



SCIENCE • GRADE 3

California Content Standards
Life Sciences: 3.C
Life Sciences: 3.D
Life Sciences: 3.E

Below Level

# What Happens When Habitats Change?

**FOCUS**curriculum

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# What Happens When Habitats Change?

## California's Science Content Standards Met

### GRADE 3 SCIENCE

**LIFE SCIENCES: 3**—Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:

- c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.
- d. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.
- e. Students know that some kinds of organisms that once lived on Earth have completely disappeared and that some of those resembled others that are alive today.

### GRADE 3 ENGLISH LANGUAGE ARTS

#### 1.0 WORD ANALYSIS, FLUENCY, AND SYSTEMATIC VOCABULARY DEVELOPMENT

*Vocabulary and Concept Development 1.5*—Demonstrate knowledge of levels of specificity among grade-appropriate words and explain the importance of these relationships (e.g., dog/mammal/animal/living things).

*Vocabulary and Concept Development 1.6*—Use sentence and word context to find the meaning of unknown words.

*Vocabulary and Concept Development 1.7*—Use a dictionary to learn the meaning and other features of unknown words.

#### 2.0 READING COMPREHENSION

*Comprehension and Analysis of Grade-Level-Appropriate Text 2.5*—Distinguish the main idea and supporting details in expository text.

Below Level



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# Student Book

*What Happens When Habitats Change?*

Print pages 5 – 18 of this PDF for the student book.

# How to Make the Student Book

- The student book is contained on pages 5–18 of this PDF. It begins on the next page.
- To make one student book, or a two-sided master copy that can be photocopied, you will print on both sides of seven sheets of 8.5" x 11" paper.
- Do a test printout of one book first to familiarize yourself with the procedure.
- Follow these instructions carefully.

## First—Select the Paper

Since you will be printing on both sides of the sheets of paper, select a good quality white paper. We recommend using at least a 22lb sheet.

## Second—Check Printer Settings

Be sure you have the correct page setup settings for your computer and printer. You will print these pages in landscape format.

## Third—Print EVEN Pages

Open the PDF of the book you want to print. Select print from your file menu. In your printer's dialogue box enter pages 5–18 to print. Then select EVEN pages only. It is important to print only the EVEN pages first. Click "Print" to print the even pages. (**Important note:** The first page that prints will be blank. DO NOT discard this page. It will be needed to print the cover in the next step.)

## Forth—Print ODD Pages

When the even pages have printed, flip the stack of pages over to print the odd pages. Place the stack back in your printer. Select print from the file menu again. In your printer's dialogue box, select ODD pages. Click "Print" to print the odd the pages.

## Fifth—Fold the Book

You now have a complete book. Check to be sure the pages are in the correct order with the book's cover as the top page. Then fold the stack of paper in half.

## Sixth—Staple the Book

Use an extended-length stapler to staple the pages together. Place three staples in the spine of the book.

Please note that printers vary in how they output pages. Do a test printing with one book and adjust the procedure as necessary.

If you want to make a one-sided master copy, print ALL pages 5–18 at once. Then select "one-sided to two-sided" on the copy machine.

What Happens When Habitats Change?

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## California's Science Content Standards Met

### GRADE 3 SCIENCE

**LIFE SCIENCES: 3**—Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:

- c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.
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### GRADE 3 ENGLISH LANGUAGE ARTS

#### WORD ANALYSIS, FLUENCY, AND SYSTEMATIC VOCABULARY DEVELOPMENT

**Vocabulary and Concept Development 1.5**—Demonstrate knowledge of levels of specificity among grade-appropriate words and explain the importance of these relationships (e.g., dog/mammal/animal/living things).

**Vocabulary and Concept Development 1.6**—Use sentence and word context to find the meaning of unknown words.

**Vocabulary and Concept Development 1.7**—Use a dictionary to learn the meaning and other features of unknown words.

#### 2.0 READING COMPREHENSION

**Comprehension and Analysis of Grade-Level-Appropriate Text**

**2.5**—Distinguish the main idea and supporting details in expository text



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# What Happens When Habitats Change?

by Linda Barr





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# What Happens When Habitats Change?

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## INTRODUCTION

# Things Change

Plants and animals live in **habitats**.  
Their habitats meet their needs.

What happens when a habitat changes?  
It may no longer meet the needs of the  
plants and animals there.

When habitats change, animals might  
move to another habitat. Other animals  
and plants might not survive when a  
habitat changes. They may die.

How do habitats change? Keep reading  
to find out!

**habitat:** the place where an animal lives and has its needs met

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## CHAPTER 1

# Harmful Changes to Habitats

## Pollution

Pollution is something harmful in the air,  
water, or soil. Pollution can cause a habitat  
to change.

Cars and trucks burn gasoline.  
Coal is burned to make electricity.  
This burning sends harmful gases into  
the air. These gases can change a habitat.

Chemicals can help plants grow.  
They can kill weeds and insects.  
Yet, rain can wash these chemicals into  
rivers. The chemicals can kill plants and  
animals living in the rivers.

*What are some ways that pollution  
can get into the ocean?*

---

## Loss of Habitat

People want land to build houses on.  
They want wood to build these houses.  
They cut down a forests for land and wood.  
The forest plants and animals living there  
lose their habitat. Some animals might  
move to a new habitat. Others may  
not survive.

People also build dams that change how  
rivers flow. They may fill in wetlands to  
make more land for buildings. The plants  
and animals in those rivers and wetlands  
lose their habitats. They must move or die.

---

## Overcrowding

You know that sometimes animals move to  
a new habitat. Animals, people, and the  
wind carry seeds to new places. These new  
plants or animals can crowd out the old  
ones there.

One example is a weed called purple  
loosestrife. It was brought to our country  
about 200 years ago. One plant can produce  
more than one million seeds.

Now loosestrife grows in nearly every  
state. It is taking over lakes and streams in  
northern California.  
Scientists are looking  
for safe ways to get rid  
of this weed.



*Why does purple loosestrife spread quickly?*



---

## Natural Changes

Nature can also change habitats. For example, lightning starts fires. Floods cover the land. A volcano erupts and spreads ash.

Beavers also change habitats. A beaver dam plugs up a river or stream. It forms a pond. The pond is good for plants and animals that live in still water. However, the dam may harm plants and animals that live in a flowing stream.

A habitat may also have too many animals. For example, too many deer may eat most of the leaves. Then the other animals that eat leaves will starve.



*Beaver dams change the habitat around a stream or river.*

---

## CHAPTER 2

# Helpful Changes to Habitats

People are trying to protect habitats. For example, we are burning less gasoline. More people share car rides. More take the bus or ride their bikes. This reduces pollution in the air.

We are **recycling** glass, plastic, and paper. It takes less energy to make products from recycled materials. When we need less energy, we burn less coal.

Many people now use fewer chemicals. We are finding safer ways to protect crops from insects and weeds. That cuts down on air and water pollution.

**recycling:** collecting and reusing again

---

Old dumps and landfills are being cleaned up. Now, fewer chemicals leak into the soil and water.

When people cut down trees, they plant new ones. When they build houses, they add ponds and parks.

Many areas are set aside for wildlife. California has many wildlife **refuges**. Have you ever visited the Salinas River Wildlife Refuge? It's north of Monterey. It has many kinds of habitats. You might spot a rare California brown pelican there.

*Explain how changes in habitats are sometimes good and sometimes harmful.*

**refuge:** a wild area set aside to protect the plants and animals that live there

---

## CHAPTER 3

# Learning about the Past

Dinosaurs lived for millions of years in their habitats. Then those habitats changed. In time, all of the dinosaurs died. That was long before people lived on Earth. No one ever took a photo of a dinosaur. So how do we know they lived on Earth. How do we know what *Tyrannosaurus rex* looked like?

*T. rex* and other dinosaurs left behind thousands of **fossils**. Other living things also left behind fossils.



*Fossil of the head of  
Tyrannosaurus rex*

**fossil:** a piece of a body or a footprint left behind by a living thing that died long ago

---

## Types of Fossils

You will read about mold fossils, cast fossils, and trace fossils. Mold and cast fossils can show us what an **ancient**, or very old, living thing looked like. Trace fossils can show us how an ancient living thing lived. But how did these fossils form?

After an animal died, its soft parts **decayed**. Only hard parts were left such as teeth, bones, claws, or a shell. Over millions of years, soil covered the animal's **remains**. The soil turned into rock. Rainwater flowed through cracks in the rock, and **dissolved** the remains.

**ancient:** having lasted a long time

**decay:** to break down and return materials to the environment

**remains:** what is left after a living thing dies

**dissolved:** changed from a solid into a liquid

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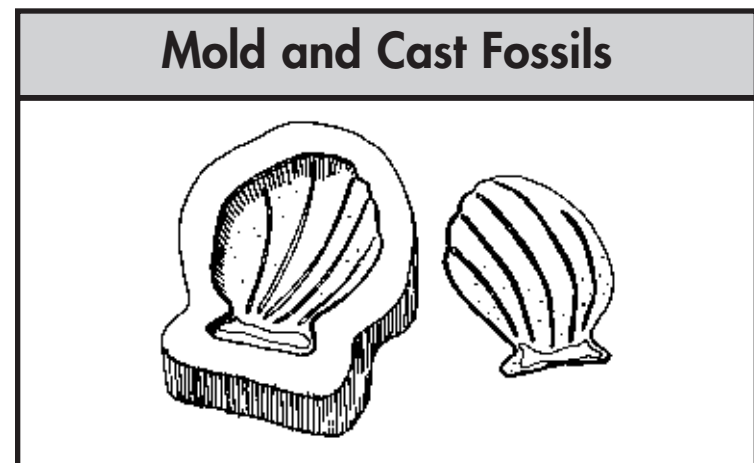
## Mold Fossils

When the remains dissolved, an empty space was left behind. The empty space had the same shape as the teeth, bones, or shell. This is called a mold fossil.

## Cast Fossils

In time, minerals from the soil filled up the mold. The minerals hardened and formed a rock in the shape of the teeth, bones, or shell. This is a cast fossil.

Mold fossils and cast fossils help scientists figure out what the animal looked like.



*The fossil on the left is a mold. Over time, minerals filled the mold. They formed the cast fossil on the right.*

---

## Trace Fossils

If you have mud on your shoes, you leave muddy footprints behind. Ancient animals also walked through mud. They left behind muddy footprints, or traces, of themselves.

In time, some of the footprints hardened into rock. It kept the shape of their footprints. They became fossils. This kind of fossil is called a trace fossil.

Trace fossils can tell where an animal lived. Fossil footprints have been found in riverbeds and coal mines.

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Trace fossils can tell how an animal lived. Trace fossils include **burrows** that ancient animals dug. The burrows hardened into rock.

Scientists can use mold, cast, and trace fossils to learn about ancient living things. They can use fossils to tell what a plant or animal looked like. They can use fossils to figure out where and how an animal lived. Fossils are proof that certain plants and animals once lived on Earth.

*Explain how fossils help us learn about animals that lived long ago.*

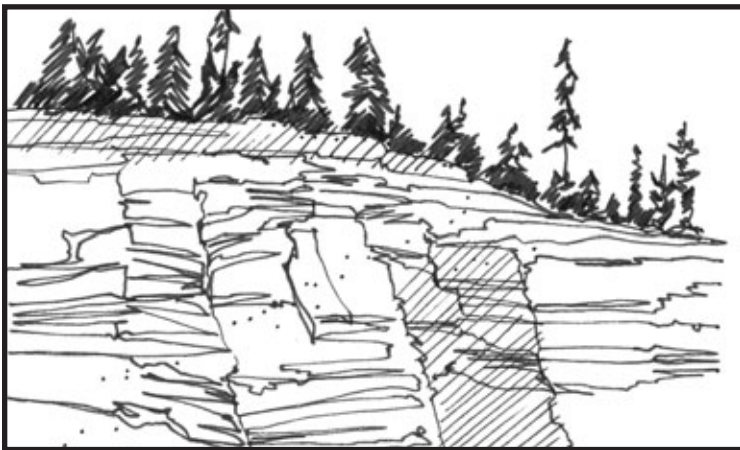
**burrows:** holes or tunnels dug into the ground by an animal

---

## Age of a Fossil

Scientists can figure out the age of a fossil. They study the rock layer where the fossil was found. They can find out the age of this layer of rock. A fossil found in the same rock layer is the same age as the rock. How do you think scientists know that the oldest fossils are buried the deepest?

*Scientists study fossils found in different layers of rock. They find out what plants and animals lived at the same time the rock layer formed.*



*How do you think scientists know that the oldest fossils are buried the deepest?*

---

## CHAPTER 4

# Extinct Plants and Animals

Changes in habitats can cause plants and animals to become extinct. At different times, California has been much wetter, warmer, and colder than it is now.

Some plants and animals could not adjust to these changes. They could not deal with the increasing cold or heat. They could not find enough food. Their habitat no longer met their needs. They died.

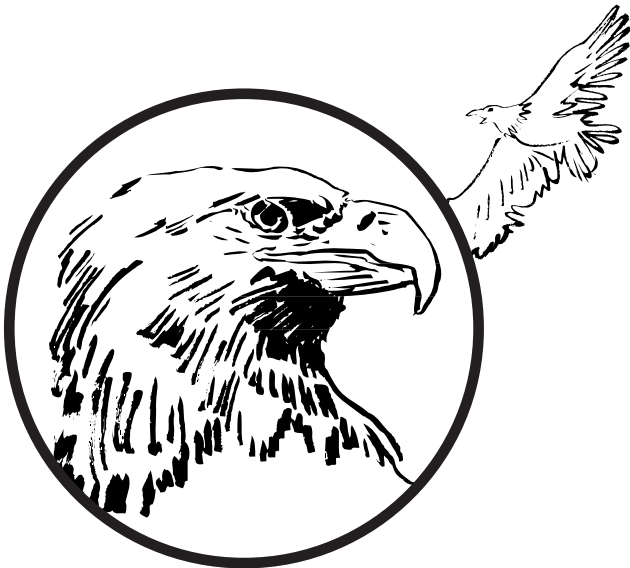
Like the dinosaurs, thousands of kinds of plants and animals have disappeared from Earth. These plants and animals are now extinct.

**extinct:** no longer living on Earth

---

Today, people are working on ways to protect the habitats of our plants and animals. They want to stop plants and animals from becoming extinct.

Not long ago, bald eagles almost become extinct. The cause was the chemical DDT. Farmers sprayed it on their crops to kill insects. Then mice ate those crops. As bald eagles ate the mice, DDT built up in the eagles' bodies. It caused their eggshells to break. Few eaglets hatched. In 1972, a law stopped the use of DDT. Now bald eagles are making a comeback.



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Some plants and animals can live only in one habitat. Some eat only one kind of food. For example, giant pandas eat mostly bamboo. Many bamboo forests have been cut down. Giant pandas are losing their habitat. They may not survive.

Thousands of plants and animals live in the rain forest. Most could not live anywhere else. Yet many, many miles of the rain forest are cleared for farming and mining each year. Many plants and animals lose their habitat.

People worked together to save the bald eagle's habitat. How can we protect the panda's habitat? What can we do to save the rain forest habitat?

*What kind of investigation would help scientists determine how many kinds of birds live in a certain part of the rain forest?*

## Ancient Plants and Animals

We know that some plants and animals have become extinct. Yet, some have lived on Earth since before the dinosaurs. These plants and animals are ancient, or very old. How do we know?

Fossils tell us that alligators have lived on Earth for more than 200 million years. They still look much the same. They can handle most changes. They eat almost anything they can catch.

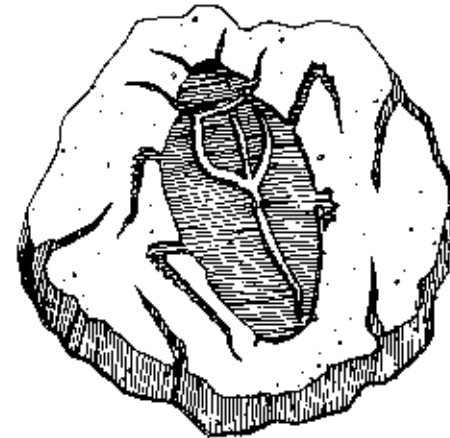
Once, people hunted alligators for their **hides**. Now laws protect them. If we protect their habitat, alligators will continue to survive.

**hide:** the skin of an animal

---

Cockroaches have survived for 350 million years. They eat almost anything. That includes shoe polish and dead bugs. Some types can live three months without food and one month without water. These bugs are happy in the rain forest, the desert, and your home.

Cockroach fossils show that today's bugs look like those that lived with the dinosaurs. All we have left of the dinosaurs is fossils. Which would you rather have alive today, dinosaurs or cockroaches?



*Explain how we know that extinct living things may look like living things that are alive today.*

---

## Glossary

**ancient**—having lasted a long time

**burrows**—holes or tunnels dug into the ground by an animal

**decay**—to break down and return materials to the environment

**dissolved**—changed from a solid into a liquid

**extinct**—no longer living on Earth

**fossil**—a piece of a body or a footprint left behind by a living thing that died long ago

**habitat**—the place where an animal lives and has its needs met

**hide**—the skin of an animal

**recycling**—collecting and reusing again

**refuge**—a wild area set aside to protect the plants and animals that live there

**remains**—what is left after a living thing dies

---

## To Find Out More . . .

Want to learn more about what happens when habitats change?

### Try these books

*Dinosaur Hunters* by Kate McMullan. Random House, 2005.

*Ecology* (DK Eyewitness Books) by Steve Pollock. DK Children, 2005.

*Endangered Animals* by Rhonda Lucas Dona. Children's Press, 2002.

*Monster Bones: The Story of a Dinosaur Fossil* by Jacqui Bailey. Picture Window Books, 2004.

*Survival and Change* by Steve Parker. Heinemann, 2006.

### Access these Web sites

Learn all about fossils at Oxford University Museum's Learning Zone.

<http://museum.gov.ns.ca/mnh/nature/tracefossils/english/sections/whatare.ht>

The San Diego Natural History Museum offers more information about fossils and dinosaurs.

[www.sdnhm.org/kids/dinosaur/](http://www.sdnhm.org/kids/dinosaur/)



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ENGLISH-LANGUAGE ARTS • GRADE 3

California Content Standards
Vocabulary and Concept Development: 1.5
Vocabulary and Concept Development: 1.6
Vocabulary and Concept Development: 1.7
Comprehension and Analysis of Grade-Level-Appropriate Text: 2.5

Below Level

# English-language Arts Activities

*What Happens When Habitats Change?*

Print pages 20–24 of this PDF for the reading activities.

# Use Specific Words

## TRY THE SKILL

Some words describe a large group of things. One example is *plant*. This word includes things as different as giant redwood trees and tiny moss.

Other words, such as *tree*, describe just a few things. When you say that something is a tree, readers know that it is a tall plant with a trunk and branches. When you say that the tree is an evergreen, readers can more clearly picture what you mean. They know that an evergreen tree has needles, not leaves, and stays green all year.

The word *tree* is more specific than *plant*. The word *evergreen* is more specific than *tree*.

Read these words. They are in order by how specific they are.

pine tree, evergreen, tree, plant, living thing

Knowing which words are specific can help you be a better reader and writer.

Read each group of words. Then write the words in order, starting with the most specific word.

1. flower, daisy, plant

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2. vehicle, car, minivan

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3. Dr. Green, woman, doctor, person

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4. movie, entertainment, fiction, *Shrek*

---

5. food, raspberry, fruit, living thing

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# Identify Main Ideas and Details

## TRY THE SKILL

A paragraph may have one or two important ideas. It may also have details that tell about each main idea. For example, read this paragraph.

Plants and animals live in habitats. Their habitats meet their needs. What happens when a habitat changes? It may no longer meet the needs of the plants and animals there.

**What is the main idea of this paragraph?**

This paragraph has one main idea: If a habitat changes, it might not meet the needs of animals that live there. The paragraph also includes details about this main idea. It states that plants and animals live in habitats and habitats meet animals' needs.

Read this paragraph. Then answer questions by shading the circle next to the correct answer.

Not long ago, bald eagles almost become extinct. The cause was the chemical DDT. Farmers sprayed it on their crops to kill insects. Then mice ate those crops. As bald eagles ate the mice, DDT built up in the eagles' bodies. It caused their eggshells to break. Few eaglets hatched. In 1972, a law stopped the use of DDT. Now bald eagles are making a comeback.

1. What is the main idea in this paragraph?

- A Mice ate crops sprayed with DDT.
- B Farmers sprayed DDT on crops.
- C Bald Eagles almost became extinct.
- D Few eaglets hatched.

2. Write two details from this paragraph.

- a. \_\_\_\_\_  
\_\_\_\_\_
- b. \_\_\_\_\_  
\_\_\_\_\_

# Use a Dictionary

## TRY THE SKILL

In a dictionary, the information about each word is called an entry. The entry tells you the definition of the word and how to say it. You can find out whether the word is a noun, verb, or another part of speech. It might also use the word in a sentence. Some entries list words that mean the same (synonyms).

For example, read this entry for the word *ancient*:

**ancient** (ayn-shunt) *adj.* **1.** relating to the past. **2.** very old. *The fossil was ancient.* *n.* a very old person. *The ancient was quite wise.* *–ancient·ly, adv.* *–ancient·ness, n.*

In this dictionary, the parts of speech are printed in bold italics. This entry shows that *ancient* can be used as an adjective or a noun. The adjective form has two definitions. The noun form has only one definition. The entry also shows that when you add a suffix, *ancient* can become an adverb or a noun. The sentence examples are printed in italics.

Read this dictionary entry and answer questions 1 and 2.

**pollute** (puh-loot) ) *v.* –lut·ed, –lut·ing. to make dirty in a way that harms living things. *Burning gasoline pollutes the air.* *pollut·er n.*

1. What is a noun form of *pollute*?
  - Ⓐ polluted
  - Ⓑ polluting
  - Ⓒ polluter
2. Which sentence below uses the word *pollute* correctly?
  - Ⓐ That child is going to pollute his shoes in that mud puddle.
  - Ⓑ Do windmills pollute the air?
  - Ⓒ Which company is the top pollute in this city?
3. Read the dictionary entry for *ancient* again. How is the letter *c* pronounced in this word?
  - Ⓐ /sh/
  - Ⓑ /s/
  - Ⓒ /k/

# Context Clues

## TRY THE SKILL

To figure out the meaning of an unknown word, look for words in the same sentence or nearby sentences that give you clues.

Look for word clues in each sentence at the right to figure out which word from the box should complete it. Then write the correct word on the line.

**ancient**—having lasted a long time

**decay**—to break down and return materials to the environment

**extinct**—no longer living on Earth

**habitat**—the place where an animal lives and has its needs met

**recycling**—collecting and reusing again

**remains**—what is left after a living thing dies

1. Our school started a \_\_\_\_\_ program so we could collect and reuse paper.
2. Dinosaurs became \_\_\_\_\_ because they could no longer survived on Earth.
3. The \_\_\_\_\_ fossils found in California\_ been there for thousands of years.
4. How does the \_\_\_\_\_ where you live meet your needs?
5. We found the \_\_\_\_\_ of a dead bird behind our house.
6. All living things \_\_\_\_\_, or break down, when they die.

# Answer Key

## Use Specific Words

1. daisy, flower, plant
2. minivan, car, vehicle
3. Dr. Green, doctor, woman, person
4. *Shrek*, fiction, movie, entertainment
5. raspberry, fruit, food, living thing

## Identify Main Ideas and Details

1. C
2. Possible details: Eagles almost became extinct because of the chemical DDT. Farmers sprayed DDT on their crops to kill insects. Then mice ate those crops. As bald eagles ate the mice, DDT built up in the eagles' bodies. It caused their eggshells to break. Few eaglets hatched. In 1972, a law stopped the use of DDT. Now bald eagles are making a comeback.

## Use a Dictionary

1. C
2. B
3. A

## Context Clues

1. recycling
2. extinct
3. ancient
4. habitat
5. remains
6. decay