



Life Science

Plant Diversity

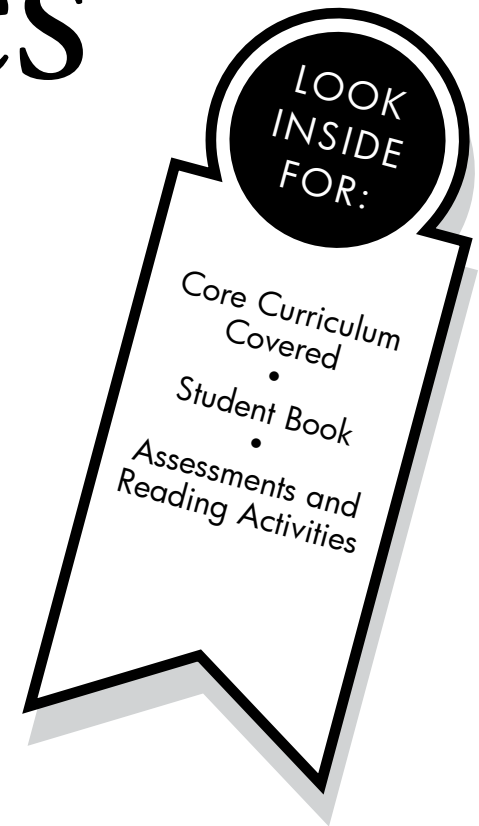
Basic Level

Life Cycles of Plants

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Life Cycles of Plants

How are plants alike and different?

CORE CURRICULUM STATEMENTS

Living things are both similar to and different from each other and from nonliving things.

Plants require air, water, nutrients, and light in order to live and thrive.

Living things grow, take in nutrients, breathe, reproduce, eliminate waste, and die.

The continuity of life is sustained through reproduction and development.

Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death.

Each kind of plant goes through its own stages of growth and development that may include seed, young plant, and mature plant.

The length of time from beginning of development to death of the plant is called its life span.

Life cycles of some plants include changes from seed to mature plant.

Organisms maintain a dynamic equilibrium that sustains life.

Plants respond to changes in their environment.

Basic Level



Life Science

Plant Diversity

Student Book

Life Cycles of Plants

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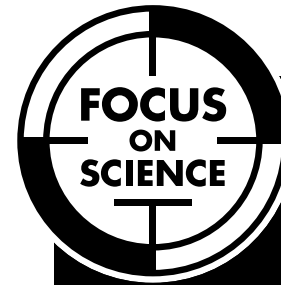
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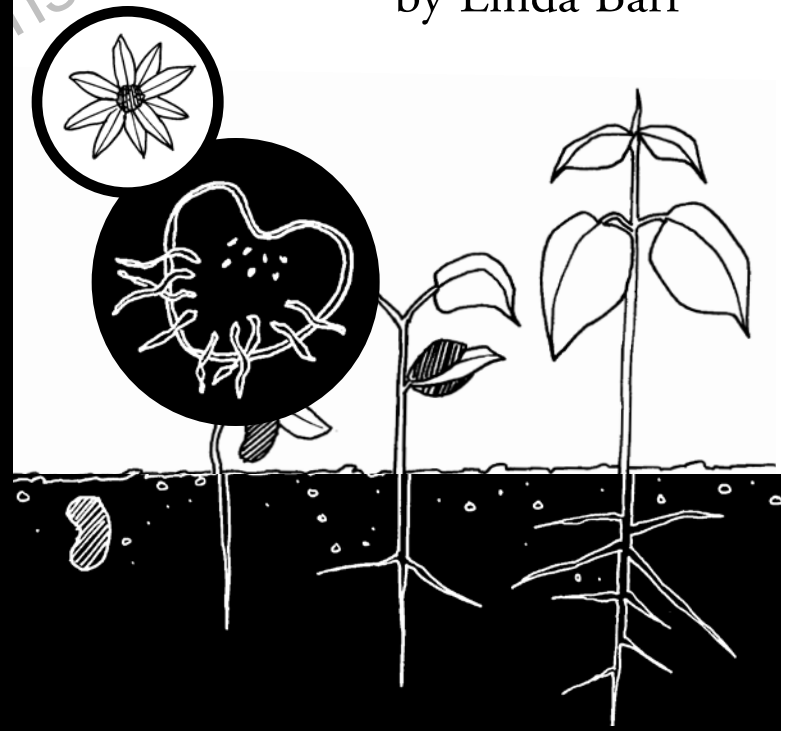


Life Science

Plant Diversity

Life Cycles of Plants

by Linda Barr





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Table of Contents

Introduction:

Is It Real? 4

Chapter 1:

Plants Have a Life Span 6

Chapter 2:

Life Cycles of Plants 8

Plants That Grow from Seeds. . 10

Plants That Grow from Bulbs . 12

Plants That Grow from Other

Parts of a Plant 14

Plants That Grow from Spores. 16

Real Plants Are Alive 16

Glossary 18

To Find Out More 19

Index. 20

– Predict –

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

INTRODUCTION

Is It Real?

Have you ever seen “fake” plants? They are made of plastic, paper, or silk. These plants are not alive. You do not have to water them. They need no care.

Real plants require care, because they have needs. They must have sunlight and air to make their own food. They must have water and space to grow.

Real plants grow and react to changes around them. For example, they turn to face the sunlight. When the days grow cooler, some plants drop their leaves. Fake plants do not change.

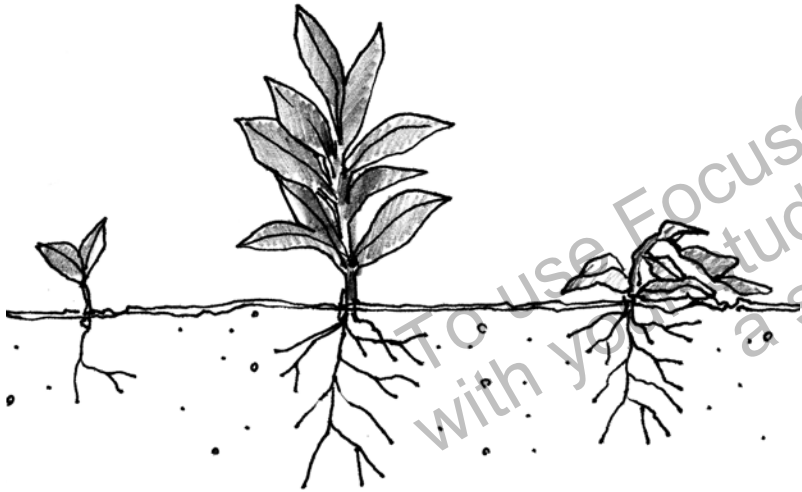
Real plants **reproduce**. They make new plants. In this book, you’ll learn four ways that plants reproduce.

*– Apply –
How would you investigate
whether a plant is real?*

reproduce: to produce offspring—new plants or animals

Plants Have a Life Span

All plants have a life span. A life span is the amount of time an **organism** remains alive. All plants grow up, grow old, and then die.



All plants grow up, grow old, and then die.

organism: any living thing

Different plants have different life spans. For example, an oak tree can live for hundreds of years. A daisy usually lives from three to ten years.



An oak tree has a longer life span than a daisy.

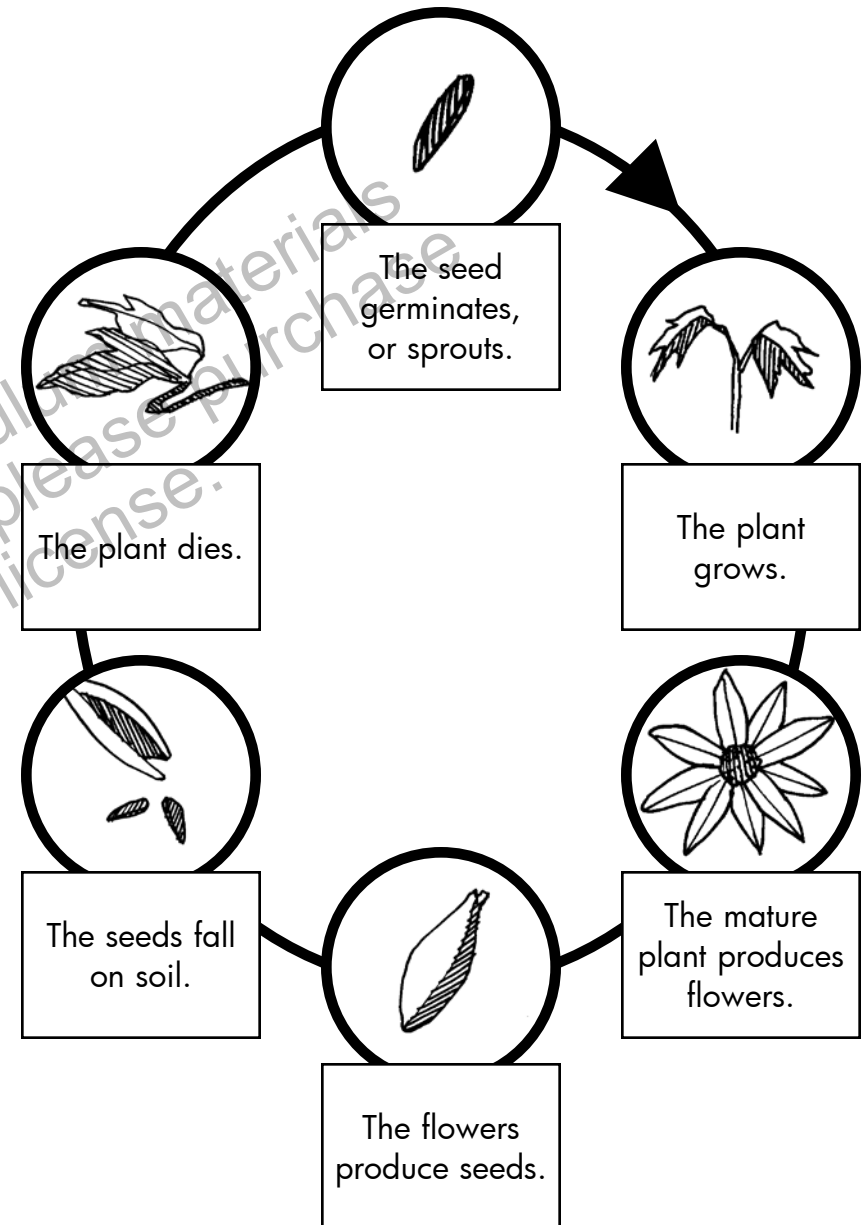
Life Cycles of Plants

Plants have life cycles. They start from a seed, bulb, or part of a parent plant. Next, the young plants grow until they are **mature**. Then they reproduce by creating more seeds, bulbs, or young plants. Plants die, but their “babies” continue the cycle.

The diagram on the next page shows the life cycle of a seed plant.

mature: the adult stage in the cycle of a living thing

Life Cycle of a Seed Plant



Plants That Grow from Seeds

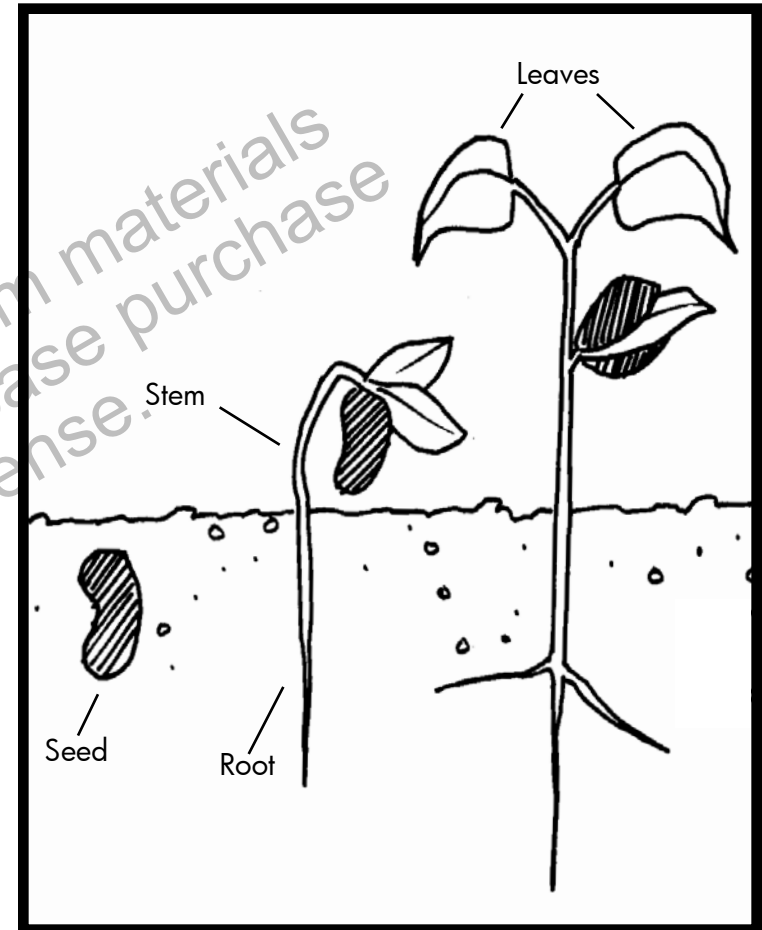
Sunflowers are a plant that reproduce from seeds. Inside a sunflower seed is a tiny plant. It's called an **embryo**.

Moisture causes the seed covering to swell and crack open. The seed **germinates**, and the embryo starts to grow.

Next, tiny roots grow into the soil. Soon a stem pushes out of the soil. It grows leaves. The plant begins to make food.

embryo: a tiny plant inside a seed
germinate: to sprout; to start to grow

Germination of a Seed

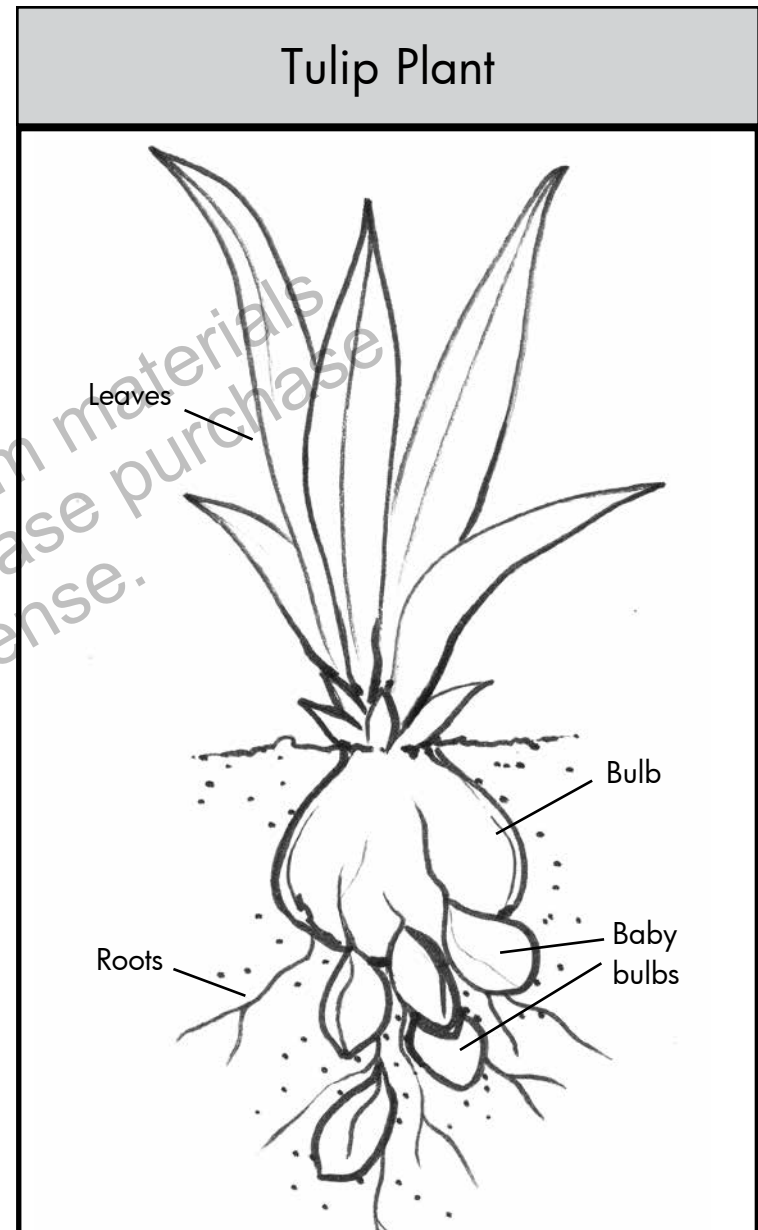


Moisture causes a seed to crack open. A tiny root then grows into the soil. Soon a stem pushes out of the soil. As the seedling grows, more leaves appear.

Plants That Grow from Bulbs

Tulips are a plant that produce seeds. They also reproduce by making “baby” bulbs. These bulbs are attached to the parent bulb. The baby bulbs grow. They separate from the parent. Then, a new tulip grows.

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Some plants, such as tulips and daffodils, grow from bulbs.

– Explain –

How could you prove that tulips do not need seeds to reproduce?

Plants That Grow from Other Parts of a Plant

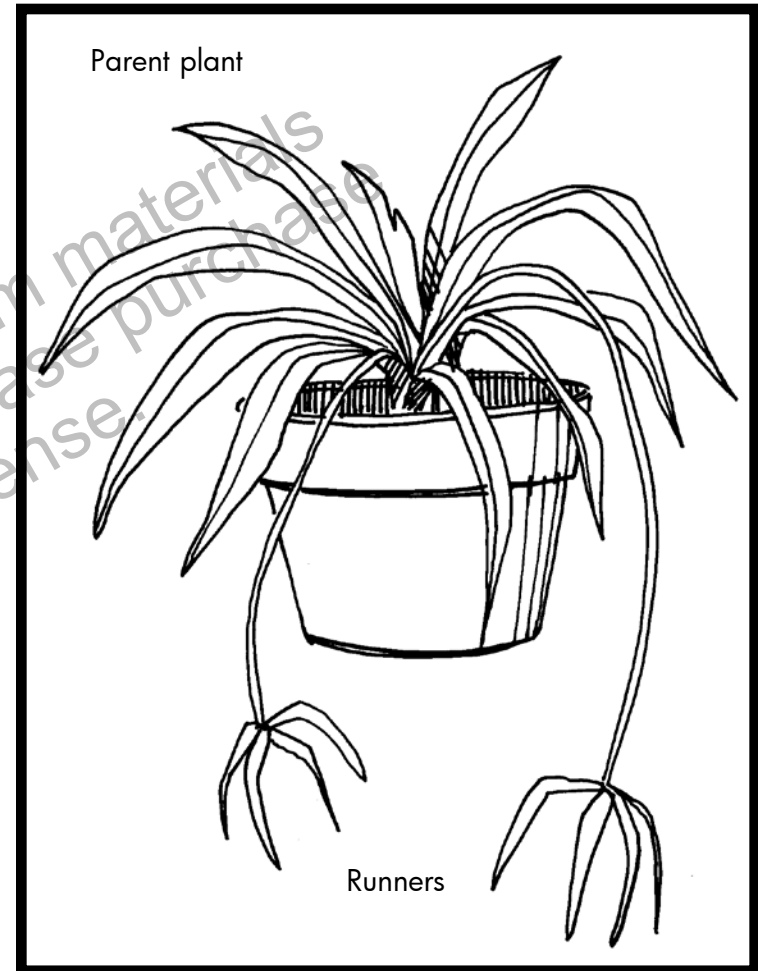
Some plants grow by sending out runners. These are stems that grow into new plants.

Strawberry plants and spider plants reproduce by **runners**. The runners send roots into the soil. Then a new plant grows.

– Compare –
What is the difference between reproducing with seeds and with bulbs?

runners: stems that grow from a parent plant and can become a new plant

Reproducing by Runners



Runners from a parent plant grow into new plants.

Plants That Grow from Spores

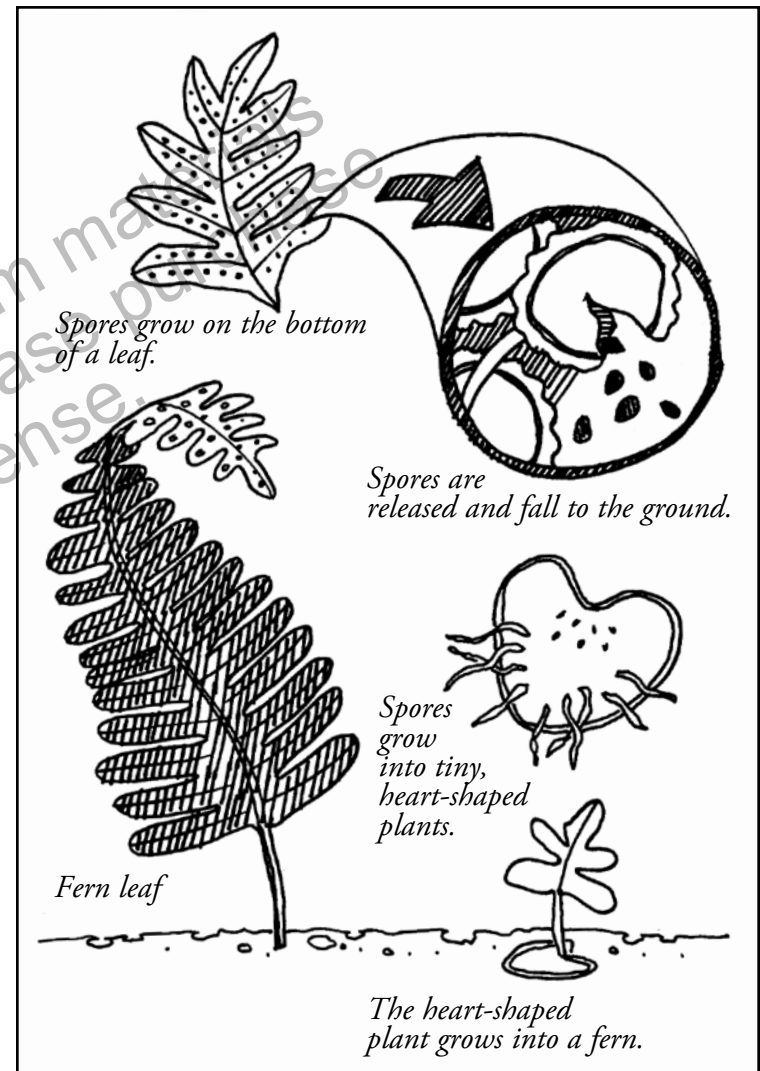
Ferns reproduce without growing flowers or seeds. On the bottom of a fern leaf are rows of spores. In time, they fall from the leaf onto moist soil. The spores grow into tiny, heart-shaped plants. Soon ferns begin to grow.

Real Plants Are Alive

Now you know that real plants are alive. They grow, reproduce, and die. Plants reproduce in different ways so their life cycles continue.

– Compare –
What is the difference between
reproducing with seeds and with spores?

Life Cycle of a Spore



Glossary

embryo—a tiny plant inside a seed

germinate—to sprout; to start to grow

mature—the adult stage in the cycle of a living thing

organism—any living thing

reproduce—to produce offspring—new plants or animals

runners—stems that grow from a parent plant and can become a new plant

To Find Out More . . .

Want to learn more about the life cycles of 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/gpel/index.html

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

Index

embryo, 10

germination, 10

life cycle of seed plant
(diagram), 9

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Assessments

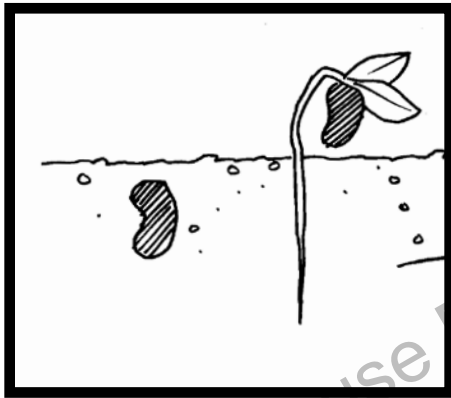
Life Cycles of Plants

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

Check Understanding

Shade the circle next to the correct answer.

1. The picture below shows part of the life cycle of a seed plant.



Which statement describes what is happening?

- Ⓐ The seed is dying.
- Ⓑ The seed is germinating.
- Ⓒ The seed is producing spores.
- Ⓓ The seed is sending out runners.

2. The picture below shows a spider plant.



Stems that grow out and become new plants are called

- Ⓐ flowers
- Ⓑ bulbs
- Ⓒ runners
- Ⓓ seeds

Check Understanding

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

3. How long a plant remains alive is called its

- Ⓐ life cycle
- Ⓑ reproduction
- Ⓒ germination
- Ⓓ life span

Note that question 4 has only three choices.

4. When a plant is mature it is

- Ⓐ young
- Ⓑ an adult
- Ⓒ dying

5. Identify **two** ways that plants can reproduce. [2]

(1) _____

(2) _____

6. Real plants need a place to grow, air, water and

- Ⓐ sunlight
- Ⓑ seeds
- Ⓒ a pot
- Ⓓ food

Assessment Scoring Guidelines

1. Answer B is correct.
2. Answer C is correct.
3. Answer D is correct.
4. Answer B is correct.
5. Seeds, runners, bulbs, spores
6. Answer A is correct.

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English Language Arts Activities

Life Cycles of Plants

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

Multiple Meaning Words

TRY THE SKILL

Some words have several meanings. You can use clues in the sentence to decide which meaning is being used.

For example, look at the word *bark*. It has two meanings.

bark A. the covering on a tree
 B. the sound a dog makes

Read this sentence and decide which meaning is being used:

Bark helps protect trees.

In this sentence, *bark* means “the covering on a tree.” The sentence is about trees, not dogs.

Read each word and its meanings. Then read each sentence. Write the letter of the correct meaning on the line.

right A. not left B. correct

1. When the conditions are _____, seeds can germinate.

light A. not dark B. not heavy

2. Most seeds need warmth, water, and _____ in order to grow.

runners A. people who run
 B. stems that grow from plants

3. Some plants grow by sending out _____.

Identify Main Idea

TRY THE SKILL

Identifying the main idea will help you understand what you are reading.

Read this paragraph from the book.

Plants have life cycles. They start from a seed, bulb, or part of a parent plant. Next, the young plant grows until it is mature. Then it reproduces by creating more seeds, bulbs, or young plants. Plants die, but their “babies” continue the cycle.

What is the main idea of this paragraph?

Plants have life cycles.

What are some of the supporting details?

Mature plants reproduce by creating seeds, bulbs, or young plants.

Read this paragraph. Then shade in the circle next to your answer choice.

Tulips are a plant that produce seeds. They also reproduce by making “baby” bulbs. These bulbs are attached to the parent bulb. The baby bulbs grow. They separate from the parent. Then, a new tulip grows.

1. What is the main idea of this paragraph?

- Ⓐ Tulips produce seeds.
- Ⓑ Some plants grow from bulbs.
- Ⓒ Some plants grow from seeds.
- Ⓓ Baby bulbs separate from their parent plant.

Fact and Opinion

TRY THE SKILL

A fact can be proven. For example, you can look up the weight of the biggest seed. That weight can be proven.

An opinion is what someone believes. It cannot be proven. For example, someone might believe that real plants are too much trouble to grow. But, other people might not agree.

Read these examples of facts and opinions.

Facts

Plants have life cycles.

Some plants reproduce by sending out runners.

Opinions

Sunflowers are the best flowers.

You can grow seeds anywhere if you try.

Mark each statement below **F** for fact or **O** for opinion.

1. Some plants can reproduce using seeds and using parts of the plant. _____
2. Some seeds require more moisture than others. _____
3. Fake plants look better than real plants. _____
4. Real plants reproduce. Fake plants do not. _____
5. Plants from seeds always grow better than plants from bulbs. _____

Cause and Effect

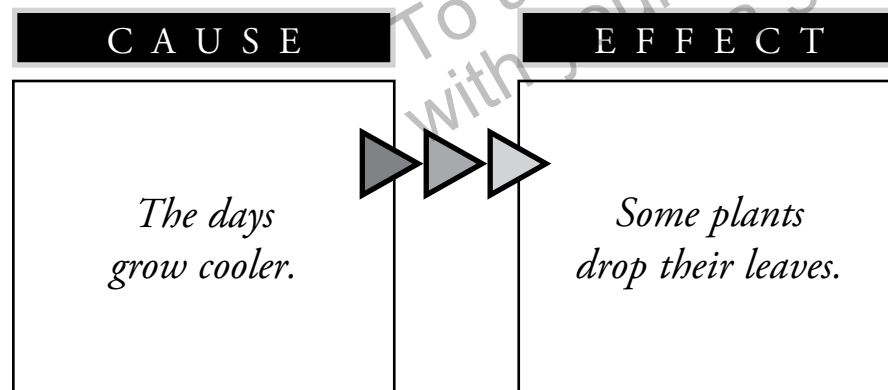
TRY THE SKILL

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

Read this passage.

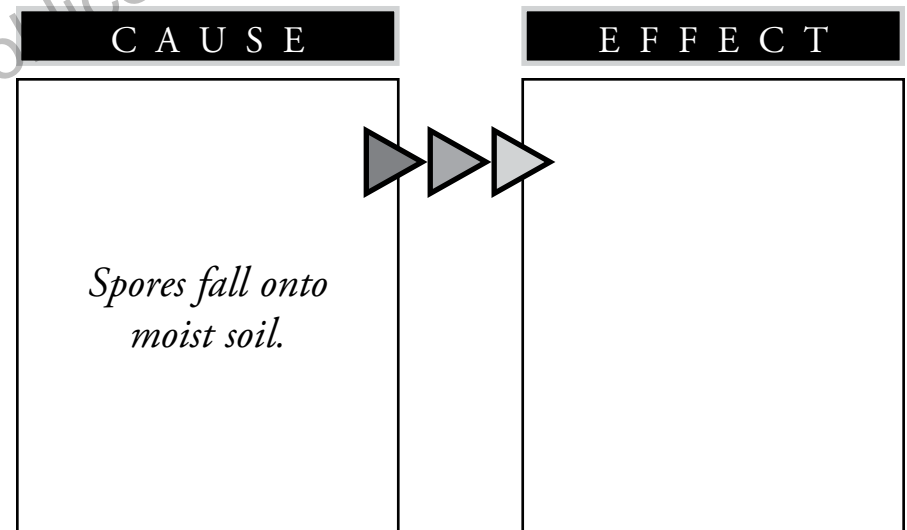
Real plants grow and react to changes around them. For example, they turn to face the sunlight. When the days grow cooler, some plants drop their leaves. Fake plants do not change.

This graphic explains what happened.



Read the passage. Then complete the graphic.

Ferns reproduce without growing flowers or seeds. On the bottom of a fern leaf are rows of spores. In time, they fall from the leaf onto moist soil. The spores grow into tiny, heart-shaped plants. Soon ferns begin to grow.



Answer Key

Multiple Meaning Words

1. B
2. A
3. B

Identify Main Idea

1. B

Fact and Opinion

1. F
2. F
3. O
4. F
5. O

Cause and Effect

Cause: Spores fall onto moist soil.

Effect: Spores grow into tiny, heart-shaped plants.

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