

Kindergarten Science

Unit 2: Needs of Plants and Animals

15 lessons and a unit quiz. Use this pack with the **Needs of Plants and Animals 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.

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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 6–11	—
☐	Lesson 1.1: Places Plants Live	PDF pages 12–19	AP 1.1.1, AP 1.1.2
☐	Lesson 1.2: Getting Water and Light	—	AP 1.2.1, AP 1.2.2, AP 1.2.3
☐	Lesson 1.3: Different Places Plants Live	—	AP 1.3.1, AP 1.3.2, AP 1.3.3, AP 1.3.4
☐	Lesson 1.4: Plants and Their Needs	—	AP 1.4.1, AP 1.4.2
☐	Lesson 1.5: Lesson 5 Roundup: Mapping a Vacant Lot	—	AP 1.5.1
☐	Lesson 2.1: All Kinds of Animals	PDF pages 20–27	AP 2.1.1, AP 2.1.2
☐	Lesson 2.2: Animal Needs for Food and Water	—	AP 2.2.1, AP 2.2.2, AP 2.2.3
☐	Lesson 2.3: Places Animals Live	—	AP 2.3.1, AP 2.3.2, AP 2.3.3
☐	Lesson 2.4: Animals and Their Needs	—	AP 2.4.1, AP 2.4.2
☐	Lesson 2.5: Lesson 2 Roundup: Animals in Our Lot	—	—
☐	Lesson 3.1: Human Needs	PDF pages 28–37	AP 3.1.1
☐	Lesson 3.2: Materials Humans Use	—	AP 3.2.1
☐	Lesson 3.3: Meeting Human Needs	—	AP 3.3.1
☐	Lesson 3.4: Lesson 3 Roundup: Modeling a System for Living Things	PDF pages 38–48	AP 3.4.1, AP 3.4.2
☐	Unit review and assessment	—	AP UO.1, AP US.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 an area have so that living things can live there?

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 24–35: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 1: “What to Do with an Old School”: PDF pages 6–11. Look at the pictures and maps together.

Talk it over

1. Differentiation LITERAL—Why are the children waving goodbye to their families?
2. INFERENTIAL—Who uses the playground during the school day?
3. SEP 6 INFERENTIAL—What will be left after the building, playground, and parking lot are removed?
4. Patel says, “Keep thinking.” “Build the tallest building in the world!” “Put a swimming pool there!” “Open a toy store!” 5 NGSS Elements LITERAL—What three ideas did the students suggest for filling the empty lot?
5. EVALUATIVE—What are some reasons why these might not be the best ideas for an empty school lot?
6. Ask, What other kinds of living things can be found nearby that might visit or start to live on the lot?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What must an area have so that living things can live there?

Lesson 1.1: Places Plants Live

THE BIG QUESTION

In what places do plants live?

Words to know

- **living** — alive; able to process energy for survival
- **model** — a representation of something that can help people learn about the real thing
- **underground** — below Earth's surface

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 36–46: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 2: “Plants and Their Needs”: PDF pages 12–19. Look at the pictures and maps together.

Talk it over

1. Ask, When the school building, playground, and parking lots are removed, what parts are left?
2. Differentiation Have students use their Activity Page with the flap to show and answer these questions: • Which part of the carrot plant grows underground?
3. Have students use their charts to answer the following questions: • In what places around our school did you find many living plants?
4. SEP 4 DCI LS1.C • CCC 1 What is the same about all these places?
5. SEP 4 DCI LS1.C DCI ESS3.A • What does a growing carrot plant need from above the ground?
6. CCC 1 Monitor Progress • How did making a model with the Activity Page and a paper flap help you understand something about plants?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: In what places do plants live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.1.1: A Carrot Is a Plant — Teacher Guide PDF page 171
- Activity Page 1.1.2: Where Plants Live — Teacher Guide PDF page 172

Lesson 1.2: Getting Water and Light

THE BIG QUESTION

What happens to plants without light or water?

Words to know

- **investigate** — to observe and study something to collect information
- **observe** — to watch something and notice details about it (observation, n. the process of noticing details or a specific detail that is noticed)
- **predict** — to say that something is expected to happen

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 47-53: the steps, materials and timing for this lesson.

Talk it over

1. Ask students the following, and be prepared to guide their answers: • What types of plants did you see?
2. SEP 1 • DCI LS1.C Are plants alive?
3. Are trees plants?
4. NEEDS OF PLANTS AND ANIMALS Using the two completed Activity Pages, ask students the following: • How do the sizes of the four plants compare at the beginning?
5. AP 1.2.1 AP 1.2.3 • How did the plant that received light but no water look after our investigation?
6. Ask, What happens to plants that do not get light?
7. Ask, What happens to plants that do not get water?
8. What evidence supports the claim that plants need both light and water to live and grow?
9. What surprised you about how the plants looked at the end of our investigation?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What happens to plants without light or water?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.2.1: How Our Plants Look as We Begin — Teacher Guide PDF page 173
- Activity Page 1.2.2: I Predict — Teacher Guide PDF page 174

- Activity Page 1.2.3: My Observations — Teacher Guide PDF page 175

Lesson 1.3: Different Places Plants Live

THE BIG QUESTION

Where are some different places plants get what they need?

Words to know

- **environment** — the place and conditions that surround a living thing

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 54–60: the steps, materials and timing for this lesson.

Talk it over

1. Then ask students the following: • What kind of living thing is a saguaro cactus?
2. Then discuss the following with students: • What kinds of plants are found in this place?
3. How do the plants survive the winds that push on them?
4. How do the grasses and wildflowers on the prairie get the water they need?
5. See the Online Resources Guide for a link to the recommended videos/images: SEP 8 DCI ESS3.A www.coreknowledge.org/cksci-online-resources Then discuss the following with students: • What kind of living thing is a redwood tree?
6. How do you think the trees get the water they need to stay alive?
7. How do the trees get the light they need?
8. How much light do the plants that live under the trees need?
9. Then ask Today's Question—Where are some different places plants get what they need?
10. Ask “how do you know” for each of the following questions: AP 1.3.4 • How much light do the plants on the ground in the Sonoran Desert get?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: Where are some different places plants get what they need?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.3.1: My Trip: The Sonoran Desert — Teacher Guide PDF page 176
- Activity Page 1.3.2: My Trip: The Tallgrass Prairie — Teacher Guide PDF page 177
- Activity Page 1.3.3: My Trip: The Redwood Forest — Teacher Guide PDF page 178
- Activity Page 1.3.4: My Trip: Cut and Paste — Teacher Guide PDF page 179

Lesson 1.4: Plants and Their Needs

THE BIG QUESTION

What is the relationship between plants and the places where they live?

Words to know

- **related** — connected in some way (relationship, n. the connection between two or more things)
- **underground** — below Earth's surface

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 61-75: the steps, materials and timing for this lesson.

Talk it over

1. Activity Pages What Plants Are in a Community Garden?
2. Distribute What Plants Are in a Community Garden?
3. Afterwards, ask students the following: • What is a community garden?
4. There are many kinds of plants there. 8 LITERAL—What are the children doing?
5. Students should name vegetable- and fruit-bearing plants. 58 NEEDS OF PLANTS AND ANIMALS INFERENTIAL—How does having a community garden help the people who live in the city?
6. SEP 8 DCI ESS3.A 9 LITERAL—What kind of work do people do in this community garden?
7. They get light from the sun. 10 LITERAL—Where do plants get light?
8. SEP 8 DCI ESS3.A CCC 1 • 3D Learning In what places were there no plants living?
9. Activity Page • How does a cactus take in water?
10. DCI ESS3.A • Which part grows underground and takes up water in the soil?
11. Ask, What shape were those cactus plants?
12. LITERAL—What used to be in this empty lot?
13. They find out what kinds of plants can live and grow in the old school lot. 15 LITERAL—What question will the students try to answer?
14. How could we find out what kinds of plants could live there?
15. EVALUATIVE—Who could give you the best answer—someone who grows vegetables in their garden or someone who leads hikes at a nature center?
16. Patel take her class to learn about plants and the places they live?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What is the relationship between plants and the places where they live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.4.1: What Plants Are in a Community Garden? — Teacher Guide PDF page 180
- Activity Page 1.4.2: What Plants Need — Teacher Guide PDF page 181

Lesson 1.5: Lesson 5 Roundup: Mapping a Vacant Lot

THE BIG QUESTION

What do plants need from the places where they live?

Words to know

- **native** — a plant or animal that originally comes from a place and did not come from somewhere else
- **resource** — something that comes from a living thing's environment that it uses

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 76–81: the steps, materials and timing for this lesson.

Talk it over

1. What living things could live and grow there?
2. Ask, Where have you seen an empty area where we live?
3. CCC 1 • What will it need to live and grow?
4. Monitor Progress How will we use the map when it is done?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What do plants need from the places where they live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 1.5.1: Unit Project Scoring Rubric — Teacher Guide PDF page 182

Lesson 2.1: All Kinds of Animals

THE BIG QUESTION

What are animals, and how can they be grouped?

Words to know

- **classify** — to arrange things in a group based on shared qualities
- **feature** — a certain part or quality of something

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 82–90: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 3: “Animals and Their Needs”: PDF pages 20–27. Look at the pictures and maps together.

Talk it over

1. What kinds of animals did you see?
2. NGSS Elements How do the people who work at the zoo make sure the animals get the things they need?
3. Ask students, What makes a living thing an animal and not a plant?
4. What patterns did you look for when you sorted the animals?
5. Discuss the following clarifying questions: DCI LS1.C CCC 1 • What are some animals you saw in the zoo video?
6. LESSON 2.1 | ALL KINDS OF ANIMALS 83 • When you sorted the animal cards, how did you act like a scientist?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What are animals, and how can they be grouped?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.1.1: Living Things — Teacher Guide PDF page 183
- Activity Page 2.1.2: Animal Classification Cards — Teacher Guide PDF page 184

Lesson 2.2: Animal Needs for Food and Water

THE BIG QUESTION

What do animals need from their environments?

Words to know

- **survive** — to stay alive, especially when faced with hardship

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 91–96: the steps, materials and timing for this lesson.

Talk it over

1. What does it need to stay alive?
2. CCC 1 SEP 4 • Which two animals need the most water?
3. CCC 1 • Were there any animals that did not need any food?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What do animals need from their environments?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.2.1: What Do Animals Eat #1? — Teacher Guide PDF pages 185–186
- Activity Page 2.2.2: What Do Animals Eat #2? — Teacher Guide PDF pages 187–188
- Activity Page 2.2.3: How Much Water Does It Drink? — Teacher Guide PDF page 189

Lesson 2.3: Places Animals Live

THE BIG QUESTION

What resources do animals get from the places where they live?

Words to know

- **environment** — the place and conditions that surround a living thing
- **resource** — something that comes from a living thing's environment that it uses

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 97–103: the steps, materials and timing for this lesson.

Talk it over

1. Then ask students the following: What kind of living thing is an owl?
2. Ask, What bird on the animal cards (from Lesson 2.2) also eats only animals?
3. Ask guiding questions such as the following: Where are the owls sitting in the video?
4. Where does the food for the baby owls come from?
5. Ask students the following: What does the land look like where we see bison?
6. See the Online Resources Guide for a link to the recommended video: NGSS Elements www.coreknowledge.org/cksci-online-resources • Then discuss with students the following: What do bears get from the park to meet their needs?
7. Do humans eat only plants, only other animals, or both plants and animals?
8. Then return to Today's Question—What resources do animals get from the places where they live?
9. How did making your trip journal help you understand the needs of animals?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What resources do animals get from the places where they live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.3.1: My Trip to Yellowstone: Forest — Teacher Guide PDF page 190
- Activity Page 2.3.2: My Trip to Yellowstone: Grassy Valley — Teacher Guide PDF page 191
- Activity Page 2.3.3: My Trip to Yellowstone: Grassy Valley and Forests — Teacher Guide PDF page 192

Lesson 2.4: Animals and Their Needs

THE BIG QUESTION

What is the relationship between animals and the places where they live?

Words to know

- **environment** — the place and conditions that surround a living thing
- **survive** — to stay alive, especially when faced with hardship

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 104–117: the steps, materials and timing for this lesson.

Talk it over

1. Ask students the following:
 - What kinds of living things were in the community garden?
2. Patel taken her class today?
3. LITERAL—What kind of food is the orangutan eating—plant or animal?
4. INFERENTIAL—How does the lion drink?
5. Birds get air above the land. 21 LITERAL—Do fish need air?
6. How do you know?
7. Then explain that animals find or build their own shelters in the places they live. (See Know the Standards.) LITERAL—What is the name for the bear's shelter?
8. LITERAL—What is the name for the bird's shelter?
9. INFERENTIAL—Where did the shell the hermit crab moved into come from?
10. Patel take her class to learn about animals and their needs?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What is the relationship between animals and the places where they live?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 2.4.1: Help Wanted: Zookeeper — Teacher Guide PDF page 193
- Activity Page 2.4.2: What Animals Need — Teacher Guide PDF page 194

Lesson 2.5: Lesson 2 Roundup: Animals in Our Lot

THE BIG QUESTION

What do animals need from their environments?

Words to know

- **native** — a plant or animal that originally comes from a place and did not come from somewhere else
- **resource** — something that comes from a living thing's environment that it uses

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 118–123: the steps, materials and timing for this lesson.

Talk it over

1. When finished, check for student understanding by asking the following: • What are three things wildlife needs that people need to think about?
2. LESSON 2.5 | ANIMALS IN OUR LOT 113 NGSS Elements • Do people planning for most wildlife also need to think about providing air?
3. CCC 4 What is the name of this kind of animal?
4. LESSON 2.5 | ANIMALS IN OUR LOT 115 How do we know it can live in our community?
5. Have students reflect on the entire lesson and return to the Lesson 2 Guiding Question—What do animals need from their environments?
6. Ask students clarifying questions as they look at their map: • What does the map our class made show?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What do animals need from their environments?
- Use one of today's words in a sentence of your own.

Lesson 3.1: Human Needs

THE BIG QUESTION

Do people need the same things as plants and other animals?

Words to know

- **classify** — to arrange things in a group based on shared qualities

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 124–131: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 4: “People and What They Need”: PDF pages 28–37. Look at the pictures and maps together.

Talk it over

1. Do the humans in our class eat foods from plants?
2. Do the humans in our class eat foods from other animals?
3. Ask students clarifying questions: Monitor Progress • What does the word human mean?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: Do people need the same things as plants and other animals?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.1.1: Top Your Own Pizza — Teacher Guide PDF page 195

Lesson 3.2: Materials Humans Use

THE BIG QUESTION

What natural resources— things from nature—do humans need and use?

Words to know

- **natural resource** — something that occurs in nature that people use

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 132–137: the steps, materials and timing for this lesson.

Talk it over

1. Ask, What does a tree, or any other plant, need to live and grow?
2. Ask students guiding questions as they point to each of the four bubbles connected to the bubble labeled “Nature”: What are four groups of things humans get from nature?
3. Ask students the following: • SEP 6 What kind of living thing is a human—plant or animal?
4. DCI LS1.C DCI ESS3.A • CCC 4 What do animals—including humans—need to live and grow?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What natural resources— things from nature—do humans need and use?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.2.1: Things Humans Use from Nature — Teacher Guide PDF page 196

Lesson 3.3: Meeting Human Needs

THE BIG QUESTION

How do humans meet their needs?

Words to know

- **survive** — to stay alive, especially when faced with hardship

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 138–151: the steps, materials and timing for this lesson.

Talk it over

1. question board Activity Page How Do People Meet Their Needs?
2. Give each student a copy of How Do People Meet Their Needs?
3. from cows NGSS Elements Point out that foods from animals come from farms or come from nature. For example, fish can come from lakes, rivers, the ocean, or fish farms. SEP 2 SEP 8 On How Do People Meet Their Needs?
4. Trucks or trains have to carry the bricks from the place they are made to the city. On How Do People Meet Their Needs?
5. Ask students the following: • What kinds of living things were in the city zoo?
6. DCI LS1.C DCI ESS3.A CCC 4 • What work do the zookeepers do to make sure the animals get what they need?
7. Ask students the following, and accept all reasonable answers: • How do people get food in the country or the city?
8. LESSON 3.3 | MEETING HUMAN NEEDS 133 • In what kinds of shelters do people live in the country and the city?
9. Patel taken her class today?
10. What might be different about how these city halls look?
11. Patel's class learn about at city hall?
12. Point out that the bubbles are filled with air, much like they would blow air into a balloon. (See Know the Science.) INFERENTIAL—Where in a city can people have a picnic outdoors?
13. Point out that this is a cycle that takes place over and over again. (See Know the Standards.) Differentiation INFERENTIAL—What do water pipes connect?
14. The food office makes sure the food in markets is safe to eat. 28 LITERAL—What foods can people buy at this market?
15. INFERENTIAL—What other plant foods do you think are at the market?
16. SEP 8 DCI ESS3.A CCC 4 INFERENTIAL—How do the plant foods get from the farm where they grow to the city markets?

17. Ask students, In what other places in the city, other than markets, can people get food to eat?
18. Milk also comes from animals. 29 LITERAL—What foods from plants do you see in the top picture?
19. LITERAL—What happen to the wood after the trees are cut down?
20. INFERENTIAL—If someone in the city wants to build a wood home, how would they get the wood?
21. SEP 2 DCI ESS3.A CCC 4 142 LITERAL—Where do the rocks and clay come from that people make into bricks?
22. NEEDS OF PLANTS AND ANIMALS INFERENTIAL—If someone in the city wants to build a brick home, how would they get the bricks?
23. Finally, they talk to the city's parks office. 31 LITERAL—What is the job of the parks office?
24. Patel take her class to learn about the needs of people?
25. SEP 6 DCI ESS3.A CCC 4 • What are the needs of all humans?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: How do humans meet their needs?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.3.1: How Do People Meet Their Needs? — Teacher Guide PDF page 197

Lesson 3.4: Lesson 3 Roundup: Modeling a System for Living Things

THE BIG QUESTION

What do humans need and use from their environments?

Words to know

- **model** — a representation of something that can help people learn about the real thing

Teacher's lesson plan

Follow the Teacher Guide, PDF pages 152–167: the steps, materials and timing for this lesson.

Read

Read Student Book, Chapter 5: “Science in Action”: PDF pages 38–48. Look at the pictures and maps together.

Talk it over

1. NGSS Elements SEP 2 CCC 4 DCI ESS3.A • DCI LS1.C Have students reflect on the entire lesson and return to the Lesson 3 Guiding Question—What do humans need and use from their environments?
2. INFERENTIAL—If an ecologist studies living things, then what kinds of things do you think they study?
3. What do you think the table on the page is used for?
4. UNIT SUPPLEMENT | SCIENCE IN ACTION: MEETING AN ECOLOGIST 157 LITERAL—Why do ecologists count the living things in one area at different times?
5. A wildlife area in Maine was named after Rachel Carson. 38 LITERAL—What can happen if places change?
6. INFERENTIAL—What do you think would have happened if Rachel Carson had not talked to the lawmakers about her findings?

Answers are at the back of this pack.

Check for understanding

- Answer the Big Question in a sentence or two: What do humans need and use from their environments?
- Use one of today's words in a sentence of your own.

Activity pages

- Activity Page 3.4.1: Make a Welcome Sign — Teacher Guide PDF page 198
- Activity Page 3.4.2: Pictures for the Welcome Sign — Teacher Guide PDF page 199

UNIT REVIEW

Unit review and assessment

- Activity page answer key (for the teacher): Teacher Guide PDF pages 201–202
- Activity Page UO.1 — Teacher Guide PDF page 170
- Activity Page US.1 — Teacher Guide PDF page 200

WORDS QUIZ

Needs of Plants and Animals

Name: _____ Date: _____

Circle the letter of the best answer.

1. Which word means “a detail that supports a claim or helps prove an idea is true”?
 - a) sample
 - b) market
 - c) map
 - d) evidence
2. Which word means “a clear, tasteless, odorless fluid that covers most of Earth’s surface and on which living organisms depend”?
 - a) observe
 - b) pattern
 - c) nest
 - d) water
3. Which word means “a reliable system of traits or a set of repeating details”?
 - a) pattern
 - b) ecologist
 - c) data
 - d) living
4. Which word means “to observe and study something to collect information”?
 - a) animal
 - b) investigate
 - c) predict
 - d) feature
5. Which word means “to arrange things in a group based on shared qualities”?
 - a) classify
 - b) light
 - c) table
 - d) predict
6. Which word means “an area where people gather to buy and sell food items and other products”?
 - a) market
 - b) map
 - c) predict
 - d) environment

- 7.** Which word means “a hard-to-find place where a wild animal gets shelter”?
- a) shelter
 - b) den
 - c) survive
 - d) grassland
- 8.** Which word means “a certain part or quality of something”?
- a) predict
 - b) grassland
 - c) farm
 - d) feature
- 9.** Which word means “below Earth’s surface”?
- a) underground
 - b) investigate
 - c) animal
 - d) observe
- 10.** Which word means “the plant part that is attached to the stem and carries out photosynthesis”?
- a) map
 - b) market
 - c) leaf
 - d) nest
- 11.** Which word means “to cover or prevent injury or damage”?
- a) protect
 - b) observe
 - c) forest
 - d) farm
- 12.** Which word means “alive; able to process energy for survival”?
- a) air
 - b) shelter
 - c) living
 - d) pattern

Answers

Getting started: Meet the Big Question

1. **Differentiation LITERAL—Why are the children waving goodbye to their families?**

They are going to school. INFERENTIAL—What things will they do once they are inside the school?

2. **INFERENTIAL—Who uses the playground during the school day?**

Students play there, and teachers watch them. INFERENTIAL—Who uses the lawn?

3. **SEP 6 INFERENTIAL—What will be left after the building, playground, and parking lot are removed?**

Answers will vary but may include a fence, soil, dirt, air, some grass, and a tree.

INFERENTIAL—Have students propose answers to the text question “What will go in that big empty place?”

4. **Patel says, “Keep thinking.” “Build the tallest building in the world!” “Put a swimming pool there!” “Open a toy store!” 5 NGSS Elements LITERAL—What three ideas did the students suggest for filling the empty lot?**

A swimming pool, a toy store, the tallest building in the world INFERENTIAL—Why did Mrs. Patel tell the students to keep thinking?

5. **EVALUATIVE—What are some reasons why these might not be the best ideas for an empty school lot?**

It might not be a good place for a swimming pool because the city has enough pools for people to use.

6. **Ask, What other kinds of living things can be found nearby that might visit or start to live on the lot?**

Responses will depend on the location of your school but might include dragonflies, deer, bees, raccoons, lizards, toads, ferns, vines, and trees.

Lesson 1.1: Places Plants Live

1. **Ask, When the school building, playground, and parking lots are removed, what parts are left?**

Samples: the ground, soil, rocks, maybe a tree or two, air

2. **Differentiation Have students use their Activity Page with the flap to show and answer these questions: • Which part of the carrot plant grows underground?**

The orange root

3. **Have students use their charts to answer the following questions: • In what places around our school did you find many living plants?**

Next to the sidewalk, next to a window, next to a playground

4. **SEP 4 DCI LS1.C • CCC 1 What is the same about all these places?**

There is bright light there.

5. **SEP 4 DCI LS1.C DCI ESS3.A • What does a growing carrot plant need from above the ground?**

Light

6. **CCC 1 Monitor Progress • How did making a model with the Activity Page and a paper flap help you understand something about plants?**

Having a flap for the ground meant we could see what part of the plant lives underground.

Lesson 1.2: Getting Water and Light

1. **Ask students the following, and be prepared to guide their answers: • What types of plants did you see?**

Trees, vegetables, grass, flowers

2. **SEP 1 • DCI LS1.C Are plants alive?**

Yes

3. **Are trees plants?**

Yes, trees are plants, and they can be bigger than a house.

4. **NEEDS OF PLANTS AND ANIMALS Using the two completed Activity Pages, ask students the following: • How do the sizes of the four plants compare at the beginning?**

They are all about the same size.

5. **AP 1.2.1 AP 1.2.3 • How did the plant that received light but no water look after our investigation?**

The plant was flopped over and a paler green color.

6. **Ask, What happens to plants that do not get light?**

They lose their green color and turn yellow or brown. (See Know the Science.)

7. **Ask, What happens to plants that do not get water?**

They flop over and turn brown.

8. **What evidence supports the claim that plants need both light and water to live and grow?**

Only one plant we investigated stayed alive and continued to grow—the one that got both light and water.

9. **What surprised you about how the plants looked at the end of our investigation?**

I was surprised that the plants that did not get light looked so sick or died, even if they got plenty of water.

Lesson 1.3: Different Places Plants Live

1. **Then ask students the following: • What kind of living thing is a saguaro cactus?**

A plant

2. **Then discuss the following with students: • What kinds of plants are found in this place?**

Grasses, wildflowers, but only a few trees in the distance

3. **How do the plants survive the winds that push on them?**
Their stems bend instead of breaking.
4. **How do the grasses and wildflowers on the prairie get the water they need?**
They have roots in the soil.
5. **See the Online Resources Guide for a link to the recommended videos/images: SEP 8 DCI ESS3.A**
www.coreknowledge.org/cksci-online-resources Then discuss the following with students:
• **What kind of living thing is a redwood tree?**
A plant
6. **How do you think the trees get the water they need to stay alive?**
Their roots in the ground take up water from rain. Sometimes the forest floods.
7. **How do the trees get the light they need?**
While it is dark near the ground, the treetops get sunshine.
8. **How much light do the plants that live under the trees need?**
Not much, because it is dark there, even in the daytime
9. **Then ask Today's Question—Where are some different places plants get what they need?**
The Sonoran Desert, the tallgrass prairie, a redwood tree forest Next, ask, What do plants need that they get in these places?
10. **Ask “how do you know” for each of the following questions: AP 1.3.4 • How much light do the plants on the ground in the Sonoran Desert get?**
A lot of light

Lesson 1.4: Plants and Their Needs

1. **Activity Pages What Plants Are in a Community Garden?**
AP 1.4.1
2. **Distribute What Plants Are in a Community Garden?**
AP 1.4.1
3. **Afterwards, ask students the following: • What is a community garden?**
It is a garden that is shared by all the people who live nearby.
4. **There are many kinds of plants there. 8 LITERAL—What are the children doing?**
They are looking at some carrots that they just dug out of the soil. CORE VOCABULARY—Explain that a plant is a living thing that needs light, water, and air to grow. INFERENTIAL—What kinds of plants grow in this community garden?
5. **Students should name vegetable- and fruit-bearing plants. 58 NEEDS OF PLANTS AND ANIMALS INFERENTIAL—How does having a community garden help the people who live in the city?**
It gives them a place to grow food they can eat and flowers they can take inside, even

if they do not have a garden at their home. Page 9

6. **SEP 8 DCI ESS3.A 9 LITERAL—What kind of work do people do in this community garden?**

Planning, working the soil, planting seeds, watering
INFERENTIAL—What did people need to think about when they planned this garden?

7. **They get light from the sun. 10 LITERAL—Where do plants get light?**

From the sun

8. **SEP 8 DCI ESS3.A CCC 1 • 3D Learning In what places were there no plants living?**

Samples: in a closet, under a desk, under a big rock

9. **Activity Page • How does a cactus take in water?**

It must have roots in the soil to take in water.

10. **DCI ESS3.A • Which part grows underground and takes up water in the soil?**

Roots

11. **Ask, What shape were those cactus plants?**

They were tall and narrow with arms. SUPPORT—Support kinesthetic learners by inviting students to use their bodies to show the shapes of the round cactus (crouched down with arms around their knees) and the saguaro cactus (standing tall with arms outstretched straight or bent at the elbow). INFERENTIAL—If the duckweed leaves sit ON the water, where are the duckweed roots?

12. **LITERAL—What used to be in this empty lot?**

There was an old school that was torn down. INFERENTIAL—If there are no clouds, will the light hit this lot?

13. **They find out what kinds of plants can live and grow in the old school lot.**

15 LITERAL—What question will the students try to answer?

What kinds of plants can live and grow in the old school lot? NGSS Elements

14. **How could we find out what kinds of plants could live there?**

We could go online and search for the names of local plants.

15. **EVALUATIVE—Who could give you the best answer—someone who grows vegetables in their garden or someone who leads hikes at a nature center?**

Someone who leads hikes at a nature center because nature centers are where plants are growing

16. **Patel take her class to learn about plants and the places they live?**

To a city community garden

Lesson 1.5: Lesson 5 Roundup: Mapping a Vacant Lot

1. **What living things could live and grow there?**

Accept all reasonable answers. (See Know the Science.) NGSS Elements

2. **Ask, Where have you seen an empty area where we live?**

Accept all reasonable answers. Sample: There is an empty lot where a gas station

used to be.

3. **CCC 1 • What will it need to live and grow?**

It will need water, sunlight, air, and soil.

4. **Monitor Progress How will we use the map when it is done?**

We will use it to show other people how an empty lot can be used for living things. Our lot has many resources plants need. What are these parts of the lot that plants will need to stay alive?

Lesson 2.1: All Kinds of Animals

1. **What kinds of animals did you see?**

Birds, snakes, lizards, monkeys, turtles, otters, penguins, oxen, tigers, lions, gorillas, apes, zebras, rhinoceroses, giraffes, kangaroos, fish, octopuses, and more What were the animals doing?

2. **NGSS Elements How do the people who work at the zoo make sure the animals get the things they need?**

They give them food to eat. They give them water to drink. They make shelters for them in go into.

3. **Ask students, What makes a living thing an animal and not a plant?**

They move around, they eat food, and they go into shelters. (See Know the Science.)

4. **What patterns did you look for when you sorted the animals?**

Patterns in the number of legs or wings How did you find the patterns?

5. **Discuss the following clarifying questions: DCI LS1.C CCC 1 • What are some animals you saw in the zoo video?**

Birds, fish, lions, tigers, turtles, and more

6. **LESSON 2.1 | ALL KINDS OF ANIMALS 83 • When you sorted the animal cards, how did you act like a scientist?**

We looked for patterns in how the animals looked. EXTEND—Some students will enjoy further opportunities to look for patterns in animals. Provide them with a printed image that shows a variety of butterflies, such as the historical scientific illustration shown here. Have them tell you all the wing features they could use to group the butterflies and look for understanding that sizes, colors, shapes, and the number of wing spots could be used.

Lesson 2.2: Animal Needs for Food and Water

1. **What does it need to stay alive?**

Accept all answers demonstrating students' prior knowledge about the food, shelter, and water needs of animals.

2. **CCC 1 SEP 4 • Which two animals need the most water?**

Cows and horses

3. **CCC 1 • Were there any animals that did not need any food?**

No.

Lesson 2.3: Places Animals Live

1. **Then ask students the following: What kind of living thing is an owl?**
It is a bird, and a bird is an animal. What foods do you see the owls getting in the video?
2. **Ask, What bird on the animal cards (from Lesson 2.2) also eats only animals?**
A bald eagle
3. **Ask guiding questions such as the following: Where are the owls sitting in the video?**
In trees How do they use the tree to protect their young?
4. **Where does the food for the baby owls come from?**
The parents leave the tree and catch mice in the forest to feed the babies.
5. **Ask students the following: What does the land look like where we see bison?**
It looks like a big grassy place with a river going through it.
6. **See the Online Resources Guide for a link to the recommended video: NGSS Elements www.coreknowledge.org/cksci-online-resources • Then discuss with students the following: What do bears get from the park to meet their needs?**
They get food and water.
7. **Do humans eat only plants, only other animals, or both plants and animals?**
Both plants and animals
8. **Then return to Today's Question—What resources do animals get from the places where they live?**
They get food, water, and shelter.
9. **How did making your trip journal help you understand the needs of animals?**
It gave me a place to show what I learned about the three animals.

Lesson 2.4: Animals and Their Needs

1. **Ask students the following: • What kinds of living things were in the community garden?**
Plants
2. **Patel taken her class today?**
They went to the Greenville Zoo. INFERENTIAL—What can the students expect to see at the zoo?
3. **LITERAL—What kind of food is the orangutan eating—plant or animal?**
Plant INFERENTIAL—What kind of food is the zookeeper giving the sea lion—plant or animal?
4. **INFERENTIAL—How does the lion drink?**
She uses her tongue to lick the top of the water and bring some water into her mouth. On What Animals Need (AP 2.4.2), have students write another thing animals need that they learned about on page 20.

5. **Birds get air above the land. 21 LITERAL—Do fish need air?**
Yes (See Know the Science 2.)
6. **How do you know?**
Yes! I know because birds can fly higher than I can jump. CHALLENGE—Show students a globe, and explain that it is a model of planet Earth. Place a towel or blanket around the globe to model the layer of air that surrounds the land and water parts of the real Earth. Point out that the layer of air around Earth is quite thin compared to the size of the planet.
7. **Then explain that animals find or build their own shelters in the places they live. (See Know the Standards.) LITERAL—What is the name for the bear’s shelter?**
A den INFERENTIAL—What do you think it is like inside the den?
8. **LITERAL—What is the name for the bird’s shelter?**
A nest INFERENTIAL—How do the grasses provide the bird with shelter, too?
9. **INFERENTIAL—Where did the shell the hermit crab moved into come from?**
It was made by another kind of animal and left on the sand after the animal died. Point out that most hermit crabs try to find a shell that is big enough that they can hide their entire body, including all their legs, inside. INFERENTIAL—What might weather patterns be like where cheetahs live?
10. **Patel take her class to learn about animals and their needs?**
To a city zoo

Lesson 2.5: Lesson 2 Roundup: Animals in Our Lot

1. **When finished, check for student understanding by asking the following: • What are three things wildlife needs that people need to think about?**
Food, water, and shelter
2. **LESSON 2.5 | ANIMALS IN OUR LOT 113 NGSS Elements • Do people planning for most wildlife also need to think about providing air?**
No, because there is plenty of air everywhere
3. **CCC 4 What is the name of this kind of animal?**
Answers will depend on the native animals the class chose. What will it need to live and grow?
4. **LESSON 2.5 | ANIMALS IN OUR LOT 115 How do we know it can live in our community?**
We asked questions of an expert/a librarian/a search engine.
5. **Have students reflect on the entire lesson and return to the Lesson 2 Guiding Question—What do animals need from their environments?**
We should find out what where they can live and what they need to stay alive.
6. **Ask students clarifying questions as they look at their map: • What does the map our class made show?**
It shows the outline of an area in our community. It also shows the kinds of plants and animals that can live there.

Lesson 3.1: Human Needs

1. **Do the humans in our class eat foods from plants?**
Yes
2. **Do the humans in our class eat foods from other animals?**
Yes
3. **Ask students clarifying questions: Monitor Progress • What does the word human mean?**
A human is a person.

Lesson 3.2: Materials Humans Use

1. **Ask, What does a tree, or any other plant, need to live and grow?**
Light, water, air, and soil Then have students picture a bird in that tree making a nest in which to lay its eggs. Ask, What do birds, or any other animals, need to live, grow, and bring up their young?
2. **Ask students guiding questions as they point to each of the four bubbles connected to the bubble labeled “Nature”: What are four groups of things humans get from nature?**
Water, other animals, rocks, and plants Where in nature is water found?
3. **Ask students the following: • SEP 6 What kind of living thing is a human—plant or animal?**
Animal
4. **DCI LS1.C DCI ESS3.A • CCC 4 What do animals—including humans—need to live and grow?**
They need food, water, air, and shelter.

Lesson 3.3: Meeting Human Needs

1. **question board Activity Page How Do People Meet Their Needs?**
AP 3.3.1
2. **Give each student a copy of How Do People Meet Their Needs?**
AP 3.3.1
3. **from cows NGSS Elements Point out that foods from animals come from farms or come from nature. For example, fish can come from lakes, rivers, the ocean, or fish farms. SEP 2 SEP 8 On How Do People Meet Their Needs?**
AP 3.3.1
4. **Trucks or trains have to carry the bricks from the place they are made to the city. On How Do People Meet Their Needs?**
AP 3.3.1
5. **Ask students the following: • What kinds of living things were in the city zoo?**
The following kinds of animals were featured in Student Book Chapter 3: giraffes, orangutans, sea lions, camels.

6. **DCI LS1.C DCI ESS3.A CCC 4 • What work do the zookeepers do to make sure the animals get what they need?**
They give the animals water, food, and shelter.
7. **Ask students the following, and accept all reasonable answers: • How do people get food in the country or the city?**
From a store, from a garden
8. **LESSON 3.3 | MEETING HUMAN NEEDS 133 • In what kinds of shelters do people live in the country and the city?**
Houses, apartments
9. **Patel taken her class today?**
They went to their city hall.
10. **What might be different about how these city halls look?**
Sample: Small towns might have smaller buildings. Some city halls may be made of different materials.
11. **Patel's class learn about at city hall?**
People INFERENTIAL—Why might Mrs. Patel's students be surprised at her answer?
12. **Point out that the bubbles are filled with air, much like they would blow air into a balloon. (See Know the Science.) INFERENTIAL—Where in a city can people have a picnic outdoors?**
They can picnic in their backyards or in a park. Page 27
13. **Point out that this is a cycle that takes place over and over again. (See Know the Standards.) Differentiation INFERENTIAL—What do water pipes connect?**
They connect the lake to all the places you can get water in the city. NGSS Elements
14. **The food office makes sure the food in markets is safe to eat. 28 LITERAL—What foods can people buy at this market?**
They can buy vegetables and fruits. NGSS Elements
15. **INFERENTIAL—What other plant foods do you think are at the market?**
Samples: beans, lettuce, broccoli, watermelon, zucchini, tomatoes
16. **SEP 8 DCI ESS3.A CCC 4 INFERENTIAL—How do the plant foods get from the farm where they grow to the city markets?**
People put them on trucks, trains, or planes, and they are delivered to the city.
17. **Ask students, In what other places in the city, other than markets, can people get food to eat?**
Restaurants, food trucks, food pantries
18. **Milk also comes from animals. 29 LITERAL—What foods from plants do you see in the top picture?**
Beans, rice, dried peppers INFERENTIAL—What kind of animal do the milk, butter, and cheese come from?
19. **LITERAL—What happen to the wood after the trees are cut down?**
The round trees are cut into square or rectangular shapes that can be hammered

together. NGSS Elements

20. **INFERENTIAL—If someone in the city wants to build a wood home, how would they get the wood?**

Trucks or trains have to carry the wood from the forests to the city.

21. **SEP 2 DCI ESS3.A CCC 4 142 LITERAL—Where do the rocks and clay come from that people make into bricks?**

They come from the ground.

22. **NEEDS OF PLANTS AND ANIMALS INFERENTIAL—If someone in the city wants to build a brick home, how would they get the bricks?**

Trucks or trains have to carry the bricks from the place they are made to the city. On How Do People Meet Their Needs? (AP 3.3.1), have students write or draw something they learned about how people meet their need for shelter. Page 31

23. **Finally, they talk to the city's parks office. 31 LITERAL—What is the job of the parks office?**

To make sure the parks are a nice place for people to be in nature

24. **Patel take her class to learn about the needs of people?**

To City Hall

25. **SEP 6 DCI ESS3.A CCC 4 • What are the needs of all humans?**

Food, water, air, and shelter

Lesson 3.4: Lesson 3 Roundup: Modeling a System for Living Things

1. **NGSS Elements SEP 2 CCC 4 DCI ESS3.A • DCI LS1.C Have students reflect on the entire lesson and return to the Lesson 3 Guiding Question—What do humans need and use from their environments?**

Humans need water, food, air, and shelter. They use materials from nature to meet their needs.

2. **INFERENTIAL—If an ecologist studies living things, then what kinds of things do you think they study?**

Plants and animals Page 36 NGSS Elements

3. **What do you think the table on the page is used for?**

It is used for counting the number of animals and then comparing them between the two years.

4. **UNIT SUPPLEMENT | SCIENCE IN ACTION: MEETING AN ECOLOGIST 157 LITERAL—Why do ecologists count the living things in one area at different times?**

To see if any of the numbers changed Page 38

5. **A wildlife area in Maine was named after Rachel Carson. 38 LITERAL—What can happen if places change?**

Animals and plants might not be able to get what they need. Explain that to protect something means to keep it safe. Plants, animals, and areas in the environment can be protected. LITERAL—Why did Mr. Hissong want to become an ecologist?

6. **INFERENTIAL—What do you think would have happened if Rachel Carson had not talked to the lawmakers about her findings?**

The living things would not have been protected.

Unit quiz key

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