Life Science

Plant Diversity

Basic Level

Structures of Plants

LOOK INSIDE FOR:

- Core Curriculum Covered
- Student Book
- Assessments and Reading Activities

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Structures of Plants

How are plants alike and different?

CORE CURRICULUM STATEMENTS

Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.

Some traits of living things have been inherited (e.g., color of flowers and number of limbs of animals).

Plants and animals closely resemble their parents and other individuals in their species.

Plants and animals can transfer specific traits to their offspring when they reproduce.

Individual organisms and species change over time.

Each plant has different structures that serve different functions in growth, survival, and reproduction.

- roots help support the plant and take in water and nutrients
- leaves help plants utilize sunlight to make food for the plant
- stems, stalks, trunks, and other similar structures provide support for the plant
- some plants have flowers
- flowers are reproductive structures of plants that produce fruit which contains seeds
- seeds contain stored food that aids in germination and the growth of young plants

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Structures of Plants

by Tom Sibila

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Curriculum materials for your content standards

Table of Contents

– Predict –
What do you think you will learn from reading this book?

INTRODUCTION

What Is a Plant?

Did you know that plants and animals are both **organisms**? That means they are both living things. As living things, plants and animals grow up, **reproduce**, and then die.

However, plants are different from animals. Plants make their own food. Animals must eat other plants and animals to survive.

organism: any living thing
reproduce: to produce others of the same kind

CHAPTER 1

Parts of a Plant

Plants might not look like they are doing much. However, they are busy day and night.

During the day, leaves collect sunlight and make food. At night, plants **transport** the food from the leaves. They move the food down to other parts of the plant.

Plants have special parts, or structures, that let them grow, survive, and reproduce.

transport: to carry from one place to another

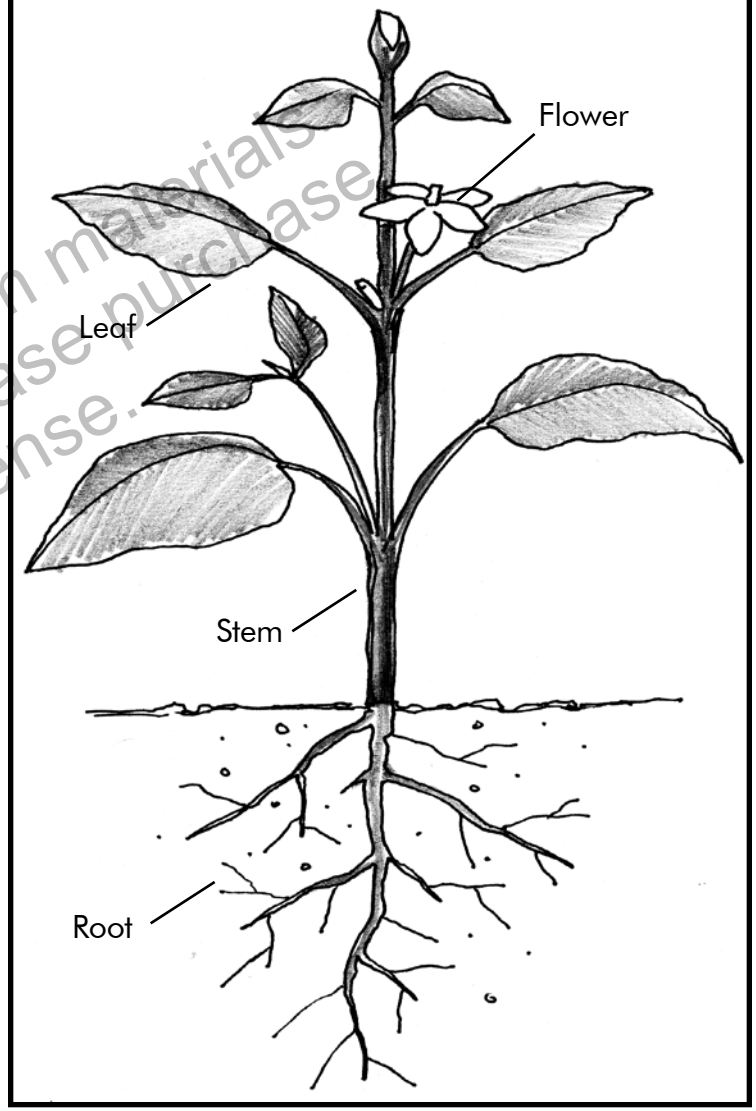
Roots

Roots of a plant grow beneath the ground. Roots hold the plant in the soil. Without roots, a plant would blow away in the wind.

Roots also collect water and minerals from the soil. They transport these **nutrients** up to other parts of the plant.

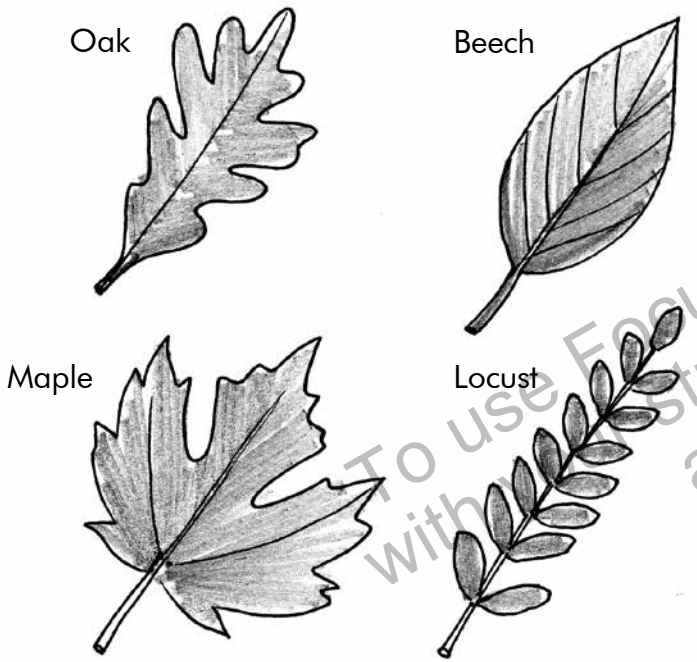
nutrients: things needed by people, plants, and animals to stay healthy

Structures of a Plant



Leaves

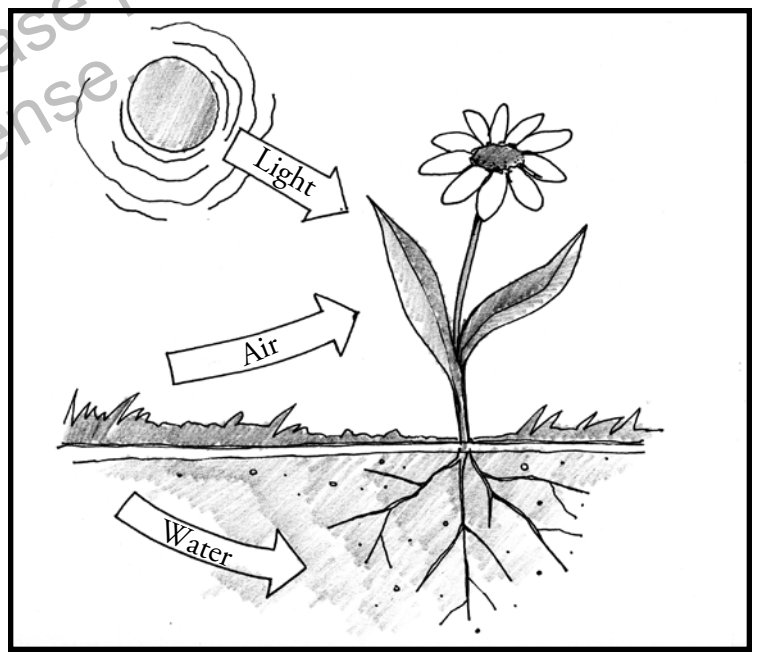
Leaves make food for the plant.
They come in many sizes and shapes.



–Categorize–
How could you group the leaves shown above?

Photosynthesis

To make food, leaves take in light from the sun. They also collect air. Water comes up from the plant's roots. Photosynthesis combines all three to make sugar used for food.



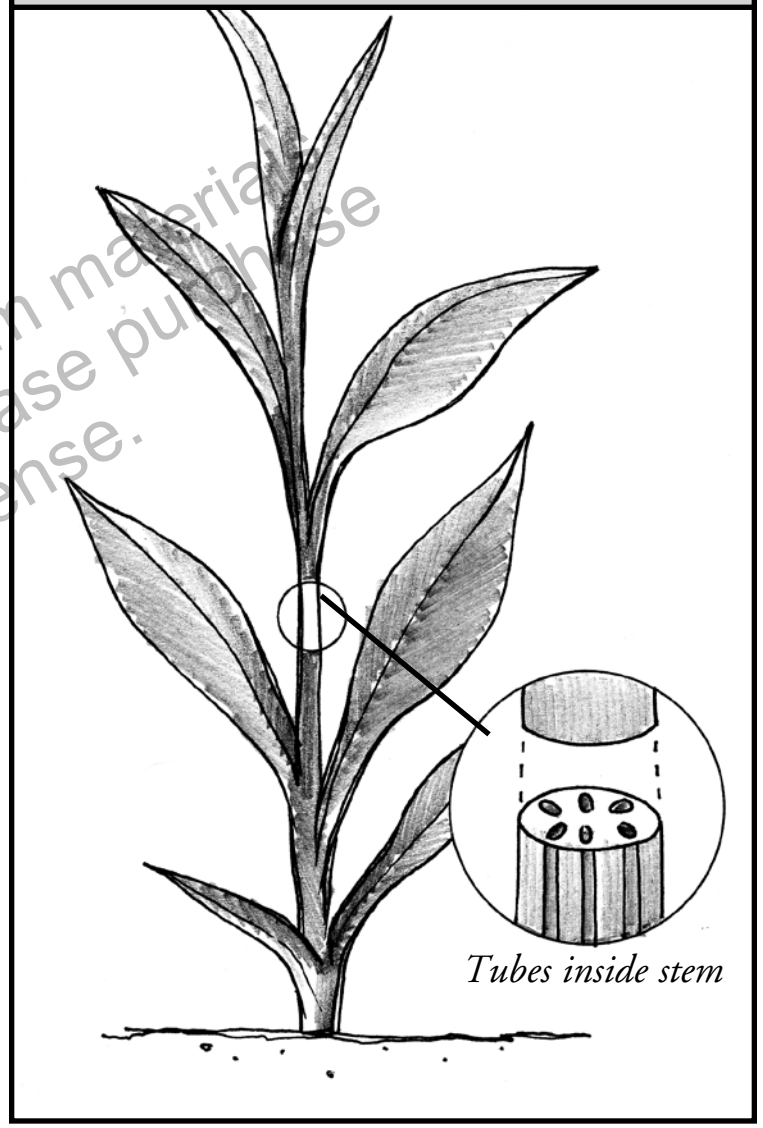
Stems

Stems hold up the plant parts that are above the ground. The stem holds up the leaves and flowers.

Stems also carry nutrients to the plant. They have tubes running through them. Some tubes carry water and minerals from the roots up to the leaves. Others carry food from leaves down the stem to the roots. Plants need both to survive.

–Explain–
What is the function of the stem in a plant?

Plant Stem



Flowers

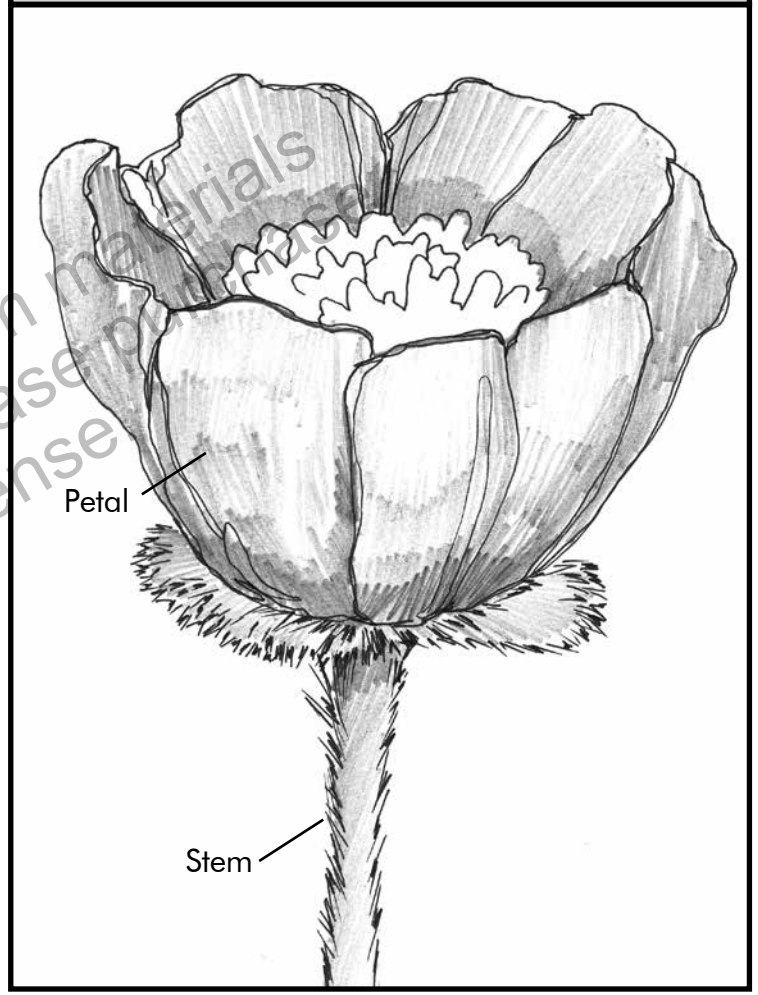
The leaves, stems, and roots help a plant survive. The flowers help a plant **species** survive. Flowers help plants reproduce by making seeds. A poppy is a good example.

A poppy flower is attached to a stem. Each flower has colored petals. The colors attract bees and other insects.

Inside the flower is pollen. Bees and other insects pick up the pollen. They take it from one flower to another. Flowers need pollen from each other to make seeds.

species: a group of plants or animals that are alike in certain ways

Poppy Flower



A poppy flower is attached to a stem. The stem provides nutrients to the flower. Each flower has brightly colored petals. The colors of the petals attract insects and bees.

Seeds

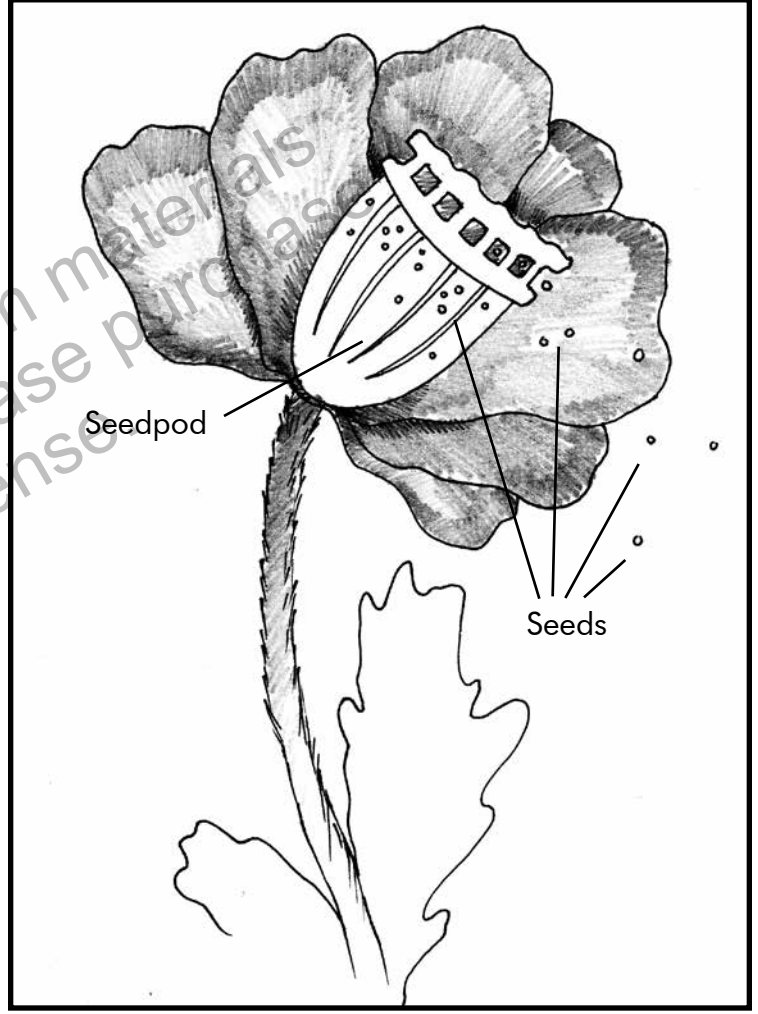
Also inside the flower is a seedpod. Inside the seedpod are seeds waiting to grow. Bees and other insects bring pollen from another flower. The pollen joins the seeds. The seeds begin to grow.

Now, the flower petals start to dry up. They fall off. The seedpod is left behind.

Each seedpod has holes around the top. When the wind blows, the seeds fall out. Now new plants can grow from these seeds.

–Summarize–
Tell a friend how a flower helps plants reproduce.

Poppy Seedpod



Each seedpod has holes around the top. When the wind blows, or the plant is knocked down, the seeds fall out.

CHAPTER 2

Plants Look Like Their Parents

Have you ever noticed that most people who are tall, have at least one parent who is tall? This happens because parents pass **traits** on to their children. All animals pass on traits to their **offspring**. So do plants!

Think about a leaf on a maple tree. The leaf looks the same on all maple trees. It will never look like the leaf of an oak tree. That's because it **inherited** the traits from its parent.

trait: a special quality or characteristic
offspring: a human or animal's child
inherited: to have passed on a trait to another

Sum It Up

Plants have structures that allow them to reproduce, grow, and survive. These structures are roots, stems, leaves, flowers, and seeds.

Also remember that plants and animals pass on traits from one to another. This is what makes plants from the same family look alike.

Glossary

inherited—to have passed on a trait to another

nutrients—things needed by people, plants, and animals to stay healthy

offspring—a human or animal's child

organism—any living thing

reproduce—to produce others of the same kind

species—a group of plants or animals that are alike in certain ways

trait—a special quality or characteristic

transport—to carry from one place to another

To Find Out More . . .

Want to learn more about plants?

Try these books

From Seed to Plant by Allan Fowler. Children's Press, 2001.

Read and Learn: Plants—Seeds (Plants) by Patricia Whitehouse. Raintree, 2004.

A Seed Is Sleepy by Dianna Hutts Aston. Chronicle, 2007.

Seeds (Plant Parts) by Vijaya Bodach. Capstone, 2006.

Seeds by Ken Robbins. Atheneum, 2005.

Access these Web sites

The Great Plant Escape
www.urbanext.uiuc.edu/gpe/index.html

Biology of Plants: Missouri Botanical Garden
www.mbgnet.net/bioplants/main.html

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Assessments

Structures of Plants

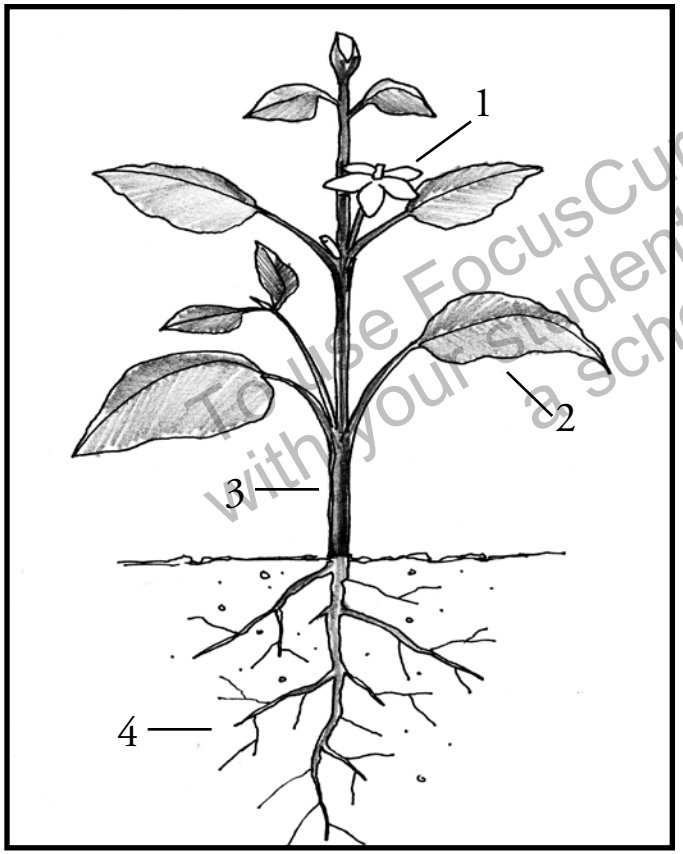
Print pages 18–20 of this PDF for the assessments.

Structures of Plants

Check Understanding

Shade the circle next to the correct answer or write your answer on the lines provided.

1. Which number in the diagram below points to the plant structure that makes food?



Ⓐ 1
Ⓑ 2
Ⓒ 3
Ⓓ 4

2. All plants need water and soil to survive. Identify **one** other thing plants need to survive.

_____

3. Which part of a plant takes in water and nutrients from the soil?

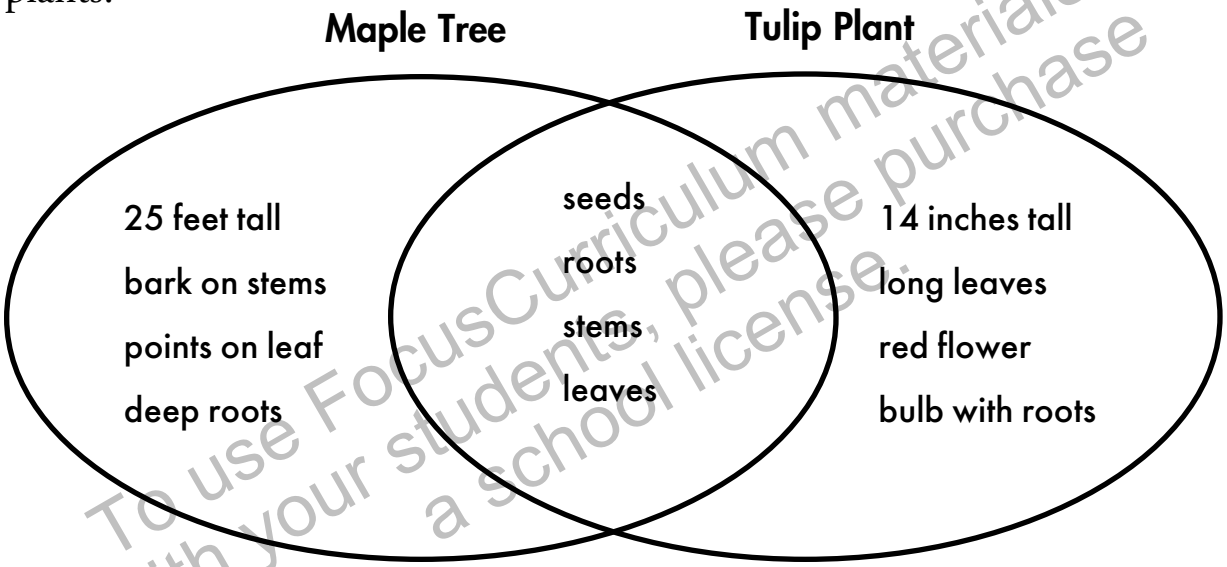
Ⓐ stem
Ⓑ leaf
Ⓒ root
Ⓓ flower

Structures of Plants

Check Understanding

Write your answers on the lines provided.

Base your answers to questions 4 and 5 on the Venn diagram below. The diagram compares some structures of two plants.



4. Identify **two** structures that maple trees and tulip plants have in common.

_____ _____

5. Identify **two** structures that tulip plants have but not maple trees.

_____ _____

Assessment Scoring Guidelines

1. Answer A is correct.
2. Sunlight
3. Answer C is correct.
4. Choose two of the following: seeds, roots, stems, leaves
5. Choose two of the following: 14 inches tall, long leaves, red flower, bulb with roots

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English Language Arts Activities

Structures of Plants

Print pages 22–26 of this PDF for the reading activities.

Use Graphic Organizers

TRY THE SKILL

Graphic organizers help you group related facts together. This helps you remember them.

Organize the information in the box below to show the differences between roots, stems, and leaves.

Roots	Stems	Leaves

makes food for the plant • transports nutrients to the plant • collects water and minerals • grows beneath the ground • takes in light • comes in many sizes an shapes • holds up the plant • holds the plant in the soil

Make Inferences

You can often learn more than what is stated in the text. Think about what you have read and what you already know. Can you make a connection to learn more?

Read this passage:

Did you know that plants and animals are both organisms? That means they are both living things. As living things, plants and animals grow up, reproduce, and then die.

What can you infer about plants and animals?

All plants have a life span. They grow up, grow old, and die.

TRY THE SKILL

Read this paragraph.

To make food, leaves take in light from the sun. They also collect air. Water comes up from the plant's roots. Photosynthesis combines all three to make sugar used for food.

Make an inference about photosynthesis.

_____

_____

_____

_____

_____

_____

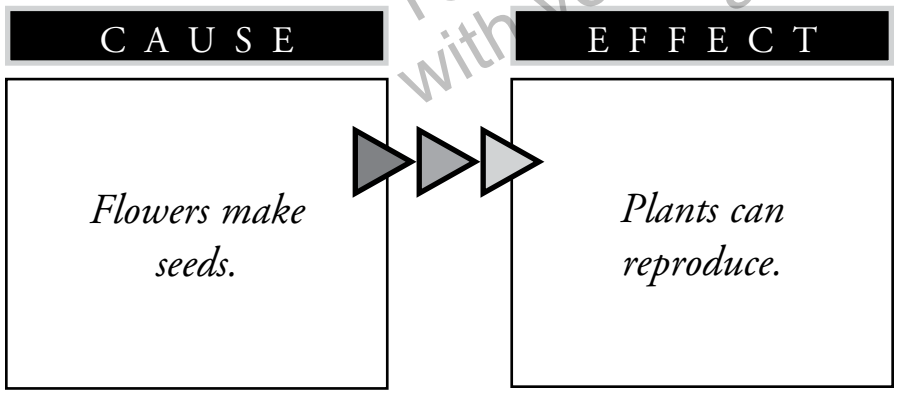
Cause and Effect

To find out an effect you ask, "What happened?"
To find out a cause, you ask, "Why did that happen?"

Read this passage from the book.

The leaves, stems, and roots help a plant survive. The flowers help a plant species survive. Flowers help plants reproduce by making seeds.

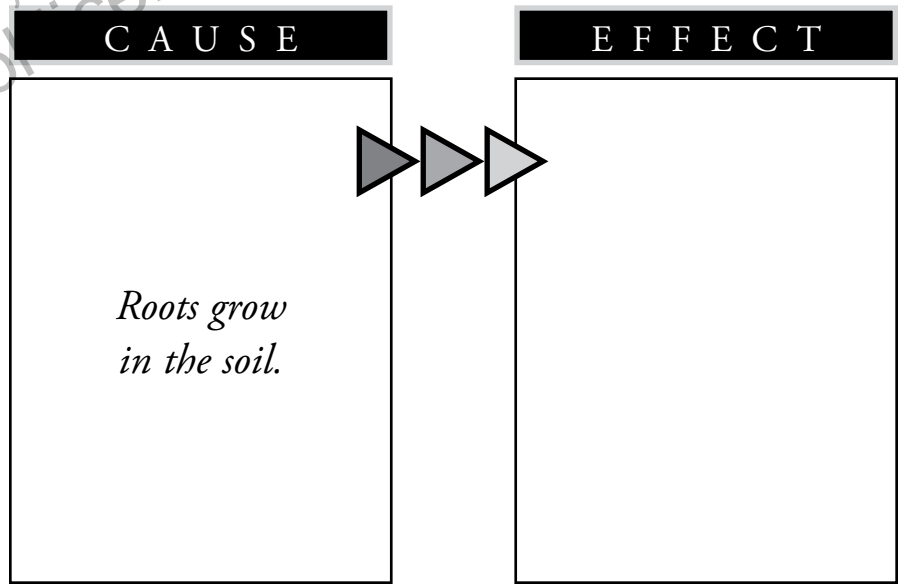
This graphic explains the cause and effect.



TRY THE SKILL

Read this passage. Then tell what effect roots have on plants.

Roots are the part of the plant that grow beneath the ground. The roots of a plant hold the plant in the soil. Without roots, a plant would blow away in the wind.



Use Context Clues

You can often figure out the meaning of a word by reading other words in the paragraph.

Read the paragraph below. Think about the meaning of the word *transport*. Look for clues.

At night, plants transport the food from the leaves. They move the food down to other parts of the plant.

What does the word *transport* mean?

The word *transport* means "to move."

What are some clues to help you determine the meaning of *transport*?

The second sentence says that plants move the food down. So *transport* must mean "to move."

TRY THE SKILL

Read this paragraph. Then explain what the word *organism* means. Tell which clues you used.

Did you know that plants and animals are both organisms? That means they are both living things. As living things, plants and animals grow up, reproduce, and then die.

The meaning of *organism* is:

_____

_____

_____

_____

I know that because:

_____

_____

_____

Answer Key

Use Graphic Organizers

Roots

collects water and minerals
grows beneath the ground
holds the plant in the soil

Stems

transports nutrients to the plant
holds up the plant

Leaves

makes food for the plant
takes in light
comes in many sizes an shapes

Make Inferences

Phytosynthesis is important for plants to survive.

Cause and Effect

Roots hold plants in the soil.

Use Context Clues

An organism is a living thing.
I know this because the second sentence defines the word.