

Grade 2 Science

Unit 2: Organisms and Their Habitats

17 lessons and a unit quiz. Use this pack with the **Organisms and Their Habitats Student Reader** (print it, or download it once from the course) to teach the whole unit without the internet.

What is in this pack

- A lesson plan for each chapter: the Big Question, words to know, which pages to read, questions to talk over and the activity pages.
- The unit quiz, ready to print.
- Answers for the teacher at the back: every discussion question and the quiz key.

This course is based on an original work of the Core Knowledge® Foundation (www.coreknowledge.org) made available through licensing under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. This does not in any way imply that the Core Knowledge Foundation endorses this work. PGAMO added the lesson pages, study packs and quizzes layout, and shares them under the same license. License: CC BY-NC-SA 4.0 (<https://creativecommons.org/licenses/by-nc-sa/4.0/>).

Lesson schedule

Two or three lessons a week, about 30 minutes each. Tick each one off as you go.

	Lesson	Reader pages	Activity pages
☐	Getting started: Meet the Big Question	PDF pages 6–9	—
☐	Lesson 1.1: Types of Plants Around Me	—	AP 1.1.1
☐	Lesson 1.2: Plants in Different Places	—	AP 1.2.1
☐	Lesson 1.3: Plant Habitats	PDF pages 10–19	AP 1.3.1
☐	Lesson 1.4: Lesson 1 Roundup: Plants and Butterflies	—	AP 1.4.1
☐	Lesson 2.1: Finding Out What Plants Need	PDF pages 20–23	AP 2.1.1, AP 2.1.2
☐	Lesson 2.2: Testing What Plants Need	—	—
☐	Lesson 2.3: Collecting Data About What Plants Need	—	—
☐	Lesson 2.4: What Plants Need	—	AP 2.4.1
☐	Lesson 2.5: Lesson 2 Roundup: Plants and Sunlight and Water	—	—
☐	Lesson 3.1: Types of Animals Around Me	—	AP 3.1.1
☐	Lesson 3.2: Animals in a Habitat	—	AP 3.2.1
☐	Lesson 3.3: Animal Habitats	PDF pages 24–35	AP 3.3.1
☐	Lesson 3.4: Lesson 3 Roundup: Butterflies and Other Animals	—	—
☐	Lesson 4.1: Plants Need Animals	PDF pages 36–41	AP 4.1.1
☐	Lesson 4.2: Animals Need Plants	—	AP 4.2.1
☐	Lesson 4.3: Lesson 4 Roundup: Plants and Animals Depend on Each Other	PDF pages 42–52	AP 4.3.1
☐	Unit review and assessment	—	AP UO.1, AP UC.1
☐	Words quiz	—	—

Page numbers are the PDF page numbers of the Student Reader file, so they match what your PDF reader shows.

Getting started: Meet the Big Question

THE BIG QUESTION

What must be done to make a natural butterfly habitat?

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 23–30: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 1: “Where Are the Butterflies?”: PDF pages 6–9. Look at the pictures and maps together.

Talk it over

1. Distribute What Do Butterflies Need to Live?
2. How do you know?
3. What would you put in a land lab at our school?
4. He'll ask his dad for help. 3 UNIT OPENER 21 LITERAL—What animals did the class see in the land lab?
5. INFERENTIAL—Why would Corbin see butterflies at his home and not in the land lab?
6. Then maybe they can solve the mystery of the butterflies disappearing in time for Teacher Appreciation Day. 5 LITERAL—What did Corbin know butterflies like?
7. INFERENTIAL—Where did the butterflies go?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What must be done to make a natural butterfly habitat?

Lesson 1.1: Types of Plants Around Me

THE BIG QUESTION

What plants can I see around where I live and go to school?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diversity** — a variety of things; the state of being diverse. Words and phrases are the unit that you should model for or use in isolated drill or memorization
- **habitat** — the environment where organisms usually live
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **record** — to collect and keep information
- **varied** — including a wide range of things
- **variety** — a range of differences within a group

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 31–37: the steps, materials and timing for this lesson.

Talk it over

1. Accept reasonable responses: DCI LS4.D How can you tell the difference between a plant and an animal?
2. What types of plants have you seen around school and at home?
3. Activity Page What plants from our list are the most common?
4. How are the plants you observed the same and different?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What plants can I see around where I live and go to school?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.1.1: Plants Around Me — Teacher Guide PDF page 159

Lesson 1.2: Plants in Different Places

THE BIG QUESTION

How can I describe the habitat of plants that live in the area where I live?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diversity** — a variety of things; the state of being diverse
ced words and phrases are the unit that you should model for or use in isolated drill or memorization
- **habitat** — the environment where organisms usually live
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **record** — to collect and keep information
- **varied** — including a wide range of things
- **variety** — a range of differences within a group

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 38–42: the steps, materials and timing for this lesson.

Talk it over

1. How are the plants the same?
2. Ask the following questions to make further ties to the Anchoring Phenomenon:
LESSON 1.2 | PLANTS IN DIFFERENT PLACES 35 • Of the plants we looked at today, which ones do you think would be best for our butterfly habitat?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How can I describe the habitat of plants that live in the area where I live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.2.1: Plants in My Habitat — Teacher Guide PDF page 160

Lesson 1.3: Plant Habitats

THE BIG QUESTION

What are some different types of plants and the places in which they live?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diversity** — a variety of things; the state of being diverse
ced words and phrases are the unit that you should model for or use in isolated drill or memorization
- **habitat** — the environment where organisms usually live
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **record** — to collect and keep information
- **varied** — including a wide range of things
- **variety** — a range of differences within a group

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 43–56: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapters 2–3: “What Are Some Plant Habitats?” and “Plants Change with the Seasons”: PDF pages 10–19. Look at the pictures and maps together.

Talk it over

1. Then discuss these questions to activate prior knowledge: DCI LS4.D How would you describe the habitat that we explored?
2. LITERAL—What do butterflies need to survive?
3. The oak tree's leaves change color in the fall. oak leaves hickory trees hickory nuts 8
INFERENTIAL—How is a tropical forest different from a forest that changes when the weather changes?
4. INFERENTIAL—Besides a tasty meal for animals, what purpose do you think nuts have?
5. Its flowers attract moths. 9 LITERAL—How can you describe a desert?
6. INFERENTIAL—Are desert habitats always hot?

7. It is the only plant where monarch butterflies lay their eggs. 10 INFERENTIAL—How is plant life on a prairie different from that in a desert?
8. Corbin wonders if the plants that grow in the land lab are the right kind for butterflies. 11 LITERAL—Which plants did we observe in our local habitat that you saw in this chapter?
9. EVALUATIVE—Out of the different environments in this chapter, which would you like to live in?
10. What types of plants live in freshwater habitats, such as ponds, lakes, and marshes?
11. INFERENTIAL—Why do you think that insects and animals can find plenty of food in the summer?
12. INFERENTIAL—How do plants survive a cold winter?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What are some different types of plants and the places in which they live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.3.1: Plant Changes — Teacher Guide PDF page 161

Lesson 1.4: Lesson 1 Roundup: Plants and Butterflies

THE BIG QUESTION

How much variety is there among plants?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diversity** — a variety of things; the state of being diverse
ced words and phrases are the unit that you should model for or use in isolated drill or memorization
- **habitat** — the environment where organisms usually live
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **record** — to collect and keep information
- **varied** — including a wide range of things
- **variety** — a range of differences within a group

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 57–60: the steps, materials and timing for this lesson.

Talk it over

1. How do butterflies use plants?
2. Review information from the video by asking these questions: How many species of butterflies are there?
3. DCI LS4.D Where do butterflies live?
4. What kinds of plants attract butterflies?
5. NGSS Elements CCC 1 DCI LS4.D • Why do you think you will need a variety of flowering plants in a butterfly garden?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How much variety is there among plants?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.4.1: Butterfly Habitat — Teacher Guide PDF page 162

Lesson 2.1: Finding Out What Plants Need

THE BIG QUESTION

How can we investigate what plants need?

Words to know

- **conclude** — to determine an explanation after considering evidence
- **control** — the unchanged thing or group used as a comparison to the results of an experiment
- **fair test** — a science investigation that controls all but one variable in order to answer a specific question
- **investigate** — to observe and study something to collect information
- **record** — to collect and keep information
- **respond** — to react to something (response, n. a reaction to something)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 61–68: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 4: “What Do Plants Need to Grow?”: PDF pages 20–23. Look at the pictures and maps together.

Talk it over

1. How do we know what plants need?
2. Confirm that the plants are about the same height and have the same number of leaves. • Ask these questions about their plants: What do you need to take care of your plants?
3. For a test to be fair, only one thing or variable is tested at a time. 60 ORGANISMS AND THEIR HABITATS Activity Pages How can we test that plants need sunlight?
4. AP 2.1.2 How long do you think it would take before you would know what the effect of your test is?
5. Discuss the following questions about the butterfly habitat students will be creating: • How will you know if the plants in your butterfly habitat need sunlight?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How can we investigate what plants need?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.1.1: Testing What Plants Need (Light Test) — Teacher Guide PDF page 163
- Activity Page 2.1.2: Testing What Plants Need (Water Test) — Teacher Guide PDF page 165

Lesson 2.2: Testing What Plants Need

THE BIG QUESTION

How can we test if plants need sunlight and water to grow?

Words to know

- **conclude** — to determine an explanation after considering evidence
- **control** — the unchanged thing or group used as a comparison to the results of an experiment
- **fair test** — a science investigation that controls all but one variable in order to answer a specific question
- **investigate** — to observe and study something to collect information
- **respond** — to react to something (response, n. a reaction to something)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 69–72: the steps, materials and timing for this lesson.

Talk it over

1. ORGANISMS AND THEIR HABITATS If you are testing two plants to see if they need water, should you leave one in the sunlight and the other in the dark?
2. Discuss these questions: • Where could Corbin get enough light for the plants in the butterfly habitat?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How can we test if plants need sunlight and water to grow?
- Use one of today's words in a sentence of your own.

Lesson 2.3: Collecting Data About What Plants Need

THE BIG QUESTION

How do plants respond to different amounts of light and water?

Words to know

- **conclude** — to determine an explanation after considering evidence
- **control** — the unchanged thing or group used as a comparison to the results of an experiment
- **data** — information that is observed or measured and recorded
- **fair test** — a science investigation that controls all but one variable in order to answer a specific question
- **investigate** — to observe and study something to collect information
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **respond** — to react to something (response, n. a reaction to something)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 73–76: the steps, materials and timing for this lesson.

Talk it over

1. Discuss the following questions: • Why would Corbin need plants that get enough sun and water in the butterfly habitat?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How do plants respond to different amounts of light and water?
- Use one of today's words in a sentence of your own.

Lesson 2.4: What Plants Need

THE BIG QUESTION

What Plants Need 2.4 What do plants need?

Words to know

- **conclude** — to determine an explanation after considering evidence
- **control** — the unchanged thing or group used as a comparison to the results of an experiment
- **evidence** — a detail that supports a claim or helps prove an idea is true
- **fair test** — a science investigation that controls all but one variable in order to answer a specific question
- **investigate** — to observe and study something to collect information
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **record** — to collect and keep information
- **respond** — to react to something (response, n. a reaction to something)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 77-84: the steps, materials and timing for this lesson.

Talk it over

1. Review what testing students have started in the previous lesson segments: CCC 2 DCI LS2.A What are we testing to find out about plant needs?
2. They can survive in hot, bright sunlight. 17 LITERAL—What are the four things plants need to survive?
3. The kernels in these sunflowers could end up as a tasty snack for you. 19 LITERAL—In what type of weather did the farmer plant the sunflower seeds?
4. LITERAL—How do you know when to harvest sunflower seeds?
5. Discuss these questions: • What are your sources of water for the plants in your butterfly habitat?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What Plants Need 2.4 What do plants need?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.4.1: Plant Needs — Teacher Guide PDF page 167

Lesson 2.5: Lesson 2 Roundup: Plants and Sunlight and Water

THE BIG QUESTION

Do plants need water and sunlight to grow?

Words to know

- **conclude** — to determine an explanation after considering evidence
- **control** — the unchanged thing or group used as a comparison to the results of an experiment
- **data** — information that is observed or measured and recorded
- **fair test** — a science investigation that controls all but one variable in order to answer a specific question
- **investigate** — to observe and study something to collect information
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **respond** — to react to something (response, n. a reaction to something)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 85–88: the steps, materials and timing for this lesson.

Talk it over

1. Ask students, Why might scientists record their observations?
2. AP 2.1.1 AP 2.1.2 • Discuss the results of the observations by asking these questions:
Sunlight Test: What were the differences you observed between the plants that were given and not given sunlight?
3. NGSS Elements SEP 3 Water Test: What were the differences you observed between the plants that were given and not given water?
4. CCC 2 Sunlight and Water: What did you notice about the height of the two plants that got both water and sunlight?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: Do plants need water and sunlight to grow?
- Use one of today's words in a sentence of your own.

Lesson 3.1: Types of Animals Around Me

THE BIG QUESTION

What animals can I see around where I live and go to school?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **contrast** — to look for differences between two things
- **coral** — small sea creatures that live in colonies and are surrounded by a hard substance that they form
- **cycle** — a series of events that repeats in the same order
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diverse** — to have variety; many different types
- **habitat** — the environment where organisms usually live
- **meadow** — an open area of grass and flowers
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **plankton** — tiny water organisms (including algae, bacteria, and protozoans) that drift and are the primary food source for many animals
- **prairie** — a large, flat area of grassland
- **record** — to collect and keep information
- **season** — a three-month part of the year determined by the weather and daylight hours
- **stream** — a body of flowing water smaller than a river
- **tropical** — referring to the region located just north and south of Earth's equator
- **tundra** — an area in the arctic with flat ground, no trees, and permanently frozen subsoil

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 89–95: the steps, materials and timing for this lesson.

Talk it over

1. Accept reasonable answers: ORGANISMS AND THEIR HABITATS How can you tell the difference between a plant and an animal?

2. How are animals different from each other?
3. As you record the list, discuss whether each is or is not an animal. • Then ask these questions: What makes an animal different from other living and nonliving things?
4. Which of the animals you observed do you think butterflies would get along with?
5. Discuss the following questions: What kinds of animals would not eat butterflies?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What animals can I see around where I live and go to school?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.1.1: Animals Around Me — Teacher Guide PDF page 168

Lesson 3.2: Animals in a Habitat

THE BIG QUESTION

How can I describe the habitat of animals that live in the area where I live?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **contrast** — to look for differences between two things
- **coral** — small sea creatures that live in colonies and are surrounded by a hard substance that they form
- **cycle** — a series of events that repeats in the same order
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diverse** — to have variety; many different types
- **habitat** — the environment where organisms usually live
- **meadow** — an open area of grass and flowers
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **plankton** — tiny water organisms (including algae, bacteria, and protozoans) that drift and are the primary food source for many animals
- **prairie** — a large, flat area of grassland
- **record** — to collect and keep information
- **season** — a three-month part of the year determined by the weather and daylight hours
- **stream** — a body of flowing water smaller than a river
- **tropical** — referring to the region located just north and south of Earth's equator
- **tundra** — an area in the arctic with flat ground, no trees, and permanently frozen subsoil

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 96–99: the steps, materials and timing for this lesson.

Talk it over

1. How are the animals the same?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How can I describe the habitat of animals that live in the area where I live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.2.1: Animals in My Habitat — Teacher Guide PDF page 169

Lesson 3.3: Animal Habitats

THE BIG QUESTION

What are some different types of places where animals live?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **contrast** — to look for differences between two things
- **coral** — small sea creatures that live in colonies and are surrounded by a hard substance that they form
- **cycle** — a series of events that repeats in the same order
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diverse** — to have variety; many different types
- **habitat** — the environment where organisms usually live
- **meadow** — an open area of grass and flowers
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **plankton** — tiny water organisms (including algae, bacteria, and protozoans) that drift and are the primary food source for many animals
- **prairie** — a large, flat area of grassland
- **record** — to collect and keep information
- **season** — a three-month part of the year determined by the weather and daylight hours
- **stream** — a body of flowing water smaller than a river
- **tropical** — referring to the region located just north and south of Earth's equator
- **tundra** — an area in the arctic with flat ground, no trees, and permanently frozen subsoil

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 100–115: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapters 5–6: “What Are Some Animal Habitats?” and “Animals Change with the Seasons”: PDF pages 24–35. Look at the pictures and maps together.

Talk it over

1. Many types of birds nest in forest trees. 21 LITERAL—What do animals need to survive?
2. How else do you think they survive in the forest?
3. When the caterpillars hatch, they eat the plants, too. 23 LITERAL—What is one type of habitat butterflies live in?
4. Freshwater mussels live in lake, river, and stream habitats. 25 INFERENTIAL—What other kinds of animals live in freshwater habitats?
5. Garter snakes come out from underground to find food. 29 INFERENTIAL—What changes do you see in the animal life in our local habitat in spring and summer?
6. LITERAL—Where do monarch butterflies go when it starts to get cold in winter?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What are some different types of places where animals live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.3.1: Animal Changes — Teacher Guide PDF page 170

Lesson 3.4: Lesson 3 Roundup: Butterflies and Other Animals

THE BIG QUESTION

How much variety is there 3.4 Lesson 3 Roundup: Butterflies and Other Animals among animals?

Words to know

- **compare** — to examine characteristics of two or more things, particularly looking for similarities
- **contrast** — to look for differences between two things
- **coral** — small sea creatures that live in colonies and are surrounded by a hard substance that they form
- **cycle** — a series of events that repeats in the same order
- **deciduous** — describing plants that lose their leaves in the fall and grow new leaves in the spring
- **diverse** — to have variety; many different types
- **habitat** — the environment where organisms usually live
- **meadow** — an open area of grass and flowers
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **organism** — a living thing that can reproduce, grow, adapt, and respond to its environment
- **plankton** — tiny water organisms (including algae, bacteria, and protozoans) that drift and are the primary food source for many animals
- **prairie** — a large, flat area of grassland
- **record** — to collect and keep information
- **season** — a three-month part of the year determined by the weather and daylight hours
- **stream** — a body of flowing water smaller than a river
- **tropical** — referring to the region located just north and south of Earth's equator
- **tundra** — an area in the arctic with flat ground, no trees, and permanently frozen subsoil

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 116–120: the steps, materials and timing for this lesson.

Talk it over

1. Online Resources • How do butterflies eat?
2. Butterflies rest on plants and use trees and shrubs for protection. • What other animals live in the same habitat as butterflies in our local environment?
3. Ask these questions for students to consider. (See Know the Science.) NGSS Elements
Is there anything that can be done to protect butterflies from animals that will eat them?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How much variety is there 3.4 Lesson 3
Roundup: Butterflies and Other Animals among animals?
- Use one of today's words in a sentence of your own.

Lesson 4.1: Plants Need Animals

THE BIG QUESTION

How do animals help plants by spreading pollen and seeds?

Words to know

- **depend** — to rely on something or someone
- **ecosystem** — organisms and their environment together as an interrelated system enough, adv./adj. as much of something as needed
- **pollinate** — to transfer pollen from one flower to another flower of the same type (pollination, n. the process of transferring pollen)
- **related** — connected in some way (relationship, n. the connection between two or more things)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 121–127: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 7: “Plants and Animals Depend on Each Other”: PDF pages 36–41. Look at the pictures and maps together.

Talk it over

1. Accept reasonable answers: Can both plants and animals live in one habitat?
2. Do butterflies help plants?
3. See the Online Resources Guide for a link to the recommended video: www.coreknowledge.org/cksci-online-resources • Then ask these questions. (See Know the Science 2.) Which seeds in the video are spread by animals?
4. Then ask these questions: What is pollination?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How do animals help plants by spreading pollen and seeds?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 4.1.1: Seed Search — Teacher Guide PDF page 171

Lesson 4.2: Animals Need Plants

THE BIG QUESTION

How do animals depend on plants?

Words to know

- **depend** — to rely on something or someone
- **ecosystem** — organisms and their environment together as an interrelated system enough, adv./adj. as much of something as needed
- **pollinate** — to transfer pollen from one flower to another flower of the same type (pollination, n. the process of transferring pollen)
- **related** — connected in some way (relationship, n. the connection between two or more things)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 128-137: the steps, materials and timing for this lesson.

Talk it over

1. Then discuss these questions to activate prior knowledge: CCC 2 DCI LS2.A How do plants need animals?
2. They stick to animal fur. 33 INFERENTIAL—What would happen if there were no plants?
3. Caterpillars hatch on plants and eat the leaves while they grow. 34 LITERAL—What needs do butterflies meet using plants?
4. Corbin also knows that for the right plants to grow and attract butterflies, the plants also must get what they need in their habitats. 35 LITERAL—What does a habitat need to attract butterflies?
5. Carver, even better than a picture book. 36 LITERAL—What type of flowers do caterpillars like?
6. EVALUATIVE—Why would the butterflies need to rest and get food?
7. Carver's Butterfly Garden." 37 LITERAL—How do butterflies help plants?
8. How can you find out what types of plants butterflies like so that you and your class could build your own school butterfly flower bed?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How do animals depend on plants?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 4.2.1: Plants Pollinators Like — Teacher Guide PDF page 172

Lesson 4.3: Lesson 4 Roundup: Plants and Animals Depend on Each Other

THE BIG QUESTION

How can we model an animal 4.3 Lesson 4 Roundup: Plants and Animals Depend on Each spreading pollen or seeds?

Words to know

- **depend** — to rely on something or someone
- **ecosystem** — organisms and their environment together as an interrelated system enough, adv./adj. as much of something as needed
- **pollinate** — to transfer pollen from one flower to another flower of the same type (pollination, n. the process of transferring pollen)
- **related** — connected in some way (relationship, n. the connection between two or more things)

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 138–156: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 8: “Science in Action”: PDF pages 42–52. Look at the pictures and maps together.

Talk it over

1. This is not the forest; this is a wetland habitat. LITERAL—What do students observe in this habitat?
2. What type of animal and plant are you modeling?
3. What is the cause of the movement of the seeds or pollen?
4. After each presentation, discuss these questions with the class: AP UC.1 Why did you include the plants you did?
5. What might harm butterflies in this habitat?
6. How will the plants produce new plants?
7. UNIT SUPPLEMENT | SCIENCE IN ACTION: A VISIT WITH A NATURALIST 143
LITERAL—What is the first way to protect a habitat?
8. LITERAL—What do scientists use when they make observations?
9. Maddox take the students to?
10. They record these observations in their notebooks, too. 41 LITERAL—What is different about the habitat in these pictures?
11. LITERAL—How do the students keep track of what they observe?

12. Maddox want to become a naturalist! 42 LITERAL—What do the students do inside at the nature center building?
13. LITERAL—What animal did John James Audubon spend a lot of time studying?
14. His discoveries have been used to prompt modern-day investigations about the behaviors and traits of animals. 148 ORGANISMS AND THEIR HABITATS
INFERENTIAL—In what way do you think being a painter helped Audubon study nature?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How can we model an animal 4.3
Lesson 4 Roundup: Plants and Animals Depend on Each spreading pollen or seeds?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 4.3.1: Modeling Animals and Plants — Teacher Guide PDF page 173

UNIT REVIEW

Unit review and assessment

- Activity page answer key (for the teacher): Teacher Guide PDF pages 175–176
- Activity Page UO.1 — Teacher Guide PDF page 158
- Activity Page UC.1 — Teacher Guide PDF page 174

WORDS QUIZ

Organisms and Their Habitats

Name: _____ Date: _____

Circle the letter of the best answer.

1. Which word means “the soft, seed-bearing part of flowering plants”?
 - a) insect
 - b) diverse
 - c) fruit
 - d) respond
2. Which word means “to transfer pollen from one flower to another flower of the same type (pollination, n. the process of transferring pollen)”?
 - a) pond
 - b) pollinate
 - c) plant
 - d) fur
3. Which word means “the soft, short hair that covers most mammals”?
 - a) water
 - b) desert
 - c) naturalist
 - d) fur
4. Which word means “a three-month part of the year determined by the weather and daylight hours”?
 - a) whale
 - b) diverse
 - c) investigate
 - d) season
5. Which word means “to observe and study something to collect information”?
 - a) investigate
 - b) plant
 - c) vine
 - d) pollinate
6. Which word means “a plant with long, narrow leaves and jointed stems”?
 - a) sun
 - b) grass
 - c) insect
 - d) desert

- 7.** Which word means “to have variety; many different types”?
- a) ocean
 - b) diverse
 - c) nutrients
 - d) naturalist
- 8.** Which word means “information that is observed or measured and recorded”?
- a) fur
 - b) stem
 - c) snail
 - d) data
- 9.** Which word means “an area with dry land and warm climate”?
- a) desert
 - b) water
 - c) pollinate
 - d) more
- 10.** Which word means “the star that Earth moves around and that provides Earth with light and heat”?
- a) vine
 - b) naturalist
 - c) sun
 - d) tundra
- 11.** Which word means “an area covered primarily with grass”?
- a) grassland
 - b) model
 - c) stem
 - d) plant
- 12.** Which word means “an animal with six legs and one or two pairs of wings”?
- a) desert
 - b) plant
 - c) vine
 - d) insect

Answers

Getting started: Meet the Big Question

1. **Distribute What Do Butterflies Need to Live?**

AP UO.1

2. **How do you know?**

Yes, because I have seen different types and colors of butterflies before outside
INFERENTIAL—Have any of you seen the type of butterfly in the picture? What kinds of butterflies have you seen?

3. **What would you put in a land lab at our school?**

Accept reasonable answers. Invite students to give reasons for their opinions.
SUPPORT—Show a video of an outdoor land lab to provide a common experience. See the Online Resources Guide for a link to a recommended video:
www.coreknowledge.org/cksci-online-resources

4. **He'll ask his dad for help. 3 UNIT OPENER 21 LITERAL—What animals did the class see in the land lab?**

Birds, squirrels, rabbits INFERENTIAL—Why don't they see any butterflies?

5. **INFERENTIAL—Why would Corbin see butterflies at his home and not in the land lab?**

The land lab doesn't have the same things as Corbin has at his home. Pages 4–5

6. **Then maybe they can solve the mystery of the butterflies disappearing in time for Teacher Appreciation Day. 5 LITERAL—What did Corbin know butterflies like?**

Sweet liquids INFERENTIAL—Why did Corbin put cotton balls soaked with sugar water in the containers?

7. **INFERENTIAL—Where did the butterflies go?**

Accept reasonable answers. INFERENTIAL—Why didn't the butterflies make a new home in the land lab?

Lesson 1.1: Types of Plants Around Me

1. **Accept reasonable responses: DCI LS4.D How can you tell the difference between a plant and an animal?**

Plants don't walk or move around. Plants are often green.

2. **What types of plants have you seen around school and at home?**

Grass, trees, flowers, vines, dandelions, bushes How do we know what plants butterflies might need to live?

3. **Activity Page What plants from our list are the most common?**

Grass, trees

4. **How are the plants you observed the same and different?**

Some are tall, some have leaves, some have wood, some are green, and some are different colors. Which of the plants on our list do you think butterflies would like?

Lesson 1.2: Plants in Different Places

1. How are the plants the same?

For example, six are green, and three are brown. How are the plants different?

2. Ask the following questions to make further ties to the Anchoring Phenomenon: LESSON 1.2 | PLANTS IN DIFFERENT PLACES 35 • Of the plants we looked at today, which ones do you think would be best for our butterfly habitat?

For example, ones that have flowers or will have flowers

Lesson 1.3: Plant Habitats

1. Then discuss these questions to activate prior knowledge: DCI LS4.D How would you describe the habitat that we explored?

Dry, wet, shady, open to the sun, hot, warm, cold

2. LITERAL—What do butterflies need to survive?

Plants that provide food and shelter LITERAL—How can you describe a tropical forest habitat?

3. The oak tree's leaves change color in the fall. oak leaves hickory trees hickory nuts 8 INFERENTIAL—How is a tropical forest different from a forest that changes when the weather changes?

The trees in a tropical forest keep their leaves and don't change colors. In a forest that has weather changes, trees drop their leaves when the weather gets colder.

LITERAL—What did the leaves look like that we found in our local habitat?

4. INFERENTIAL—Besides a tasty meal for animals, what purpose do you think nuts have?

They make new trees. CORE VOCABULARY—Explain that a tree is a plant that usually has a single woody stem called a trunk and may grow to be very tall. People use wood from trees for building and heat. Many animals and plants depend on trees for food or shelter. Ask students to describe a tree and a leaf or needle from the tree. 42

5. Its flowers attract moths. 9 LITERAL—How can you describe a desert?

Very dry without much rainfall INFERENTIAL—How are desert plants different from tropical forest plants?

6. INFERENTIAL—Are desert habitats always hot?

No, it depends on where they exist. Antarctica is a desert because it doesn't get much rainfall. Hot deserts can get cool at night. At night the sand in a hot desert loses its heat, so the area is cooler. INFERENTIAL—Could butterflies live in a desert habitat?

7. It is the only plant where monarch butterflies lay their eggs. 10 INFERENTIAL—How is plant life on a prairie different from that in a desert?

Both have few trees, but a prairie gets more rain. So, it has a lot of plants, like grasses and milkweed. INFERENTIAL—Would butterflies thrive in a prairie habitat?

8. Corbin wonders if the plants that grow in the land lab are the right kind for butterflies. 11 LITERAL—Which plants did we observe in our local habitat that you saw in this chapter?

Answers will vary depending on the local environment, but students may say grasses, pine trees, and/or flowers. **INFERENTIAL**—In which type of habitat would butterflies most likely thrive?

9. **EVALUATIVE—Out of the different environments in this chapter, which would you like to live in?**

Accept reasonable answers. Invite students to give reasons for their opinions.

10. **What types of plants live in freshwater habitats, such as ponds, lakes, and marshes?**

Plants that have roots on the bottom under the water, fixed plants that have roots on the bottom and leaves at the surface of the water, floating plants, and plants that live on the edge

11. **INFERENTIAL—Why do you think that insects and animals can find plenty of food in the summer?**

The temperature is usually warmer in the summer. So, the plants have more fruits and flowers in the summer. **CORE VOCABULARY**—Explain that a fruit is the part of a plant that contains seeds. We eat many fruits, including apples, oranges, avocados, and tomatoes, and eat or remove the seeds. Some fruits have one big seed. Others have lots of seeds. All flowering plants produce fruits that contain seeds.

12. **INFERENTIAL—How do plants survive a cold winter?**

They survive on food stored in roots or stems. If the plant dies, the seeds may still be able to sprout in the spring. **EXTEND**—Have students learn about and describe seasonal changes in tropical habitats. Most tropical areas experience a wet season and a dry season. In wet seasons, plants grow a lot and produce fruits and seeds late in the season.

Lesson 1.4: Lesson 1 Roundup: Plants and Butterflies

1. **How do butterflies use plants?**

See Know the Science.

2. **Review information from the video by asking these questions: How many species of butterflies are there?**

As many as 20,000 species

3. **DCI LS4.D Where do butterflies live?**

On every continent except Antarctica What do adult butterflies eat?

4. **What kinds of plants attract butterflies?**

Brightly colored flowering plants, such as lavender, echinacea, yarrow, wallflower, butterfly bush, ceanothus, avens, masterwort, gaillardia, and sea holly

5. **NGSS Elements CCC 1 DCI LS4.D • Why do you think you will need a variety of flowering plants in a butterfly garden?**

So there are continuous flowers for a long time for the butterflies

Lesson 2.1: Finding Out What Plants Need

1. **How do we know what plants need?**

Accept reasonable answers. If a plant is dry, it might need water. If a plant is droopy, it may need sunlight.

2. **Confirm that the plants are about the same height and have the same number of leaves. • Ask these questions about their plants: What do you need to take care of your plants?**

Water, sunlight, air, and nutrients

3. **For a test to be fair, only one thing or variable is tested at a time. 60 ORGANISMS AND THEIR HABITATS Activity Pages How can we test that plants need sunlight?**

Put one plant in the dark and another in the sunlight. How can we test that plants need water?

4. **AP 2.1.2 How long do you think it would take before you would know what the effect of your test is?**

A day, a week, a month How will you know that your test has had an effect?

5. **Discuss the following questions about the butterfly habitat students will be creating: • How will you know if the plants in your butterfly habitat need sunlight?**

They will not look healthy and may not grow.

Lesson 2.2: Testing What Plants Need

1. **ORGANISMS AND THEIR HABITATS If you are testing two plants to see if they need water, should you leave one in the sunlight and the other in the dark?**

You should put both in the sunlight. The only difference should be one plant is watered and one plant is not watered. Otherwise you don't know what causes the changes you might see.

2. **Discuss these questions: • Where could Corbin get enough light for the plants in the butterfly habitat?**

From the sun

Lesson 2.3: Collecting Data About What Plants Need

1. **Discuss the following questions: • Why would Corbin need plants that get enough sun and water in the butterfly habitat?**

If the plants don't get enough sun and water, they will not grow and will not attract butterflies.

Lesson 2.4: What Plants Need

1. **Review what testing students have started in the previous lesson segments: CCC 2 DCI LS2.A What are we testing to find out about plant needs?**

To see if plants need sunlight and water What else do you think plants need to grow?

2. **They can survive in hot, bright sunlight. 17 LITERAL—What are the four things plants need to survive?**

Water, sunlight, air, room to grow INFERENTIAL—How does our local habitat provide what the plants that live in it need?

3. **The kernels in these sunflowers could end up as a tasty snack for you. 19**
LITERAL—In what type of weather did the farmer plant the sunflower seeds?
Warm weather INFERENTIAL—What do you think would happen to the sunflowers if the seeds were planted in cold weather?
4. **LITERAL—How do you know when to harvest sunflower seeds?**
When the weather gets colder, the heads of the flowers tilt down and turn brown.
CORE VOCABULARY—Explain that less and more are opposites, or antonyms. Some plants, like those in the desert, need less water than plants in the rain forest. Desert plants need more light from the sun than those in a forest. Plants that thrive in a particular habitat do so because they get enough sun and water.
5. **Discuss these questions:** • **What are your sources of water for the plants in your butterfly habitat?**
Rain, a sprinkler connected to a spigot, a watering can

Lesson 2.5: Lesson 2 Roundup: Plants and Sunlight and Water

1. **Ask students, Why might scientists record their observations?**
You don't have to remember what happened; you can look at your data. The data provides clues (evidence) that can help you draw conclusions.
2. **AP 2.1.1 AP 2.1.2 • Discuss the results of the observations by asking these questions: Sunlight Test: What were the differences you observed between the plants that were given and not given sunlight?**
Plants that were given sunlight were taller and greener than those that were not.
3. **NGSS Elements SEP 3 Water Test: What were the differences you observed between the plants that were given and not given water?**
Plants that were given water were taller and greener than those that were not.
4. **CCC 2 Sunlight and Water: What did you notice about the height of the two plants that got both water and sunlight?**
They had very similar heights because they received water and sunlight. Different Results: Why do you think it is possible for people to get different results?

Lesson 3.1: Types of Animals Around Me

1. **Accept reasonable answers: ORGANISMS AND THEIR HABITATS How can you tell the difference between a plant and an animal?**
For example, animals move and have body parts, such as eyes and ears. Plants usually stay in one place. How can you tell the difference between an animal and a nonliving thing, such as a rock or water?
2. **How are animals different from each other?**
Some are large like elephants. Some have fur, like a dog. Others have feathers, like a pelican. Some animals swim, some walk, some fly, and some crawl. What types of animals have you seen around school and at home?

3. **As you record the list, discuss whether each is or is not an animal. • Then ask these questions: What makes an animal different from other living and nonliving things?**

Animals eat, move around, and have senses. What animals are the most common?

4. **Which of the animals you observed do you think butterflies would get along with?**

Other insects and animals that do not eat butterflies

5. **Discuss the following questions: What kinds of animals would not eat butterflies?**

Worms, beetles, ladybugs, bees What animals would eat butterflies?

Lesson 3.2: Animals in a Habitat

1. **How are the animals the same?**

They all move, they all grow, and they all eat something. How are the animals different?

Lesson 3.3: Animal Habitats

1. **Many types of birds nest in forest trees. 21 LITERAL—What do animals need to survive?**

Air, food, water, and protection or shelter INFERENTIAL—Are the plant habitats we learned about, like forests, deserts, prairies, and mountains, the same as the animal habitats?

2. **How else do you think they survive in the forest?**

They find shelter under trees and get water from ponds and streams.

3. **When the caterpillars hatch, they eat the plants, too. 23 LITERAL—What is one type of habitat butterflies live in?**

A prairie

4. **Freshwater mussels live in lake, river, and stream habitats. 25 INFERENTIAL—What other kinds of animals live in freshwater habitats?**

Insects, frogs, some turtles, alligators INFERENTIAL—What are some freshwater habitats near us?

5. **Garter snakes come out from underground to find food. 29 INFERENTIAL—What changes do you see in the animal life in our local habitat in spring and summer?**

Answers will vary depending on the local habitat, but students may say that they hear frogs and crickets. They may see different kinds of birds. They may see bats, skunks, opossums, or raccoons. INFERENTIAL—Why do you think some animals shed their fur during the summer?

6. **LITERAL—Where do monarch butterflies go when it starts to get cold in winter?**

They fly south. INFERENTIAL—How do animals survive over a cold winter?

Lesson 3.4: Lesson 3 Roundup: Butterflies and Other Animals

1. **Online Resources • How do butterflies eat?**
Their feet “taste,” and they use a long tube to suck up nectar from flowers.
2. **Butterflies rest on plants and use trees and shrubs for protection. • What other animals live in the same habitat as butterflies in our local environment?**
Insects, worms, birds, squirrels, chipmunks
3. **Ask these questions for students to consider. (See Know the Science.) NGSS Elements Is there anything that can be done to protect butterflies from animals that will eat them?**
Not really. The best thing to do is to make sure there is a variety of plants so animals are not trying to all eat the same food and get the same shelter.

Lesson 4.1: Plants Need Animals

1. **Accept reasonable answers: Can both plants and animals live in one habitat?**
Yes, plants and animals can live together in habitats. How do butterflies interact with plants?
2. **Do butterflies help plants?**
Accept any answers with the understanding that they will be learning about how animals and plants interact in this lesson.
3. **See the Online Resources Guide for a link to the recommended video: www.coreknowledge.org/cksci-online-resources • Then ask these questions. (See Know the Science 2.) Which seeds in the video are spread by animals?**
Acorns, berries, burrs Which seeds in the video are spread by wind or gravity?
4. **Then ask these questions: What is pollination?**
An animal moves pollen from one flower to another. One of the cells in the pollen mixes with the egg of another flower and produces fruit and seeds. Which animals move pollen from flower to flower?

Lesson 4.2: Animals Need Plants

1. **Then discuss these questions to activate prior knowledge: CCC 2 DCI LS2.A How do plants need animals?**
To move pollen from flower to flower to make seeds and to spread seeds How do animals need plants?
2. **They stick to animal fur. 33 INFERENTIAL—What would happen if there were no plants?**
Animals would die because they would have nothing to eat, and they would have no shelter. EVALUATIVE—Some animals eat seeds. What plants do you like to eat?
3. **Caterpillars hatch on plants and eat the leaves while they grow. 34 LITERAL—What needs do butterflies meet using plants?**
The butterflies get shelter and food. LITERAL—How do butterflies use plants as part of the butterfly life cycle?

4. **Corbin also knows that for the right plants to grow and attract butterflies, the plants also must get what they need in their habitats. 35 LITERAL—What does a habitat need to attract butterflies?**
Flowers and water EVALUATIVE—What type of habitats would be best for butterflies?
5. **Carver, even better than a picture book. 36 LITERAL—What type of flowers do caterpillars like?**
Violets and milkweed LITERAL—What about the flowers attracts the butterflies?
6. **EVALUATIVE—Why would the butterflies need to rest and get food?**
The butterflies have to fly over a long distance from the warm place they stay in the winter.
7. **Carver’s Butterfly Garden.” 37 LITERAL—How do butterflies help plants?**
Butterflies pollinate plants and help them reproduce. LITERAL—How do plants help butterflies?
8. **How can you find out what types of plants butterflies like so that you and your class could build your own school butterfly flower bed?**
Observe butterflies in a garden, ask people who have butterfly gardens, ask people at a plant store, look online, or look in the library. Activity Page

Lesson 4.3: Lesson 4 Roundup: Plants and Animals Depend on Each Other

1. **This is not the forest; this is a wetland habitat. LITERAL—What do students observe in this habitat?**
See Know the Standards 4.
2. **What type of animal and plant are you modeling?**
For example, a butterfly pollinating a flower or a squirrel burying an acorn How is this model like and different from the real action of plants and animals?
3. **What is the cause of the movement of the seeds or pollen?**
An animal captures a seed or pollen in fur or a body part and moves it to a new location. What is the effect of the movement of the seeds or pollen?
4. **After each presentation, discuss these questions with the class: AP UC.1 Why did you include the plants you did?**
These plants flower over a long period and have bright colors that butterflies will want to go to for nectar. Why will butterflies be attracted to this habitat?
5. **What might harm butterflies in this habitat?**
Birds, other insects, not enough food What will happen to this habitat next year?
6. **How will the plants produce new plants?**
Butterflies will pollinate them. Other animals like birds and squirrels will spread the plant seeds. Differentiation
7. **UNIT SUPPLEMENT | SCIENCE IN ACTION: A VISIT WITH A NATURALIST 143 LITERAL—What is the first way to protect a habitat?**
To learn about it Explain that a naturalist is a scientist that studies nature.
INFERENTIAL—What kinds of things do you think a naturalist studies in nature?

8. **LITERAL—What do scientists use when they make observations?**
They use tools and their senses. **INFERENTIAL—What senses do you think scientists use to make observations?**
9. **Maddox take the students to?**
She takes them to a forest. **LITERAL—What do the students see there?**
10. **They record these observations in their notebooks, too. 41 LITERAL—What is different about the habitat in these pictures?**
This is not the forest; this is a wetland habitat. **LITERAL—What do students observe in this habitat? (See Know the Standards 4.)**
11. **LITERAL—How do the students keep track of what they observe?**
They count the animals they see and record everything in their notebooks.
12. **Maddox want to become a naturalist! 42 LITERAL—What do the students do inside at the nature center building?**
They compare what they recorded in their notebooks. **LITERAL—Why is the nature center called an Audubon center?**
13. **LITERAL—What animal did John James Audubon spend a lot of time studying?**
Birds **LITERAL—What did John James Audubon discover about birds?**
14. **His discoveries have been used to prompt modern-day investigations about the behaviors and traits of animals. 148 ORGANISMS AND THEIR HABITATS INFERENTIAL—In what way do you think being a painter helped Audubon study nature?**
He could paint what he observed and use that to record his findings.

Unit quiz key

1. c 2. b 3. d 4. d 5. a 6. b 7. b 8. d 9. a 10. c 11. a 12. d