



The Life Cycle of a Plant

3

☑ **Lesson Objectives**

Core Content Objectives

Students will:

- ✓ Explain that seeds are the beginning of new plants
- ✓ Explain the basic life cycle of plants

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ With prompting and support, identify the main topic and retell key details from “The Life Cycle of Plants” (RI.K.2)
- ✓ Describe the connection between the parts of the plant and their development in the life cycle of a plant (RI.K.3)
- ✓ Define and use new words, such as *germinate*, from the read-aloud and the discussion about “The Life Cycle of a Plant” (RI.K.4)
- ✓ Describe illustrations of the phases of germination and a seedling in “The Life Cycle of a Plant,” using the illustrations to check and support comprehension of the read-aloud (RI.K.7)
- ✓ Actively engage in the nonfiction/informational read-aloud “The Life Cycle of a Plant” (RI.K.10)
- ✓ Draw the important parts of a plant, including the stem (provided), roots, leaves, and flowers (SL.K.5)

- ✓ Explain the meaning of “great oaks from little acorns grow” and use in appropriate contexts (L.K.6)
- ✓ Listen to a variety of texts, including informational text such as “The Life Cycle of a Plant”
- ✓ Prior to listening to “The Life Cycle of a Plant,” identify orally the parts of a plant learned in the previous read-aloud of “Plant Parts”

Core Vocabulary

germinate, v. To start to grow

Example: The rain will help the seeds in the garden germinate.

Variation(s): germinates, germinated, germinating

life cycle, n. The stages and changes that happen in living things, like plants and animals

Example: The life cycle of a tree begins with a seed and ends as the tree decomposes in the soil and another seed starts to germinate.

Variation(s): life cycles

mature, v. To develop fully; to grow into an adult or full-grown animal or plant

Example: It takes time for a seedling to mature into a full-grown, adult plant.

Variation(s): matures, matured, maturing

sapling, n. A young tree

Example: Every day I check the sapling we planted to see how much it has grown.

Variation(s): saplings

seedlings, n. Young or baby plants that have grown from a seed

Example: At the apple orchard, we saw many small seedlings that will one day grow into apple trees.

Variation(s): seedling

<i>At a Glance</i>	Exercise	Materials	Minutes
<i>Introducing the Read-Aloud</i>	What Have We Already Learned?		10
	Purpose for Listening		
<i>Presenting the Read-Aloud</i>	The Life Cycle of a Plant	ruler or yardstick; different types of seeds	10
<i>Discussing the Read-Aloud</i>	Comprehension Questions		10
	Word Work: Germinate		5
 Complete Remainder of the Lesson Later in the Day			
<i>Extensions</i>	Sayings and Phrases: Great Oaks from Little Acorns Grow		15
	Syntactic Awareness Activity: Expanding Sentences	Image Card 19	
	Vocabulary Instructional Activity: Cycle		



The Life Cycle of a Plant

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Introducing the Read-Aloud

10 minutes



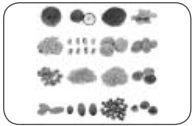
What Have We Already Learned?

◀ Show image 3A-1: Sunflower

Have students identify each part of the plant. Review with students what each part of the plant does and why it is important. Reinforce the role that each part plays in the survival of the plant.

Purpose for Listening

Tell students that the main topic, or main idea, of today's lesson is the life cycle of a plant. Explain to students that when a plant first starts to grow, it does not have all of the parts they have learned about. Tell students to listen to find out more about today's topic: how the plant grows and changes during its life.



The Life Cycle of a Plant

◀ Show image 3A-2: Seeds

- 1 Where can you find the seeds on a plant? [The seeds are found in the center of the flower.]
- 2 [Show students the different examples of seeds you have prepared.]

You have already learned about the different parts of a plant. One of those parts is the seed.¹ Many plants begin with a seed. Seeds come in all shapes and sizes and, as you might guess, the seeds from different plants look different.² Each seed is a plant waiting to sprout, or grow. If the seed is planted in the right place, then the seed will sprout and grow into a new plant. Only a sunflower plant can grow from a sunflower seed, and only an apple tree can grow from an apple seed. What type of plant do you think would grow if you planted a watermelon seed? How about a pumpkin seed?



◀ Show image 3A-3: Phases of germination

Seeds are the beginnings of new plants. Like all living things, plants live according to a life cycle. A **life cycle** includes the stages and changes that happen in living things.

The life cycle of a plant starts with a seed. Most seeds have nutrients inside them that feed the new plants for just a little while. In order to **germinate**—or begin growing into new plants—seeds must have water, light from the sun, and nutrients from the soil.³

When a plant first starts to grow from a seed, it looks very different from a fully grown or mature plant. Baby plants are called **seedlings**. This image shows a plant's growth from germination to seedling.⁴

The very first picture shows a newly germinated seed that is just beginning to sprout. Germination begins when the seed gets just the right amounts of light from the sun, water, and nutrients. This causes the seed to open and the seedling to poke up through the soil. If you look very carefully at this first picture, you can see that the new plant is just starting to grow its first root.⁵ The next pictures show the same plant over several days. As the plant

- 3 What are the four things a plant needs to survive?
- 4 What do you see in this picture?
- 5 [Point to each part of the image as it is described in the read-aloud.]

grows, you can see thin roots branching off deeper into the soil. The roots absorb water and nutrients and push them up through the plant's stem, which grows above ground.



← **Show image 3A-4: Seedling**

It takes time for a seedling to grow into a full-grown, adult plant. The amount of time it takes depends on the type of plant. If you plant a sunflower seed, it will take about a month before the seedling begins to look more like a full-grown sunflower plant. If you plant an apple seed, it will take several years for the seedling to grow into a full-grown tree!⁶

When the plant dies, it decays and breaks down into little pieces and goes back into the ground to become nutrients in the soil. A new life cycle of a plant begins!

- 6 Why do you think it takes longer for a tree seedling to grow into a full-grown plant than for a sunflower seedling to grow into a full-grown plant?



← **Show image 3A-5: Acorn and oak**

Now, let's explore the life cycle of this oak tree. This acorn contains the seed of an oak tree.⁷ You may have seen acorns before, lying outside next to full-grown trees or being carried away by squirrels.

- 7 [Point to the acorn.]



← **Show image 3A-6: Squirrel eating an acorn**

Squirrels spend all day running around looking for food and hiding food. They bury so many acorns that they often forget where they put some of them. The acorn that the squirrel forgets stays in the soil, giving the oak seed inside a better chance to germinate underground.⁸ Once the seed sprouts, it will quickly grow into a seedling, but the young tree will grow only a foot or two in its first year.⁹

- 8 What does *germinate* mean?
Germinate means to begin growing into new plants.

- 9 [Show students how tall one or two feet is with a ruler or yardstick.]



← **Show image 3A-7: Young oak**

After a few years, the oak will grow to a height of ten or more feet, but it is still considered a young tree or **sapling**.¹⁰ This tree will still be called a sapling for several years to come.

- 10 [Show students how tall ten feet is with a ruler or yardstick.]



11 or grow into an adult or full-grown tree

← **Show image 3A-8: Mature oak**

Oak trees take a long time to **mature**.¹¹ In fact, it takes about fifty years for the average oak tree to mature so that it can produce acorns. An oak tree can produce tens of thousands of acorns over the course of its lifetime. Only a few of those acorns will germinate and grow into new oak trees.



← **Show image 3A-9: Dead tree**

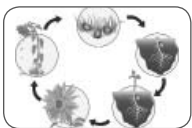
Some oak trees can live for over two hundred years. Eventually, like all living things, the oak tree will die. The oak tree will die slowly over the course of several years. It will produce fewer and fewer leaves each year, its branches will drop off one by one, and gradually its wood will become softer and softer.



← **Show image 3A-10: Decomposition**

Finally, the roots will die and the tree will fall down with a big crash on the forest floor. The tree's branches will be the first to rot and disappear into the soil, but the woody trunk will take many years to completely decay.

All of the nutrients in the wood will decay and become part of the soil once again. The more decayed plants there are in the soil, the more nutrients that soil will have. And, the more nutrients there are, the easier it will be for new seeds, like the acorn seeds, to germinate and grow.



12 [Point to each part of the life cycle as it is reviewed.]

← **Show image 3A-11: Life cycle of a sunflower**

As we have seen, all plants live according to a life cycle. This diagram shows you the life cycle of a sunflower.¹² A new plant begins when the sunflower seed germinates and sprouts to become a seedling. If the seedling receives the right amount of water, nutrients, and light, then the plant will continue to grow. Eventually, the plant will become mature and make more seeds from which new plants will grow. When the sunflower dies and decays, it becomes the nutrients in the soil so that seeds can germinate and grow into new plants. And a new life cycle of a plant begins!

Comprehension Questions

10 minutes

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Inferential* What is the main topic, or main idea, of today's lesson? (The main topic of today's read-aloud is the life cycle of a plant.)
2. *Literal* A plant's life cycle begins with what part of the plant? (A plant's life cycle begins with the seed.)
3. *Literal* What things does a seed need to germinate? (A seed needs water, warmth from the sun, and nutrients.)
4. *Literal* What is a seedling? (A seedling is a young plant.)



◀ **Show image 3A-4: Seedling**

5. *Literal* What parts of a plant does a seedling have? (A seedling has roots, a stem, and leaves.)
6. *Inferential* Explain the life cycle of a plant. (First, the seed germinates and sprouts into a seedling. Next, the seedling continues to grow until it is an adult plant. Then, the adult plant will make more seeds from which new plants will grow. Finally, the plant will decay and turn into nutrients in the soil.)
7. *Literal* What kind of tree does an acorn grow into? (An acorn grows into an oak tree.)

[Please continue to model the *Think Pair Share* process for the students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

8. *Evaluative Think Pair Share:* Compare the life cycle of a plant to the life cycle of a human. How are they similar? How are they different? (Both plants and humans start off small and grow to be big. Plants grow from seeds, whereas humans do not grow from seeds.)
9. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these remaining questions.]

Word Work: Germinate

5 minutes

1. In the read-aloud you heard, "In order to *germinate*—or begin growing into new plants—seeds must have water, light from the sun, and nutrients from the soil."
2. Say the word *germinate* with me.
3. *Germinate* means to sprout from a seed and begin growing into a new plant.
4. My bean plant has started to germinate, and I can see it sprouting out of the ground!
5. Tell about the things that a seed needs to germinate. Try to use the word *germinate* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase students' responses: "A seed needs _____ to germinate."]
6. What's the word we've been talking about?

Use an *Acting* activity for follow-up. Directions: I would like you to pretend that you are seeds and demonstrate what happens when a seed germinates and starts to grow. Make sure to explain each stage as you demonstrate it. Be sure to begin your responses with "When a seed germinates, it . . ."



Complete Remainder of the Lesson Later in the Day



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Extensions

15 minutes

Sayings and Phrases: Great Oaks from Little Acorns Grow

Proverbs are short, traditional sayings that have been passed along orally from generation to generation. These sayings usually express general truths based on experiences and observations of everyday life. Although some proverbs do have literal meanings—that is, they mean exactly what they say—many proverbs have a richer meaning beyond the literal level. It is important to help students understand the difference between the literal meanings of the words and their implied or figurative meanings.

Read students the saying “great oaks from little acorns grow.” This saying means that just as a small acorn can grow into a towering oak tree, something that starts out small or not really important can turn out big or really important.

Explain that this saying is often used to describe people who start from very simple beginnings and then, later in life, become very important. Share with students that Abraham Lincoln was born in a log cabin and read books by the light of a fire. His family was very poor, but he became one of the greatest presidents of the United States! When talking about his life, it is a good time to use the saying, “great oaks from little acorns grow.”

Ask students to share or give examples of other individuals who grew to be very important and made a difference. Prompt students, if necessary, by reminding them of various individuals whom they have learned about in read-alouds from other domains.

To reinforce the concept of the life cycle, have students think of other plants and trees to invent new sayings. For example, say “Tall pines from small pine seeds grow” or “Juicy peaches from small pits grow.”

⇌ Syntactic Awareness Activity

Expanding Sentences

Directions: I will show you a picture. Then I will ask one question at a time. Each time a question is answered, we will add it to our sentence to make our sentence expand.

Note: There may be variations in the sentences created by your class. Allow for these variations and restate students' sentences so that they are grammatical.

1. [Show Image Card 19: Tree with roots.] What do you see in this picture? (a tree)

I see a tree.

It is a tree.

2. Is the tree tall or short? (tall)

I see a tall tree.

It is a tall tree.

3. What is on the tree? (leaves)

I see a tall tree with leaves.

It is a tall tree with leaves.

The tall tree has leaves.

4. What color are the leaves on the tree? (green)

I see a tall tree with green leaves.

It is a tall tree with green leaves.

The tall tree has green leaves.

Vocabulary Instructional Activity

Word Work: Cycle

1. In the read-aloud you heard, “Like all living things, plants live according to a life *cycle*. A life *cycle* includes the stages and changes that happen in living things.”
2. Say the word *cycle* with me.
3. A cycle is a repeated series of events, or things that happen over and over again in a particular order.
4. The life cycle of a chicken begins when it is an egg.
5. What other living things can you describe the life cycles of? Try to use the word *cycle* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “The life cycle of a _____ begins when . . .”]
6. What’s the word we’ve been talking about?

Use a *Drawing* activity for follow-up. Directions: Work with your neighbor to draw the life cycle of a plant or animal. Be sure to begin your explanation with “My drawing shows the life cycle of a _____.”