

**Genre Study**

**Expository nonfiction** explains information and ideas. Look for

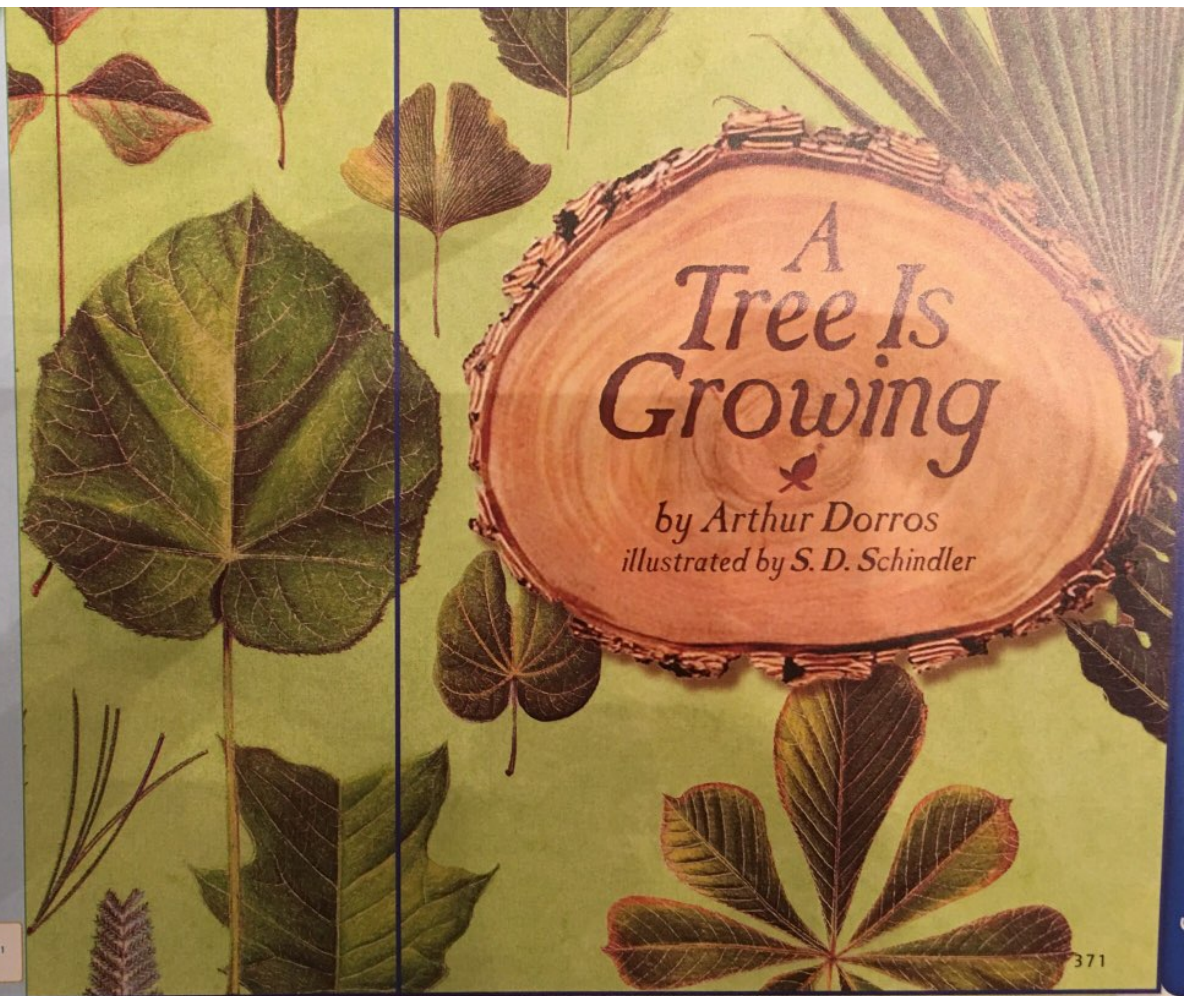
- illustrations and captions.
- facts and details to help you learn about a topic.

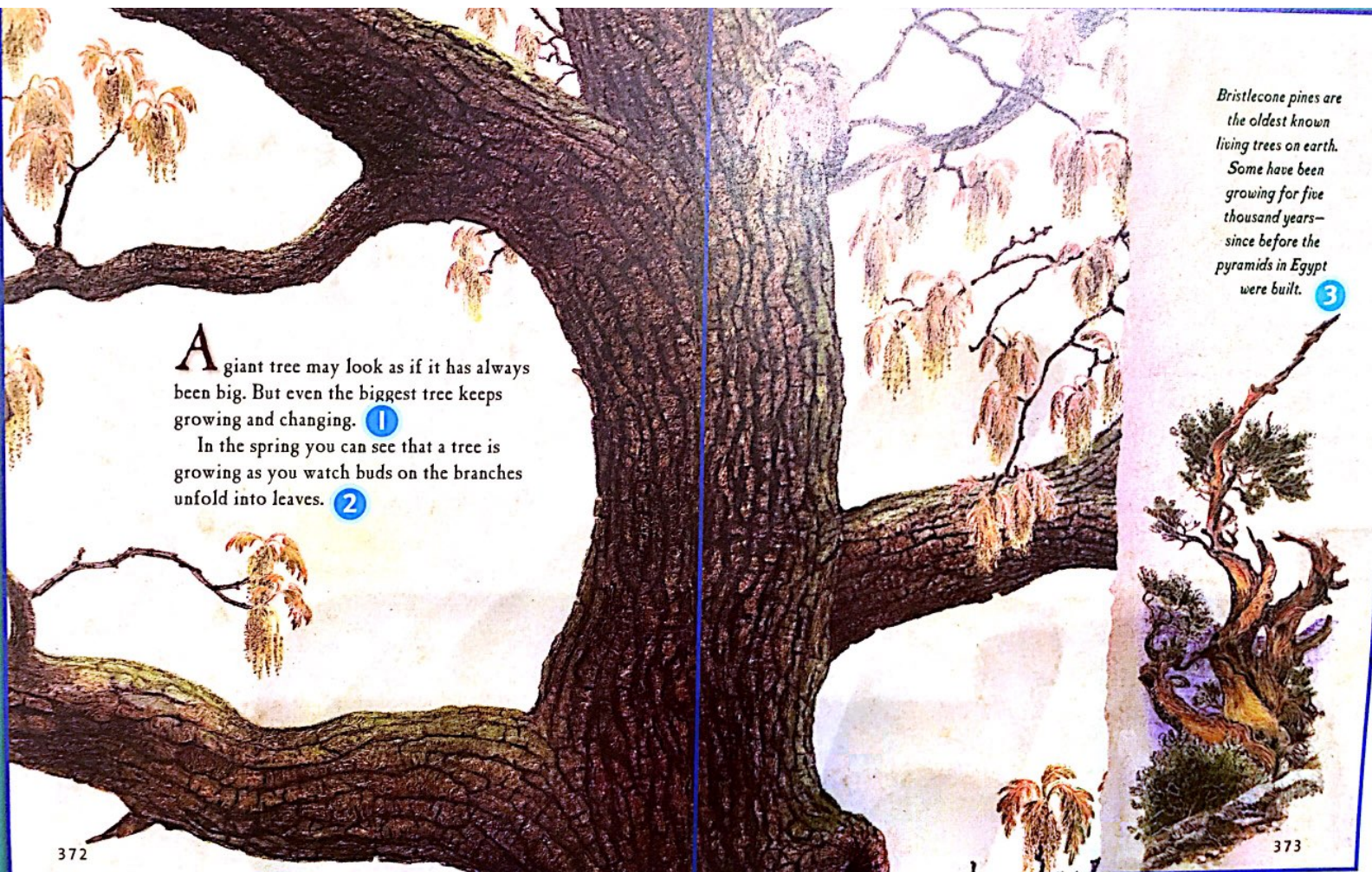
What I Know	What I Read	Author's Purpose

**Comprehension Strategy**

**Ask questions** to help you explore important ideas in the selection.

**CALIFORNIA STANDARDS**  
 ENGLISH-LANGUAGE ARTS STANDARDS—Reading 3.1  
 Distinguish common forms of literature (e.g., poetry, drama, fiction, nonfiction).

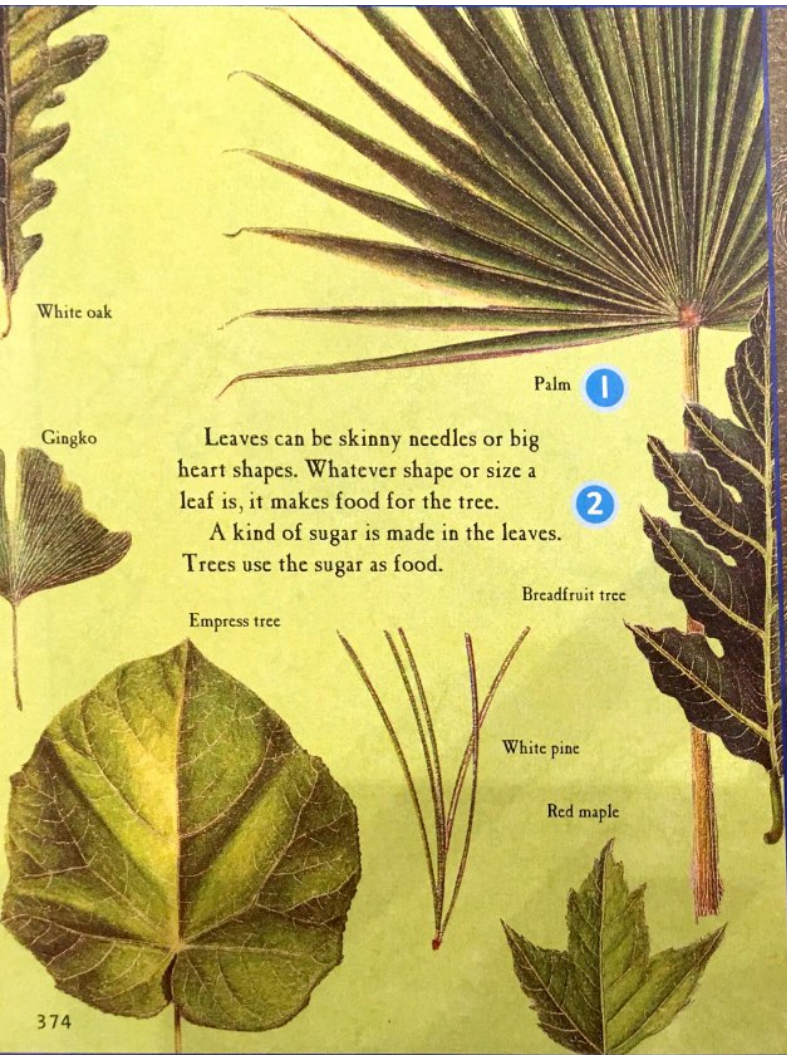




**A** giant tree may look as if it has always been big. But even the biggest tree keeps growing and changing. ❶

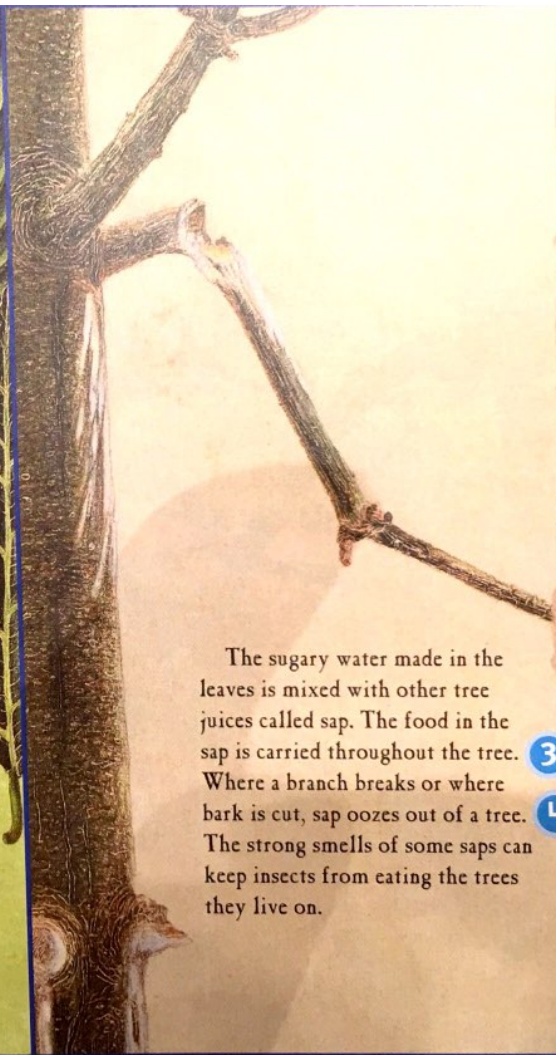
In the spring you can see that a tree is growing as you watch buds on the branches unfold into leaves. ❷

*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.* ❸



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.



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.





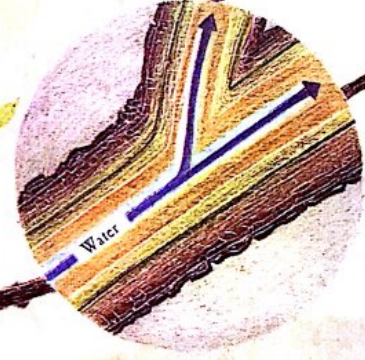
1



*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



2

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.

3

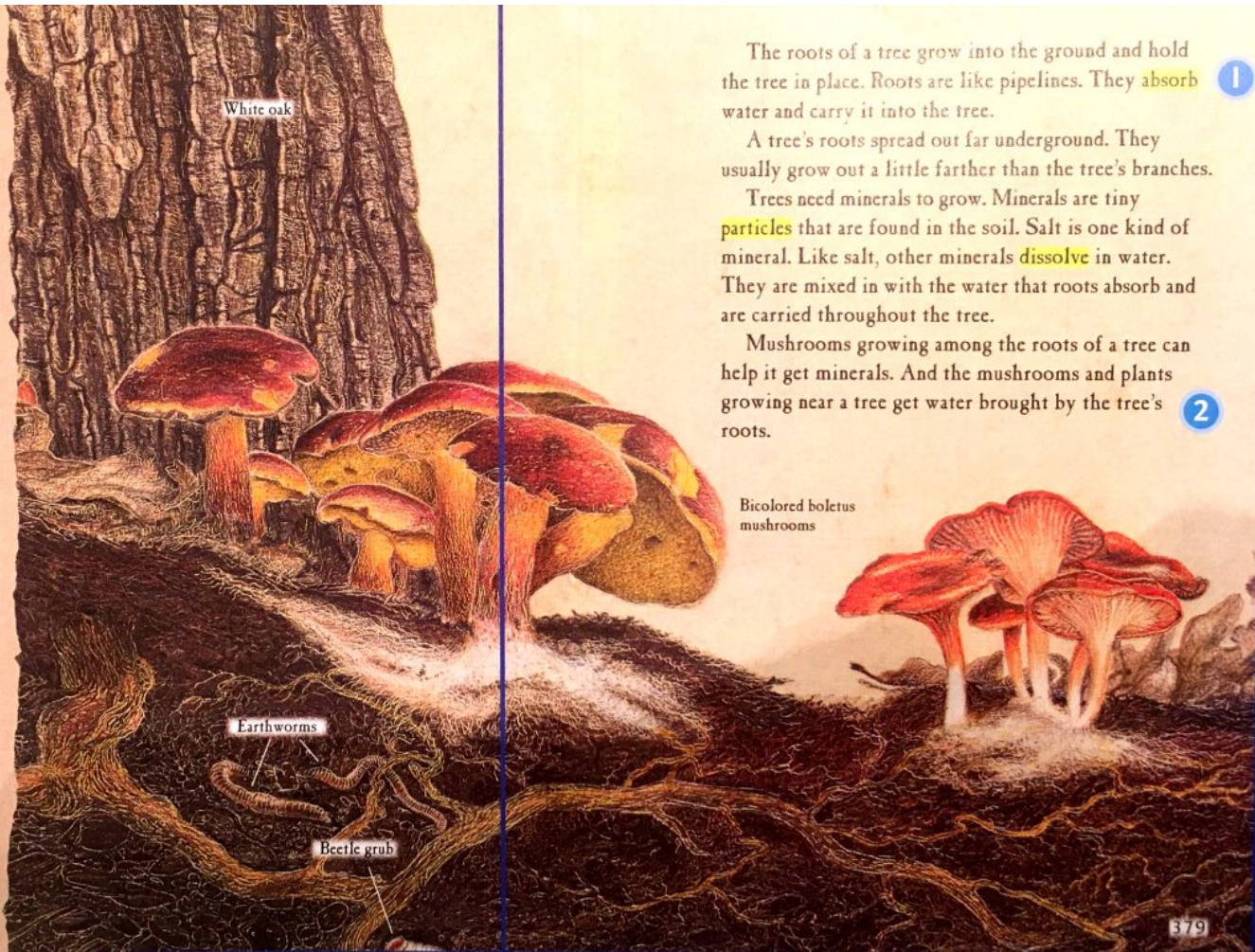
Sugary sap made in the leaves travels down other passages in the trunk, taking food to different parts of the tree.



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

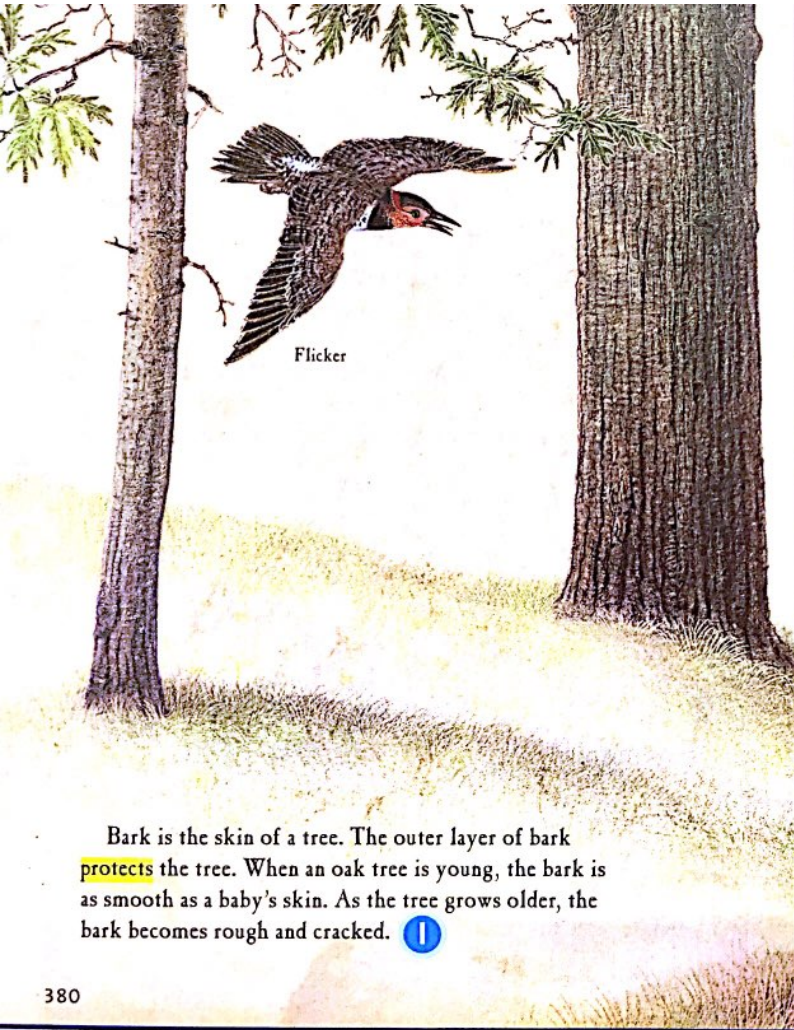
Bicolored boletus mushrooms

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. **1**

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. **2**



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. 1

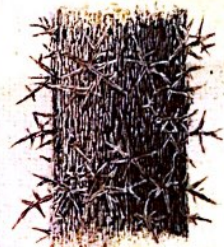


Polyphemus moth

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. 2



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.

1

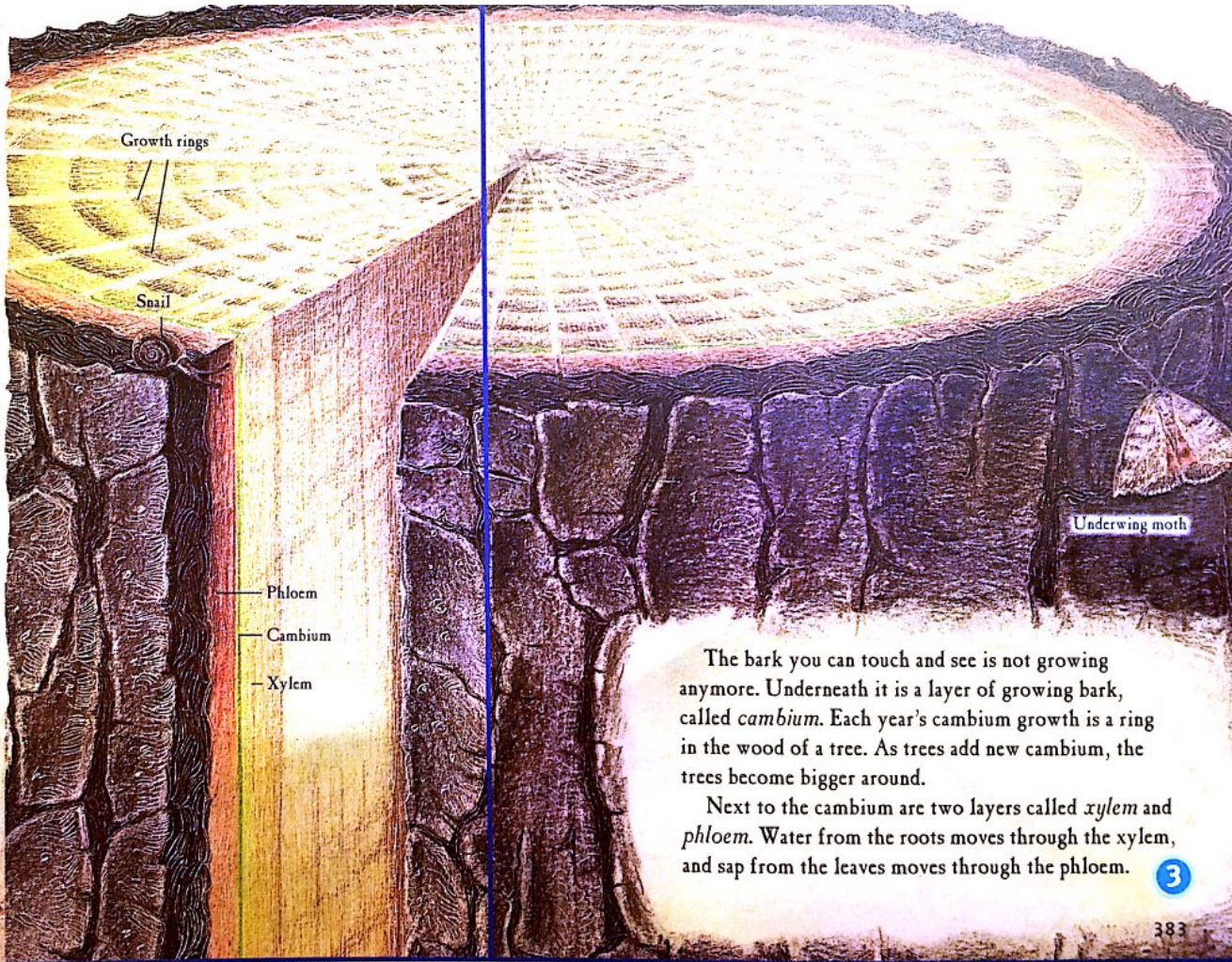


In tropical rain forest trees, the cambium grows all year and there are no rings. It is hard to tell the ages of those trees.

2



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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.

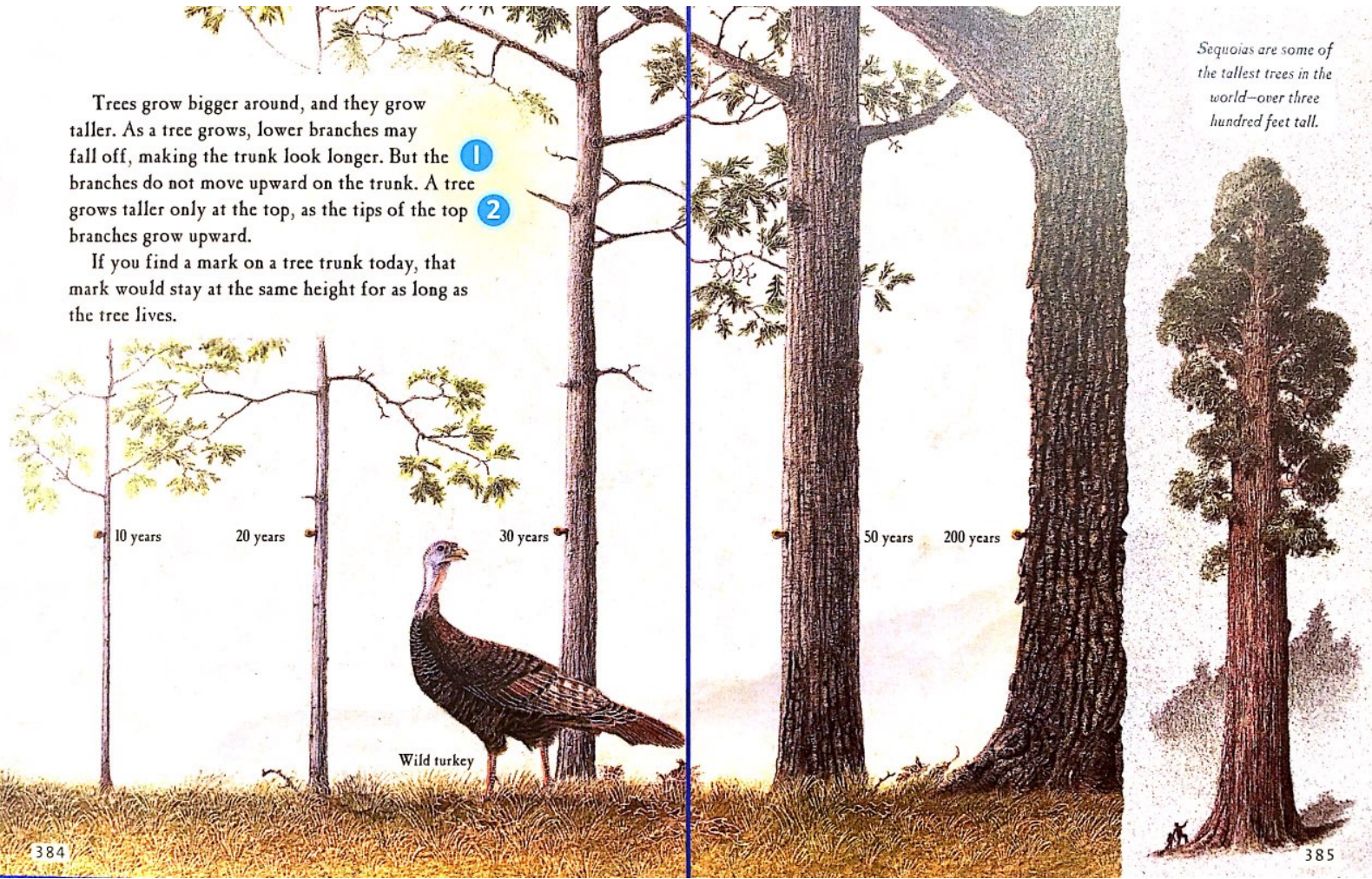
3

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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.

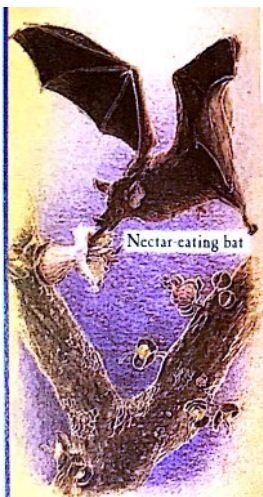
If you find a mark on a tree trunk today, that mark would stay at the same height for as long as the tree lives.

1  
2



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

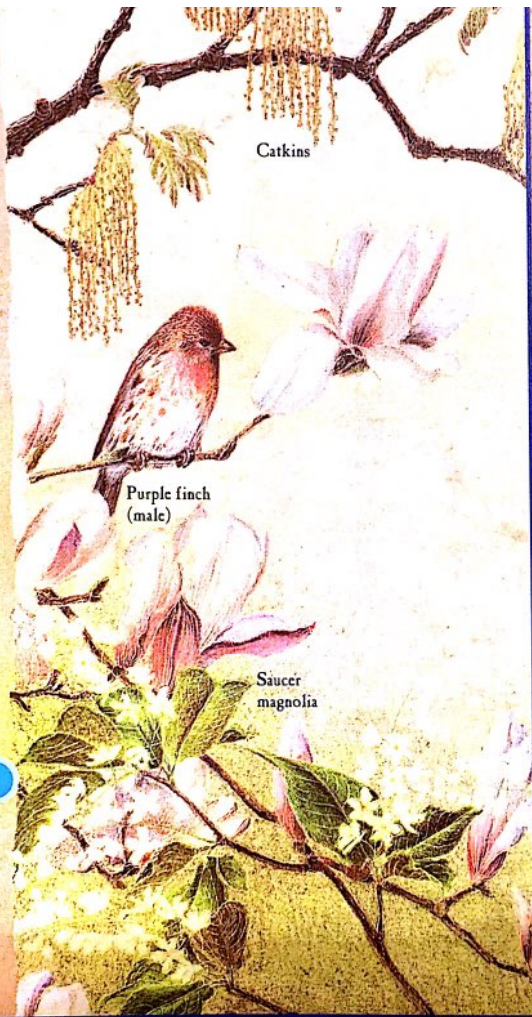




Nectar-eating bat

Calabash tree

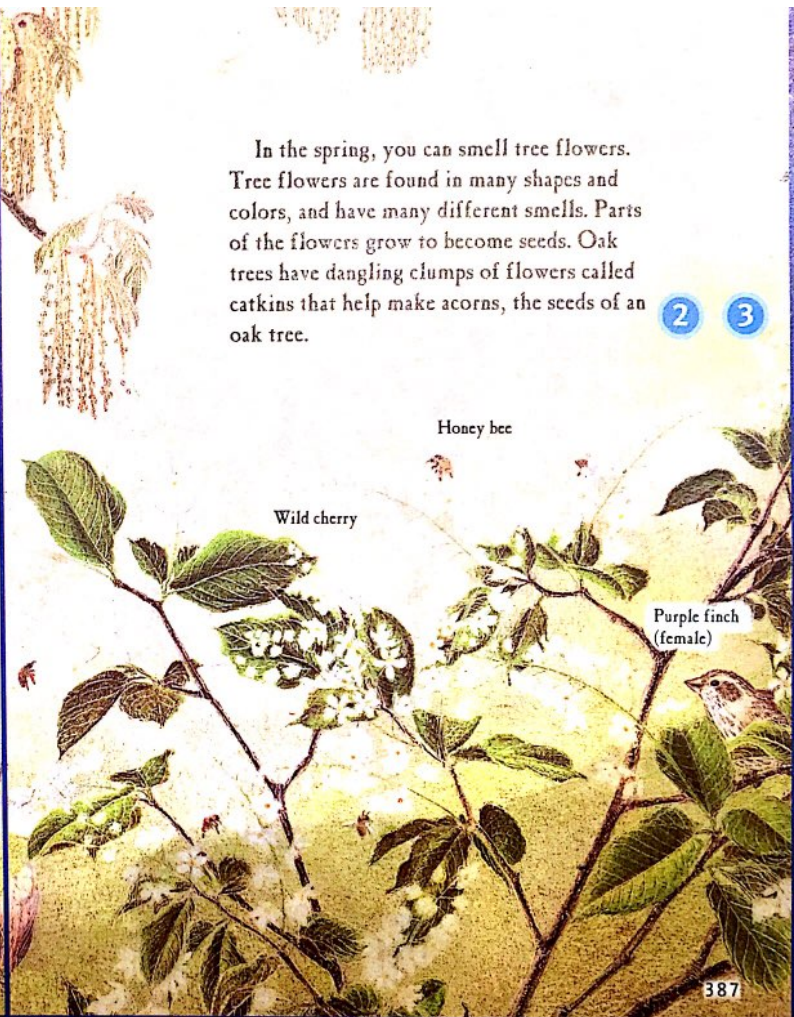
Birds, insects, and even bats are attracted to flowers to drink their sweet juices. When they brush the flowers, the animals get a powder called pollen on them. The animals carry the pollen to other flowers. **1** When the pollen mixes with certain parts of the flowers, seeds grow. Wind also helps pollinate flowers.



Catkins

Purple finch (male)

Saucer magnolia



Honey bee

Wild cherry

Purple finch (female)

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.

2

3

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. 1 2

Sugar maple seed

Acorns

Gray squirrel

3

Different kinds of trees make seeds with different coverings. Nuts, cones, and fruits all have seeds inside.



Coconuts are seeds of a palm tree. A coconut can float across the ocean and sprout on a sandy beach.

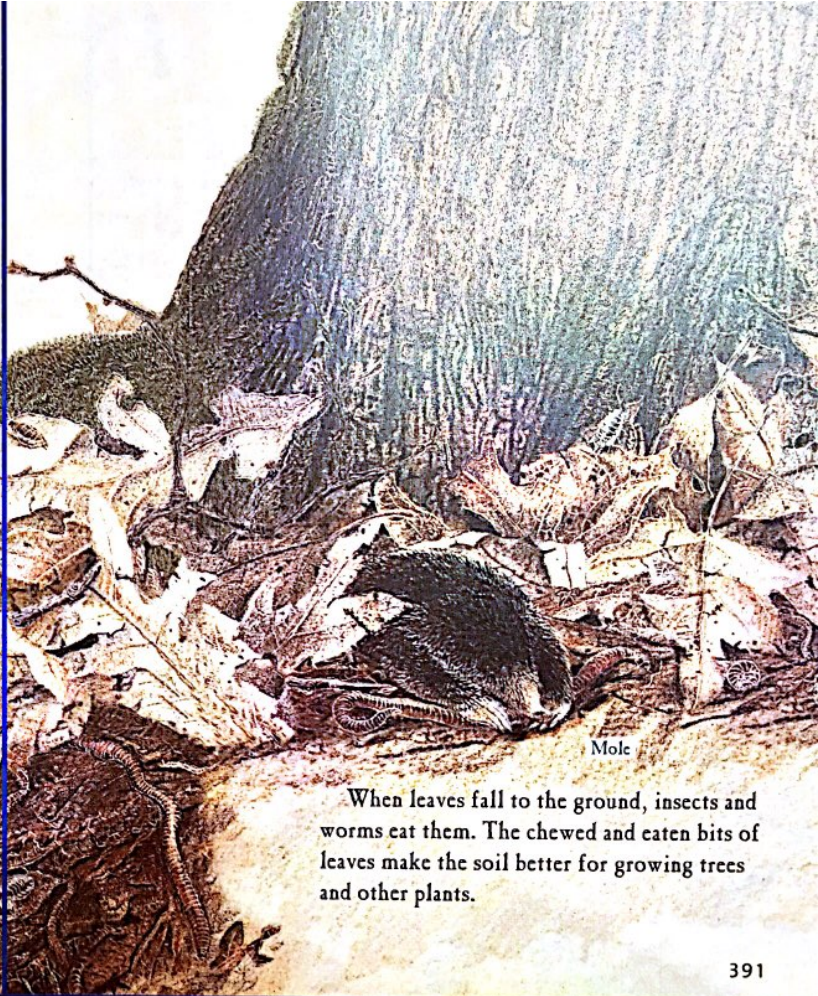
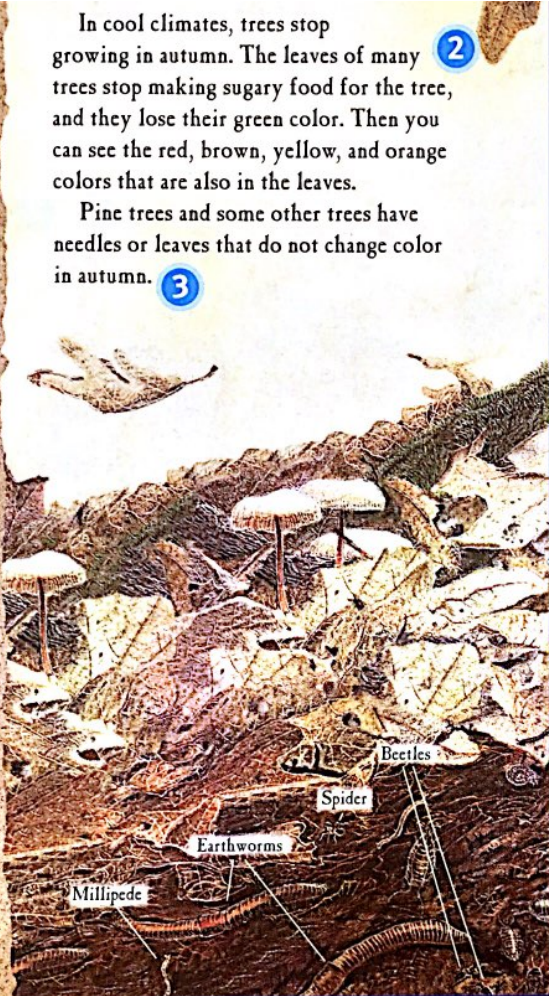


Autumn is a great time to collect leaves. Each tree has its own special color.



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.



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.

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

1

Tulip poplar

Ginkgo

Big-tooth aspen

Sweet gum

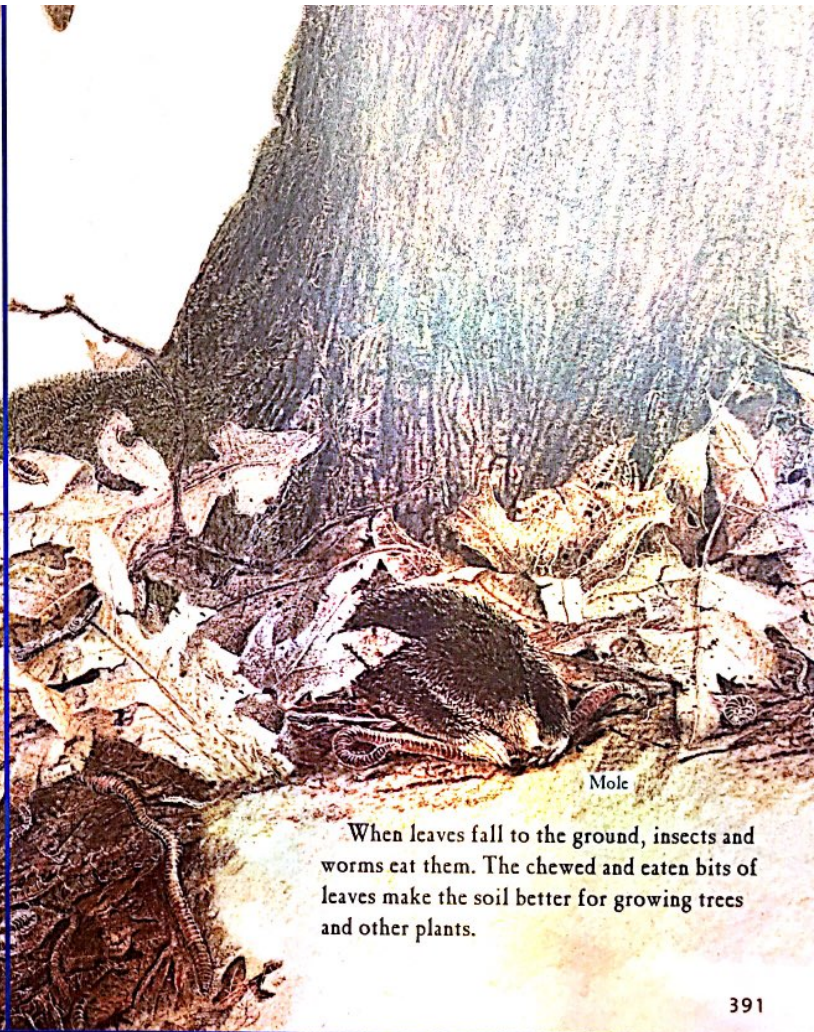
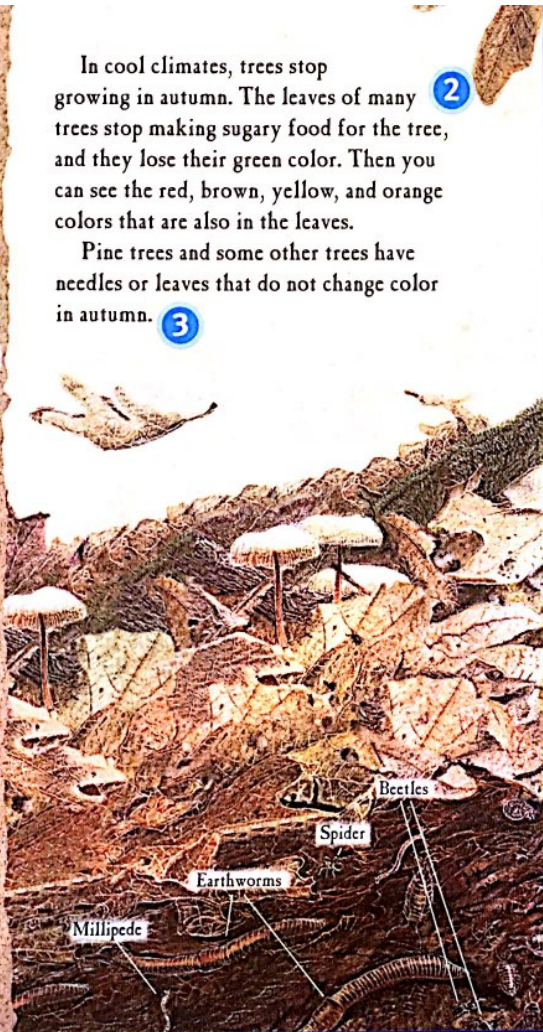
Pin oak

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2

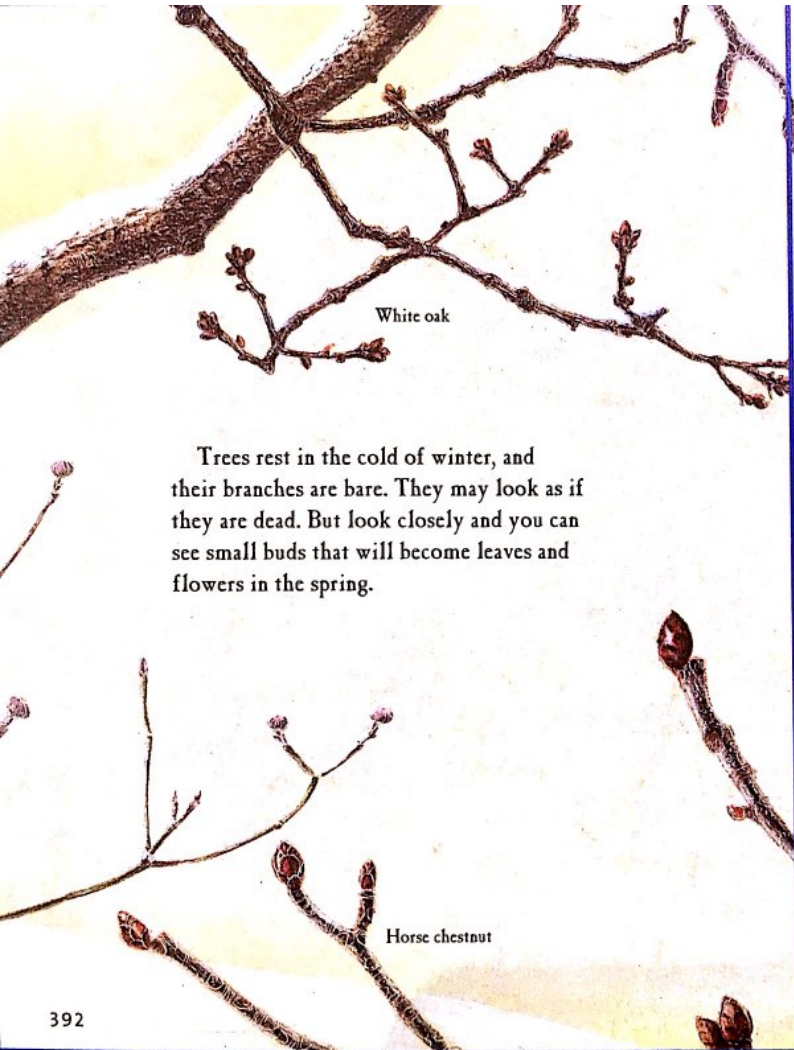
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3



Mole

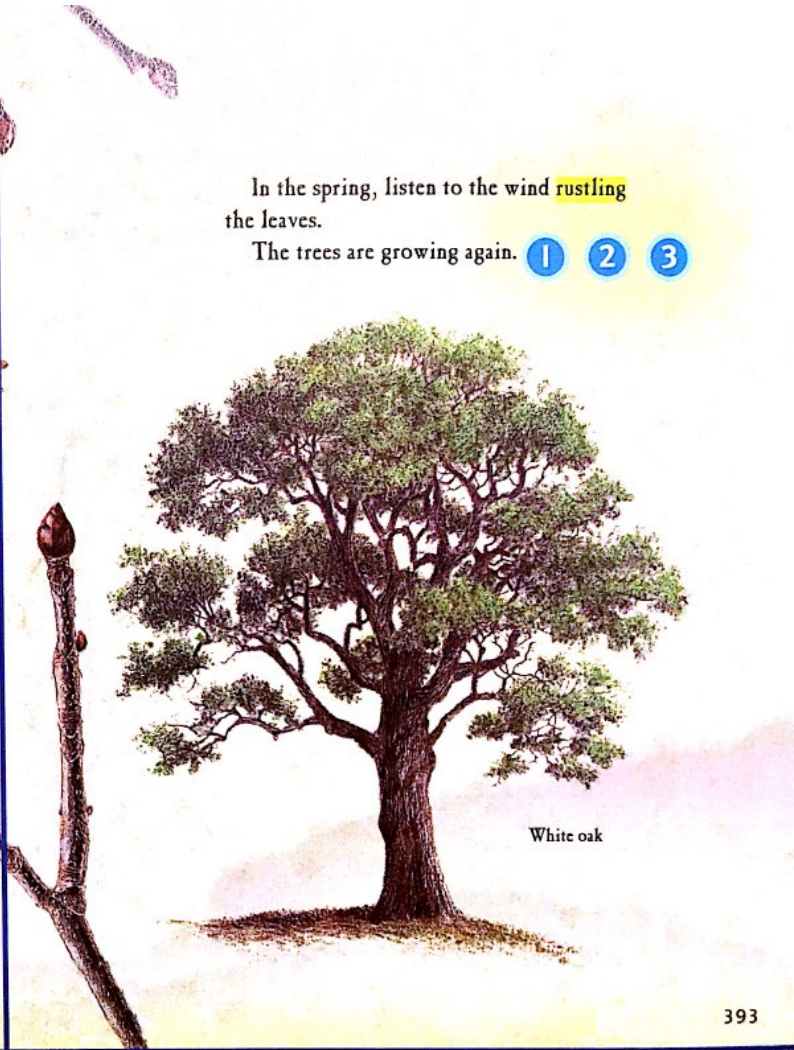
When leaves fall to the ground, insects and worms eat them. The chewed and eaten bits of leaves make the soil better for growing trees and other plants.



White oak

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.

Horse chestnut



White oak

In the spring, listen to the wind rustling the leaves.

The trees are growing again. 1 2 3

# Think Critically



- 1 What was the author's purpose for writing "A Tree Is Growing"? How do you know? AUTHOR'S PURPOSE
- 2 How do trees use the sugar made in the leaves? IMPORTANT DETAILS
- 3 What is the most interesting thing you learned about trees by reading the selection? EXPRESS PERSONAL OPINIONS
- 4 How can you tell that the author is interested in how trees change throughout the year? DRAW CONCLUSIONS
- 5 **WRITE** What changes happen to a tree as it grows? Use examples from the text to support your answer. EXTENDED RESPONSE

**CALIFORNIA STANDARDS**  
**ENGLISH-LANGUAGE ARTS STANDARDS**—Reading 2.2 Ask questions and support answers by connecting prior knowledge with literal information found in, and inferred from, the text; Reading 2.3 Demonstrate comprehension by identifying answers in the text; Reading 3.4 Determine the underlying theme or author's message in fiction and nonfiction text; Writing 1.1 Create a single paragraph; Writing 1.1b Include simple supporting facts and details.

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## Meet the Author Arthur Dorros

Arthur Dorros likes to write about the things that interest him. The author loves trees. When he was five, Arthur planted a maple seedling. The tree grew taller than a two-story house! He said it was almost as big as the tree in *A Tree Is Growing*.

Arthur Dorros believes that everyone has stories to tell. He encourages children all over the country to write. He tells them that if they read enough, they'll find out enough to help them write.

## Meet the Illustrator S. D. Schindler

S. D. Schindler began drawing and coloring when he was very young. When he was four, he won a red wagon in a coloring contest. In school, he was known as the class artist. His favorite pictures were of animals.

S. D. Schindler loves nature as much as he loves drawing. He used plants and animals from the woods near his home as models for the illustrations in *A Tree Is Growing*.



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