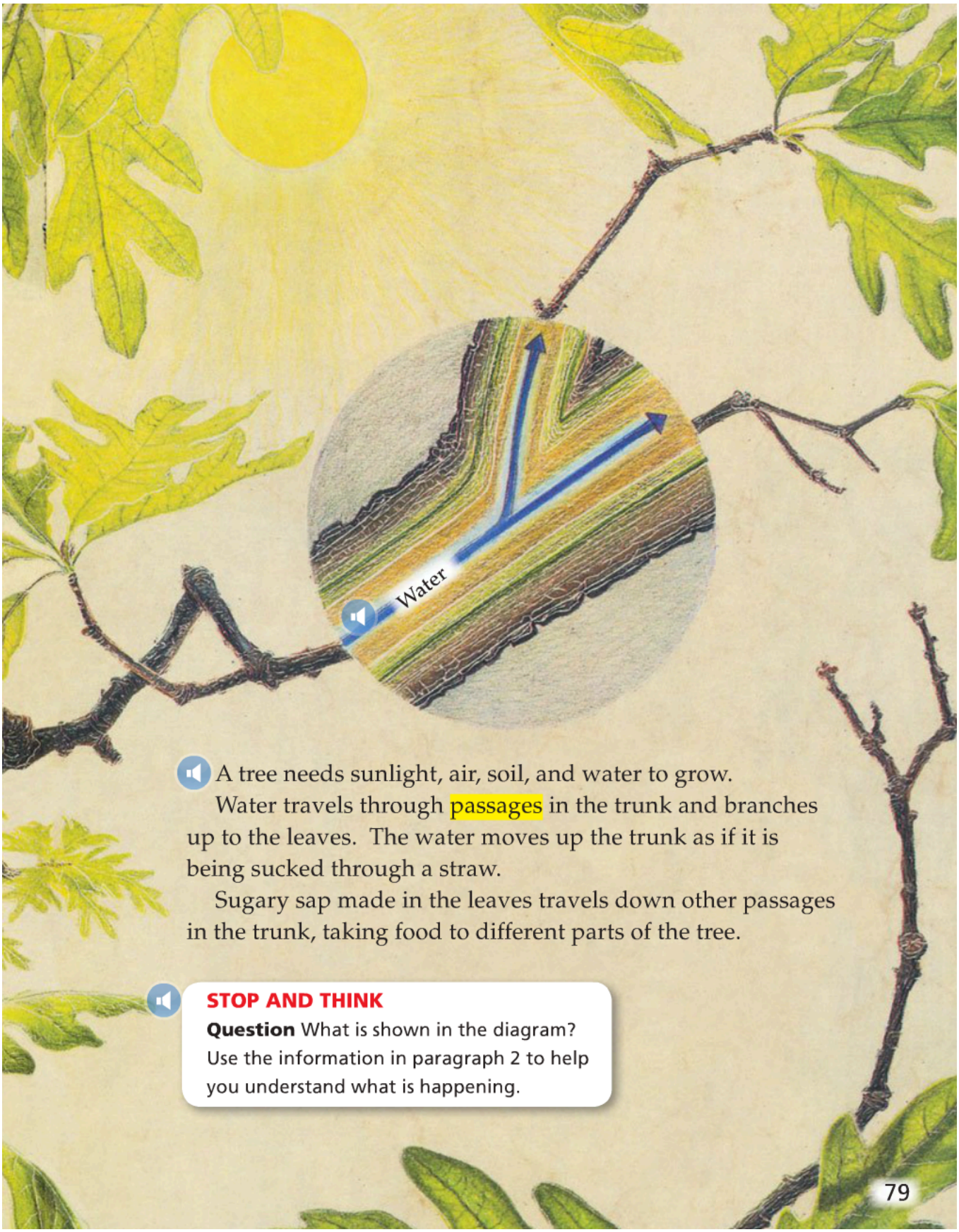
If you rub a sassafras leaf, the sap smells spicy.

Maple syrup is the boiled sap of sugar maple trees.

The sugary water made in the leaves is mixed with other tree juices called sap. The food in the sap is carried throughout the tree. Where a branch breaks or where bark is cut, sap oozes out of a tree. The strong smells of some saps can keep insects from eating the trees they live on.

Baobab trees store water in the trunks. When a baobab tree trunk is swollen with water, it is round and fat. In dry weather, the tree gets water from the trunk. Then the trunk gets thinner.

Moth caterpillar



A tree needs sunlight, air, soil, and water to grow.

Water travels through passages in the trunk and branches up to the leaves. The water moves up the trunk as if it is being sucked through a straw.

Sugary sap made in the leaves travels down other passages in the trunk, taking food to different parts of the tree.

STOP AND THINK

Question What is shown in the diagram? Use the information in paragraph 2 to help you understand what is happening.

A few kinds of trees drop roots from branches into the soil to gather water. Banyan tree roots grow into columns all around the tree.

Growing roots are strong. A root can lift a sidewalk or split a rock as it grows. By splitting the rock, it helps make soil.

White oak

Earthworms

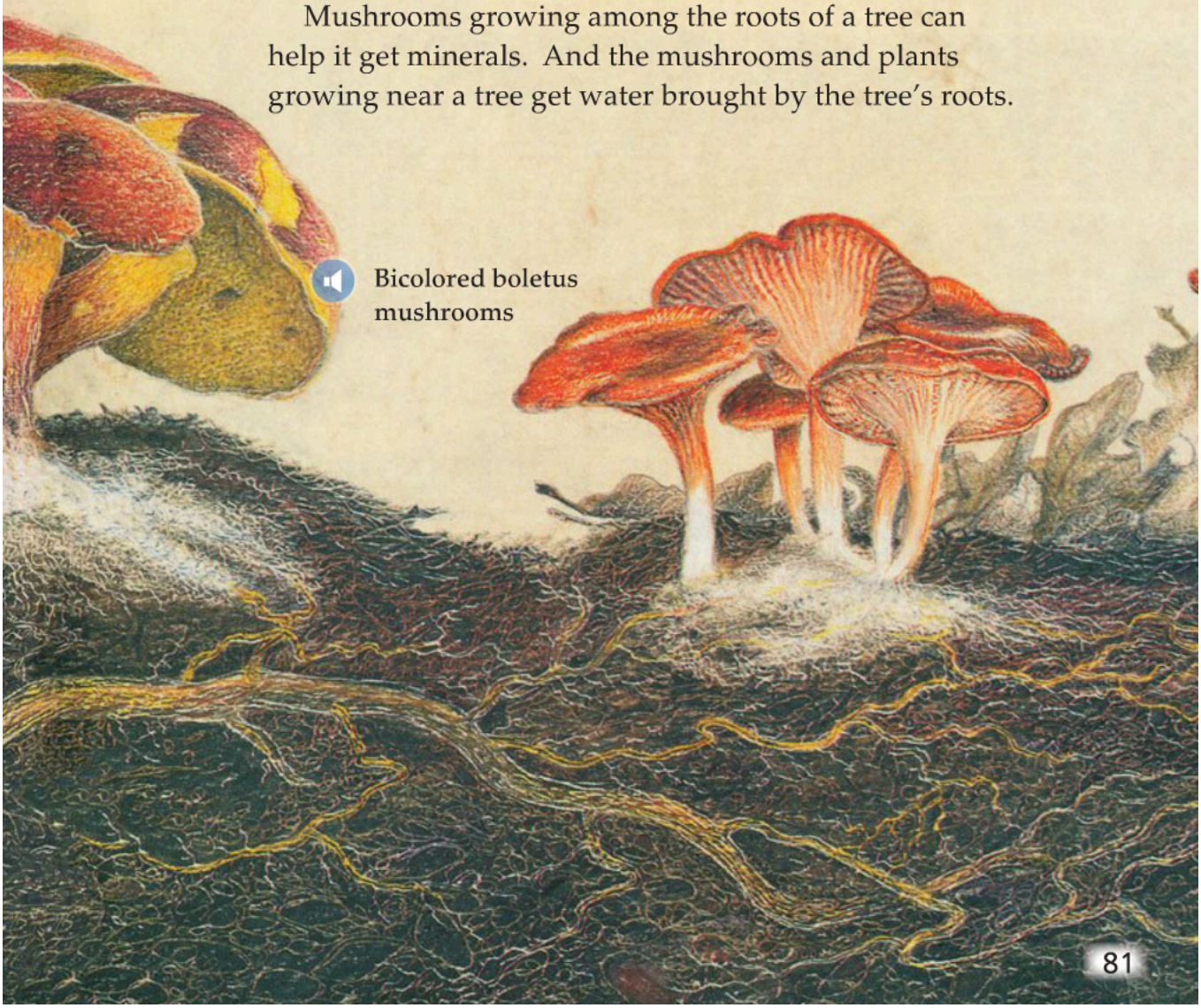
Beetle grub

The roots of a tree grow into the ground and hold the tree in place. Roots are like pipelines. They absorb water and carry it into the tree.

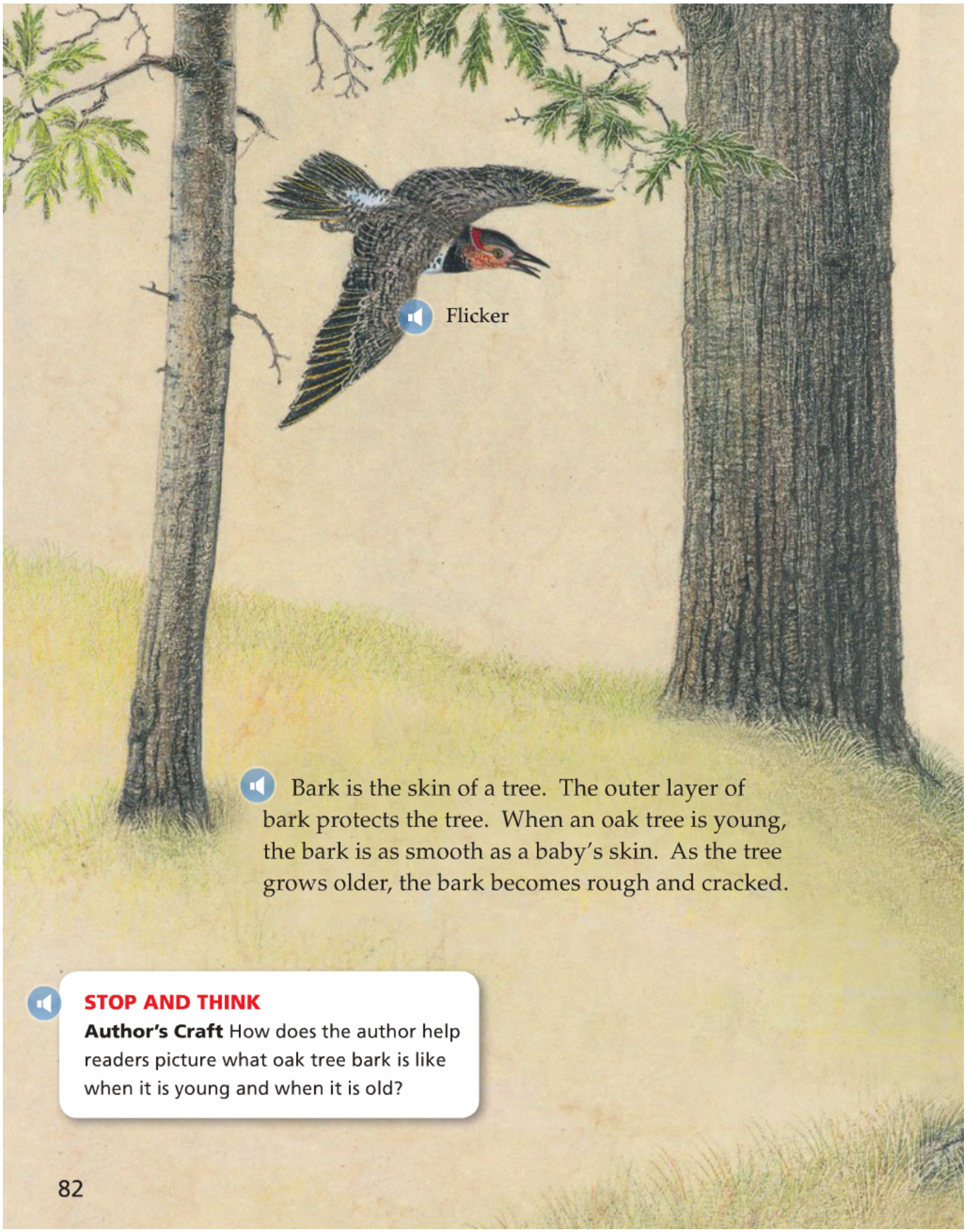
A tree's roots spread out far underground. They usually grow out a little farther than the tree's branches.

Trees need minerals to grow. Minerals are tiny particles that are found in the soil. Salt is one kind of mineral. Like salt, other minerals dissolve in water. They are mixed in with the water that roots absorb and are carried throughout the tree.

Mushrooms growing among the roots of a tree can help it get minerals. And the mushrooms and plants growing near a tree get water brought by the tree's roots.



Bicolored boletus mushrooms



Flicker

Bark is the skin of a tree. The outer layer of bark protects the tree. When an oak tree is young, the bark is as smooth as a baby's skin. As the tree grows older, the bark becomes rough and cracked.

STOP AND THINK

Author's Craft How does the author help readers picture what oak tree bark is like when it is young and when it is old?

Polyphemus moth

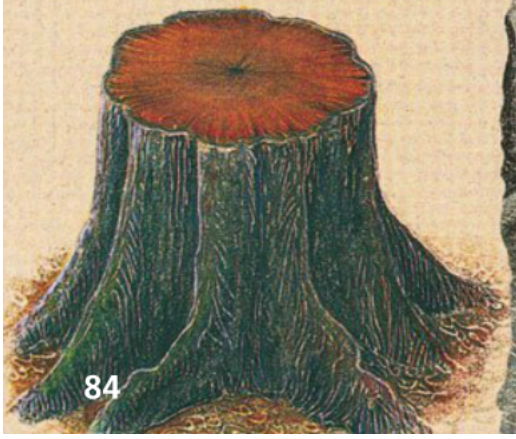
Looking at the bark of a tree can help you know what kind of tree it is.

The cork used for bulletin boards is the peeled-off outer bark of a cork oak tree.

Honey locust bark has spines to help protect the tree.

In cool climates, cambium only grows in spring and summer. Count growth rings to see how old a tree was when it died. An old fir tree can have over a thousand rings, one for each year it lived.

In tropical rain forest trees, the cambium grows all year and there are no rings. It is hard to tell the ages of those trees.



Growth rings

Snail

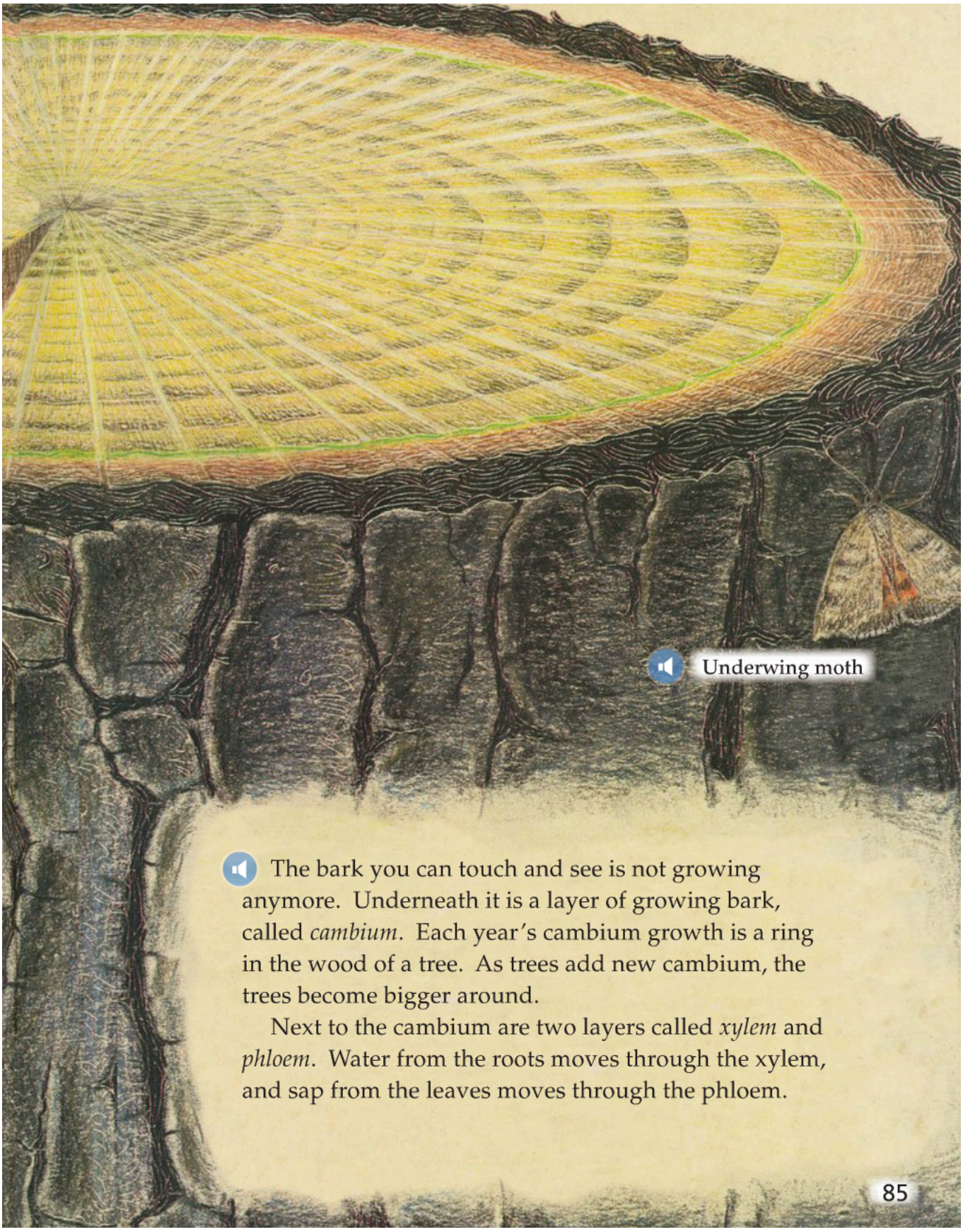
Phloem

Cambium

Xylem

STOP AND THINK

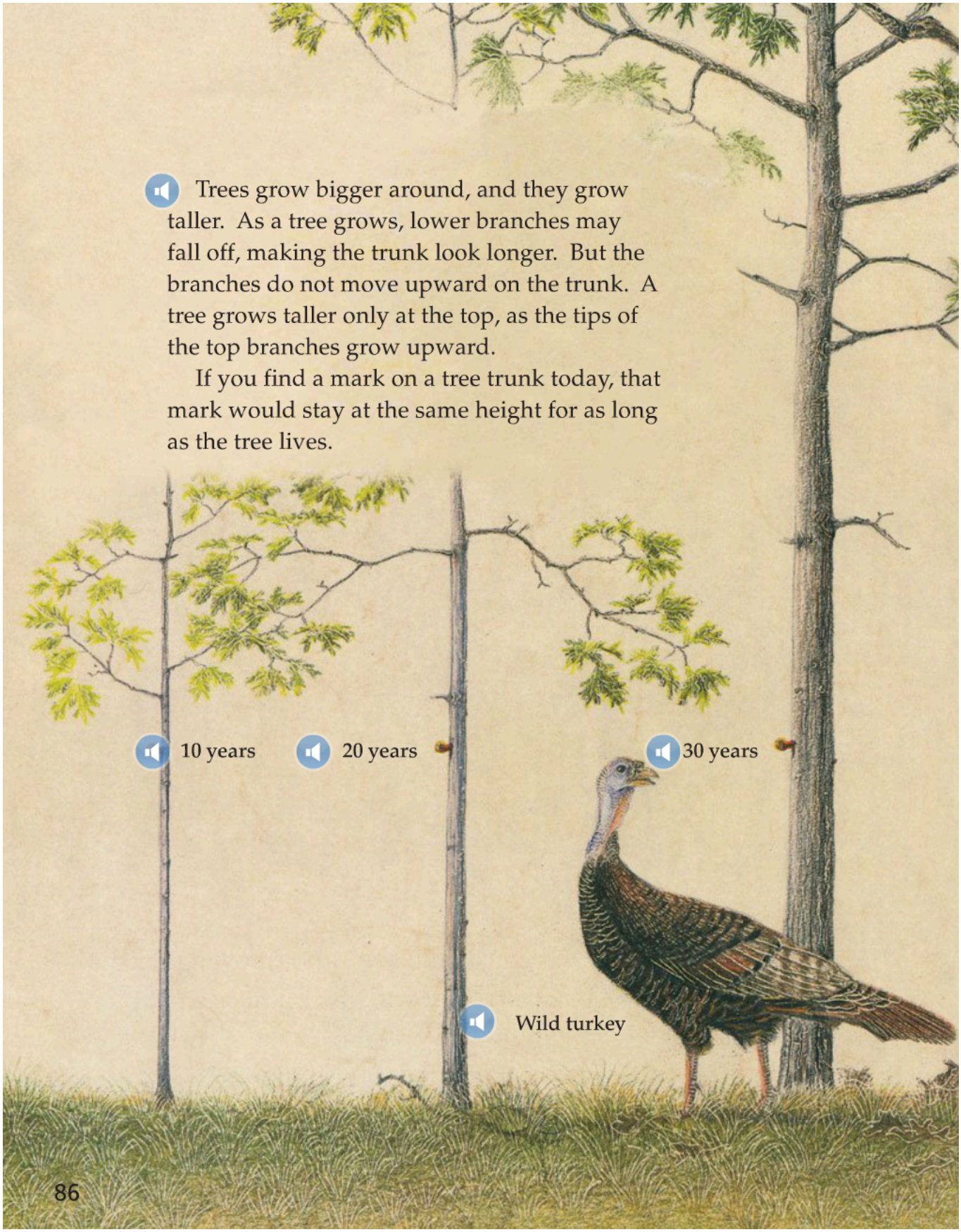
Text and Graphic Features How do the captions, labels, and diagrams help you understand the selection?



Underwing moth

The bark you can touch and see is not growing anymore. Underneath it is a layer of growing bark, called *cambium*. Each year's cambium growth is a ring in the wood of a tree. As trees add new cambium, the trees become bigger around.

Next to the cambium are two layers called *xylem* and *phloem*. Water from the roots moves through the xylem, and sap from the leaves moves through the phloem.



Trees grow bigger around, and they grow taller. As a tree grows, lower branches may fall off, making the trunk look longer. But the branches do not move upward on the trunk. A tree grows taller only at the top, as the tips of the top branches grow upward.

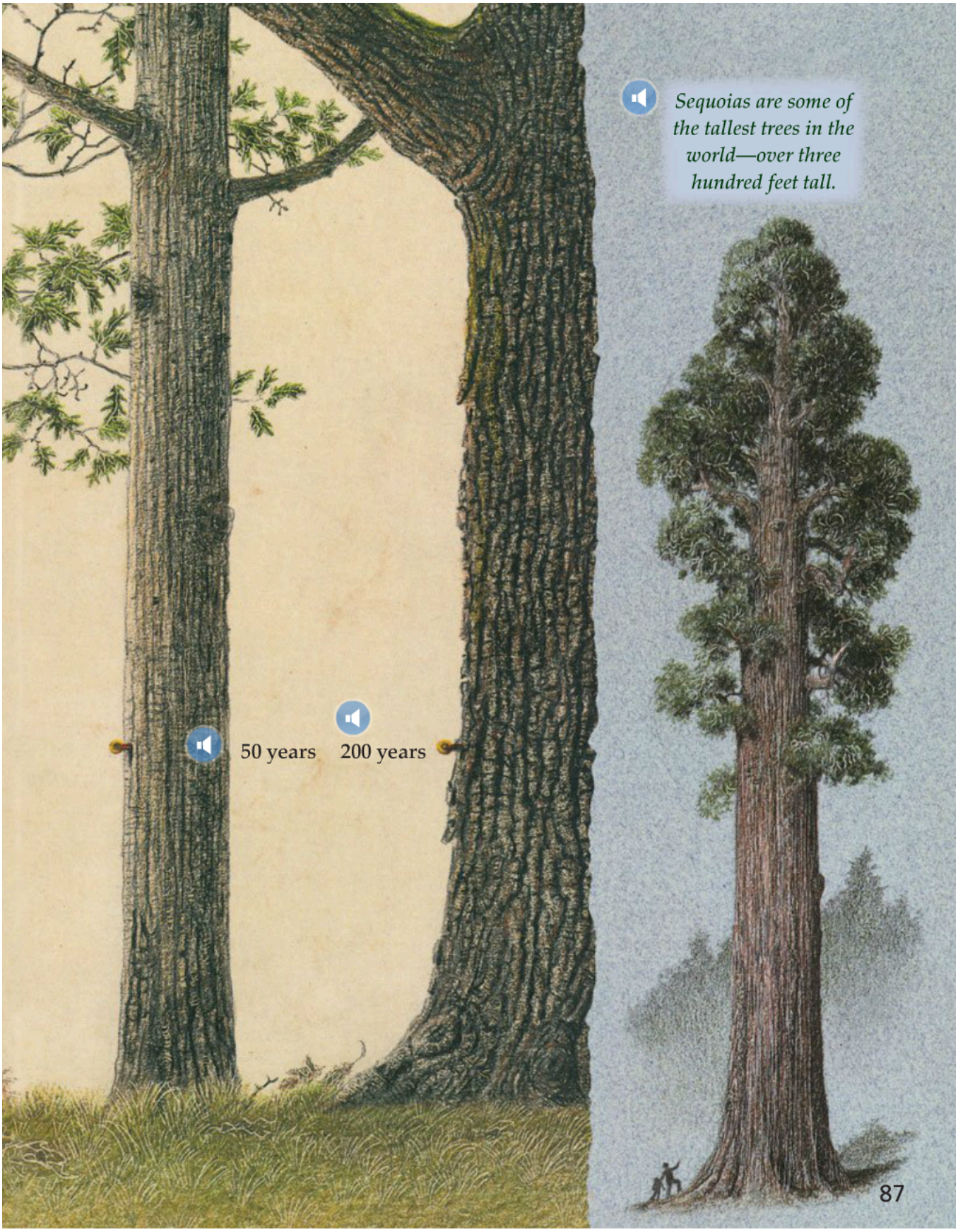
If you find a mark on a tree trunk today, that mark would stay at the same height for as long as the tree lives.

10 years

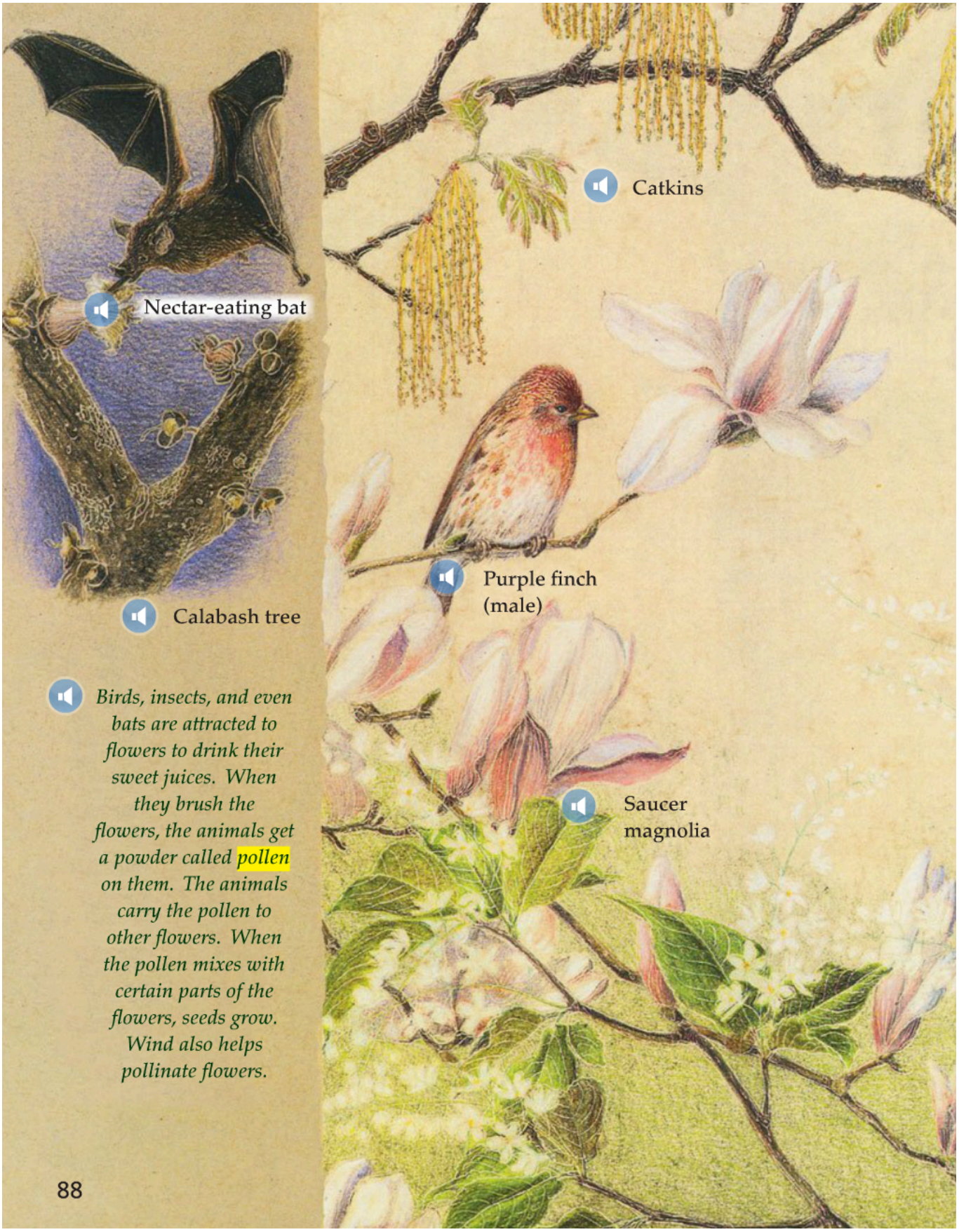
20 years

30 years

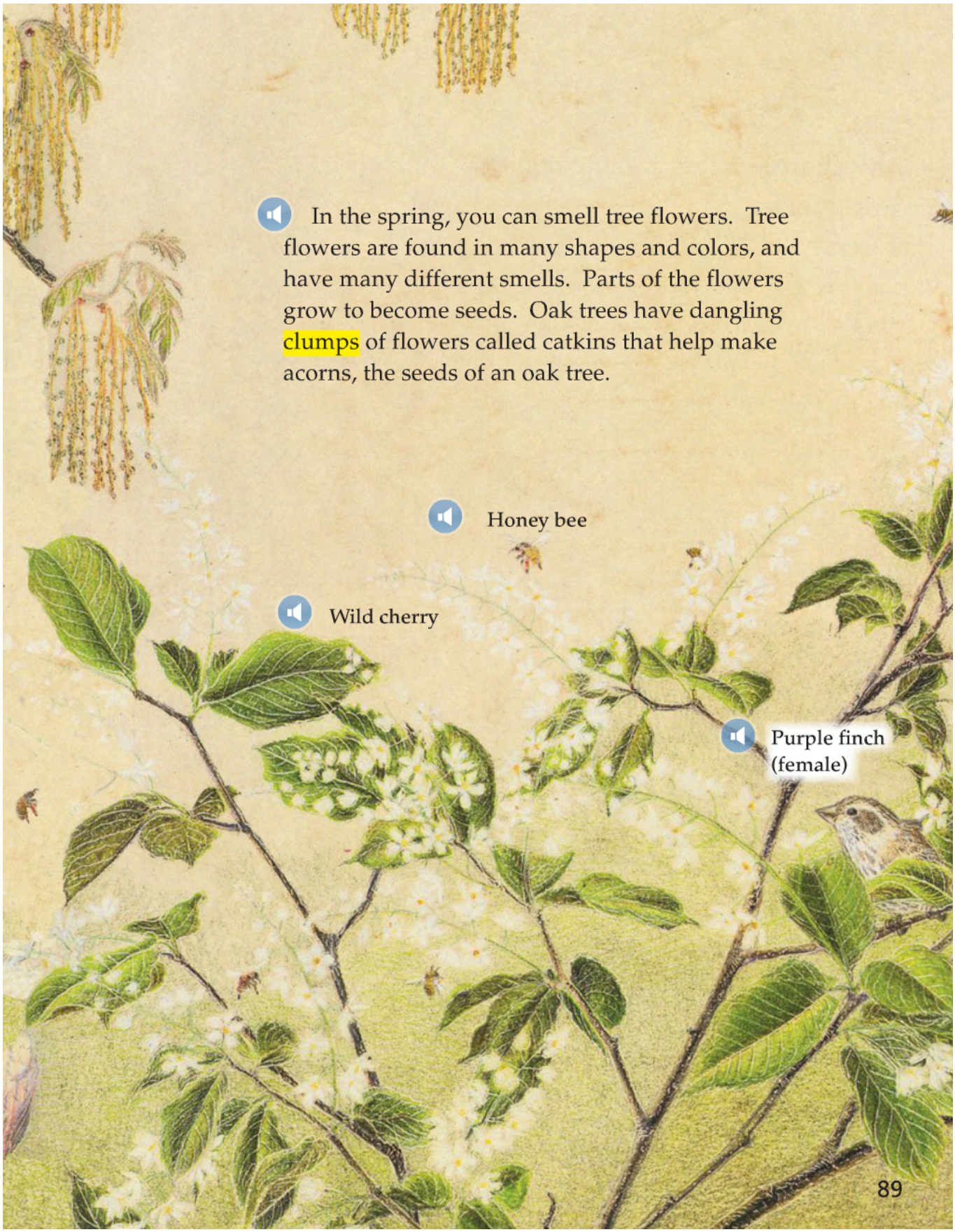
Wild turkey



Sequoias are some of the tallest trees in the world—over three hundred feet tall.



Birds, insects, and even bats are attracted to flowers to drink their sweet juices. When they brush the flowers, the animals get a powder called pollen on them. The animals carry the pollen to other flowers. When the pollen mixes with certain parts of the flowers, seeds grow. Wind also helps pollinate flowers.

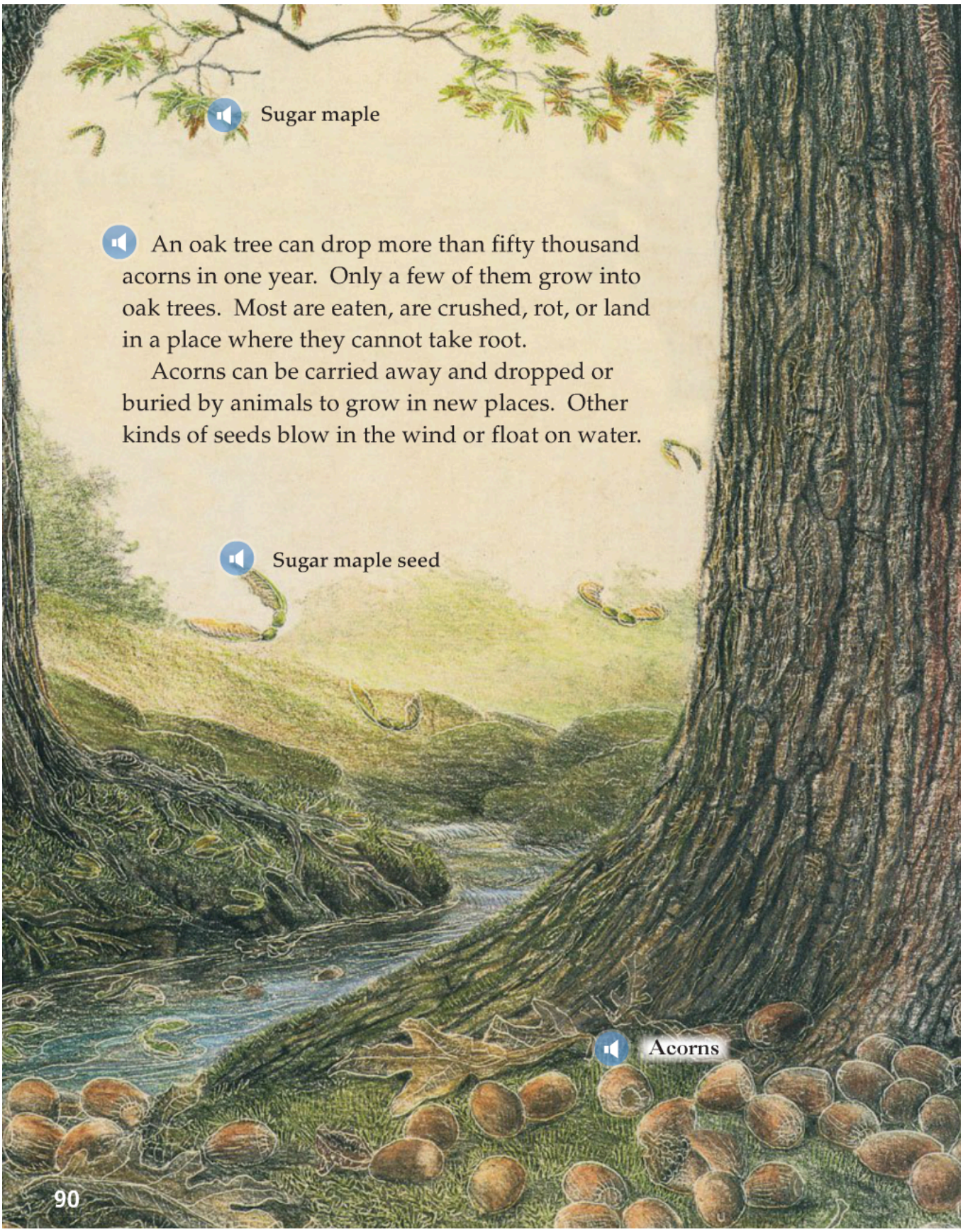


In the spring, you can smell tree flowers. Tree flowers are found in many shapes and colors, and have many different smells. Parts of the flowers grow to become seeds. Oak trees have dangling clumps of flowers called catkins that help make acorns, the seeds of an oak tree.

Honey bee

Wild cherry

Purple finch (female)

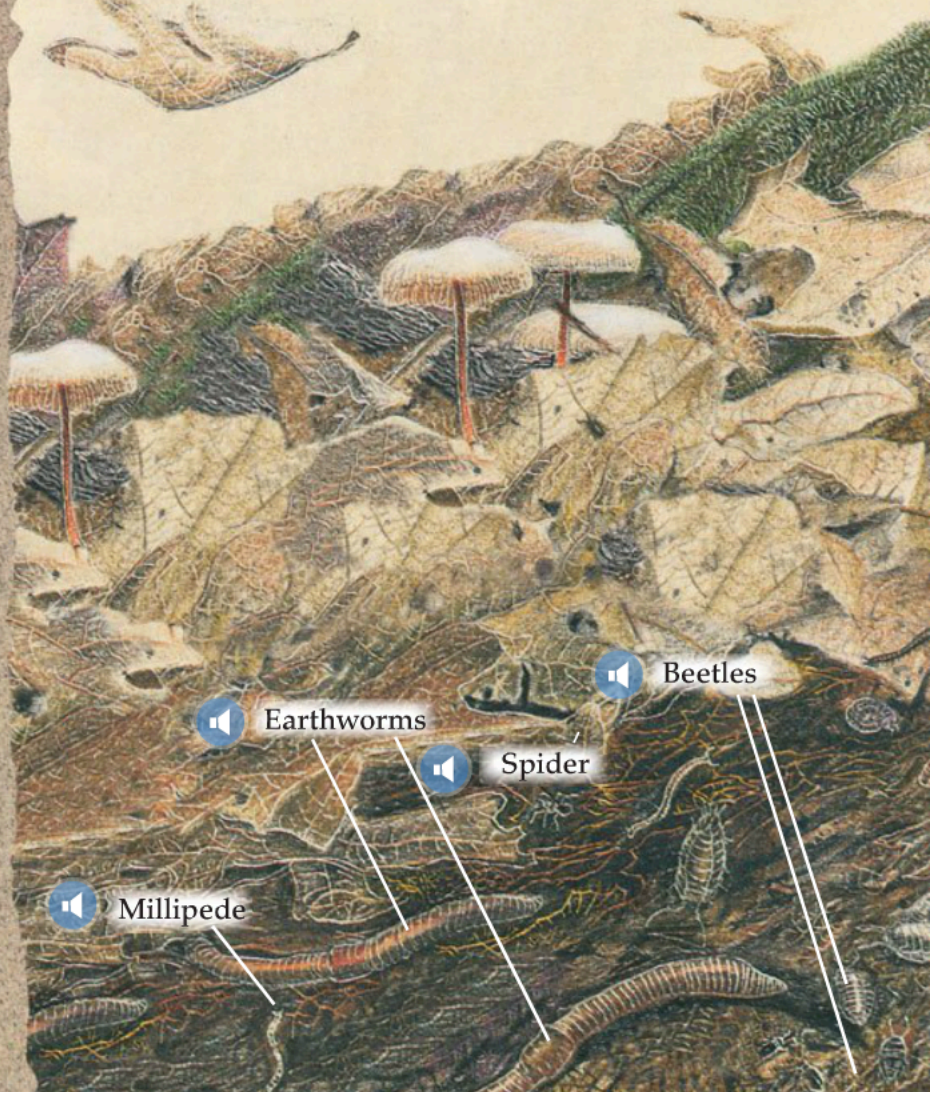

Sugar maple
An oak tree can drop more than fifty thousand acorns in one year. Only a few of them grow into oak trees. Most are eaten, are crushed, rot, or land in a place where they cannot take root.
Acorns can be carried away and dropped or buried by animals to grow in new places. Other kinds of seeds blow in the wind or float on water.
Sugar maple seed
Acorns

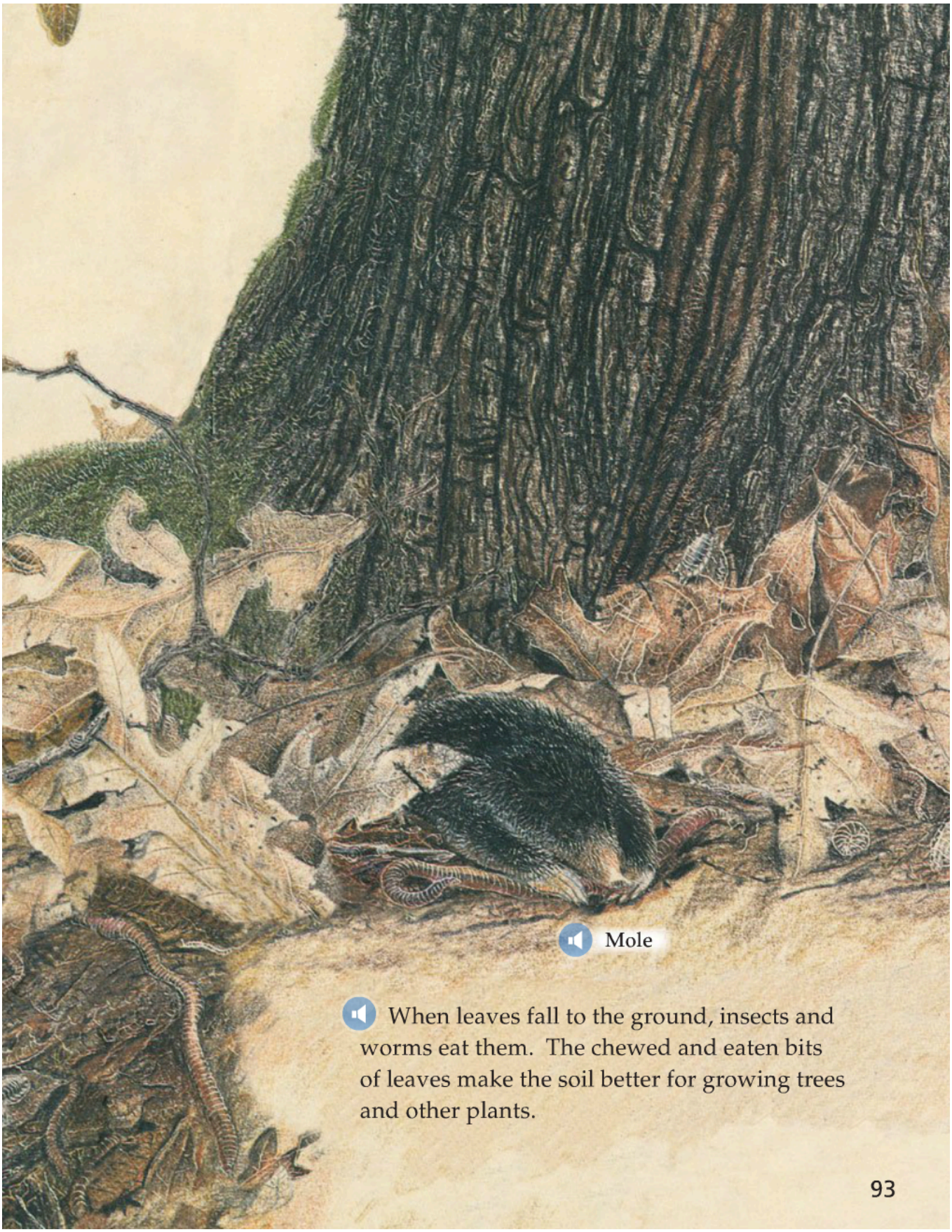

Gray squirrel
Different kinds of trees make seeds with different coverings. Nuts, cones, and fruits all have seeds inside.
Mountain pine cone
Brazil nut
Cherry
Coconuts are seeds of a palm tree. A coconut can float across the ocean and sprout on a sandy beach.

Autumn is a great time to collect leaves. Each tree has its own special color.

In cool climates, trees stop growing in autumn. The leaves of many trees stop making sugary food for the tree, and they lose their green color. Then you can see the red, brown, yellow, and orange colors that are also in the leaves.

Pine trees and some other trees have needles or leaves that do not change color in autumn.





Mole

When leaves fall to the ground, insects and worms eat them. The chewed and eaten bits of leaves make the soil better for growing trees and other plants.

Trees rest in the cold of winter, and their branches are bare. They may look as if they are dead. But look closely and you can see small buds that will become leaves and flowers in the spring.

In the spring, listen to the wind rustling the leaves. The trees are growing again.

White oak

White oak

Horse chestnut

Connect to

Poetry

Poems About *Nature*

The poems you will read next are about nature. What is the mood, or feeling, of each poem? Which words or rhythms help create this mood?

TARGET VOCABULARY

pollen	throughout
store	coverings
clumps	spines
passages	tropical
absorb	dissolve

GENRE

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

TEXT FOCUS

Personification gives human traits to objects, animals, and plants. Discuss which human characteristics are given to the sea and the mountains in these two poems. Say which words make them look, feel, and sound like people.

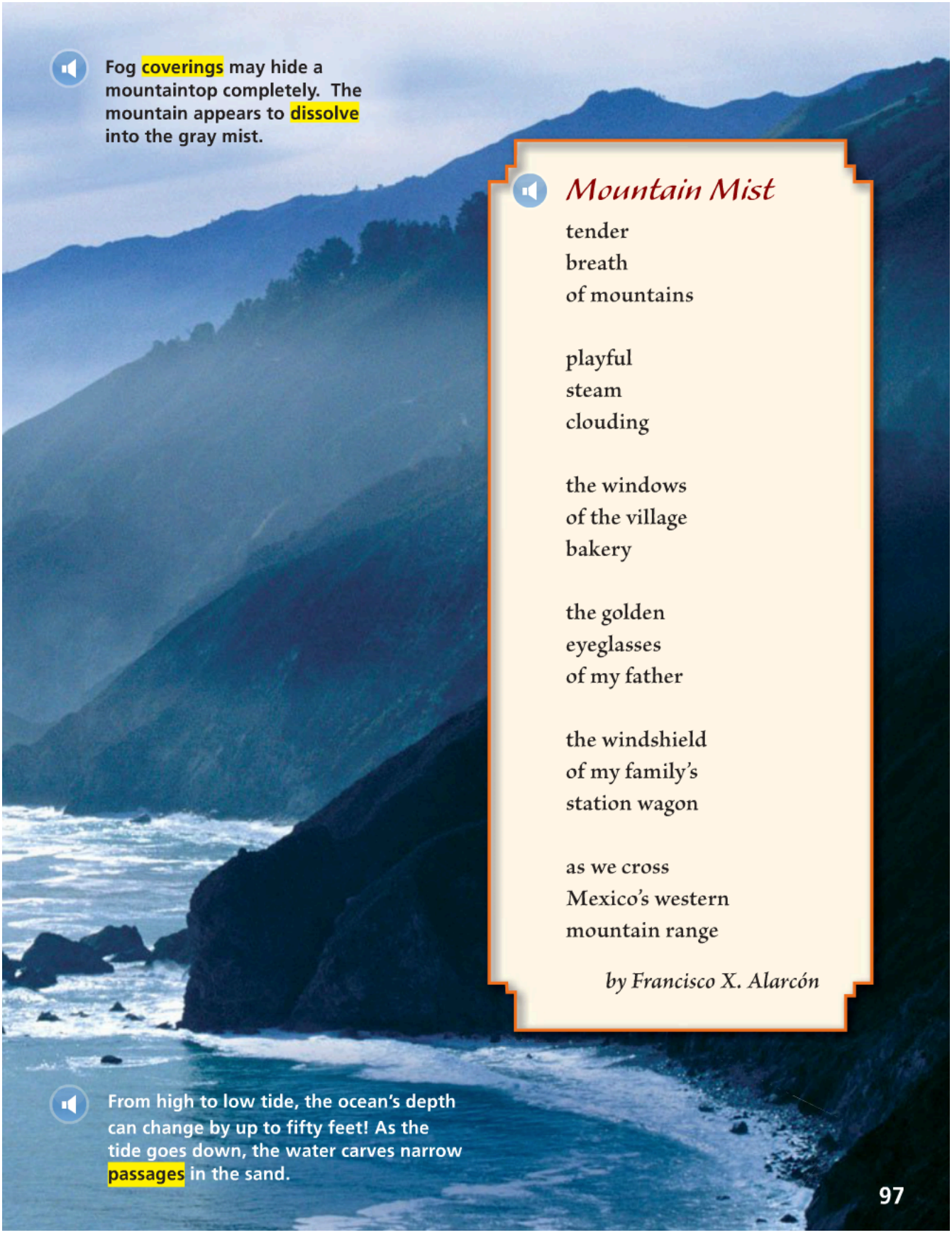
Until I Saw the Sea

Until I saw the sea
I did not know
that wind
could wrinkle water so.

I never knew
that sun
could splinter a whole sea of blue.

Nor
did I know before,
a sea breathes in and out
upon a shore.

by Lilian Moore



Fog coverings may hide a mountaintop completely. The mountain appears to dissolve into the gray mist.

Mountain Mist

tender
breath
of mountains

playful
steam
clouding

the windows
of the village
bakery

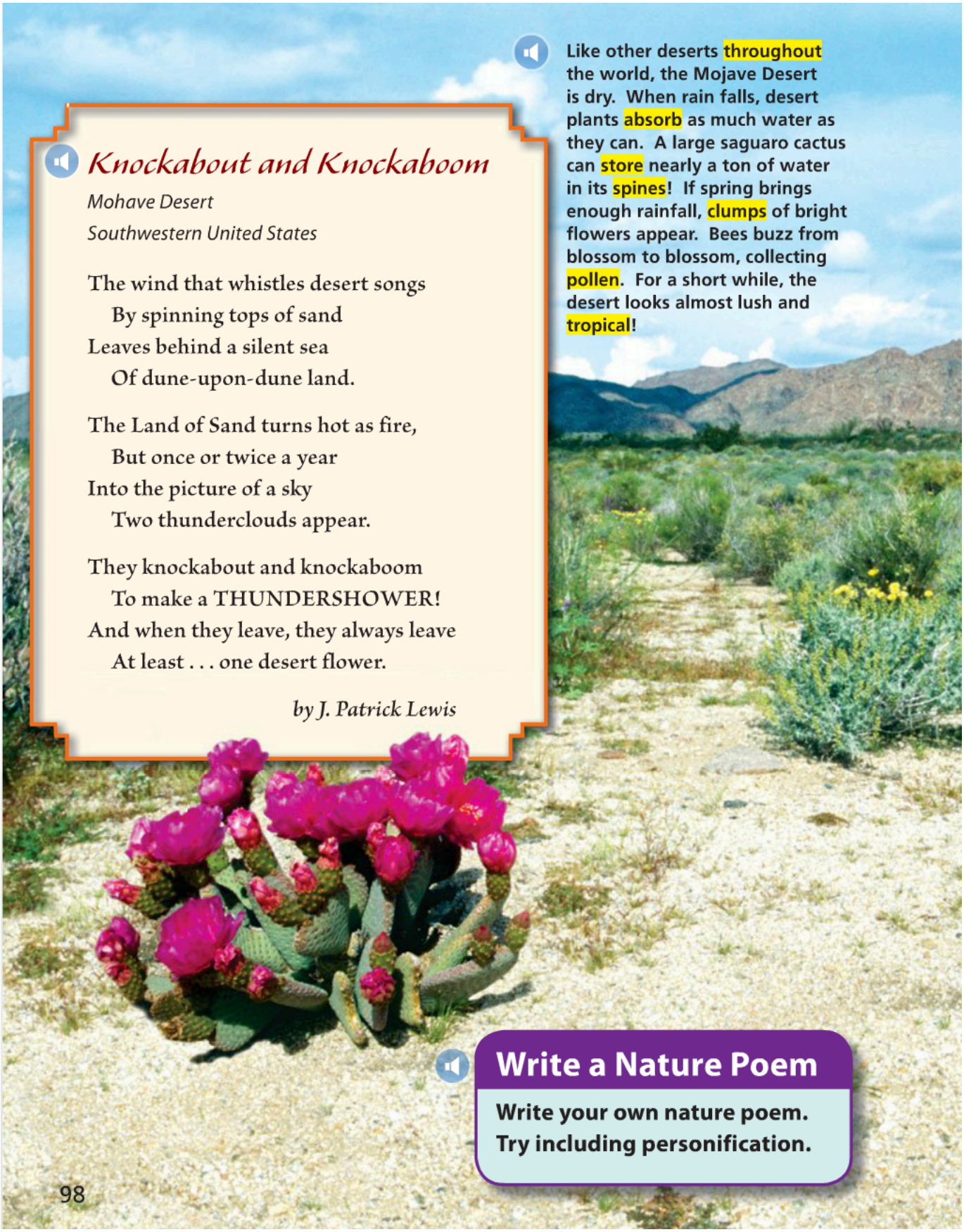
the golden
eyeglasses
of my father

the windshield
of my family's
station wagon

as we cross
Mexico's western
mountain range

by Francisco X. Alarcón

From high to low tide, the ocean's depth can change by up to fifty feet! As the tide goes down, the water carves narrow passages in the sand.



Knockabout and Knockaboom

Mohave Desert
Southwestern United States

The wind that whistles desert songs
  By spinning tops of sand
Leaves behind a silent sea
  Of dune-upon-dune land.

The Land of Sand turns hot as fire,
  But once or twice a year
Into the picture of a sky
  Two thunderclouds appear.

They knockabout and knockaboom
  To make a THUNDERSHOWER!
And when they leave, they always leave
  At least . . . one desert flower.

by J. Patrick Lewis

Like other deserts throughout the world, the Mojave Desert is dry. When rain falls, desert plants absorb as much water as they can. A large saguaro cactus can store nearly a ton of water in its spines! If spring brings enough rainfall, clumps of bright flowers appear. Bees buzz from blossom to blossom, collecting pollen. For a short while, the desert looks almost lush and tropical!

Write a Nature Poem

Write your own nature poem. Try including personification.