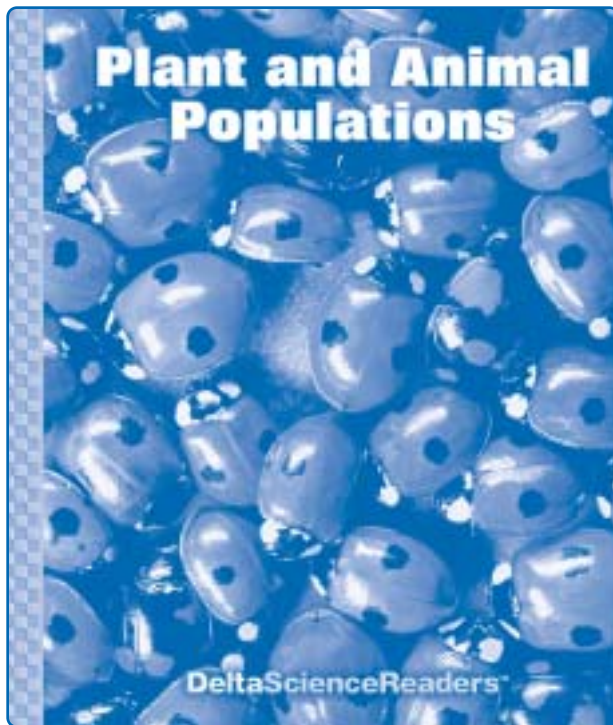


# Plant and Animal Populations



*Delta Science Readers* are nonfiction student books that provide science background and support the experiences of hands-on activities. Every **Delta Science Reader** has three main sections: *Think About . . .*, *People in Science*, and *Did You Know?*

Be sure to preview the reader *Overview Chart* on page 4, the reader itself, and the teaching suggestions on the following pages. This information will help you determine how to plan your schedule for reader selections and activity sessions.

*Reading for information is a key literacy skill. Use the following ideas as appropriate for your teaching style and the needs of your students. The After Reading section includes an assessment and writing links.*

## OVERVIEW

In the Delta Science Reader *Plant and Animal Populations*, students read about different habitats where plant and animal populations live. They learn about what plants and animals need to survive and how adaptations help organisms live in their environments. Students find out about communities and how living and nonliving things interact in an ecosystem. They also learn about predators and prey and explore the concept of a food chain. In a *People in Science* reading, students are introduced to park naturalists. Finally, they discover how animals become endangered or extinct.

### Students will

- ▶ describe populations, habitats, ecosystems, and communities
- ▶ compare and contrast plants and animals and what they need to survive
- ▶ examine different species' adaptations
- ▶ distinguish between predator and prey animals
- ▶ identify the roles of producers, consumers, and decomposers in a food chain
- ▶ use context clues to figure out the meanings of unfamiliar words
- ▶ examine nonfiction text elements such as table of contents, headings, captions, a diagram, and glossary
- ▶ interpret photographs and diagrams to answer questions
- ▶ complete a KWL chart and Venn diagram

## READING IN THE CONTENT AREA SKILLS

- Preview and set a purpose for reading
- Make predictions
- Compare and contrast
- Understand cause and effect
- Draw conclusions
- Identify main idea and supporting details
- Apply critical thinking
- Interpret graphic devices
- Summarize

## NONFICTION TEXT ELEMENTS

*Plant and Animal Populations* includes a table of contents, headings, photographs, illustrations, captions, labels, boldfaced terms, a diagram, and a glossary.

## CONTENT VOCABULARY

The following terms are introduced in context and defined in the glossary: *adaptations, camouflage, carnivore, community, consumer, decomposer, ecosystem, endangered, energy, extinct, food chain, habitat, herbivore, interact, living, mimicry, nonliving, nutrients, omnivore, organism, population, predator, prey, producer, species.*

## BEFORE READING

### Build Background

Access students' prior knowledge of plant and animal populations by displaying and discussing the cover. Read aloud the title and ask, *What do you see in this picture?* (lots of ladybugs) Frame the word *populations* and briefly discuss students' prior knowledge of the word's meaning. Ask, *What do you think a plant or animal population might be?* (Accept all reasonable responses at this time.)

Name a habitat that is familiar to students, such as a pond or forest. Invite students to

share what they know about the plants and animals that live in that habitat from their personal experiences and hands-on explorations in science. To stimulate discussion, ask questions such as these: *What do these animals eat? What else do they need to live? Are you a plant or an animal? How are you like other animals? Do you need plants to live? Why or why not?*

Begin a group KWL chart by recording facts students know about how the plants and animals in one area might interact. To help students focus their thinking, ask questions such as, *How are plants and animals alike? How are they different? Do plants and animals need each other? Why?* Then ask, *What would you like to find out about plant and animal populations?* If necessary, stimulate discussion by asking and recording several of your own questions, such as, *What would happen if there were too many of one type of animal in an area?* Record students' questions in the W column on the chart.

<b>K</b> What I Know	<b>W</b> What I Want to Know	<b>L</b> What I Learned	<b>+</b> What I Want to Explore Further

### Preview the Book

Explain that when students preview a nonfiction book, they should look at the title, the table of contents, headings, boldfaced words, photographs, diagrams, and captions.

Then preview the book with students. Have students turn to the table of contents. Ask, *What do you notice about this page?* Give students a few minutes to share their observations. Point to the first three headings in boldface type and explain that the book is divided into three parts: Think About . . . , People in Science, and Did You Know?

Read aloud the headings listed in the Think About . . . section. Ask students to use the table of contents to locate different types of information in the book, for example, *On what page might you find information on food chains?* (page 12)

Flip through the book, calling attention to the various nonfiction text elements and explaining how they can help students understand and organize what they read. Ask questions such as, *How does this heading help you predict what you will read about on this page? What do you see in this picture? How do you think it will help you understand what you are reading?* Explain that the words in boldface type are important words related to plant and animal populations. Point out that these words and their definitions are listed in the glossary. Choose one word and have students find its definition in the glossary.

### Preview the Vocabulary

You may wish to preview some of the vocabulary words before reading, rather than waiting to introduce them in the context of the book. Possibilities include creating a word wall, vocabulary cards, sentence strips, or a concept web.

For example, you might create a word wall by drawing or posting a large picture of a habitat, such as the illustration of the desert habitat on pages 2 and 3. Write each vocabulary word on an index card. As you discuss the meaning of each word, have students suggest a context sentence relating to the picture. For example, for the word *species* you might write, *The coyote is one species that lives in the desert habitat.* Write the sentence on the card and post the card next to the part of the picture it describes.

### Set a Purpose

Discuss with students what they might expect to find out from the book, based on their preview. Encourage them to use the questions on the KWL chart to set an overall purpose for reading.

## GUIDE THE READING

Preview the book yourself to determine the amount of guidance you will need to give for each section. Depending on your schedule and the needs of your class, you may wish to consider the following options:

- **Whole Group Reading** Read the book aloud with a group or the whole class. Encourage students to ask questions and make comments. Pause as necessary to clarify and assess understanding.
- **Shared Reading** Have students work in pairs or small groups to read the book together. Ask students to pause after each text section. Clarify as needed and discuss any questions that arise or have been answered.
- **Independent Reading** Some students may be ready to read independently. Have them rejoin the class for discussion of the book. Check understanding by asking students to explain in their own words what they have read.

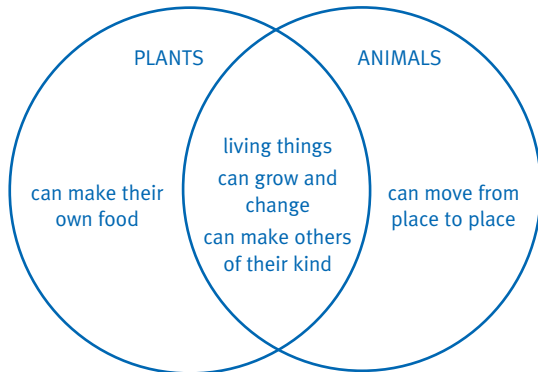
### Tips for Reading

- If you spread out the reading over several days, begin each session by reviewing the previous day's reading and previewing what will be read in the upcoming session.
- Begin each text section by reading or having a volunteer read aloud the heading. Have students examine any illustrations or graphics and read accompanying captions and labels. Discuss what students expect to learn, based on the heading, illustrations, and captions.
- Help students locate context clues to the meanings of words in boldface type. Remind them that these words are defined in the glossary. Provide help with words that may be difficult to pronounce.
- As appropriate, model reading strategies students may find helpful for nonfiction: adjust reading rate, ask questions, paraphrase, reread, visualize.

## Think About . . . (pages 2–13)

### Pages 2, 3 *What Is a Population?*

- Have students identify the habitat shown on pages 2 and 3 and describe the different types of plants and animals they see in the picture. Record students' observations on the board.
- Read aloud the heading on page 2. Frame the word *population* and ask, *Where have you seen this word before?* (on the cover) *What do you think this word means?* (Accept all reasonable responses at this time.)
- Have students read pages 2 and 3. Ask, *How are plants and animals alike?* (They are both living things. They can grow and change. They can make others of their kind.) *How are they different?* (Animals can move from place to place. Plants can make their own food.) Record students' responses in a Venn diagram, as shown. Save the diagram to add to later.



- Have students look again at the picture on pages 2 and 3. Ask, *What is a habitat?* (the area where a plant or animal lives) *What kind of habitat do you see in this picture?* (a desert habitat)
- Have students point to the word *species* printed in boldface type. Remind students that authors sometimes give the meaning of an important word in the words surrounding it. Have a volunteer read the sentence containing the context clues for *species*. Then ask, *Where else in this book*

*might I find the meaning of this word?* If necessary, remind students that the meanings of words printed in boldface type are listed in the glossary. Ask a volunteer to find and read aloud the definition. Follow the same procedure for the word *population*. As appropriate, do the same for other vocabulary words in the reader.

- Point out that each of the groups of plants and animals that students listed on the board is a population. Ask, *How are all these populations alike?* (They are all living things. They all live in the desert.)
- Have students use the information from pages 2 and 3 to revise or add to their KWL charts.

### Pages 4, 5 *What Do Plants Need?*

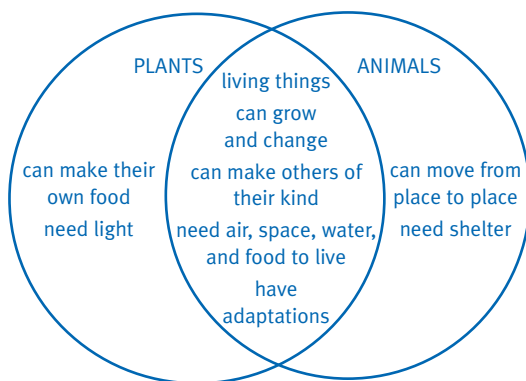
- Ask students if they have ever grown a plant in their homes or in a garden. Briefly discuss their experiences. Ask, *What did your plant need to grow?* List students' suggestions on the board.
- Have students read page 4. Ask, *What do plants need to grow?* (water, air, space, light, and nutrients) Compare students' responses to the list on the board, and revise the list as needed. *Where do plants get the food they need?* (They use sunlight to make the food they need.)
- Have students look at the plants shown in the pictures on pages 4 and 5 and read the captions.

Ask, *Are all these plants alike? How are they different?* (Accept all reasonable responses.) Point out that the plants grow in different habitats. Ask, *Could a water lily grow in the desert? Why not?* (Students will probably speculate that there isn't enough water in the desert for water lilies to grow.) *If there is so little water in the desert, how does the cactus survive?* (Accept all reasonable responses at this time.) Tell students to read page 5 to find out how different plants survive in different habitats.

- After students have finished reading, ask, *How does a cactus survive in the dry desert?* (It stores water inside its stem.) *What is the word we give to a special part or way of behaving, like the cactus stem, that helps a plant survive?* (an adaptation) *Do you think animals have adaptations?* (Accept all answers at this time.) Tell students that they will find out the answer as they read on.

### Pages 6, 7 What Do Animals Need?

- Ask, *Are you a plant or an animal?* (an animal) *What do you need to live?* Record students' responses on the board.
- Have students read pages 6 and 7. Ask, *What do animals need to live?* (air, water, space, shelter, and food) *Do animals have adaptations?* (yes) *What is one example of an adaptation that an animal might have?* (Accept all reasonable responses.)
- Help students identify the pictures on pages 6 and 7. Tell students, *Each of these animals has at least one adaptation. Can you figure out what it is?* Have students read the captions to confirm their responses.
- Direct students' attention back to the Venn diagram. Ask, *What else have we learned about plants and animals?* (what they need to live and how adaptations help them survive) Record the information in the appropriate places on the diagram, as shown.



### Pages 8, 9 What Is an Ecosystem?

- Ask, *What kind of habitat do you see in the picture on pages 8 and 9?* (a pond) Have students identify the plant and animal populations they see in the picture.
- Frame the word *ecosystem* in the heading on page 8, and ask students if they've seen the word before. Tell students that sometimes looking for a smaller word in an unfamiliar word can help them figure out the word. Ask, *What smaller word do you see inside this word?* If necessary, cover the letters *eco* and read aloud the word *system*. Guide students to infer that an ecosystem must be a kind of system. Ask, *Where else on this page do you see this word?* (in the last paragraph) Have students read pages 8 and 9 to learn the meaning of ecosystem.
- After students have finished reading, ask, *What items in this picture are part of the pond community?* (Students may identify different plants and animals.) Then say, *I see water in this pond. Is water part of the pond community, too?* (Students may say no because water is not a living thing.)
- Ask a volunteer to find and read aloud the sentence containing the definition of ecosystem. Ask, *Is water part of the pond ecosystem?* (yes) *What is the difference between an ecosystem and a community?* (An ecosystem includes both living and nonliving things. A community is all the populations of living things that live in a habitat.)
- Remind students that the living and nonliving things in an ecosystem interact. Ask, *How do the living things interact with water in this ecosystem?* (Accept all reasonable responses.)

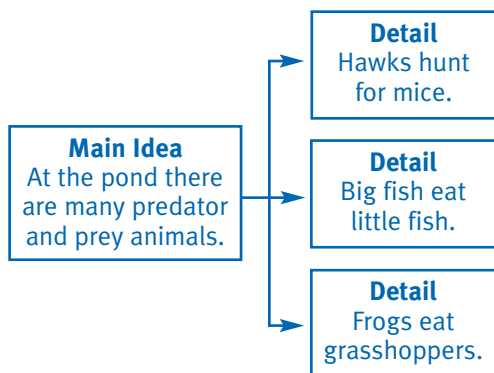
### Pages 10, 11 What Are Predators and Prey?

#### Page 10

- Ask students to look at the picture of the raccoon on page 10. Ask, *What is this raccoon doing?* (Students may conclude

that the raccoon is catching or eating something.)

- Read aloud the heading on page 10. Ask, *In this picture, is the raccoon the predator or the prey?* Have students read page 10 to confirm their predictions. Then ask volunteers to read aloud sentences that confirm the meanings of the words *predator* and *prey*.
- Have students silently reread the second paragraph. Ask, *What is the main idea of this paragraph?* (There are many predator and prey animals at a pond.) Ask a volunteer to find the sentence that states the main idea, and explain that this sentence is called a *topic sentence*. Ask, *What details does the author use to back up this main idea?* You may wish to record students' responses in a diagram such as the one shown.



### Page 11

- Have students look at the pictures on page 11. Tell them that each of the animals shown is a prey animal and that each has an adaptation that helps protect it from predators. Encourage students to predict each animal's adaptation and have them read the page to confirm their predictions.
- Help students pronounce the word *camouflage* (KAM-uh-flahzh), and ask a volunteer to read aloud the sentence that contains the word's meaning. Have students turn back to pages 6 and 7. Ask, *Which of these animals has camouflage as an adaptation?* (the polar bear) Point

out that camouflage helps animals not only to hide from predators (including humans) but also to hide as they hunt for prey. *What other animals do you know that are helped by camouflage?* (Accept all reasonable responses.)

- Write the word *mimicry* (MIM-ih-kree) on the board, and circle the word *mimic* within it. Ask, *What does the word mimic mean? Have you ever tried to mimic someone or something?* As students briefly share their experiences, guide them to infer that mimicry is when animals look or act like something else, usually something dangerous or unpleasant.

### Pages 12, 13 What Is a Food Chain?

- Briefly discuss students' favorite recess activities. Tell them, *All of these activities take energy. How does your body get the energy it needs to do all these things?* As you discuss students' responses, point out that people get the energy they need from food they eat.
- Read aloud the heading on page 12 and briefly discuss students' prior knowledge of food chains. Tell students that they will find out more about food chains by reading pages 12 and 13.
- Have students point to the desert food chain in the diagram on page 13. Ask, *What do you see at the beginning of this food chain?* (desert plants) *Where do the plants get their energy?* (the sun) Have students follow the arrows to answer questions such as, *What eats the plants? What eats the lizard? Which animal is at the end of this food chain?* Discuss the pond food chain in the same manner.
- Ask, *Which organisms shown in this diagram are producers?* (the plants) *Which are consumers?* (the animals)
- Remind students that plants get their energy from the sun. Ask, *Where do animals get their energy?* (from the plants or animals that they eat) Ask, *How do*

*mushrooms and earthworms get their energy?* (from plants or animals that have died) *What do we call living things that feed on plants and animals that have died?* (decomposers) Explain that decomposers break down dead plants and animals and in the process put nutrients back into the soil. Then plants can grow in the rich soil and the cycle continues.

- Write the words *herbivore*, *carnivore*, and *omnivore* on the board. Ask, *What do you notice about these words?* (They end with the same letters.) Tell students that *-vore* comes from the Latin word that means “to swallow or devour.” These words describe what animals devour, or eat. Point to the word *herbivore*, help students pronounce it, and have them find the word on page 12. Ask, *What does an herbivore eat?* (only plants) Frame the word part *herbi-* and tell students that *herbi-* comes from a Latin word meaning “grass.” Follow the same procedure for the words *carnivore* (*carni-*, meaning “meat or flesh”) and *omnivore* (*omni-*, meaning “all”).

### People in Science (page 14)

#### Park Naturalists

- Ask students if they have ever visited a state or national park and briefly discuss their experiences.
- Have students look at the photographs on page 14. Ask about each one, *What do you think the person in this photograph is doing?* Have volunteers read the captions to confirm students’ speculations.
- Point out that the people shown on page 14 are called *naturalists*. Frame the word in the heading and ask, *Does this word remind you of another word you know?* (Students may mention the words *natural* and *nature*.) *What do you think a naturalist does?* (something to do with nature) Have students read the text on page 14 to find out.

### Did You Know? (page 15)

#### About Endangered Species

- Read aloud the heading on page 15 and frame the word *endangered*. Ask, *What smaller word do you see in this word?* (danger) *What do you think the word means?* (to be in danger) *Why do you think some species might be in danger?* (Accept all reasonable responses.) Have students read page 15 to confirm their suggestions.
- Have students identify the animal in the picture on page 15. Ask, *Why are pygmy rabbits endangered?* (Their habitat has changed, and their source of food has disappeared.) *What will happen if the pygmy rabbit population continues to get smaller?* (The species will eventually become extinct.) *What do you think scientists could do to save this endangered species?* (Accept all reasonable responses.)

#### Further Facts

- Scientists hope to build pygmy rabbit populations through a captive breeding program. The program involves collecting the rabbits and breeding them in captivity until their numbers are great enough that they can be safely reintroduced into a protected habitat.
- The U.S. Fish and Wildlife Service maintains a List of Threatened and Endangered Species. The list, updated daily, is available at the U.S. Fish and Wildlife Service website: <http://endangered.fws.gov/>.

## AFTER READING

### Summarize

Complete the KWL chart you began with students before reading by asking them to share the answers to their questions. Call on volunteers to retell each text section. Then have students use the information in the KWL chart to write brief summary statements.

Discuss with students how using the KWL strategy helped them understand and appreciate the book. Encourage them to share any other reading strategies that helped them understand what they read. Direct attention to the last column in the chart and ask, *What questions do you still have about plant and animal populations? What would you like to explore further?* Record students' responses. Then ask, *Where do you think you might be able to find this information?* (Students might mention an encyclopedia, science books, and the Internet.) Encourage students to conduct further research.

### Review/Assess

Use the questions that follow as the basis for a discussion of the book or for a written or oral assessment.

1. Show students the illustration of the pond on pages 8 and 9. What kind of ecosystem is this? (a pond) Name one plant population that you would find in this ecosystem. (reeds, ferns, grasses) Name two animal populations that you would find in this ecosystem. (deer, frogs, damselflies, ducks, fish, snails, turtles, cranes) Name two nonliving things that are part of this ecosystem. (water, rocks, mud, sand, air)
2. Which animals in this picture are predators? How do you know? (Students' responses may include frogs, large fish, cranes, turtles, and raccoons because they eat other animals.) Which animals are prey? How do you know? (Students' responses may include damselflies, fish, snails, and frogs. They are prey because they are eaten by other animals.)
3. How are plants and animals alike? (They are both living things. They can change and grow. They can make others of their own kind. They both need air, water, space, and food to live.) How are they different? (Plants can make their own food. Plants need light. Animals can move from place to place. Animals need shelter.)
4. Can you name an animal that has an adaptation? How does that adaptation help the animal survive? (Answers will vary but may include the animals and adaptations mentioned on pages 6, 7, and 11.)
5. Look again at the pond on pages 8 and 9. Find four living things that make up a food chain. Which comes first in the food chain? List the other living things in the order of the food chain. (Answers will vary. Students' food chains should include plants, plant-eaters, and meat-eaters or omnivores.)
6. What do we mean when we say that an animal is *endangered*? (There are few of that species left alive.) What do we mean when we say that a species is *extinct*? (All of the members of the species have died.) What are some ways we can protect endangered species? (Answers may include protecting habitats or controlling predators.)

### Writing Links/Critical Thinking

Present the following as writing assignments. Provide help as needed.

1. Have students imagine that they are naturalists in a state or national park. Have them choose a habitat and create a brochure to teach visitors about the plant and animal populations in that habitat.
2. Provide a list of endangered animals. Have students choose an animal from the list, research the animal, and write a brief speech telling why the animal is endangered and what people can do to protect it.
3. Suggest that students create a Food Chain card game. Have pairs of students make a list of plant and animal populations found in an ecosystem of their choice. Suggest that they create playing cards by drawing or pasting magazine pictures of each plant or animal onto an index card. To play the game, players follow the rules of the classic card game Go Fish. Instead of forming pairs as in Go Fish, however, players try to form

“runs” of three cards that make up a food chain. The first player to form three food chains wins.

**Science Journals:** You may wish to have students keep the writing activities related to the Delta Science Reader in their science journals.

### References and Resources

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For trade book suggestions and Internet sites, see the References and Resources section of this teacher’s guide.