

# Science Notebook

Glencoe Science

## Life Science

### Consultant

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**Glencoe**

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# About the Consultant

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Douglas Fisher, Ph.D., is a Professor in the Department of Teacher Education at San Diego State University. He is the recipient of an International Reading Association Celebrate Literacy Award as well as a Christa McAuliffe award for Excellence in Teacher Education. He has published numerous articles on reading and literacy, differentiated instruction, and curriculum design as well as books, such as *Improving Adolescent Literacy: Strategies at Work* and *Responsive Curriculum Design in Secondary Schools: Meeting the Diverse Needs of Students*. He has taught a variety of courses in SDSU's teacher-credentialing program as well as graduate-level courses on English language development and literacy. He also has taught classes in English, writing, and literacy development to secondary school students.



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# Note-Taking Tips

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Your notes are a reminder of what you learned in class. Taking good notes can help you succeed in science. These tips will help you take better notes.

- Be an active listener. Listen for important concepts. Pay attention to words, examples, and/or diagrams your teacher emphasizes.
- Write your notes as clearly and concisely as possible. The following symbols and abbreviations may be helpful in your note-taking.

Word or Phrase	Symbol or Abbreviation
for example	e.g.
such as	i.e.
with	w/
without	w/o

Word or Phrase	Symbol or Abbreviation
and	+
approximately	≈
therefore	∴
versus	vs

- Use a symbol such as a star (★) or an asterisk (\*) to emphasize important concepts. Place a question mark (?) next to anything that you do not understand.
- Ask questions and participate in class discussion.
- Draw and label pictures or diagrams to help clarify a concept.

# Note-Taking Don'ts

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- **Don't** write every word. Concentrate on the main ideas and concepts.
- **Don't** use someone else's notes—they may not make sense.
- **Don't** doodle. It distracts you from listening actively.
- **Don't** lose focus or you will become lost in your note-taking.

# Using Your Science Notebook

This note-taking guide is designed to help you succeed in learning science content. Each chapter includes:

Name \_\_\_\_\_ Date \_\_\_\_\_

## Exploring and Classifying Life

### Before You Read

Before you read the chapter, respond to these statements.

- Write an **A** if you agree with the statement.
- Write a **D** if you disagree with the statement.

Before You Read	Exploring and Classifying Life
	• All science takes place in laboratories.
	• All of the changes that take place during an organism's life are called responses.
	• Spontaneous generation is the idea that living things come from nonliving things.
	• Organisms are classified into groups based on their similarities.

**FOLDABLES**  
Study Organizer

Construct the Foldable as directed at the beginning of this chapter.

**Language-Based Activities**  
Activities cover the content in your science book including vocabulary, writing, note-taking, and problem solving.

**Science Journal**  
List three characteristics that you would use to describe life.

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**Anticipation Guide/KWL Charts**  
Think about what you already know before beginning a lesson and identify what you would like to learn from reading.

**Science Journal**  
Write about what you know.

Date \_\_\_\_\_

### Section 1 What Is Science? (continued)

Main Idea	Details												
<p><b>Developing Theories</b></p> <p>Contrast an opinion, a scientific theory, and a scientific law. Complete the table.</p> <p>I found this information on page _____.</p>													
<table border="1"> <thead> <tr> <th></th> <th>Opinion</th> <th>Scientific Theory</th> <th>Scientific Law</th> </tr> </thead> <tbody> <tr> <td>What it is</td> <td></td> <td></td> <td></td> </tr> <tr> <td>What it is based on</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Opinion	Scientific Theory	Scientific Law	What it is				What it is based on				
	Opinion	Scientific Theory	Scientific Law										
What it is													
What it is based on													

Write a sentence for each quantity below by listing them.

---



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Write a sentence for each quantity below by listing them.

---



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Write a sentence for each quantity below by listing them.

---



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Write a sentence for each quantity below by listing them.

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**Writing Activities**  
These activities help you think about what you're learning and make connections to your life.

**SYNTHESIZE IT**

A scientist collects data about ducks' migration patterns every year between November and April. After five years, she draws conclusions and publishes a scientific paper. Describe the scientific methods she might have used. State why it was important to wait five years before publishing her results.

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4 Exploring and Classifying Life

### Academic Vocabulary

**annual:** plant that completes its life cycle in one year

**apparent:** readily seen, visible, readily understood or perceived; evident; obvious

**area:** amount or extent of a surface

**attach:** to be connected

**benefit:** to help

**capable:** able to do things; fit

**chemical:** made by chemistry

**chemical bond:** the force holding atoms together in a molecule

**code:** (noun) set of signals representing letters or numerals, used to send messages; (verb) to put in the form or symbols of a code

**complex:** composed of two or more parts; complicated

**compound:** (adjective) made of two or more separate parts or elements

**constant:** not changing; staying the same

**contact:** act or state of touching or meeting

**convert:** to change from one form or function to another

**coordinate:** to cause to work well together

**cycle:** a complete set of events or phenomena recurring in the same sequence

**decline:** to weaken or lessen

**definite:** having exact limits in size, shape, or number of parts

**detect:** to catch or discover; to manage to perceive

**distribute:** to divide among several or many

**dominate:** to control or rule

**energy:** capacity to perform some type of work or activity

**environment:** living and nonliving factors that surround an organism

**estimate:** (noun) an opinion of the value, quality, size, or cost of something; (verb) to form an opinion by reasoning

**external:** on, or for use on, the outside of the body

**facilitate:** to make easy or easier

**flexible:** able to bend or flex

**function:** (noun) a specific job or purpose; (verb) to carry out a specific action

**fundamental:** serving as an original or generating source; primary

**generate:** to originate or bring into existence

**hypothesis:** something that is suggested as being true for the purposes of argument or of further investigation

**identical:** same

**individual:** separate

**insert:** to put or fit (something) into something else

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**Vocabulary Development**  
Vocabulary words help you to better understand your science lessons. Learning the Academic Glossary can help you score higher on standardized tests.

Name \_\_\_\_\_ Date \_\_\_\_\_

Section 1 What is science? (continued)

**Main Idea** \_\_\_\_\_ **Details** \_\_\_\_\_

**The Work of Science**  
Define science using information from this section.  
I found this information on page \_\_\_\_\_

**Solving Problems**  
**Sequence** the steps scientists use to solve problems. Study the figure in your book, then close your book and try to fill in the figure. Check your work by looking back at your book.

↓  
S \_\_\_\_\_ the problem  
↓  
\_\_\_\_\_

**Note-Taking Based on the Cornell Two-Column Format**  
Practice effective note-taking through the use of graphic organizers, outlines, and written summaries.

**Analyze** the role of controls and variables in an experiment. Fill in the missing words.  
A control is the \_\_\_\_\_ to which the \_\_\_\_\_ of a test is \_\_\_\_\_. A variable is \_\_\_\_\_ that can be \_\_\_\_\_. The number of variables that should be changed during an experiment is \_\_\_\_\_.

I found this information on page \_\_\_\_\_

Exploring and Classifying Life 3

**Chapter Wrap-Up**  
This brings the information together for you. Revisiting what you thought at the beginning of the chapter provides another opportunity for you to discuss what you have learned.

Name \_\_\_\_\_ Date \_\_\_\_\_

**Exploring and Classifying Life**  
Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

- Write an **A** if you agree with the statement.
- Write a **D** if you disagree with the statement.

Exploring and Classifying Life	After You Read
• All science takes place in laboratories.	
• All of the changes that take place during an organism's life are called responses.	
• Spontaneous generation is the idea that living things come from nonliving things.	
• Organisms are classified into groups based on their similarities.	

**Review**  
Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

**SUMMARIZE IT** \_\_\_\_\_  
List three important facts you learned in this chapter.

**Review Checklist**  
This list helps you assess what you have learned and prepare for your chapter tests.

14 Exploring and Classifying Life

Name \_\_\_\_\_ Date \_\_\_\_\_

Section 2 Living Things (continued)

**Main Idea** \_\_\_\_\_ **Details** \_\_\_\_\_

**What are living things like?**  
Organize the characteristics that define living things. Complete the graphic organizer.  
I found this information on page \_\_\_\_\_

**Describe** the relationship between a stimulus and a response. Complete the table. Then complete the flowchart to describe homeostasis.

	What It Is	Example
Stimulus		
Response		

**Homeostasis**

Stimulus: The conditions in an organism's cells change. → Response: \_\_\_\_\_

6 Exploring and Classifying Life

**Graphic Organizers**  
A variety of visual organizers help you to analyze and summarize information and remember content.

# Exploring and Classifying Life

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Before You Read</b>	<b>Exploring and Classifying Life</b>
	<ul style="list-style-type: none"> <li>• All science takes place in laboratories.</li> </ul>
	<ul style="list-style-type: none"> <li>• All of the changes that take place during an organism's life are called responses.</li> </ul>
	<ul style="list-style-type: none"> <li>• Spontaneous generation is the idea that living things come from nonliving things.</li> </ul>
	<ul style="list-style-type: none"> <li>• Organisms are classified into groups based on their similarities.</li> </ul>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List three characteristics that you would use to classify underwater life.*

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# Exploring and Classifying Life

## Section 1 What is science?

**Scan** the list below to preview Section 1 of your book.

- Read all section headings.
- Read all bold words.
- Read all charts and graphs.
- Think about what you already know about how to solve problems.

**Write** three facts you discovered about scientific methods as you scanned the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*experiment*

**Write** a paragraph describing scientific methods. Use all of the vocabulary words in your description. Underline each vocabulary word.

**New Vocabulary**

*scientific methods*  
*hypothesis*  
*control*  
*variable*  
*theory*  
*law*

**Academic Vocabulary**

*reject*

Section 1 What is science? (continued)

**Main Idea**

**The Work of Science**

*I found this information on page \_\_\_\_\_.*

**Solving Problems**

*I found this information on page \_\_\_\_\_.*

**Details**

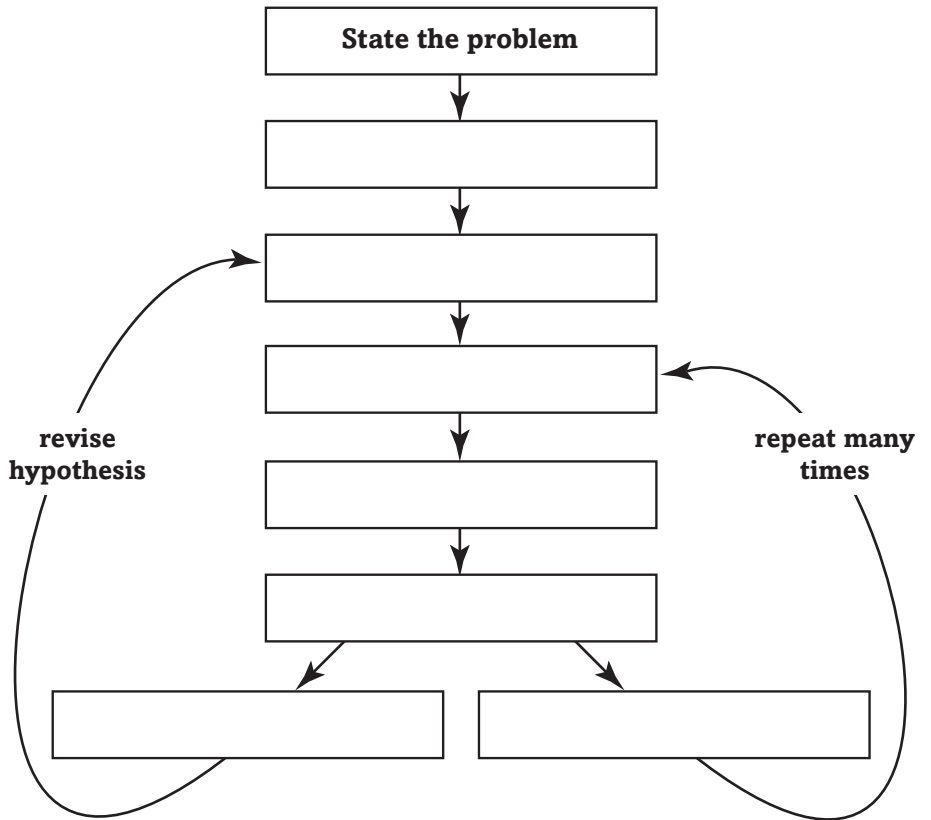
**Define** science *using information from this section.*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Sequence** *the steps scientists use to solve problems. Study the figure in your book, then close your book and try to fill in the figure. Check your work by looking back at your book.*



*I found this information on page \_\_\_\_\_.*

**Analyze** *the role of controls and variables in an experiment. Fill in the missing words.*

A control is the \_\_\_\_\_ to which the \_\_\_\_\_ of a test is \_\_\_\_\_. A variable is \_\_\_\_\_ that can be \_\_\_\_\_. The number of variables that should be changed during an experiment is \_\_\_\_\_.

Section 1 What is science? (continued)

**Main Idea**

**Developing Theories**

*I found this information on page \_\_\_\_\_.*

**Measuring with Scientific Units**

*I found this information on page \_\_\_\_\_.*

**Safety First**

*I found this information on page \_\_\_\_\_.*

**Details**

**Contrast** *an opinion, a scientific theory, and a scientific law. Complete the table.*

	<b>Opinion</b>	<b>Scientific Theory</b>	<b>Scientific Law</b>
What it is			
What it is based on			

**Summarize** *the metric units for each quantity below by listing them.*

**Length:** \_\_\_\_\_

**Volume:** \_\_\_\_\_

**Mass:** \_\_\_\_\_

**Identify** *two important safety practices to follow in a laboratory.*

1. \_\_\_\_\_

2. \_\_\_\_\_

**SYNTHESIZE IT**

A scientist collects data about ducks' migration patterns every year between November and April. After five years, she draws conclusions and publishes a scientific paper. Describe the scientific methods she might have used. State why it was important to wait five years before publishing her results.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Exploring and Classifying Life

## Section 2 Living Things

**Predict** what you will learn in Section 2. Read the title and main headings. List three topics that you predict will be discussed in the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

Use raw materials in a sentence to show its scientific meaning.

*raw materials*

\_\_\_\_\_  
\_\_\_\_\_

### New Vocabulary

Find a sentence in Section 2 that uses each vocabulary term.

*organism*

\_\_\_\_\_  
\_\_\_\_\_

*cell*

\_\_\_\_\_  
\_\_\_\_\_

*homeostasis*

\_\_\_\_\_  
\_\_\_\_\_

### Academic Vocabulary

Use a dictionary to define chemical.

*chemical*

\_\_\_\_\_  
\_\_\_\_\_

Section 2 Living Things (continued)

**Main Idea**

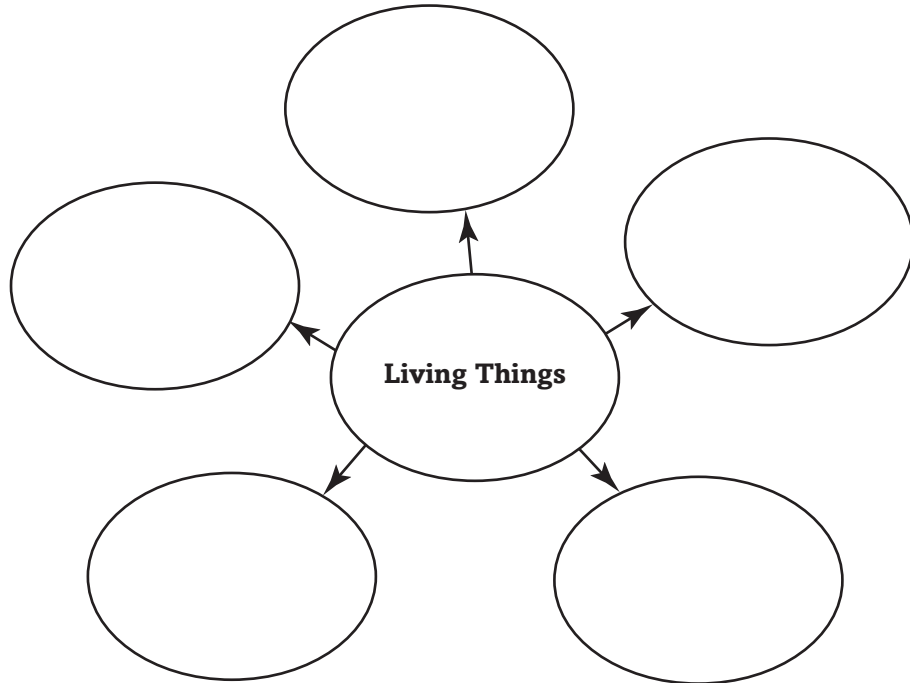
**What are living things like?**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

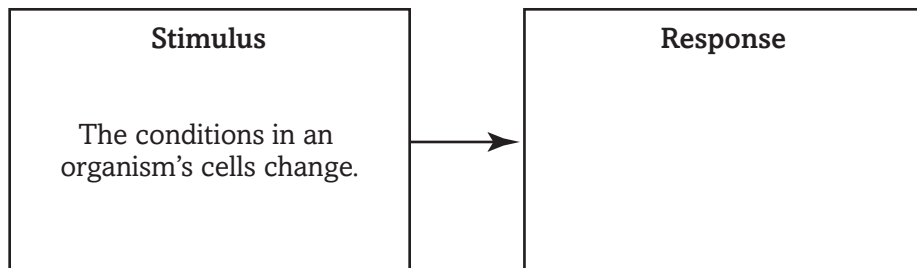
**Organize** the characteristics that define living things. Complete the graphic organizer.



**Describe** the relationship between a stimulus and a response. Complete the table. Then complete the flowchart to describe homeostasis.

	What It Is	Example
Stimulus		
Response		

**Homeostasis**



Section 2 Living Things (continued)

**Main Idea**

I found this information on page \_\_\_\_\_.

**What do living things need?**

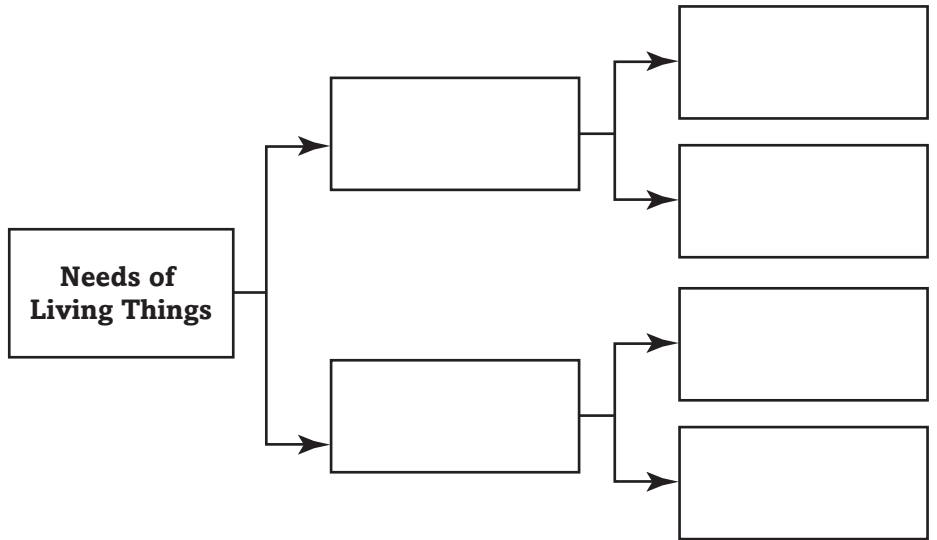
I found this information on page \_\_\_\_\_.

**Details**

**Contrast** the ways organisms obtain energy in the table.

Organism	How It Obtains Energy
Plants	
Animals	
Bacteria in places sunlight cannot reach	

**Classify** the needs of all living things. Complete the concept map.



**SUMMARIZE IT**

Choose one living thing and one nonliving thing with which you are familiar. Use the five characteristics of living things to explain how you know that each is living or nonliving. Complete the chart to organize your information.

Object	Has cells?	Uses energy?	Grows and develops?	Responds to stimuli?	Reproduces?

# Exploring and Classifying Life

## Section 3 Where does life come from?

**Skim** Section 3, and write three questions that you have.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

contaminate

**Define** contaminate and use it in an original sentence.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

Write the vocabulary term that matches each definition.

\_\_\_\_\_

\_\_\_\_\_

the idea that living things come from nonliving things

the idea that living things come only from other living things

**Academic Vocabulary**

estimate

Use a dictionary to define estimate as both a noun and a verb.

noun: \_\_\_\_\_

\_\_\_\_\_

verb: \_\_\_\_\_

\_\_\_\_\_

Section 3 Where does life come from? (continued)

**Main Idea**

**Life Comes from Life**

I found this information on page \_\_\_\_\_.

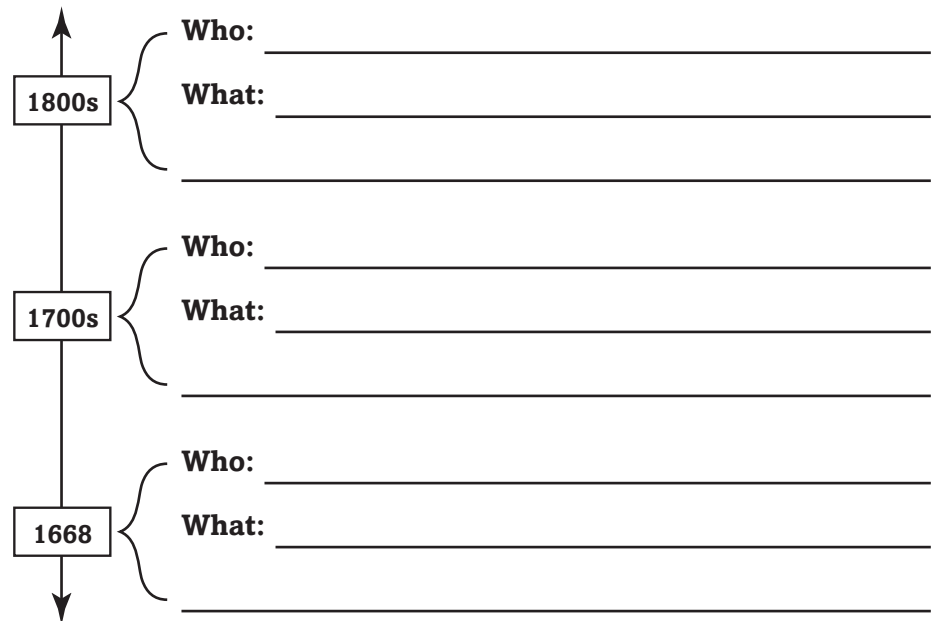
I found this information on page \_\_\_\_\_.

**Details**

**Contrast** *the theories of spontaneous generation and biogenesis. Complete the table.*

	Spontaneous Generation	Biogenesis
Source of life		

**Sequence** *experiments that were conducted about the theory of spontaneous generation. Complete the time line.*



**Life's Origins**

I found this information on page \_\_\_\_\_.

**Complete** *key events in the evolution of life on Earth. Identify the event that scientists hypothesize occurred at each time.*

**about 5 billion years ago:** \_\_\_\_\_

**about 4.6 billion years ago:** \_\_\_\_\_

**more than 3.5 billion years ago:** \_\_\_\_\_



Section 3 Where does life come from? (continued)

**Main Idea**

**Life's Origins**

I found this information on page \_\_\_\_\_.

**Details**

**Organize** information about Oparin's hypothesis. Complete the outline.

I. Oparin's hypothesis of Earth's early atmosphere composition

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

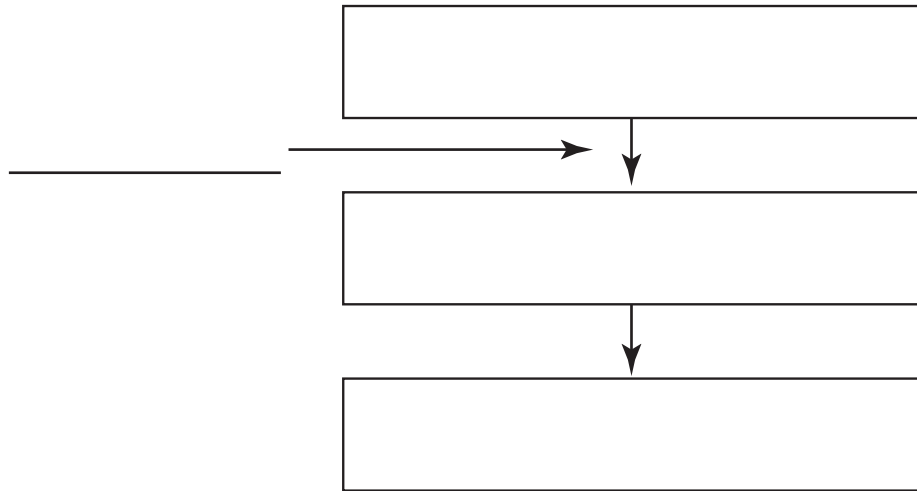
D. \_\_\_\_\_

II. What happened in the atmosphere

A. \_\_\_\_\_

B. \_\_\_\_\_

**Complete** the graphic organizer summarizing Stanley Miller and Harold Urey's experiment.



**CONNECT IT**

Scientists' theories of the origin of life have changed over time.

How do these changes show the use of scientific methods?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Exploring and Classifying Life

## Section 4 How are living things classified?

**Read** the What You'll Learn statements for Section 4. Rewrite each statement as a question. As you read, look for the responses to your questions.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

### Review Vocabulary

*common name*

**Describe** how an organism's common name is different from its scientific name.

---

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### New Vocabulary

**Read** the definitions below. Write the vocabulary term that matches each definition.

---

---

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first and largest category used to classify organisms

evolutionary history of an organism

group of similar species

two-word scientific naming system

### Academic Vocabulary

*similar*

**Define** similar using a dictionary.

---

---

---

Section 4 How are living things classified? (continued)

**Main Idea**

**Details**

**Classification**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Contrast** *historic classification systems. Identify the categories or criteria used in each system.*

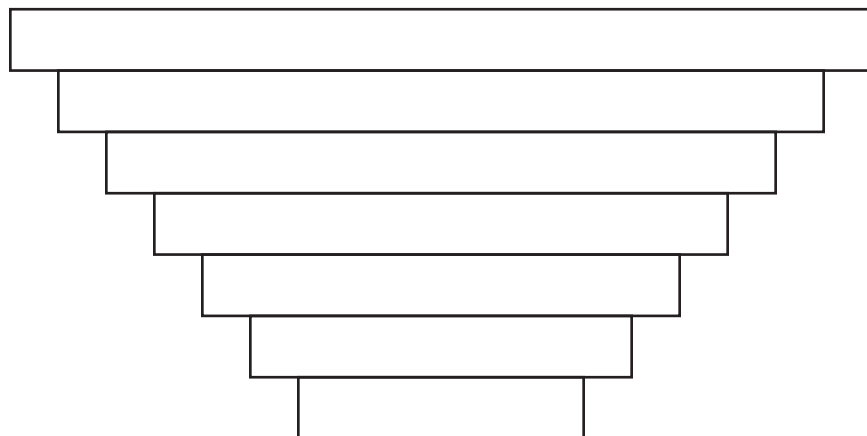
	<b>Early classification</b>	<b>Aristotle</b>	<b>Linnaeus</b>
Categories or criteria			

**Summarize** *the 6 types of information that modern scientists use to determine an organism's phylogeny.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

**Label** *the groups used to classify organisms from least specific to most specific. Use the word bank to complete the diagram.*

class                  genus                  order                  species  
 family                kingdom                phylum



Section 4 How are living things classified? (continued)

**Main Idea**

**Scientific Names**

I found this information on page \_\_\_\_\_.

**Tools for Identifying Organisms**

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** binomial nomenclature. *Complete the sentences.*

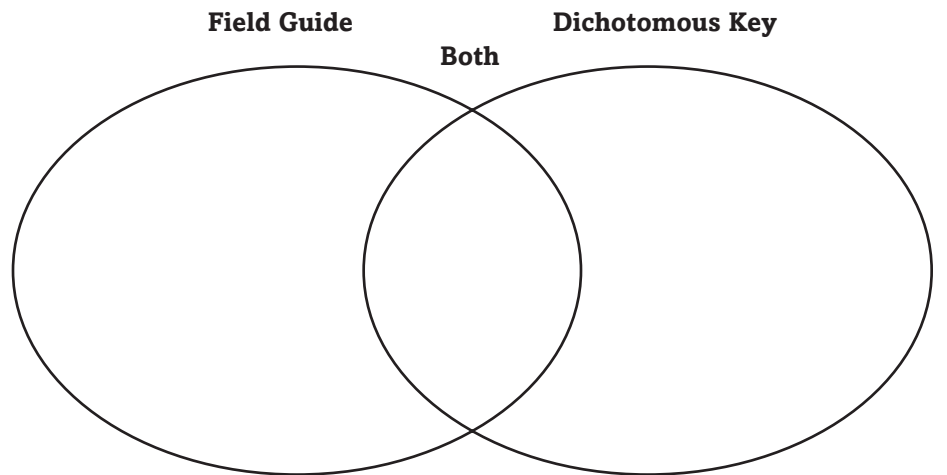
The first word of an organism's scientific name is its \_\_\_\_\_.

The second word might \_\_\_\_\_.

**Identify** four reasons the system of binomial nomenclature is useful.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_

**Distinguish** between a field guide and a dichotomous key. *Complete the Venn diagram.*



**SYNTHESIZE IT**

Choose five similar plants or animals. Use what you know about their structures and features to develop your own dichotomous key to classify your choices. Use a dictionary to find the scientific name of each plant or animal to include in your key.

# Exploring and Classifying Life

## Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Exploring and Classifying Life	After You Read
• All science takes place in laboratories.	
• All of the changes that take place during an organism's life are called responses.	
• Spontaneous generation is the idea that living things come from nonliving things.	
• Organisms are classified into groups based on their similarities.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

List three important ideas you learned in Chapter 1.

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# Cells

## Before You Read

*Preview the chapter title, the section titles, and the section headings. List at least one idea for each section in each column.*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Write three questions that you would ask a scientist researching cancer cells.*

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# Cells

## Section 1 Cell Structure

**Skim** Section 1. Write two questions that come to mind.

1. \_\_\_\_\_
2. \_\_\_\_\_

**Review Vocabulary**

**Write** sentences using the Review Vocabulary and New Vocabulary words. Use two or more of the vocabulary words in each sentence.

*photosynthesis*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*cell membrane*

*cytoplasm*

*cell wall*

*organelle*

*nucleus*

*chloroplast*

*mitochondrion*

*ribosome*

*endoplasmic reticulum*

*Golgi body*

*tissue*

*organ*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_

**Academic Vocabulary**

**Write** sentences using function as a noun and as a verb.

*function*

Noun: \_\_\_\_\_

Verb: \_\_\_\_\_

Section 1 Cell Structure (continued)

**Main Idea**

**Common Cell Traits**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Cell Organization**

*I found this information on page \_\_\_\_\_.*

**Details**

**Define** cell by completing the following statement.

A cell is \_\_\_\_\_  
\_\_\_\_\_.

**Model** a prokaryotic cell and a eukaryotic cell. Show the difference between the two types.

Prokaryotic Cell	Eukaryotic Cell

**Organize** information about eukaryotic cell parts in the table.

Part	Description
Cell wall	
Nucleus	
Chloroplast	
Mitochondria	
Ribosomes	
Endoplasmic reticulum	
Golgi bodies	
Lysosomes	



Section 1 Cell Structure (continued)

**Main Idea**

**From Cell to Organism**

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** the following terms from simplest (at the top) to most complex in the chart below. Define each term and provide an example.

tissue      organism      cell      organ system      organ

Term: _____	Example: _____
Definition: _____	



Term: _____	Example: _____
Definition: _____	



Term: _____	Example: _____
Definition: _____	



Term: _____	Example: _____
Definition: _____	



Term: _____	Example: _____
Definition: _____	

**SYNTHESIZE IT**

Compare and contrast animal and plant cells.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Cells

## Section 2 Viewing Cells

**Predict** three things that might be discussed in this section after reading its headings.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Use** *magnify* in a sentence.

*magnify*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Find** a sentence in Section 2 in which cell theory is used and write it here.

*cell theory*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

**Define** *compound* as an adjective. Use a dictionary if you need to.

*compound*

\_\_\_\_\_  
\_\_\_\_\_

**Locate and write** a sentence in Section 2 in which the word *compound* is used as an adjective.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 2 Viewing Cells (continued)

**Main Idea**

**Magnifying Cells**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** information in your book to describe van Leeuwenhoek's microscope.

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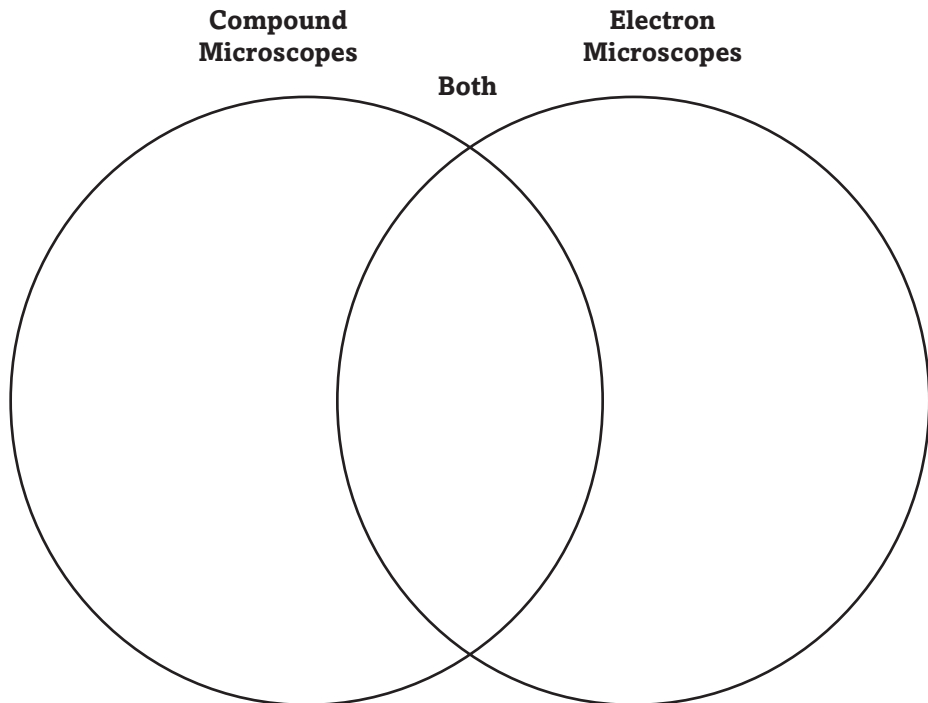
**Evaluate** the total magnification of a microscope with a 10X eyepiece lens and a 43X objective lens. Write the equation for finding total magnification. Then use it to show your calculation.

total magnification =

---

total magnification = \_\_\_\_\_

**Compare** compound microscopes with electron microscopes by completing the Venn diagram with at least seven facts.



Section 2 Viewing Cells (continued)

**Main Idea**

**Cell Theory**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** *discoveries made by scientists that led to the cell theory.*

Robert Hooke \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Matthias Schleiden \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Theodor Schwann \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Rudolf Virchow \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**List** *the 3 main principles of the cell theory.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**CONNECT IT**

Describe how the development of the cell theory shows that scientific beliefs can change over time. Use specific examples.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Cells

## Section 3 Viruses

**Scan** Section 3 of this chapter. Write three questions based on headings in the section. Answer the questions as you read.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*disease*

**Define** disease using your book or a dictionary.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*virus*

Use your book to define each new vocabulary term.

\_\_\_\_\_  
\_\_\_\_\_

*host cell*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*apparent*

Use a dictionary to define apparent.

\_\_\_\_\_  
\_\_\_\_\_

**Explain** what the following sentence means.

The virus is still in your body's cells, but it is hiding and doing no *apparent* harm.

\_\_\_\_\_  
\_\_\_\_\_

Section 3 Viruses (continued)

**Main Idea**

**What are viruses?**

I found this information on page \_\_\_\_\_.

**How do viruses multiply?**

I found this information on page \_\_\_\_\_.

**Details**

**Organize** information about viruses by completing the outline.

Viruses

I. Definition: \_\_\_\_\_  
\_\_\_\_\_

II. Description:

A. Size: \_\_\_\_\_

B. Shapes: \_\_\_\_\_

III. Diseases caused by viruses

A. \_\_\_\_\_ C. \_\_\_\_\_

B. \_\_\_\_\_ D. \_\_\_\_\_

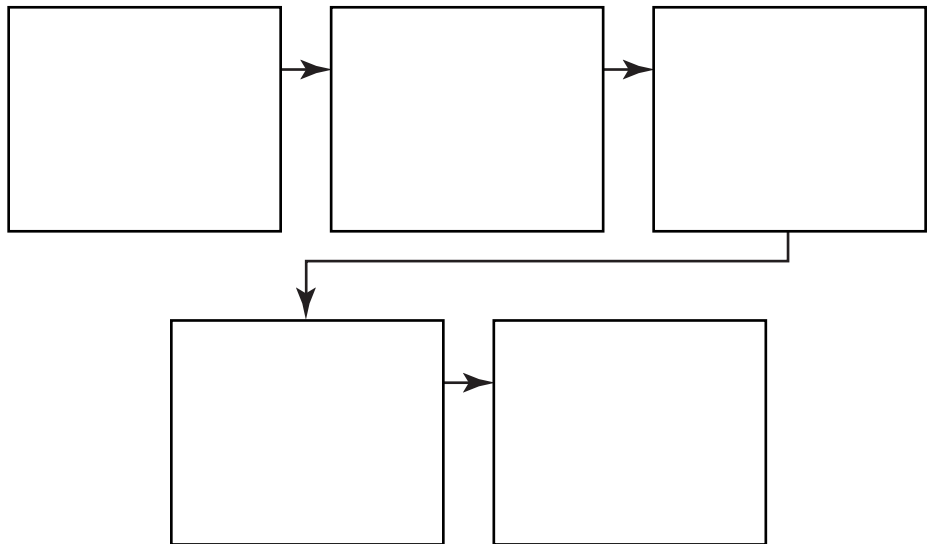
**Summarize** what a virus needs to reproduce.

**Distinguish** between an active virus and a latent virus.

A(n) \_\_\_\_\_ enters a host cell, immediately causes the cell to make new viruses, and destroys the cell.

A(n) \_\_\_\_\_ enters a host cell, but does not immediately make new viruses or destroy the cell.

**Sequence** the events when an active virus enters a host cell.



Section 3 Viruses (continued)

**Main Idea**

**How do viruses affect organisms?**

*I found this information on page \_\_\_\_\_.*

**Fighting Viruses**

*I found this information on page \_\_\_\_\_.*

**Research with Viruses**

*I found this information on page \_\_\_\_\_.*

**Details**

**Define** bacteriophage *and explain what it does to a bacterium.*

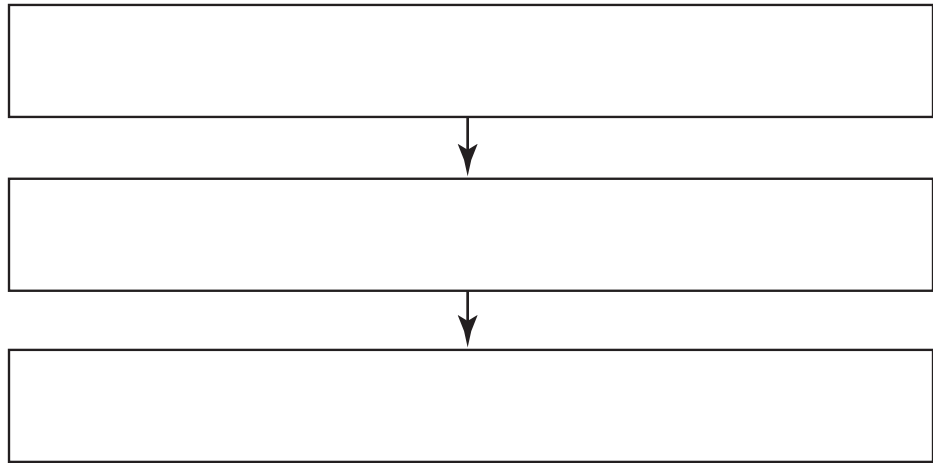
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**Sequence** *the steps by which interferons work.*



**Summarize** *how scientists use viruses in gene therapy.*

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**CONNECT IT**

Describe why it is not a good idea to take antibiotics for a cold.

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# Tie It Together

*A scientist is researching an unknown disease. After examining the disease-causing agent with a compound microscope and testing it in various ways, she has decided that the disease should be treated with an antibiotic drug to disrupt its membrane and prevent it from reproducing. Describe what is causing the disease and how you know.*

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# Cells Chapter Wrap-Up

Review the ideas you listed at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>	<b>L</b> <b>What I learned</b>

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
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- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

What are the three most important ideas in the chapter?

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# Cell Processes

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Cell Processes
	• Matter is made up of atoms.
	• All substances chemically combine when they are mixed together.
	• Energy is always needed to move material across a cell membrane.
	• Plants can convert light energy into chemical energy.



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Describe two ways in which you think plants get food and energy.*

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# Cell Processes

## Section 1 Chemistry of Life

**Predict** what you will learn in Section 1 after reading the headings and looking at the diagrams.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** cell to show its scientific meaning.

cell

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Find each term in Section 1 and write the sentence where it is used.**

mixture

\_\_\_\_\_  
\_\_\_\_\_

organic compound

\_\_\_\_\_  
\_\_\_\_\_

enzyme

\_\_\_\_\_  
\_\_\_\_\_

inorganic compound

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

**Use a dictionary to define** chemical bond.

chemical bond

\_\_\_\_\_  
\_\_\_\_\_

Section 1 Chemistry of Life (continued)

**Main Idea**

**The Nature of Matter**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Mixtures**

*I found this information on page \_\_\_\_\_.*

**Details**

**Compare** elements *and* compounds *by completing the chart below.*

	Elements	Compounds
Number of types of atom		
Example		

**Classify** each characteristic of compounds as ionic, molecular, or both.

\_\_\_\_\_ has positively and negatively charged ions

\_\_\_\_\_ share outermost electrons to bond

\_\_\_\_\_ salt

\_\_\_\_\_ sugar

\_\_\_\_\_ involved in many life processes

\_\_\_\_\_ have different properties than the elements from which they are made

**Compare** mixtures, solutions, *and* suspensions. *Complete the statements below.*

A mixture is \_\_\_\_\_

Both solutions and suspensions \_\_\_\_\_

In a solution, \_\_\_\_\_

In a suspension, \_\_\_\_\_

Section 1 Chemistry of Life (continued)

**Main Idea**

**Organic Compounds**

I found this information on page \_\_\_\_\_.

**Inorganic Compounds**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** *the functions of the 4 main organic compounds.*

Organic Compounds in Living Things	
Compound	Function
Carbohydrates	
Lipids	
Proteins	
Nucleic acids	

**Compare and contrast** *characteristics of organic and inorganic compounds by completing the table below.*

Characteristic	Organic	Inorganic
Contains carbon?		
Role in living things		

**Identify** *three ways that water is important to living things.*

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

# Cell Processes

## Section 2 Moving Cellular Materials

**Skim** Section 2. List three headings you would use to make an outline of this section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** cytoplasm to show its scientific meaning.

cytoplasm

\_\_\_\_\_

\_\_\_\_\_

### New Vocabulary

**Write the vocabulary term that matches each definition.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

movement of substances through a cell membrane without the use of energy

occurs when molecules of one substance are spread evenly throughout another substance

energy-requiring process in which transport proteins bind with particles and move them through a cell membrane

process by which a cell takes in a substance by surrounding it with the cell membrane

process by which vesicles release their contents outside the cell

type of passive transport in which molecules move from where there are more of them to where there are fewer of them

type of passive transport that occurs when water diffuses through a cell membrane

### Academic Vocabulary

**Use a dictionary to define the term** facilitate.

facilitate

\_\_\_\_\_

\_\_\_\_\_

Section 2 Moving Cellular Materials (continued)

**Main Idea**

**Details**

I found this information on page \_\_\_\_\_.

**Create** a diagram that shows how oxygen diffuses from air sacs in the lungs to red blood cells.



I found this information on page \_\_\_\_\_.

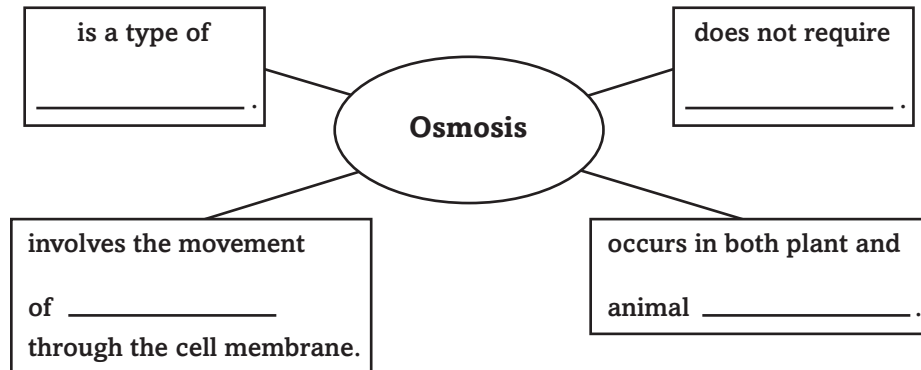
**Write** a short caption on how oxygen moves from the lungs to toe cells.

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**Complete** the concept map of osmosis.



I found this information on page \_\_\_\_\_.

**List** three facts about facilitated diffusion.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Section 2 Moving Cellular Materials (continued)

**Main Idea**

**Active Transport**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Endocytosis and Exocytosis**

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** *the process of how active transport moves materials into the cell.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Compare and contrast** *facilitated diffusion and active transport by writing yes or no in each box of the chart.*

	Facilitated Diffusion	Active Transport
Uses transport proteins?		
Transports materials across cell membrane?		
Requires energy?		
Able to move materials from an area with less of the material to an area with more of the material?		

**Complete** *the table to identify the processes involved in moving very large particles in and out of cells.*

	Process	Description
Materials entering cell		
Materials being expelled from cell		



# Cell Processes

## Section 3 Energy for Life

**Scan** Section 3 of your book. Write three things you think you will learn about in this section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*mitochondrion*

**Define** mitochondrion to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Read the definitions below. Write the vocabulary term that matches the definition in the blank to the left.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

process by which producers and consumers release stored energy from food molecules

process by which oxygen-lacking cells and some one-celled organisms release small amounts of energy from glucose molecules and produce wastes such as alcohol, carbon dioxide, and lactic acid

process by which plants and many other producers use light energy to produce a simple sugar from carbon dioxide and water and give off oxygen

total of all chemical reactions in an organism

**Academic Vocabulary**

*obtain*

**Use a dictionary to define obtain.**

\_\_\_\_\_  
\_\_\_\_\_

Section 3 Energy for Life (continued)

**Main Idea**

**Trapping and Using Energy**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Details**

**Model** *a chemical reaction in which an enzyme changes two smaller molecules into one larger molecule.*

**Complete** *the table on the different materials and their roles in photosynthesis.*

Material	Role in Photosynthesis
Water	
Carbon dioxide	
	products of photosynthesis
Chlorophyll	

**Analyze** *why photosynthesis is important to animals.*

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Section 3 Energy for Life (continued)

**Main Idea**

**Details**

I found this information on page \_\_\_\_\_.

**Summarize** the process of respiration. State what is broken down and what the products are.

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I found this information on page \_\_\_\_\_.

**Compare** fermentation with respiration.

Comparing Fermentation and Respiration		
Process	Fermentation	Respiration
What gets broken down?		
Where does breakdown occur?		
Is energy released?		
What wastes are produced?	if insufficient O <sub>2</sub> in muscle cells: _____ ; in yeast cells: _____	

**SYNTHESIZE IT**

Describe the relationship between plants and animals. Use the listed terms in your description.

carbon dioxide    consumer    energy    oxygen    photosynthesis    producer    respiration

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# Cell Processes Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Cell Processes	After You Read
• Matter is made up of atoms.	
• All substances chemically combine when they are mixed together.	
• Energy is always needed to move material across a cell membrane.	
• Plants can convert light energy into chemical energy.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

List three important ideas in the chapter.

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# Cell Reproduction

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Before You Read</b>	<b>Cell Reproduction</b>
	• One-celled organisms reproduce through cell division.
	• Every living organism has a life cycle.
	• All organisms reproduce sexually.
	• Most of the cells formed in your body do not contain genetic material.



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Write three things that you know about how and why cells reproduce.*

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# Cell Reproduction

## Section 1 Cell Division and Mitosis

**Skim** Section 1 of your book. Read the headings, illustrations, and captions. Write three questions that come to mind as you skim the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

*nucleus*

**Define** nucleus to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

### New Vocabulary

*mitosis*

*chromosome*

*asexual reproduction*

Locate sentences in your book that use each of the following terms. Write each sentence here, and give the page on which you found it.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Academic Vocabulary

*cycle*

Use a dictionary to write a scientific definition of the term cycle. Then find a sentence in this section that defines the cell cycle, and write it here.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 1 Cell Division and Mitosis (continued)

**Main Idea**

**Why is cell division important?**

*I found this information on page \_\_\_\_\_.*

**The Cell Cycle**

*I found this information on page \_\_\_\_\_.*

**Mitosis**

*I found this information on page \_\_\_\_\_.*

**Details**

**Identify** *the 3 reasons cell division is important.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Summarize** *information about interphase in eukaryotic cells in the following paragraph.*

Interphase is the \_\_\_\_\_ part of the cell cycle. During interphase, cells \_\_\_\_\_ and \_\_\_\_\_. During interphase, cells that are still dividing copy their \_\_\_\_\_ and prepare for \_\_\_\_\_. Cells no longer dividing are \_\_\_\_\_.

**Sequence** *the steps of mitosis, and write a short description of what takes place in each phase.*

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_
6. \_\_\_\_\_  
\_\_\_\_\_



Section 1 Cell Division and Mitosis (continued)

**Main Idea**

**Details**

I found this information on page \_\_\_\_\_.

**Compare mitosis in animals and plants. State if each feature exists in plant cells, animal cells, or both.**

Feature	Cell Type
Centrioles	
Spindle fibers	
Cell plate	
Cell wall	

I found this information on page \_\_\_\_\_.

**Organize important concepts about mitosis.**

1. Mitosis is the division of a \_\_\_\_\_.
2. Mitosis produces two new nuclei that are identical both to \_\_\_\_\_ and to \_\_\_\_\_.
3. A nucleus with 46 chromosomes that undergoes mitosis will produce \_\_\_\_\_ nuclei, each with \_\_\_\_\_ chromosomes.

**Asexual Reproduction**

I found this information on page \_\_\_\_\_.

**Identify the 3 forms of asexual reproduction described below.**

- \_\_\_\_\_ the method by which bacteria reproduce
- \_\_\_\_\_ new organism growing from body of the parent
- \_\_\_\_\_ to regrow body parts that are lost or damaged

**CONNECT IT**

A strawberry farmer wants to increase her crop without spending large amounts of money for new seeds. How can she take advantage of asexual reproduction to increase her crop?

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# Cell Reproduction

## Section 2 Sexual Reproduction and Meiosis

**Skim** the headings and illustrations in Section 2. Write three things you think you will learn about in this section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*organism*

**Define** organism to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Read the definitions below. Write the correct vocabulary term on the blank to the left.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

in sexual reproduction, the joining of a sperm and egg

new diploid cell formed when a sperm fertilizes an egg; will divide by mitosis and develop into a new organism

sex cell formed in the female reproductive organs

cell whose similar chromosomes occur in pairs

reproductive process that produces haploid cells

haploid sex cell formed in the male reproductive organs

cells that have only half of each pair of chromosomes

type of reproduction in which two sex cells join to form a zygote

**Academic Vocabulary**

*process*

**Use a dictionary to define process.**

\_\_\_\_\_  
\_\_\_\_\_

Section 2 Sexual Reproduction and Meiosis (continued)

**Main Idea**

**Sexual Reproduction**

*I found this information on page \_\_\_\_\_.*

**Meiosis and Sex Cells**

*I found this information on page \_\_\_\_\_.*

**Details**

**Compare** *characteristics of human diploid and haploid cells in the table below. Give examples of each type of cell.*

Types of Human Cells		
	Diploid	Haploid
Number of chromosomes		
Process that produces them		
Examples		

**Model** *the 4 stages of meiosis I in the spaces below. Use the figure in your book to help you.*

Meiosis I	
Prophase I	Metaphase I
Anaphase I	Telophase I

Section 2 Sexual Reproduction and Meiosis (continued)

**Main Idea**

I found this information on page \_\_\_\_\_.

**Details**

**Model** what takes place inside a cell nucleus during meiosis II by drawing the 4 phases in the spaces below.

Meiosis II	
Prophase II	Metaphase II
Anaphase II	Telophase II

I found this information on page \_\_\_\_\_.

**Summarize** differences between meiosis I and meiosis II by writing a number, yes, or no in each box of the chart.

	Meiosis I	Meiosis II
How many cells result?		
Is a haploid cell formed?		
Do chromatids separate?		

**SYNTHESIZE IT**

Fruit flies have eight chromosomes in their body cells. Mice have 40. How many chromosomes are there in each sex cell of these organisms?

\_\_\_\_\_

\_\_\_\_\_

# Cell Reproduction

## Section 3 DNA

**Scan the list below to preview Section 3.**

- Read all section titles.
- Read all bold words.
- Look at all illustrations and their labels.
- Think about what you already know about DNA.

**Review Vocabulary**

*heredity*

**Define** heredity to show its scientific meaning.

---

---

**New Vocabulary**

**Write the correct vocabulary term next to each definition.**

---

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deoxyribonucleic acid; a cell's heredity material; made up of two strands, each consisting of a sugar-phosphate backbone and nitrogen bases: adenine, thymine, guanine, and cytosine

section of DNA that contains instructions for making specific proteins

ribonucleic acid; type of nucleic acid that contains the sugar ribose, phosphates, and bases adenine, guanine, cytosine, and uracil

any permanent change in a gene or chromosome of a cell; may be beneficial, harmful, or have little effect on an organism

**Academic Vocabulary**

*code*

**The word code can be used as a noun or as a verb. Write a definition for its use as a noun and as a verb.**

**Noun:** \_\_\_\_\_

---

**Verb:** \_\_\_\_\_

---

Section 3 DNA (continued)

**Main Idea**

**What is DNA?**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Genes**

I found this information on page \_\_\_\_\_.

**Details**

**Identify** the 4 nitrogen bases found in DNA.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

**Model** a section of a DNA molecule, showing its twisted-ladder structure. Label the the nitrogen bases, sugar, and phosphates. Make sure the nitrogen bases in your drawing are correctly paired.

**Summarize** how DNA copies itself.

---

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**Complete** the following paragraph on the relationship of proteins and genes.

Proteins are made up of long chains of \_\_\_\_\_.

Genes determine the \_\_\_\_\_ of \_\_\_\_\_

in a protein. Changing the \_\_\_\_\_ of the amino acids

makes a \_\_\_\_\_ protein.

Section 3 DNA (continued)

**Main Idea**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Mutations**

I found this information on page \_\_\_\_\_.

**Details**

**Complete the table on the 3 main kinds of RNA.**

Type of RNA	Function
	carries the code to make proteins from the nucleus to the cytoplasm
transfer RNA (tRNA)	
	type of RNA contained in ribosomes

**Complete the steps of protein production within a cell.**

- mRNA moves into the cytoplasm.
- A(n) \_\_\_\_\_ attaches to it.
- \_\_\_\_\_ molecules bring \_\_\_\_\_ to the ribosomes.
- Nitrogen bases on the \_\_\_\_\_ temporarily \_\_\_\_\_ the nitrogen bases on the \_\_\_\_\_.
- The same process occurs with another \_\_\_\_\_ molecule and the next portion of the \_\_\_\_\_ molecule.
- The \_\_\_\_\_ attached to the two \_\_\_\_\_ molecules \_\_\_\_\_, beginning the formation of a protein.

**Describe how mutations can affect an organism.**

\_\_\_\_\_

\_\_\_\_\_

**CONNECT IT**

A man has a discolored area on the back of his hand. The doctor has assured him it is a harmless body cell mutation. Explain why the mutation probably will not appear in his children.

\_\_\_\_\_

\_\_\_\_\_

# Tie It Together

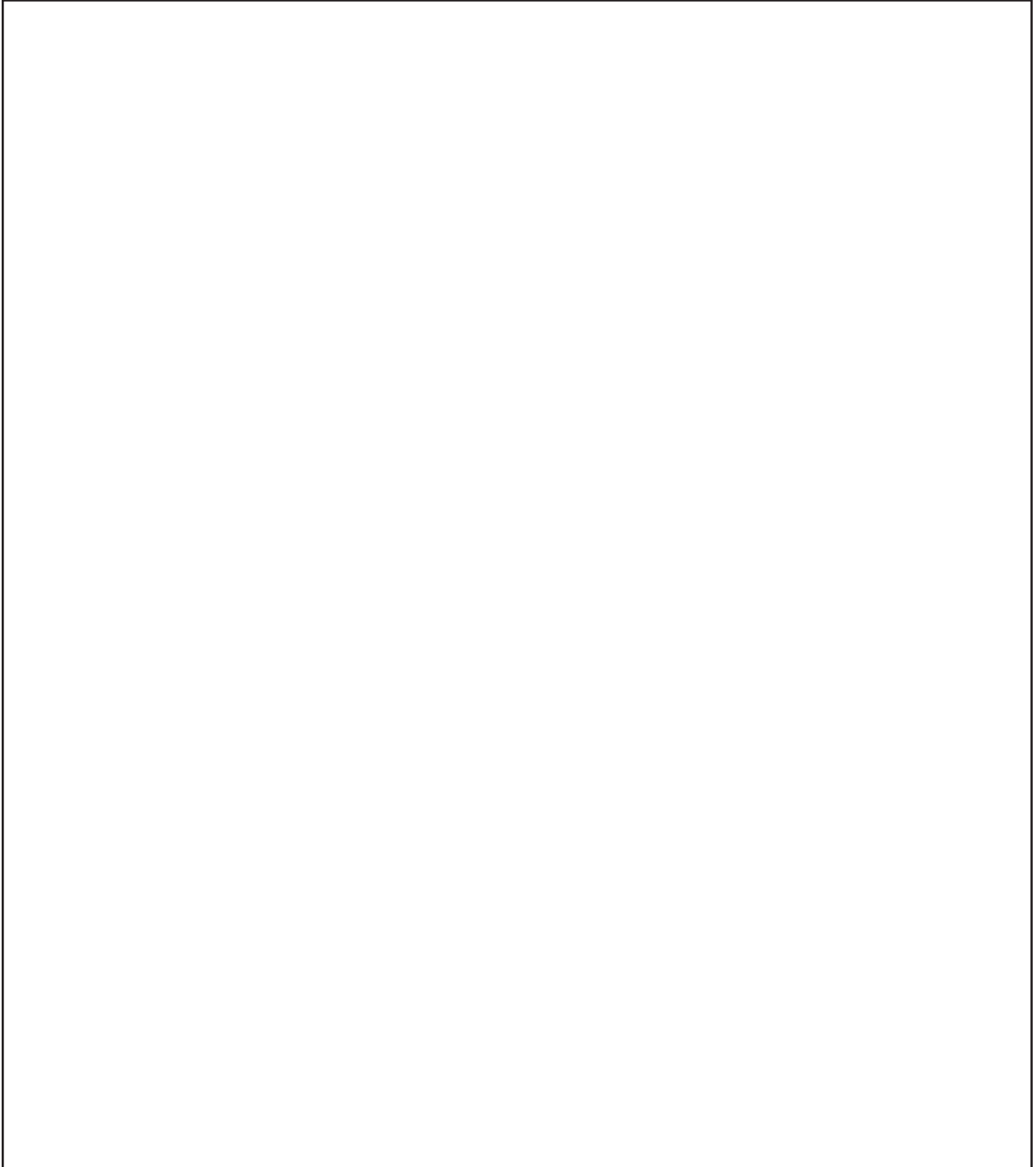
*Draw an animal cell with six chromosomes.*

*Follow the chromosomes as they go through the steps of meiosis.*

*Show the chromosomes duplicating and separating, and describe the final end products.*

*Name each step in the process.*

*Show one way that a mutation might occur during the process.*





# Cell Reproduction Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Cell Reproduction</b>	<b>After You Read</b>
• One-celled organisms reproduce through cell division.	
• Every living organism has a life cycle.	
• All organisms reproduce sexually.	
• Most of the cells formed in your body do not contain genetic material.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

List three important ideas from this chapter.

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# Heredity

## Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Heredity
	• Offspring of an organism always have the same traits as the parents.
	• There may be more than two forms of a gene.
	• Some traits are determined by more than one gene.
	• Traits from one type of organism can be introduced into another type of organism.



Construct the Foldable as directed at the beginning of the chapter.

### Science Journal

Write three traits that you have and how you would determine how those traits were passed to you.

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# Heredity

## Section 1 Genetics

**Skim** Section 1 of the chapter. Write two questions that come to mind from reading the headings of this section.

1. \_\_\_\_\_
2. \_\_\_\_\_

### Review Vocabulary

**Define** meiosis.

*meiosis*

---

---

### New Vocabulary

Write a paragraph describing heredity. Use the five vocabulary terms from the left in your paragraph.

*heredity*

*genetics*

*allele*

*dominant*

*recessive*

---

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Write a paragraph describing genotype. Use the five vocabulary terms from the left in your paragraph.

*Punnett square*

*genotype*

*phenotype*

*homozygous*

*heterozygous*

---

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### Academic Vocabulary

Use a dictionary to define physical.

*physical*

---

Section 1 Genetics (continued)

**Main Idea**

**Inheriting Traits**

*I found this information on page \_\_\_\_\_.*

**Mendel—The Father of Genetics**

*I found this information on page \_\_\_\_\_.*

**Genetics in a Garden**

*I found this information on page \_\_\_\_\_.*

**Details**

**Summarize** *what alleles are and how they are inherited.*

---



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**Identify** *three things Mendel did that made his work more useful than previous studies of heredity.*

1. \_\_\_\_\_  
 \_\_\_\_\_

2. \_\_\_\_\_  
 \_\_\_\_\_

3. \_\_\_\_\_  
 \_\_\_\_\_

**Analyze** *one trait that Mendel studied.*

- Identify the *dominant* and *recessive* forms of the trait.
- Predict how an organism would look if it had two dominant alleles, two recessive alleles, or one of each allele.

Trait	
Dominant form	
Recessive form	
Two dominant alleles	
Two recessive alleles	
One of each allele	

Section 1 Genetics (continued)

**Main Idea**

**Genetics in a Garden**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the Punnett square for black and blond fur in a dog.

		Black dog	
		B	b
Blond dog	b		
	b		

**Analyze** the Punnett square to complete the sentences.

The black dog carries \_\_\_\_\_ black-fur traits. The blond dog carries \_\_\_\_\_ blond-fur traits. The chance that the offspring will have black fur is \_\_\_\_\_, or \_\_\_\_\_ in \_\_\_\_\_.

**Summarize** Mendel's 3 principles of heredity.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

**CONNECT IT**

A pea plant is *heterozygous* for purple flowers (Rr). A gardener crosses it with another pea plant with the same *genotype*. The recessive gene for this trait causes white flowers. Predict the possible genotypes and *phenotypes* for the offspring. Predict the percentage for each genotype and phenotype.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Heredity

## Section 2 Genetics Since Mendel

**Scan** the headings and illustrations in Section 2. Write two facts you learned about genetics as you scanned the section.

1. \_\_\_\_\_
2. \_\_\_\_\_

### Review Vocabulary

**Define** gene to show its scientific meaning.

*gene*

---

---

### New Vocabulary

**Define** each vocabulary term.

*incomplete dominance*

---

---

*polygenic inheritance*

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---

*sex-linked gene*

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### Academic Vocabulary

**Use a dictionary to define** intermediate. Then rewrite the sentence below, using your definition.

When the allele for white four-o'clock flowers and the allele for red four-o'clock flowers combined, the result was an intermediate phenotype—pink flowers.

*intermediate*

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Section 2 Genetics Since Mendel (continued)

**Main Idea**

**Incomplete Dominance**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Polygenic Inheritance**

I found this information on page \_\_\_\_\_.

**Details**

**Draw** a Punnett square for red and white four-o'clock flowers showing the possible offspring. Use R for the allele for red flowers and R' for the allele for white flowers. In each section of the square, write the genotype and phenotype of the offspring.

		Red four-o'clock	
		R	R
White four-o'clock	R'		
	R'		

**Summarize** incomplete dominance.

---



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**Analyze** how a gene with multiple alleles can produce more than three phenotypes. Use blood types as an example.

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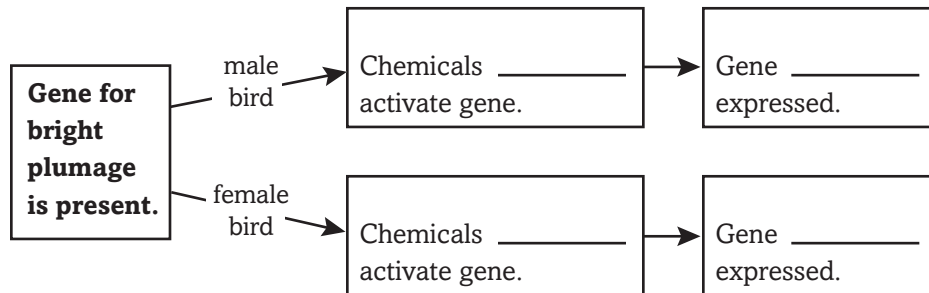


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**Identify** how internal environment can affect the expression of a trait. Complete the flow chart.



Section 2 Genetics Since Mendel (continued)

**Main Idea**

**Human Genes and Mutations**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Sex-Linked Disorders**

I found this information on page \_\_\_\_\_.

**Pedigrees Trace Traits**

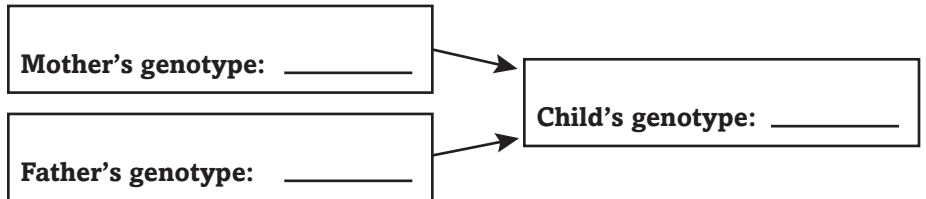
I found this information on page \_\_\_\_\_.

**Details**

**Analyze** *how* chromosome disorders occur.

A chromosome disorder occurs as a result of a \_\_\_\_\_  
 \_\_\_\_\_. It causes an organism to have  
 \_\_\_\_\_ chromosomes than normal.

**Model** *how two heterozygous parents who do not have a recessive disorder can have a child with the disorder. Use C for a dominant allele and c for a recessive allele.*



**Complete** *the statements about sex-linked traits.*

Sex-linked disorders usually result from \_\_\_\_\_ alleles on the \_\_\_\_\_ chromosome. A man will have the disorder when \_\_\_\_\_  
 \_\_\_\_\_. A woman will have the disorder when \_\_\_\_\_  
 \_\_\_\_\_.

**Summarize** *why* pedigrees are useful to geneticists.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**SYNTHESIZE IT**

Choose a trait described in Section 2, such as color-blindness, calico patterns in cats, or cystic fibrosis. Choose genotypes for two parents. Draw a pedigree starting with these parents. Continue your pedigree for two generations. Use Punnett squares to help you predict possible offspring.



# Heredity

## Section 3 Biotechnology

**Preview** the section title and headings. Write three questions that you would ask a modern geneticist after your preview.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

**Review Vocabulary**

*DNA*

Use DNA in an original sentence to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*genetic engineering*

**Define** genetic engineering.

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*insert*

Use a dictionary to define insert as a verb. Then find a sentence in Section 3 that uses the term or a form of the term.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 3 Biotechnology (continued)

**Main Idea**

**Genetic Engineering**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

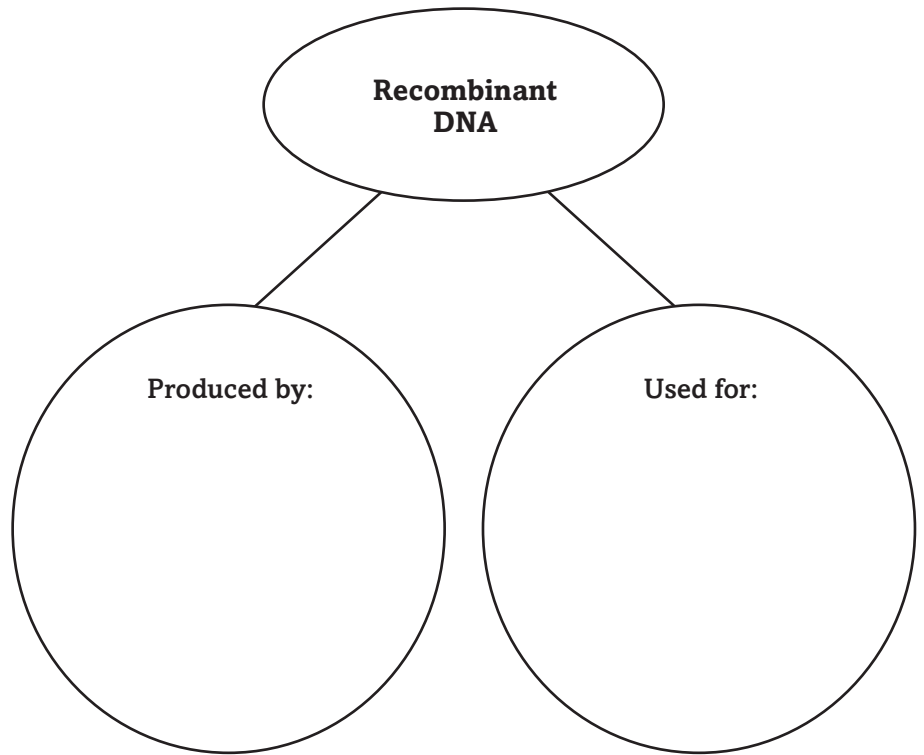
I found this information on page \_\_\_\_\_.

**Details**

**Distinguish** three uses for genetic engineering.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Organize** information about recombinant DNA. Complete the graphic organizer.



**Summarize** how gene therapy may be used in the future.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Section 3 Biotechnology (continued)

**Main Idea**

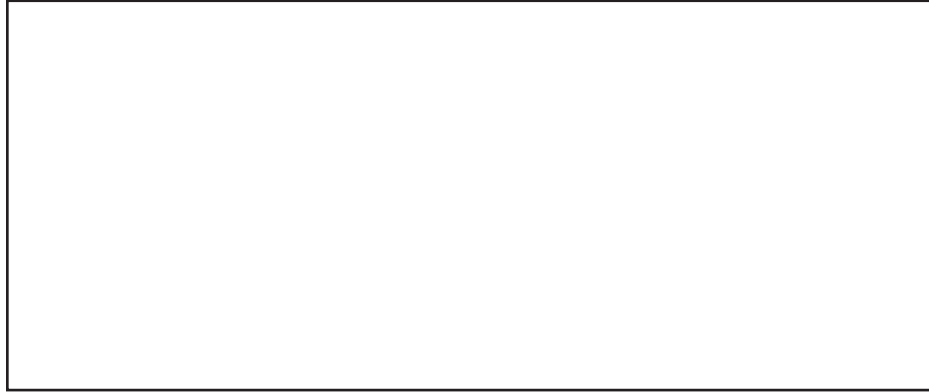
**Genetic Engineering**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Create** a flow chart about gene therapy. Show how the gene gets into the body and what happens when it reaches the cells.



**Summarize** each step of gene therapy in your model above.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Evaluate** the benefits and potential risks of genetic engineering of crop plants.

Benefits	Risks

**CONNECT IT**

Describe how viruses are useful tools in genetic engineering.





# Heredity Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Heredity</b>	<b>After You Read</b>
• Offspring of an organism always have the same traits as the parents.	
• There may be more than two forms of a gene.	
• Some traits are determined by more than one gene.	
• Traits from one type of organism can be introduced into another type of organism.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

Identify the three most important ideas in this chapter.

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# Adaptations over Time

## Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Adaptations over Time
	<ul style="list-style-type: none"> <li>• Traits acquired by an organism during its life can be passed on to its offspring.</li> </ul>
	<ul style="list-style-type: none"> <li>• Most evidence of evolution comes from fossils.</li> </ul>
	<ul style="list-style-type: none"> <li>• Organisms with traits best suited to their environment are more likely to survive and reproduce.</li> </ul>
	<ul style="list-style-type: none"> <li>• Humans share a common ancestor with other primates.</li> </ul>



Construct the Foldable as directed at the beginning of this chapter.

### Science Journal

*Pick a favorite plant or animal and list all the ways it is well-suited to its environment.*

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# Adaptations over Time

## Section 1 Ideas About Evolution

**Predict** *three things that will be discussed in Section 1 as you scan the headings and illustrations.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*gene*

**Define** *gene using your book.*

---

---

---

**New Vocabulary**

*Write the correct term next to its definition.*

---

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group of organisms that share similar characteristics and can reproduce among themselves, producing fertile offspring

change in inherited characteristics over time

process by which organisms with traits best suited to their environment are more likely to survive and reproduce

inherited trait that makes an individual different from other members of its species

any variation that makes an organism better suited to its environment

**Academic Vocabulary**

*hypothesis*

*Use your book or a dictionary to define hypothesis.*

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Section 1 Ideas About Evolution (continued)

**Main Idea**

**Early Models of Evolution**

*I found this information on page \_\_\_\_\_.*

**Darwin's Model of Evolution**

*I found this information on page \_\_\_\_\_.*

**Natural Selection**

*I found this information on page \_\_\_\_\_.*

**Variation and Adaptation**

*I found this information on page \_\_\_\_\_.*

**Details**

**Identify** *why Lamarck's theory of evolution was not accepted.*

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**Analyze** *Darwin's explanation of the origins of the 13 species of Galápagos finches. Fill in the missing words.*

The Galápagos finches \_\_\_\_\_ for food. Those that had \_\_\_\_\_, \_\_\_\_\_ that allowed them to get food were able to \_\_\_\_\_ longer and \_\_\_\_\_ more. Over time, groups of finches became separate \_\_\_\_\_.

**State** *5 main principles of natural selection.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Compare and contrast** *variations and adaptations.*

	Variation	Adaptation
Definition		
Examples		



Section 1 Ideas About Evolution (continued)

**Main Idea**

**Variation and Adaptation**

I found this information on page \_\_\_\_\_.

**The Speed of Evolution**

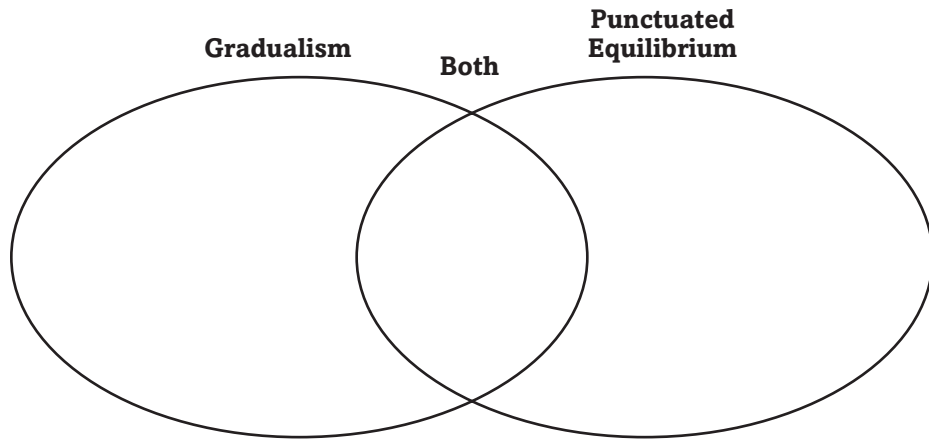
I found this information on page \_\_\_\_\_.

**Details**

**Complete** the table explaining factors that can lead to changes in a population.

	What Happens	How It Leads to Change
Changes in Gene Sources		
Geographic Isolation		

**Compare and contrast** gradualism *and* punctuated equilibrium. Select ideas from your reading to fill in the Venn diagram.



**SYNTHESIZE IT**

Describe how natural selection can lead to the formation of a new species. Include factors such as migration and geographic isolation.

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# Adaptations over Time

## Section 2 Clues About Evolution

**Scan** Section 2 of your book. Then write two items in each of the boxes below.

What I know about fossils	What I want to know about fossils

**Review Vocabulary**

**Define** epoch using your book.

*epoch*

---



---

**New Vocabulary**

**Use your book to help you write the correct vocabulary term next to each definition.**

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a type of rock made from pieces of other rocks, minerals deposited from a solution, or plant and animal matter

element that gives off a steady amount of radiation as it slowly changes to a nonradioactive element

study of embryos and their development

similar in structure, origin, or function

structure that does not seem to have a function and that may once have functioned in the body of an ancestor

**Academic Vocabulary**

**Use a dictionary to define** method.

*method*

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Section 2 Clues About Evolution (continued)

**Main Idea**

**Clues from Fossils**

*I found this information on page \_\_\_\_\_.*

**Types of Fossils**

*I found this information on page \_\_\_\_\_.*

**Determining a Fossil's Age**

*I found this information on page \_\_\_\_\_.*

**Details**

**Create** a concept map to summarize information about the Green River formation. Include information about

- where it is
- what it was in the past
- how fossils formed, and
- what scientists learn from the fossils there.

**Summarize** the types of rock in which fossils are commonly found.

Most fossils are found in \_\_\_\_\_ rock. They are most often found in \_\_\_\_\_.

**Organize** information about how scientists determine the age of fossils. Complete the outline.

**I. Relative dating**

**A.** \_\_\_\_\_  
\_\_\_\_\_

**B.** provides an estimate of a fossil's age by  
\_\_\_\_\_

**II. Radiometric dating**

**A.** \_\_\_\_\_

**B.** Scientists estimate age by  
\_\_\_\_\_  
\_\_\_\_\_

Section 2 Clues About Evolution (continued)

**Main Idea**

**Fossils and Evolution**

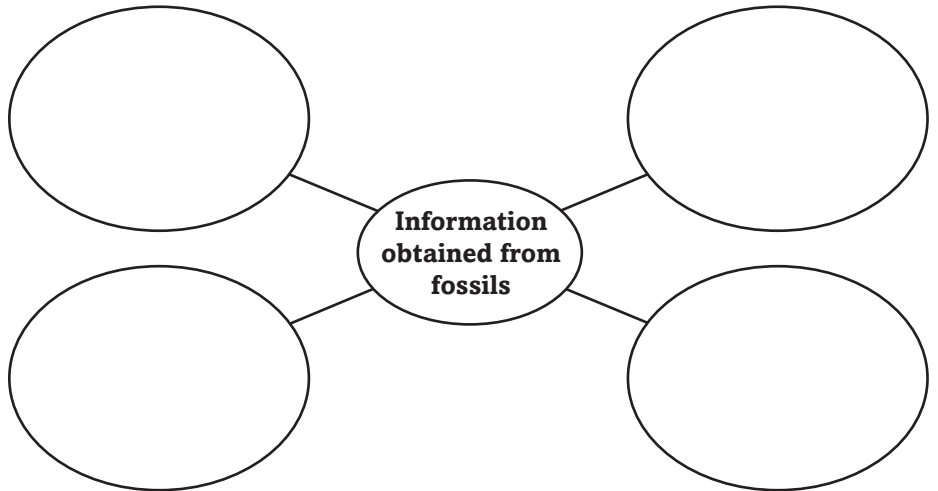
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**More Clues About Evolution**

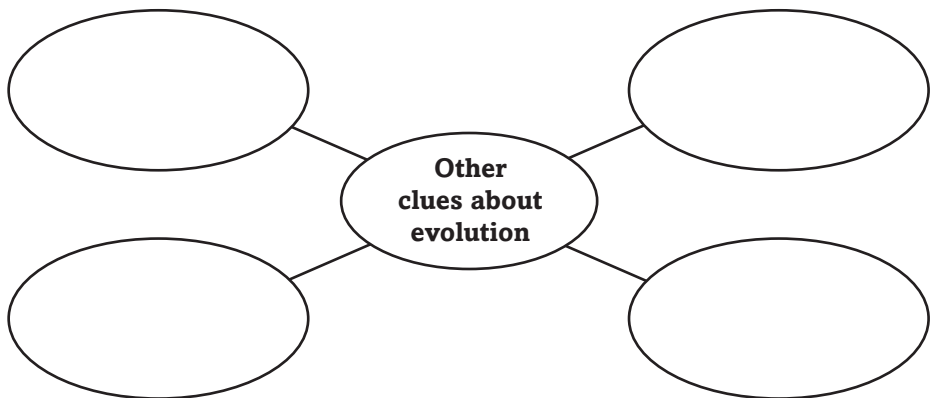
I found this information on page \_\_\_\_\_.

**Details**

**Create** a graphic organizer to identify what scientists learn from fossils.



**Organize** information about other clues scientists use to study evolution.



**SYNTHESIZE IT**

A scientist discovers a new species of mammal. How could the scientist determine its evolutionary relationships to other animals? Explain how the scientist could use each type of evidence discussed in the section.

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# Adaptations over Time

## Section 3 The Evolution of Primates

**Skim** Section 3 of your book. Read the headings. Write three questions that come to mind.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** opposable using your book.

*opposable*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Use your book to define the following terms. Then use each term in a sentence.

*primates*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*hominid*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Homo sapiens*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define similar.

*similar*

\_\_\_\_\_  
\_\_\_\_\_

Section 3 The Evolution of Primates (continued)

**Main Idea**

**Primates**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Analyze** adaptations that are common among primates by completing the table below. List three primate adaptations and the functions each allows.

Adaptation	Function

**Distinguish** three characteristics of hominids.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Sequence** the ancestors of early humans. Create a timeline of hominids in the boxes below. Identify and describe the hominid that lived during each time period.

**Time period:** 4–6 million years ago  
**Hominid:**  
**Characteristics:**

**Time period:** 1.5–2 million years ago  
**Hominid:**  
**Characteristics:**

**Time period:** 1.6 million years ago  
**Hominid:**  
**Characteristics:**

Section 3 The Evolution of Primates (continued)

**Main Idea**

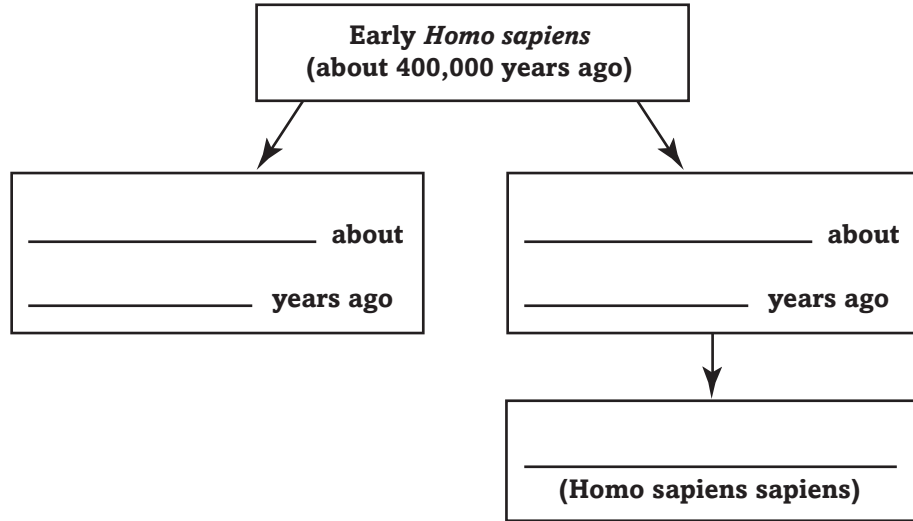
**Humans**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

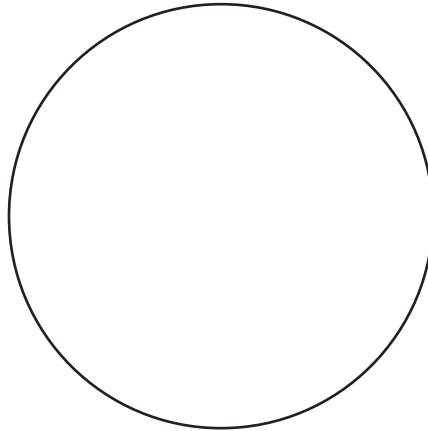
**Details**

**Organize** information about the origins of modern humans. Complete the diagram.

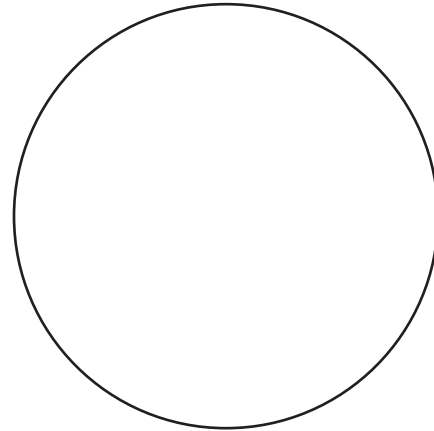


**Contrast** Neanderthals and Cro-Magnon humans by completing the diagram.

Neanderthals



Cro-Magnon humans



**CONNECT IT**

Hypothesize how scientists might determine whether Neanderthals are ancestors of modern humans.

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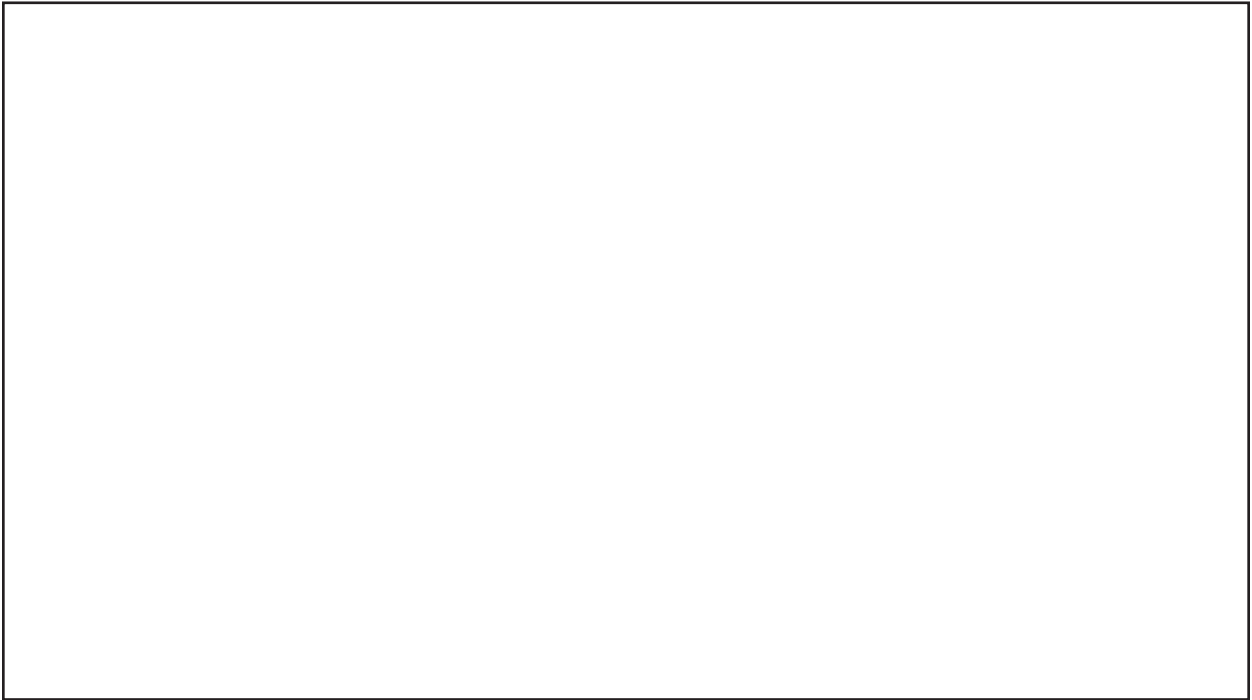
# Tie It Together

## Make Fossils

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*With a partner, model a set of fossils that show how organisms can change over time. Draw or model three related organisms. One should be the original organism. The others should be descendants of the original organism. Record the adaptations shown by your fossils. What environmental changes might have led to the adaptations?*

*Trade fossils with another pair. Describe the fossils that you are given. What adaptations can you find?*



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# Adaptations over Time Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Adaptations over Time</b>	<b>After You Read</b>
• Traits acquired by an organism during its life can be passed on to its offspring.	
• Most evidence of evolution comes from fossils.	
• Organisms with traits best suited to their environment are more likely to survive and reproduce.	
• Humans share a common ancestor with other primates.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three things that you have learned about adaptations of organisms over time.

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# Bacteria

## Before You Read

*Preview the chapter and section titles and the section headings. Complete the first two columns of the table by listing at least two ideas for each section in each column.*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List ways that bacteria can be harmful and ways that bacteria can be beneficial.  
Which list is longer?*

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# Bacteria

## Section 1 What are bacteria?

**Scan Section 1 of the chapter.**

- Read all headings and bold words.
- Look at all of the illustrations.
- Think about what you already know about bacteria.

*Write three facts that you learned while scanning the section.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*prokaryotic*

**Define** *prokaryotic* to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*Read the definitions below. Write the key term on the blank in the left column.*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

organism that uses oxygen for respiration

simplest form of asexual reproduction, in which two new cells are produced that have genetic material that is identical to each other and to the original cell

whiplike tails that help many bacteria move

organism that is adapted to live without oxygen

**Academic Vocabulary**

*environment*

*Use a dictionary to define the term* **environment**.

\_\_\_\_\_  
\_\_\_\_\_

Section 1 What are bacteria? (continued)

**Main Idea**

**Characteristics of Bacteria**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Details**

**Identify 3 shapes of bacterial cells.**

- 1. cocci: \_\_\_\_\_
- 2. bacilli: \_\_\_\_\_
- 3. spirilla: \_\_\_\_\_

**Summarize how the following pairs of words relate to bacteria.**

**Asexual Reproduction/Sexual Reproduction:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Producers/Consumers:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Aerobes/Anaerobes:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 1 What are bacteria? (continued)

**Main Idea**

**Eubacteria**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

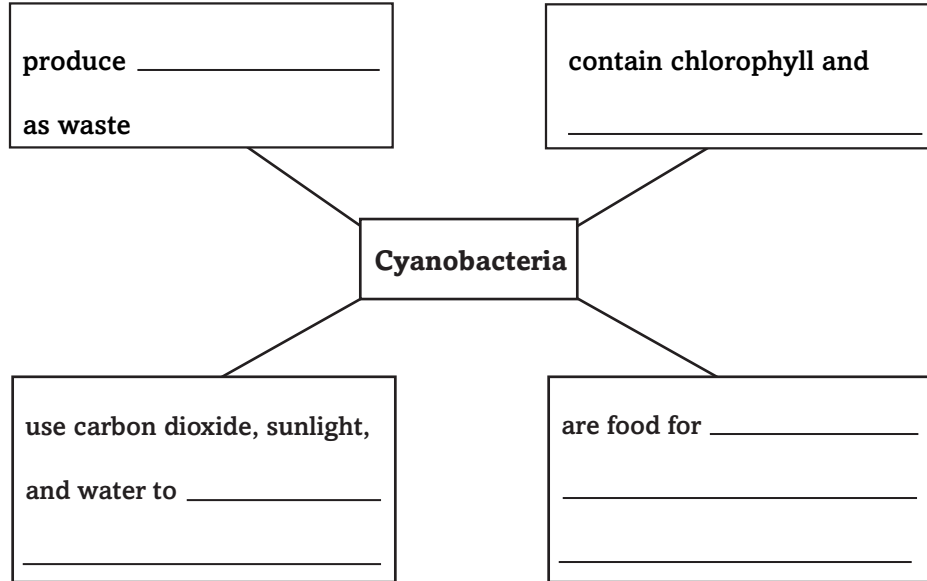
**Archaeobacteria**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the graphic organizer about the characteristics of cyanobacteria.



**Summarize** the different types of consumer eubacteria.

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**Identify** three types of extreme environments in which archaeobacteria can survive.

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**Summarize** how methane-producing bacteria obtain energy.

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# Bacteria

## Section 2 Bacteria in Your Life

**Skim** the headings in Section 2. What do you think are two major ideas that will be discussed in this section?

1. \_\_\_\_\_
2. \_\_\_\_\_

### Review Vocabulary

*disease*

**Define** disease and use it in an original sentence.

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### New Vocabulary

**Match** the definitions with the appropriate key terms.

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chemical produced by some bacteria that is used to limit the growth of other bacteria

organism that uses dead organisms for food and energy

bacteria that change nitrogen from the air into forms that plants and animals can use

organism that causes disease

poisonous substance produced by some pathogens

thick-walled, protective structure produced by some bacteria when conditions are unfavorable for survival

preparation made from killed bacteria or damaged particles from bacterial cell walls that can prevent some bacterial diseases

### Academic Vocabulary

*benefit*

**Use a dictionary** to define the term benefit.

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Section 2 Bacteria in Your Life (continued)

**Main Idea**

**Details**

**Beneficial Bacteria**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Analyze** how some bacteria help you. Complete the paragraph.

\_\_\_\_\_ are helpful in many ways. Without them, you would not be able to stay \_\_\_\_\_ for very long. Bacteria in the \_\_\_\_\_ produce \_\_\_\_\_ which is needed for blood clotting. Some bacteria produce \_\_\_\_\_. These chemicals \_\_\_\_\_ of other bacteria.

**Summarize** the roles of saprophytes and nitrogen-fixing bacteria in the environment.

Role of saprophytes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Nitrogen-fixing bacteria: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Complete** the table describing some of the ways people use bacteria.

Human Uses for Bacteria	
Use	How do the bacteria help?
Bioremediation	
Food Production	
Industry	

Section 2 Bacteria in Your Life (continued)

**Main Idea**

**Harmful Bacteria**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

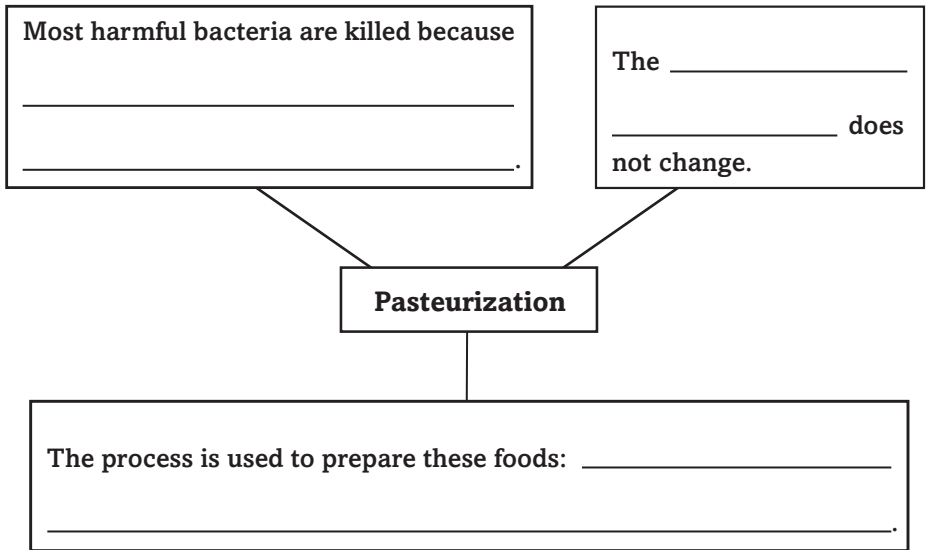
I found this information on page \_\_\_\_\_.

**Details**

**Analyze** how pathogens make you sick. Complete the paragraph.

Pathogens can enter your body when you \_\_\_\_\_ and through \_\_\_\_\_. Once inside the body, they can multiply, \_\_\_\_\_, and cause \_\_\_\_\_.

**Complete** the graphic organizer about pasteurization.



**Summarize** information about vaccines.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SUMMARIZE IT**

Explain why it is important to learn about bacteria.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# Bacteria Chapter Wrap-Up

Review the ideas that you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column. How do your ideas about what you know now compare with those you provided at the beginning of the chapter?

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>	<b>L</b> <b>What I learned</b>

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

Identify three important ideas in this chapter.

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# Protists and Fungi

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Protists and Fungi
	<ul style="list-style-type: none"> <li>• Some protists have roots like those of plants.</li> </ul>
	<ul style="list-style-type: none"> <li>• The oxygen you breathe comes partly from green algae.</li> </ul>
	<ul style="list-style-type: none"> <li>• Protozoans are usually classified by what they eat.</li> </ul>
	<ul style="list-style-type: none"> <li>• Lichens can indicate the pollution level in an area.</li> </ul>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*In what ways might fungi benefit other organisms and the environment?*

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# Protists and Fungi

## Section 1 Protists

**Preview** the What You'll Learn statements for Section 1. Rewrite each statement as a question. Look for the answers as you read the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**Review Vocabulary**

*asexual reproduction*

**Define** asexual reproduction to show its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

Write the vocabulary word that matches each definition.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

one-celled or many-celled eukaryotic organism that lives in moist or wet surroundings

plantlike protists

one-celled, animal-like protist

long, thin, whiplike structure used for movement

short, threadlike structures that extend from the cell membrane and help the organism move quickly

temporary extension of cytoplasm that helps some protists move

**Academic Vocabulary**

*visible*

Use a dictionary to define visible.

\_\_\_\_\_

\_\_\_\_\_

Section 1 Protists (continued)

**Main Idea**

**What is a protist?**

*I found this information on page \_\_\_\_\_.*

**Plantlike Protists**

*I found this information on page \_\_\_\_\_.*

**Importance of Algae**

*I found this information on page \_\_\_\_\_.*

**Details**

**Compare and contrast** *the 3 groups of protists.*

	Plantlike	Animal-like	Funguslike
Do they make their own food?			
Is there a cell wall?			
Can they move?			

**Summarize** *key information about plantlike protists.*

Diatoms: \_\_\_\_\_  
 \_\_\_\_\_

Dinoflagellates: \_\_\_\_\_  
 \_\_\_\_\_

Euglenoids: \_\_\_\_\_  
 \_\_\_\_\_

Red algae: \_\_\_\_\_  
 \_\_\_\_\_

Green algae: \_\_\_\_\_  
 \_\_\_\_\_

Brown algae: \_\_\_\_\_  
 \_\_\_\_\_

**Evaluate** *the importance of algae.*

Algae in the Environment	Human Uses of Algae

Section 1 Protists (continued)

**Main Idea**

**Animal-Like Protists**

I found this information on page \_\_\_\_\_.

**Importance of Protozoans**

I found this information on page \_\_\_\_\_.

**Funguslike Protists and Importance of Funguslike Protists**

I found this information on page \_\_\_\_\_.

**Details**

**Classify** protozoans. *Summarize key information about each type of protozoan.*

Type	Characteristics

**Summarize** the importance of protozoans to other organisms.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Complete** the prompts with information about funguslike protists.

Funguslike protists produce \_\_\_\_\_ like fungi and must take in food from \_\_\_\_\_. Slime molds use \_\_\_\_\_ to move and live on \_\_\_\_\_ or \_\_\_\_\_ in moist, cool, shady environments. Downy molds and mildews grow as a mass of \_\_\_\_\_ over an organism. Some are parasites; others feed on \_\_\_\_\_. Funguslike protists in the ecosystem help break down \_\_\_\_\_. Some are \_\_\_\_\_ to other organisms.

**CONNECT IT**

Why is it dangerous to drink water from unknown sources?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Protists and Fungi

## Section 2 Fungi

**Skim** Section 2. Predict two topics that will be covered.

1. \_\_\_\_\_
2. \_\_\_\_\_

**Review Vocabulary**

*photosynthesis*

**Define** photosynthesis using your book or a dictionary.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

**Write the correct vocabulary word next to its definition.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

mass of threadlike tubes forming the body of a fungus

organism that absorbs energy from dead and decaying tissues

waterproof reproductive cell that can grow into a new organism

reproductive cells produced by club fungi

reproductive cells produced by sac fungi

form of asexual reproduction in which a new, genetically identical organism forms on the side of its parent

case containing reproductive cells produced by some types of fungi

organism made up of a fungus and a green alga or a cyanobacterium

network of hyphae and plant roots that helps plants absorb water and minerals from the soil

**Academic Vocabulary**

*decline*

**Use a dictionary to define decline.**

\_\_\_\_\_

\_\_\_\_\_

Section 2 Fungi (continued)

**Main Idea**

**What are fungi?**

I found this information on page \_\_\_\_\_.

**Club Fungi, Sac Fungi, Zygote Fungi, and Other Fungi**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the table to describe the characteristics of fungi.

Structure	Obtaining Food
Reproduction	Differences from Plants

**Compare** club, sac, and zygote fungi.

	Examples	How they reproduce
Club fungi		
Sac fungi		
Zygote fungi		

**Summarize** why some fungi are difficult to classify.

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Section 2 Fungi (continued)

**Main Idea**

**Lichens, Fungi, and Plants**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**The Importance of Fungi**

I found this information on page \_\_\_\_\_.

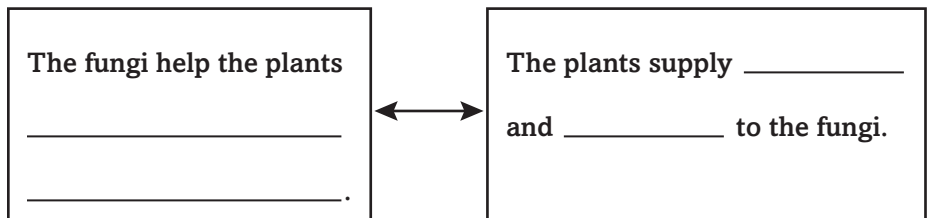
**Details**

Identify three important roles of lichens.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Model the beneficial relationship between fungi and plants by completing the diagram.

Some fungi and plants form a network of \_\_\_\_\_ and \_\_\_\_\_ called \_\_\_\_\_.



Identify the importance of fungi in each of these areas.

Foods	Agriculture	Health and Medicine	Decomposers

**CONNECT IT**

Describe what nature would be like without lichens, mycorrhizae, and decomposer fungi.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# Protists and Fungi Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Protists and Fungi</b>	<b>After You Read</b>
• Some protists have roots like those of plants.	
• The oxygen you breathe comes partly from green algae.	
• Protozoans are usually classified by what they eat.	
• Lichens can indicate the pollution level in an area.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading the chapter, write three facts you learned that you did not know before.

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# Plants

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Plants
	<ul style="list-style-type: none"> <li>• In tropical rain forests, there are more than 260,000 known plant species and probably more to be identified.</li> </ul>
	<ul style="list-style-type: none"> <li>• Land plants' ancestors may have been green algae that lived in the sea.</li> </ul>
	<ul style="list-style-type: none"> <li>• Ferns and mosses produce spores rather than seeds.</li> </ul>
	<ul style="list-style-type: none"> <li>• Paper and clothing are made from seed plants.</li> </ul>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Write three characteristics that you think all plants have in common.*

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# Plants

## Section 1 An Overview of Plants

**Skim** the headings in Section 1. Then predict three facts you will learn from reading the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** the word *species*. Use your book or a dictionary for help.

*species*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Use your book to define the following key terms.

*cuticle*

\_\_\_\_\_  
\_\_\_\_\_

*cellulose*

\_\_\_\_\_  
\_\_\_\_\_

*vascular plant*

\_\_\_\_\_  
\_\_\_\_\_

*nonvascular plant*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define *adapt* to reflect its scientific meaning.

*adapt*

\_\_\_\_\_  
\_\_\_\_\_

Section 1 An Overview of Plants (continued)

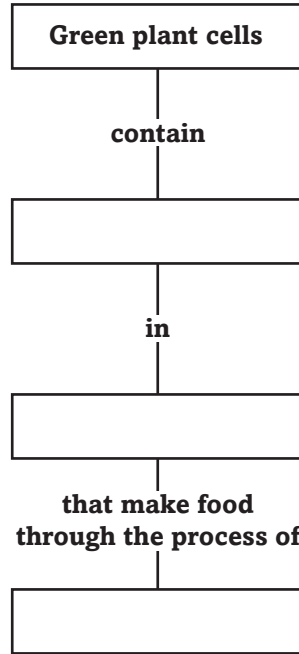
**Main Idea**

**What is a plant?**

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** how plants make food by completing the concept map below. Use these terms: photosynthesis, chlorophyll, chloroplasts.



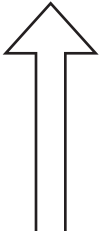
**Origin and Evolution of Plants**

I found this information on page \_\_\_\_\_.

**Sequence** the events in the table below. Write the oldest event at the bottom of the table and the youngest event at the top of the table.

**Events**

- First cone-bearing plants
- First green algae
- First flowering plants
- First land plants

<p><b>(Youngest)</b></p>  <p><b>(Oldest)</b></p>	

Section 1 An Overview of Plants (continued)

**Main Idea**

**Life on Land**

I found this information on page \_\_\_\_\_.

**Adaptations to Land**

I found this information on page \_\_\_\_\_.

**Classification of Plants**

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** how land plants made life possible for land animals.

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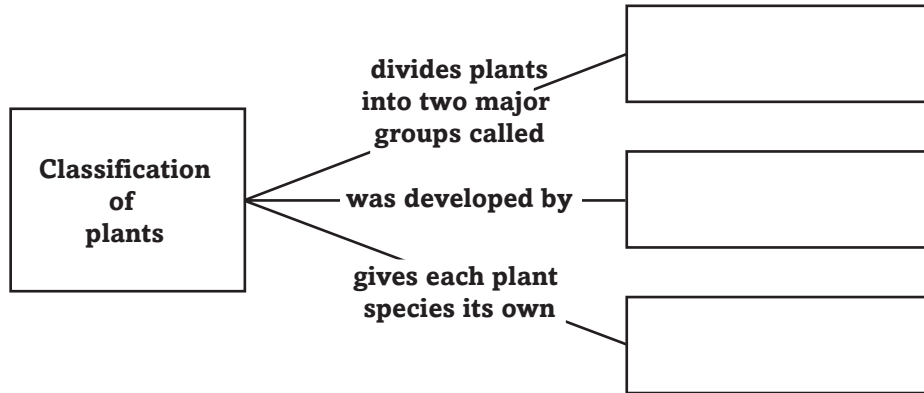


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**Identify** the four adaptations that make it possible for plants to live on land.

Plant Adaptations to Land	
Structure	Function

**Complete** the concept map below about plant classification.



**CONNECT IT**

Suppose that you are working at a greenhouse. While at work, a child asks you, "What's a plant?" Write a short answer to this question.

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# Plants

## Section 2 Seedless Plants

**Skim** Section 2 of your book. Then write three questions that you have about plants. Try to answer your questions as you read.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** spore. Use your book or a dictionary for help. Write a sentence that reflects its scientific meaning.

*spore*

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### New Vocabulary

Use your book to define the following key terms. Then use each word in a sentence that reflects its scientific meaning.

*rhizoid*

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*pioneer species*

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### Academic Vocabulary

Use a dictionary to define soil. Write a sentence that reflects its scientific meaning.

*soil*

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Section 2 Seedless Plants (continued)

**Main Idea**

**Seedless Nonvascular Plants**

I found this information on page \_\_\_\_\_.

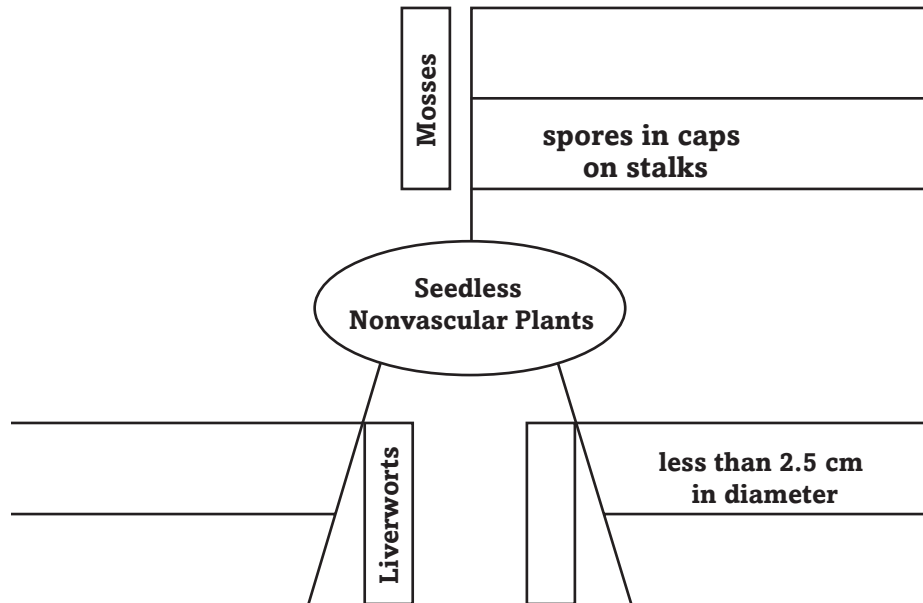
I found this information on page \_\_\_\_\_.

**Details**

**Organize** the characteristics of seedless nonvascular plants by completing the chart below.

Characteristics of Seedless Nonvascular Plants	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

**Complete** the concept map to identify examples and characteristics of seedless nonvascular plants. One example has been listed for you.



Section 2 Seedless Plants (continued)

**Main Idea**

**Seedless Vascular Plants**

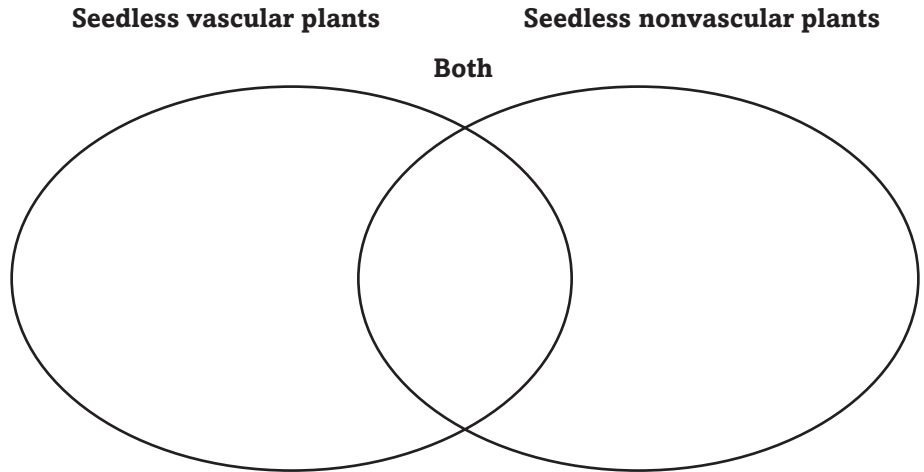
I found this information on page \_\_\_\_\_.

**Importance of Seedless Plants**

I found this information on page \_\_\_\_\_.

**Details**

**Compare and contrast** seedless vascular plants *with* seedless nonvascular plants *in the Venn diagram below.*



**Summarize** the importance of seedless plants in the table below.

Importance of Seedless Plants	
1.	
2.	
3.	
4.	
5.	
6.	
7.	

**CONNECT IT**

Suppose you are a naturalist working in a forest area that has recently burned in a forest fire. Summarize what you would tell visitors about seedless plants and how important they are to the forest's recovery.

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# Plants

## Section 3 Seed Plants

**Scan** Section 3 of your book. Write three questions that come to mind as you read the headings and examine the illustrations.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

*seed*

**Define** seed. Use your book or a dictionary for help. Then use this word in a sentence that reflects its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

### New Vocabulary

Read the definitions below. Write the correct key term on the blank in the left column. Use your book for help.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

a vascular plant that produces seeds that are not protected by fruit

a vascular plant that flowers and produces fruit with one or more seeds

a plant with one cotyledon inside its seeds

a plant with two cotyledons inside its seeds

### Academic Vocabulary

*annual*

Use a dictionary to define annual as it applies to the length of a plant's life.

\_\_\_\_\_

\_\_\_\_\_

Section 3 Seed Plants (continued)

**Main Idea**

**Characteristics of Seed Plants**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Details**

**Create** a cross-section of a leaf in the space below. Label and describe the purpose of six important features.

**Organize** the characteristics of seed plants by completing the chart below.

Structure	Function
Leaves	
Stems	
Roots	
Vascular tissue	

Section 3 Seed Plants (continued)

**Main Idea**

**Gymnosperms**

I found this information on page \_\_\_\_\_.

**Angiosperms**

I found this information on page \_\_\_\_\_.

**Importance of Seed Plants**

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the chart below about gymnosperms by writing about the characteristic listed in that cell.

Gymnosperms	
Divisions	Seeds
Flowers	Leaves

**Complete** the chart below about angiosperms by writing about the characteristic listed in that cell.

Angiosperms	
Division	Seeds
Flowers	Fruits

**Skim** your book for two uses each of gymnosperms and angiosperms.

Gymnosperms:

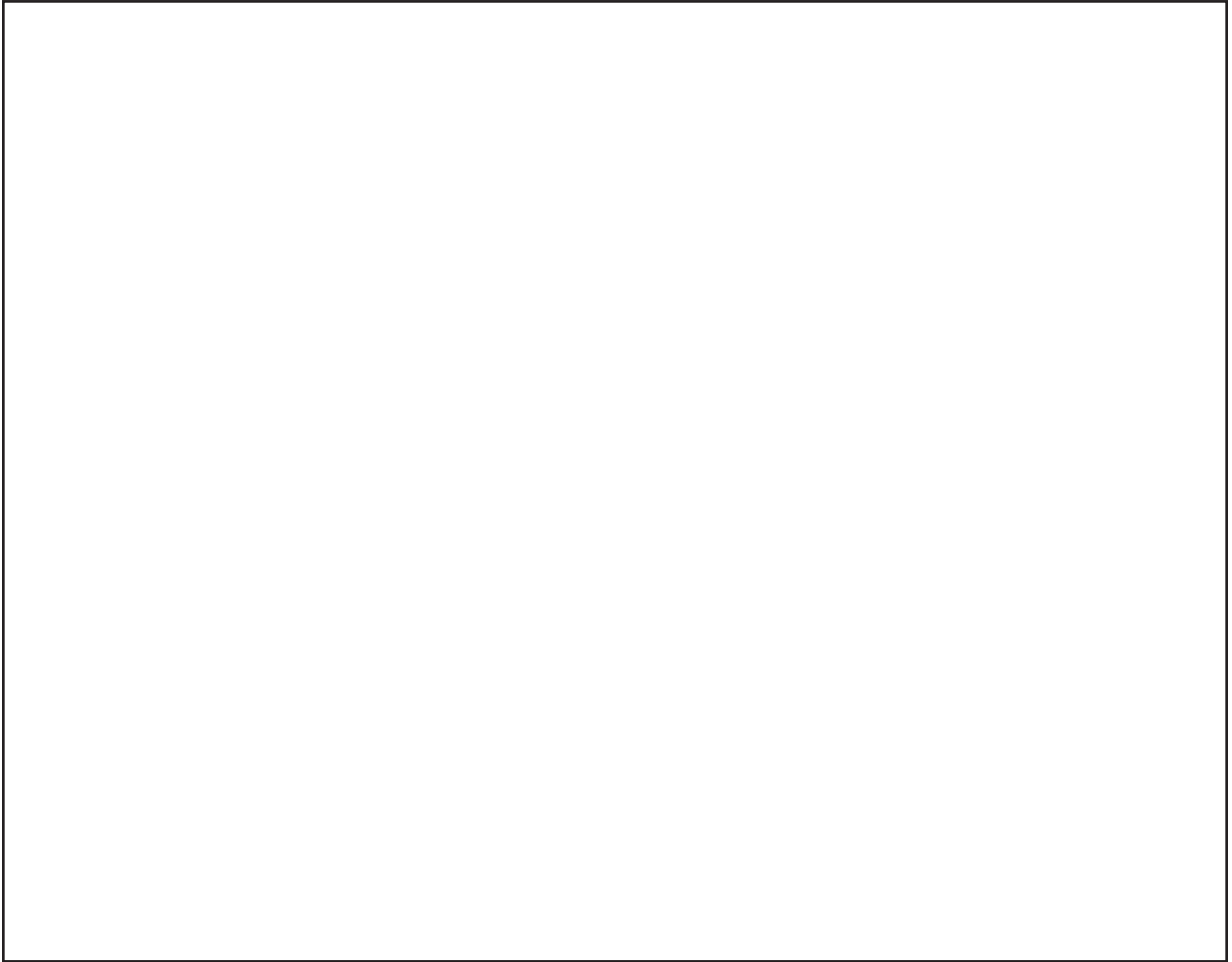
1. \_\_\_\_\_
2. \_\_\_\_\_

Angiosperms:

1. \_\_\_\_\_
2. \_\_\_\_\_

# Tie It Together

*In the space below, draw a sketch of a tree. Label the tree's roots, trunk, and leaves. Next to each label, write the important functions that each of these structures performs. Beneath your sketch, explain why trees are an important part of the environment.*



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# Plants Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Plants</b>	<b>After You Read</b>
• In tropical rain forests, there are more than 260,000 known plant species and probably more to be identified.	
• Land plants' ancestors may have been green algae that lived in the sea.	
• Ferns and mosses produce spores rather than seeds.	
• Paper and clothing are made from seed plants.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three things that you have learned about plants.

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# Plant Reproduction

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Plant Reproduction
	<ul style="list-style-type: none"> <li>• Both humans and plants need water, oxygen, energy, and food to grow.</li> </ul>
	<ul style="list-style-type: none"> <li>• Ferns and mosses reproduce by forming spores.</li> </ul>
	<ul style="list-style-type: none"> <li>• All seeds are produced by flowering plants.</li> </ul>
	<ul style="list-style-type: none"> <li>• Some seeds are spread by gravity.</li> </ul>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List three plants that reproduce by forming seeds.*

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# Plant Reproduction

## Section 1 Introduction to Plant Reproduction

**Scan** Section 1 of your book using the checklist below.

- Read all section titles.
- Read all bold words.
- Read all charts and graphs.
- Look at all the pictures and read their captions.
- Think about what you already know about plant reproduction.

*Write three facts that you discovered about plant reproduction as you scanned this section.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** fertilization in a sentence that shows its scientific meaning.

*fertilization*

\_\_\_\_\_

### New Vocabulary

*Use your book to define the following terms.*

*spore*

\_\_\_\_\_

\_\_\_\_\_

*gametophyte stage*

\_\_\_\_\_

\_\_\_\_\_

*sporophyte stage*

\_\_\_\_\_

\_\_\_\_\_

### Academic Vocabulary

*Use a dictionary to define identical.*

*identical*

\_\_\_\_\_

Section 1 Introduction to Plant Reproduction (continued)

**Main Idea**

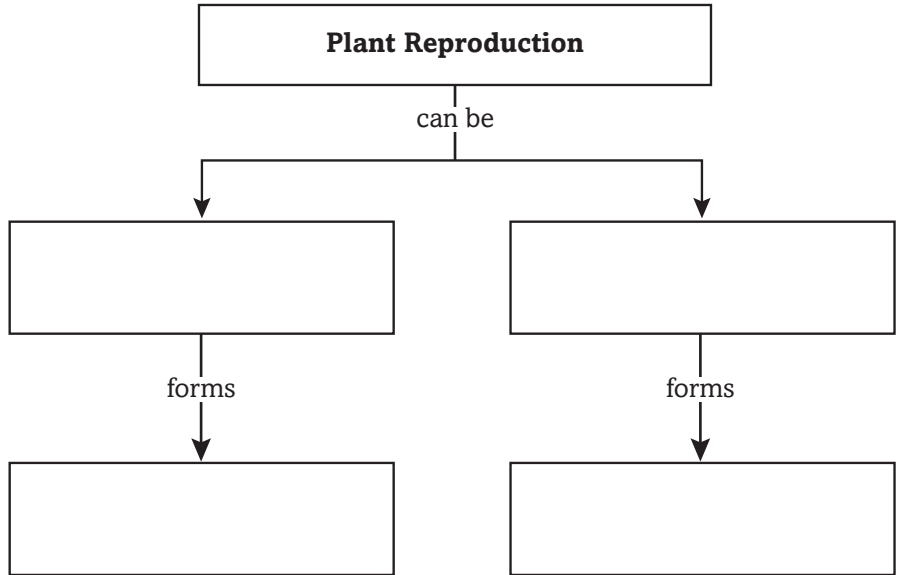
**Types of Reproduction**

I found this information on page \_\_\_\_\_.

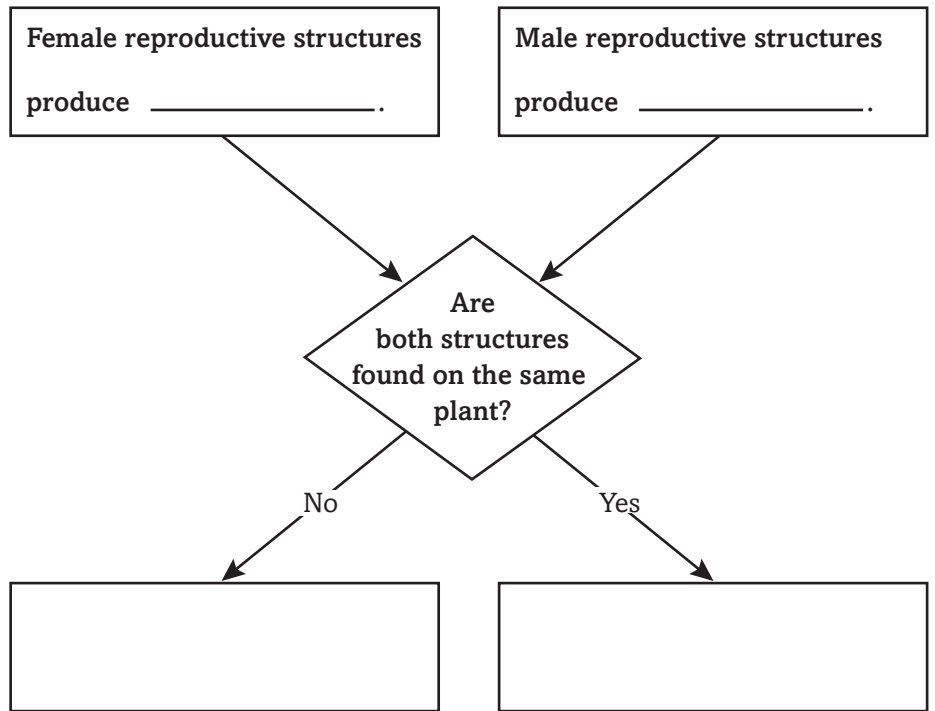
I found this information on page \_\_\_\_\_.

**Details**

**Compare and contrast** *two ways that plants reproduce.*



**Sequence** *the steps in plant fertilization. Complete the flow chart.*





Section 1 Introduction to Plant Reproduction (continued)

**Main Idea**

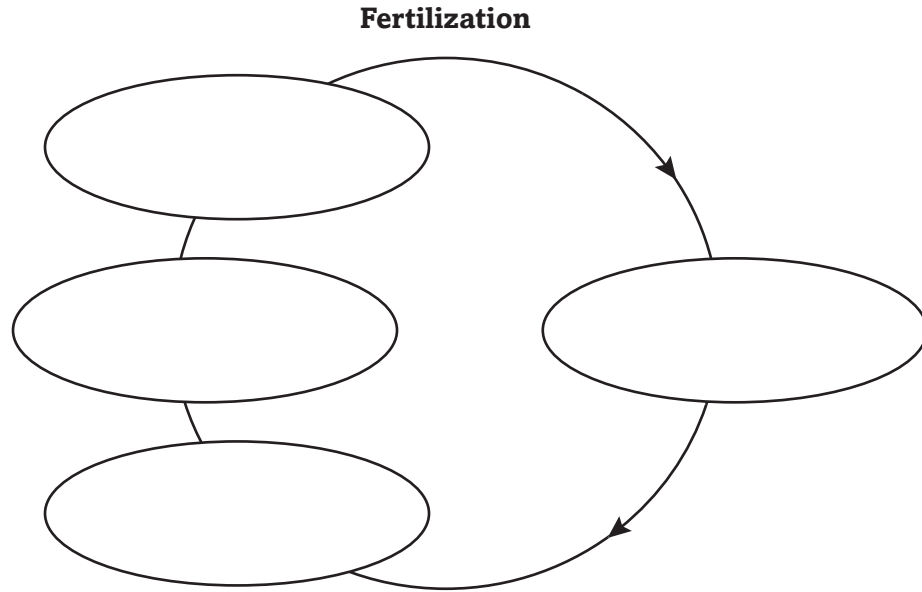
**Plant Life Cycles**

I found this information on page \_\_\_\_\_.

**Details**

**Model** the two stages of a plant's life cycle by labeling the diagram below with the following terms.

- gametophyte plant structures ( $n$ )
- sporophyte plant structures ( $2n$ )
- sex cells (sperm and eggs) ( $n$ )
- spores ( $n$ )



**Contrast** the gametophyte and sporophyte stages of plant development. Complete the table.

Stage	Cell type	Reproductive cells formed	How reproductive cells form
Gametophyte			
Sporophyte			

**CONNECT IT**

A plant breeder wants to develop new varieties of roses that have different traits from the varieties he already has. Describe the type of reproduction the breeder is most likely to use and why.

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# Plant Reproduction

## Section 2 Seedless Reproduction

**Skim** Section 2 of your book. Read the headings and look at the illustrations. Write three questions that come to mind.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** photosynthesis using your book or a dictionary.

*photosynthesis*

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**New Vocabulary**

Use your book to define the following terms.

*frond*

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*rhizome*

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*sori*

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*prothallus*

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**Academic Vocabulary**

Use a dictionary to define widespread.

*widespread*

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Section 2 Seedless Reproduction (continued)

**Main Idea**

**The Importance of Spores**

I found this information on page \_\_\_\_\_.

**Nonvascular Seedless Plants**

I found this information on page \_\_\_\_\_.

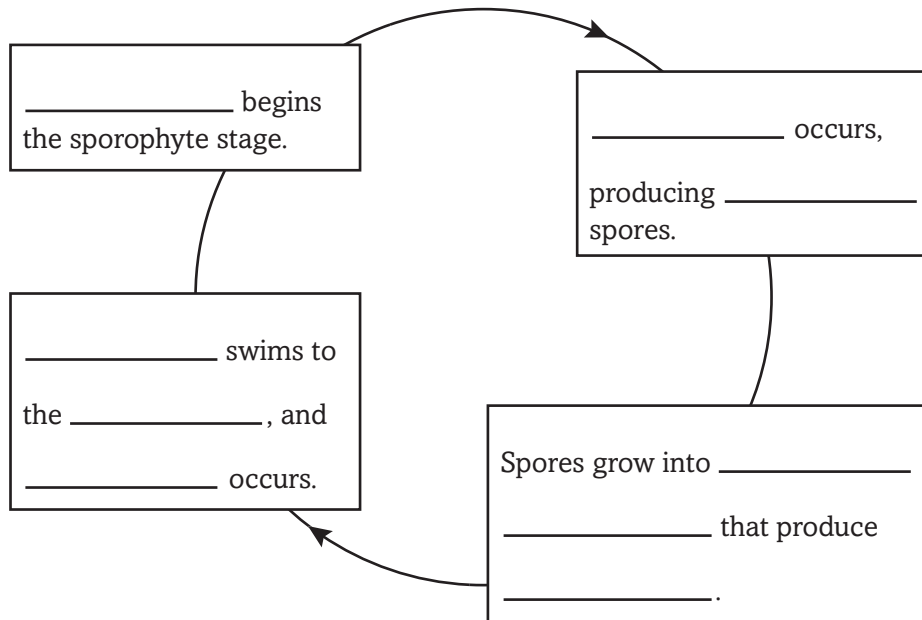
I found this information on page \_\_\_\_\_.

**Details**

**Summarize** the role of spores in plant reproduction.

Spores are used by \_\_\_\_\_ to reproduce. The \_\_\_\_\_ stage of the plant produces \_\_\_\_\_ spores in \_\_\_\_\_. These \_\_\_\_\_, and the spores are spread by \_\_\_\_\_. The spores grow into \_\_\_\_\_ that can produce \_\_\_\_\_.

**Sequence** the life cycle of a moss. Complete the flow chart.



**Distinguish** two ways in which nonvascular plants reproduce asexually.

Type of Plant	Asexual Reproduction Process
moss	
liverwort	

Section 2 Seedless Reproduction (continued)

**Main Idea**

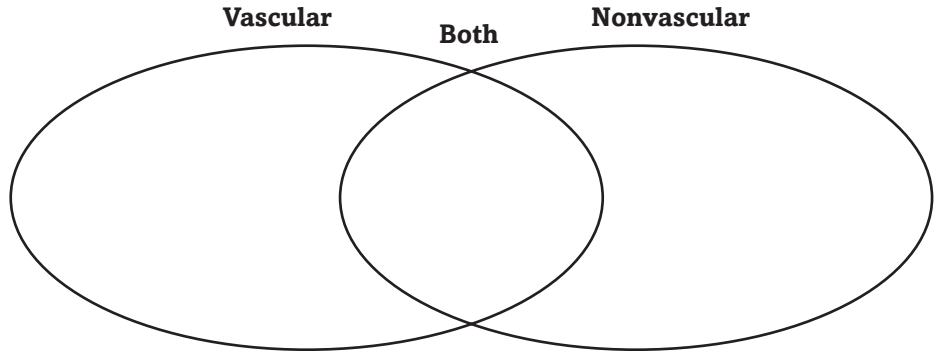
**Vascular Seedless Plants**

I found this information on page \_\_\_\_\_.

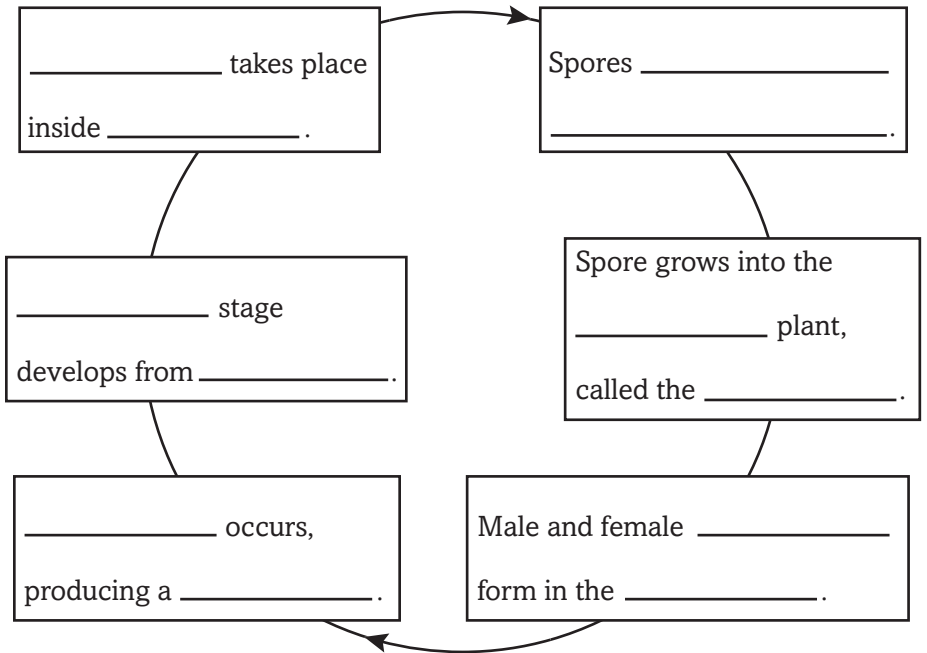
I found this information on page \_\_\_\_\_.

**Details**

**Contrast** vascular and nonvascular seedless plants. Complete the Venn diagram with at least six facts.



**Organize** the life cycle of a fern into a flow chart.



**CONNECT IT**

Suppose that you are walking through a forest and you see some moss plants and ferns. Describe how you could know the stage of its life cycle each kind of plant is in.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Plant Reproduction

## Section 3 Seed Reproduction

**Predict** *three things that will be discussed in Section 3.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*gymnosperms*

**Define** *gymnosperms using your book or a dictionary.*

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**New Vocabulary**

**Match** *each vocabulary term to its definition.*

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- small structure produced by the male reproductive organs of a seed plant
- transfer of pollen grains to the female part of a seed plant
- series of events that results in the growth of a plant from a seed
- part of a plant that produces the egg
- male reproductive organ in a flower
- female reproductive organ in a flower
- part of a flower in which ovules are found

**Academic Vocabulary**

*structure*

**Use a dictionary to define structure as it is used in science.**

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Section 3 Seed Reproduction (continued)

**Main Idea**

**The Importance of Pollen and Seeds**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Gymnosperm Reproduction**

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** key facts about pollen and pollination. Complete the outline.

**Pollen and Pollination in Seed Plants**

**I. Pollen grains**

**A.** \_\_\_\_\_

**B.** \_\_\_\_\_

**II. Pollination**

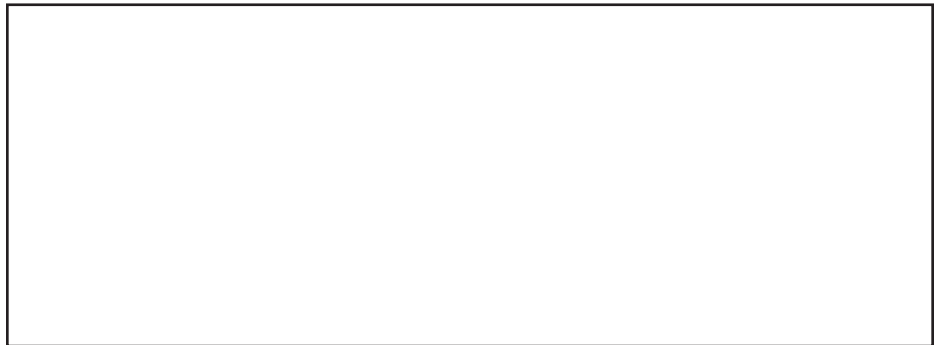
**A.** \_\_\_\_\_

\_\_\_\_\_

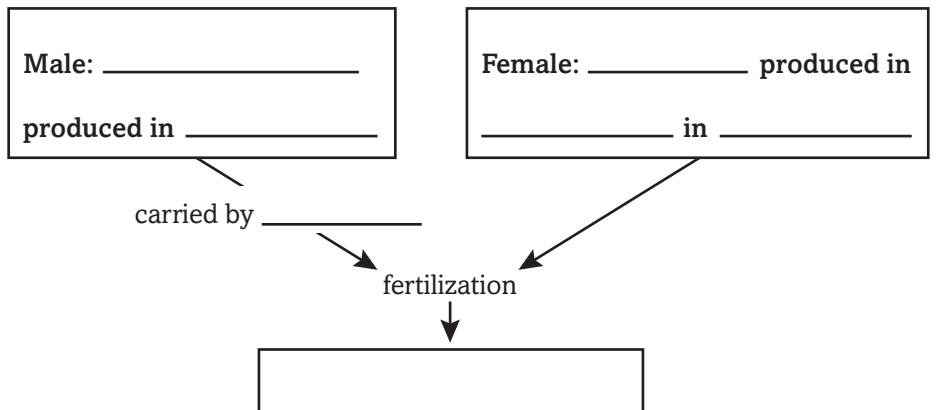
**B.** \_\_\_\_\_

\_\_\_\_\_

**Model** a seed. Draw a seed and label the stored food, embryo, and seed coat. Identify the role of each part of the seed.



**Sequence** steps of gymnosperm seed formation in the flow chart.



Section 3 Seed Reproduction (continued)

**Main Idea**

**Angiosperm  
Reproduction**

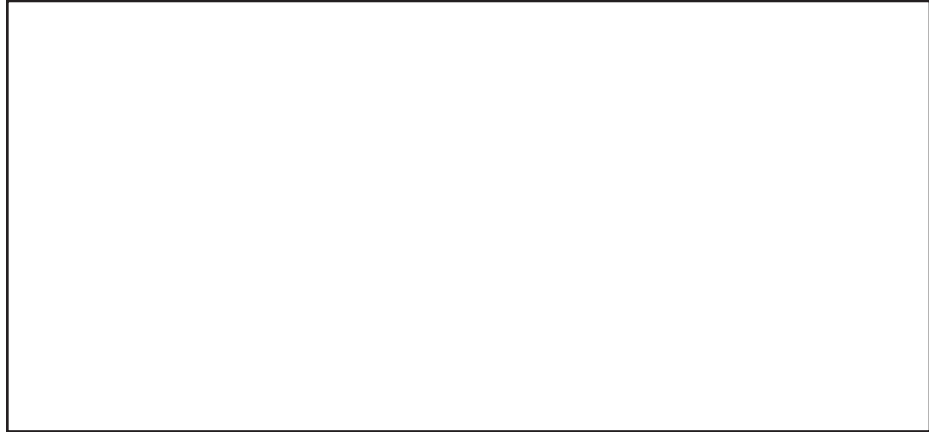
I found this information  
on page \_\_\_\_\_.

**Seed Dispersal**

I found this information  
on page \_\_\_\_\_.

**Details**

**Model** a flower by drawing and labeling its parts. Then write a brief caption to identify the male and female reproductive organs and to describe how each organ functions during fertilization.



**Sequence** the events of fertilization and germination in angiosperms.

1. Flower is \_\_\_\_\_.
2. \_\_\_\_\_.
3. \_\_\_\_\_.
4. Seed is \_\_\_\_\_.
5. Conditions become right for \_\_\_\_\_.
6. \_\_\_\_\_.
7. \_\_\_\_\_.
8. Root grows from \_\_\_\_\_.
9. \_\_\_\_\_.
10. Photosynthesis begins.

**CONNECT IT**

The seeds of horse chestnut trees are covered with a prickly outer layer. Propose a way that you think these seeds might be dispersed.

\_\_\_\_\_

\_\_\_\_\_

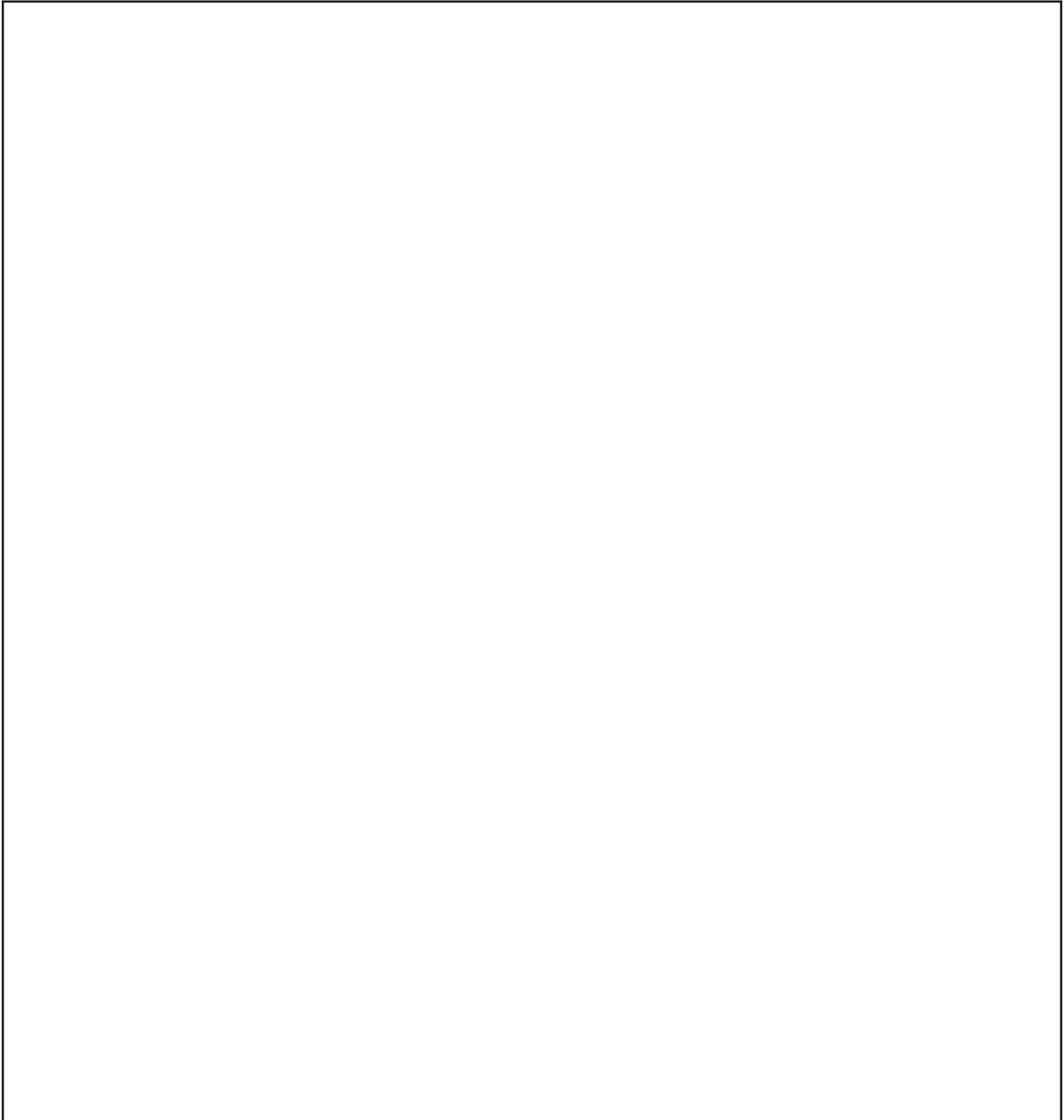
# Tie It Together

## Describe a Plant

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*Suppose that you are an explorer who has discovered a new species of plant.*

- *Draw and describe the plant below.*
- *Be sure to indicate whether your plant is vascular or nonvascular.*
- *If it does reproduce with seeds, identify it as an angiosperm or a gymnosperm.*
- *Include a diagram that shows the plant's life cycle.*
- *Draw a cross-section of the plant that identifies its reproductive structures.*





# Plant Reproduction Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Plant Reproduction</b>	<b>After You Read</b>
• Both humans and plants need water, oxygen, energy, and food to grow.	
• Ferns and mosses reproduce by forming spores.	
• All seeds are produced by flowering plants.	
• Some seeds are spread by gravity.	

## Review

Use this checklist to help you study.

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- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three things that you have learned about plant reproduction.

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# Plant Processes

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Plant Processes
	• Plants make their own food.
	• Plants break down food to release energy.
	• Plant stems grow away from light.
	• Plants have hormones that control changes in their growth.



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Describe what would happen to life on Earth if all the green plants disappeared.*

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# Plant Processes

## Section 1 Photosynthesis and Respiration

**Scan** the illustrations in Section 1. Write three questions that you have about plants. Try to answer your questions as you read.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** cellulose using your book. Then write a sentence to illustrate its scientific meaning.

*cellulose*

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### New Vocabulary

Use your book to define the following terms.

*stomata*

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*chlorophyll*

---

---

*photosynthesis*

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*respiration*

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### Academic Vocabulary

Use a dictionary to define release.

*release*

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Section 1 Photosynthesis and Respiration (continued)

**Main Idea**

**Taking In Raw Materials**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**The Food-Making Process**

I found this information on page \_\_\_\_\_.

**Details**

**Organize** what you know about the different layers of a plant's leaves by completing the table below.

Structure	Function
Epidermis	
Palisade layer	
Spongy layer	

**Summarize** why stomata are important structures in a plant leaf.

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**Complete** the equation for photosynthesis. Identify:

- the product that is stored as a food source
- the product made during light-dependent reactions
- the product that is released mostly as waste
- the product made during light-independent reactions



carbon dioxide

water

**Food source:**  
 \_\_\_\_\_  
**made during**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Waste product:**  
 \_\_\_\_\_  
**made during**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Section 1 Photosynthesis and Respiration (continued)

**Main Idea**

**The Breakdown of Food**

*I found this information on page \_\_\_\_\_.*

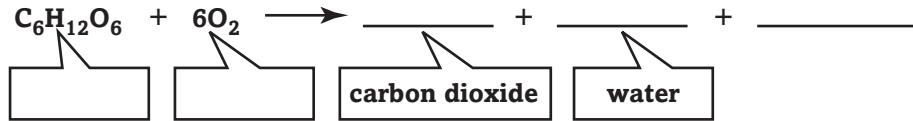
**Comparison of Photosynthesis and Respiration**

*I found this information on page \_\_\_\_\_.*

**Details**

**Define** aerobic respiration.

**Complete** the equation for aerobic respiration.



**Compare** the processes of photosynthesis and aerobic respiration by completing the table.

	Photosynthesis	Aerobic Respiration
Energy		
Raw materials		
End products		
Cell structure in which process occurs		

**SUMMARIZE IT**

Create a concept map or other diagram to summarize what you learned in this section about plant structure and function.

# Plant Processes

## Section 2 Plant Responses

**Scan** Section 2. Predict three things that you will learn.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** behavior using your book.

*behavior*

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

**Write the correct vocabulary term next to each definition.**  
*Use your book to help you.*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

response of a plant to external stimuli, movement caused by change in growth

type of plant hormone that causes plant stems and leaves to exhibit positive responses to light

plant's response to the number of hours of daylight and darkness it receives

plant that generally requires short nights—less than 12 hours of darkness—to begin the flowering process

plant that generally requires long nights—12 or more hours of darkness—to begin the flowering process

plant that does not require a specific photoperiod and can begin the flowering process over a range of night lengths

**Academic Vocabulary**

**Use a dictionary to define** involve.

*involve*

\_\_\_\_\_

\_\_\_\_\_

Section 2 Plant Responses (continued)

**Main Idea**

**What are plant responses?**

I found this information on page \_\_\_\_\_.

**Tropisms**

I found this information on page \_\_\_\_\_.

**Plant Hormones**

I found this information on page \_\_\_\_\_.

**Details**

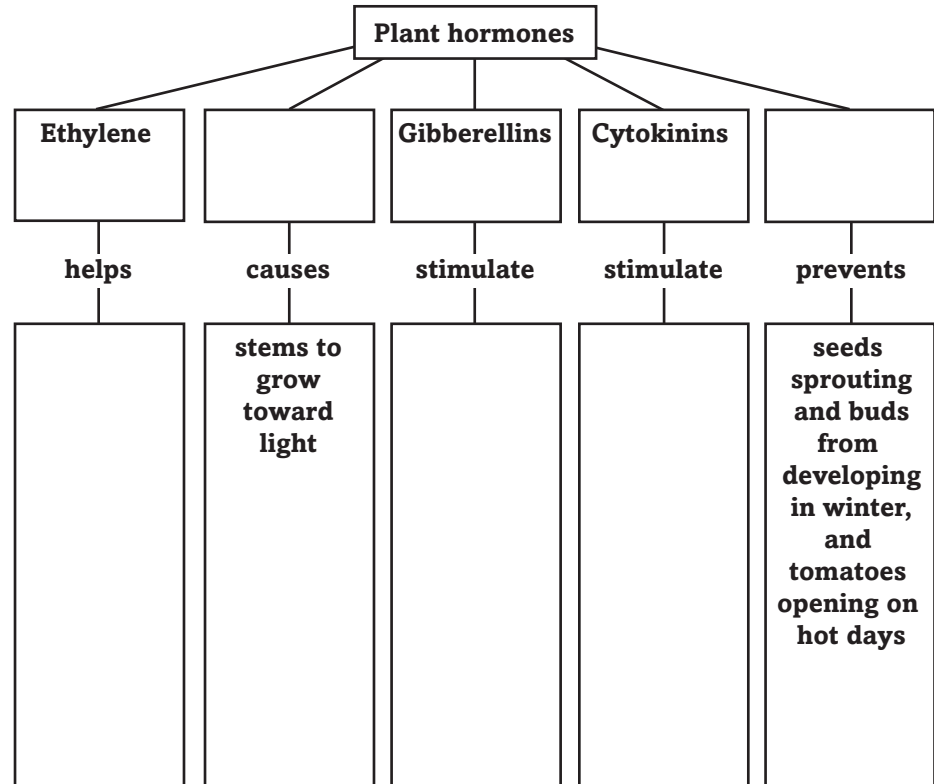
**Distinguish** the types of stimuli as internal or external.

- \_\_\_\_\_ 1. a stimulus that comes from outside the body
- \_\_\_\_\_ 2. a stimulus that comes from inside the body

**Complete** the table below. Identify the stimulus for each described response.

Stimulus	Response
	Plant stem grows faster on one side. Stem bends and twists around object.
	Plant bends toward light. Leaves turn and absorb more light.
	Roots grow downward. Stems grow upward.

**Compare** the effects of different hormones that affect plants.



Section 2 Plant Responses (continued)

**Main Idea**

**Plant Hormones**

I found this information on page \_\_\_\_\_.

**Photoperiods**

I found this information on page \_\_\_\_\_.

**Details**

**Create** a diagram to illustrate how auxin causes a stem to grow in response to sunlight. Write a short caption to describe where auxin is concentrated in the stem.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Complete** the table below to show your understanding of the effects of photoperiodism on different types of plants.

Type of Plant	Hours of Darkness Needed to Flower	Examples
	need less than 12 hours	spinach, lettuce, and beets
	need 12 or more hours	poinsettias, strawberries, and ragweed
	do not need a specific amount of light	dandelions and roses

**CONNECT IT**

Explain plant responses you might see in plants that are growing indoors on a windowsill.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# Plant Processes Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Plant Processes</b>	<b>After You Read</b>
• Plants make their own food.	
• Plants break down food to release energy.	
• Plant stems grow away from light.	
• Plants have hormones that control changes in their growth.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
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- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three things that you have learned about plant processes.

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# Introduction to Animals

## Before You Read

*Before you read the chapter, think about what you know about the topic. List three things that you already know about animals in the first column. Then list three things that you would like to learn about animals in the second column.*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List the animals you may find living around a coral reef.*

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# Introduction to Animals

## Section 1 Is it an animal?

**Scan** the headings in Section 1 of the chapter. Identify three topics that are discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*adaptation*

**Define** adaptation using your book or a dictionary.

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

**Read** the definitions below. Write the correct vocabulary term on the blank to the left of each definition.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

animal that eats both plants and animals; mammals with specialized teeth for eating plants and animals

arrangement of body parts in a circle around a center point

an animal without a backbone

animal that eats only other animals or the remains of other animals

arrangement of body parts into halves that are nearly mirror images of each other

animal that eats only plants or parts of plants

an animal that has a backbone

**Academic Vocabulary**

*definite*

**Use** a dictionary to define definite to show its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

Section 1 Is it an animal? (continued)

**Main Idea**

**Animal Characteristics**

*I found this information on page \_\_\_\_\_.*

**How Animals Meet Their Needs**

*I found this information on page \_\_\_\_\_.*

**Details**

**Summarize** the characteristics of animals by completing the following main points.

Animals get their food from \_\_\_\_\_.

Many animals move from place to place to find \_\_\_\_\_, \_\_\_\_\_, and/or \_\_\_\_\_.

All animals can reproduce \_\_\_\_\_. Some also can reproduce \_\_\_\_\_.

Animal cells have a \_\_\_\_\_ and other parts inside called \_\_\_\_\_.

**Compare** animal adaptations by completing the chart.

How Animals Meet Their Needs		
	Adaptations	Animal Examples
Ways to get energy	eat plants	deer, some fishes
Physical features	large size	moose, bison
Behaviors		

Section 1 Is it an animal? (continued)

**Main Idea**

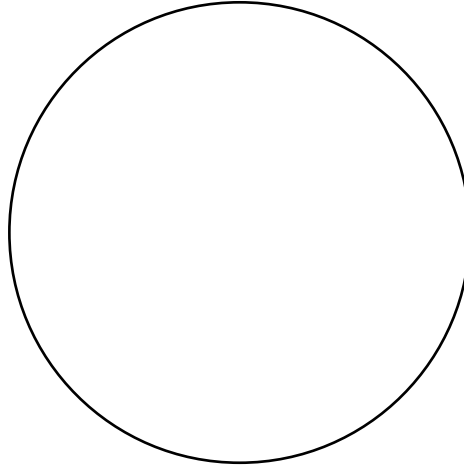
**Details**

**Animal Classification**

I found this information on page \_\_\_\_\_.

**Complete** and label the circle graph to compare the percent of known animals that are vertebrates with the percent of known animals that are invertebrates.

Animals



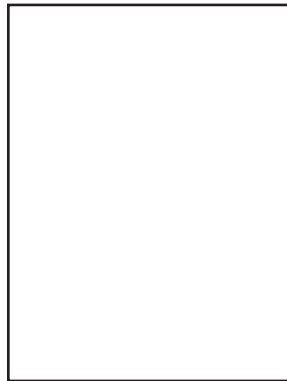
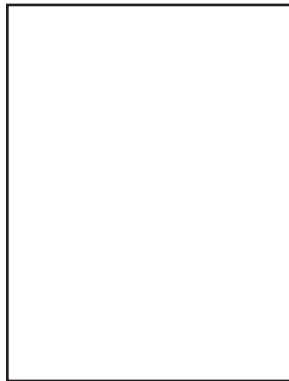
I found this information on page \_\_\_\_\_.

**Compare** forms of animal symmetry by identifying and drawing an example of each below.

Asymmetrical

Radial Symmetry

Bilateral Symmetry



**SUMMARIZE IT**

Analyze the physical or behavioral adaptations of an animal that protect it from predators.

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# Introduction to Animals

## Section 2 Sponges and Cnidarians

**Skim** Section 2 of the chapter. Read the headings and look at the illustrations. Predict three things that you will learn.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** flagella using your book or a dictionary.

flagella

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Read the definitions below. Write the correct vocabulary term on the blank to the left of each definition.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

form of a cnidarian that is bell-shaped and free-swimming

capsule with a threadlike structure containing toxins that help a cnidarian capture food

organisms that remain attached to one place during most of their life

armlike structures that have stinging cells used for getting food

animal that produces both sperm and eggs in the same body

cnidarian body type that is vase-shaped and is usually sessile

**Academic Vocabulary**

Use a dictionary to define source to show its scientific meaning.

source

\_\_\_\_\_  
\_\_\_\_\_

Section 2 Sponges and Cnidarians (continued)

**Main Idea**

**Sponges and Characteristics of Sponges**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Cnidarians**

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** information about sponges.

Sponges appeared on Earth about \_\_\_\_\_.  
 Most live in \_\_\_\_\_. Some have \_\_\_\_\_ symmetry, but most are \_\_\_\_\_. Adult sponges are \_\_\_\_\_, which means they do not move. Sponges pull \_\_\_\_\_ into their bodies, where cells filter out \_\_\_\_\_ and \_\_\_\_\_.

**Model** a sponge's body. Label the sponge's central cavity and pores. Show the path followed by water into and out of the sponge.

**Organize** information about the two forms of cnidarians by completing the chart.

	Medusa	Polyp
Body Form (shape)		
Mobility		usually sessile
Examples	jellyfishes for most of their lives	

Section 2 Sponges and Cnidarians (continued)

**Main Idea**

**Cnidarians**

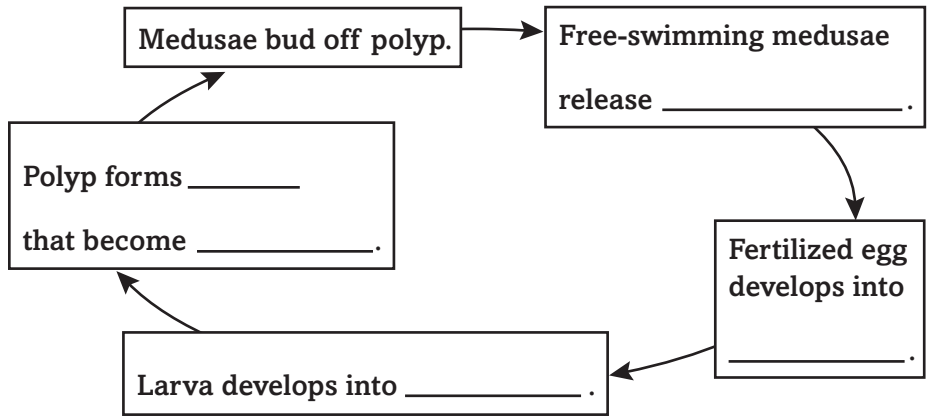
I found this information on page \_\_\_\_\_.

**Corals**

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** the steps in reproduction of medusa forms of cnidarians by completing the cycle chart.



**Summarize** key information about coral reefs in the outline.

- I. Coral reefs
  - A. Formation of coral reefs
    1. Made of \_\_\_\_\_
    2. Grow as \_\_\_\_\_
    3. Can take \_\_\_\_\_ of years to form
  - B. Importance of coral reefs
    1. Provide habitat for \_\_\_\_\_
    2. Protect \_\_\_\_\_
    3. Provide \_\_\_\_\_

**SYNTHESIZE IT**

Explain how sponges and cnidarians could be mistaken for plants rather than animals.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# Introduction to Animals

## Section 3 Flatworms and Roundworms

**Scan** Section 3 of the chapter. Write four questions that come to mind. Look for answers to your questions as you read the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**Review Vocabulary**

**Define** cilia using your book or a dictionary.

*cilia*

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

Use your book or a dictionary to define each vocabulary term. Then use each term in a sentence that shows its scientific meaning.

*free-living organisms*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*anus*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define require to show its scientific meaning.

*require*

\_\_\_\_\_

Section 3 Flatworms and Roundworms (continued)

**Main Idea**

**What is a worm?**

I found this information on page \_\_\_\_\_.

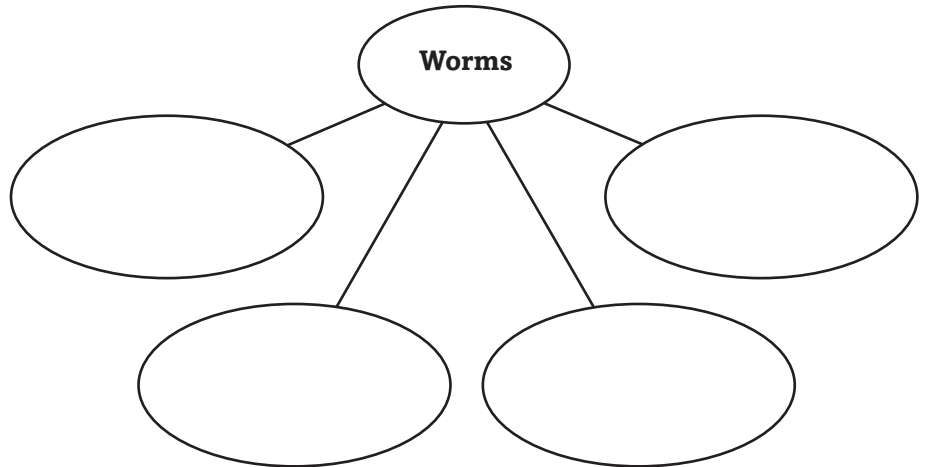
**Flatworms**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

Analyze worms by identifying four characteristics below.



Compare characteristics of planarians and flukes by completing the chart below.

Flatworms		
	Planarians	Flukes
How they live		as parasites
What they eat		
How they move		
How they reproduce		usually sexually

Model a tapeworm by sketching it. Label its hooks, its suckers, and a mature segment with eggs.

Section 3 Flatworms and Roundworms (continued)

**Main Idea**

**Origin of Flatworms**

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** what some scientists believe about the origin of flatworms by completing the diagram.

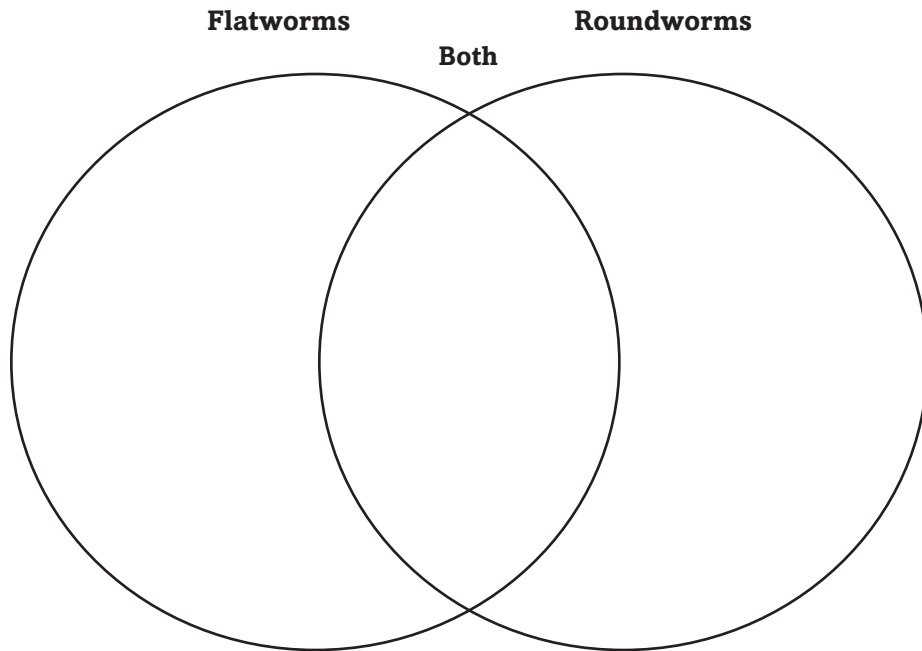
probably the first group of animals to have



**Roundworms**

I found this information on page \_\_\_\_\_.

**Compare and contrast** roundworms with flatworms by completing the Venn diagram with at least seven facts.



**CONNECT IT**

Summarize ways that roundworms are both helpful and harmful.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Tie It Together

## Preventing Disease

---

*You are working on a public health campaign to inform people of the dangers of parasitic flatworms and roundworms. Create a poster with key information about diseases these organisms can cause and how to avoid them. Use words, pictures, and diagrams to get your message across.*

# Introduction to Animals Chapter Wrap-Up

Review the ideas you listed in the chart at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the chart by filling in the third column.

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>	<b>L</b> <b>What I learned</b>

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three main ideas that you have learned about animals.

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# Mollusks, Worms, Arthropods, Echinoderms

## Before You Read

*Before you read the chapter, think about what you know about the topic. List three things you already know about mollusks, worms, arthropods, and echinoderms in the first column. Then list three things you would like to learn about them in the second column.*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List three animals from each animal group you will be studying: mollusks, worms, arthropods, and echinoderms.*

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# Mollusks, Worms, Arthropods, Echinoderms

## Section 1 Mollusks

**Scan** the headings in Section 1 of your book. Identify three topics that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** visceral mass using your book or a dictionary.

visceral mass

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Use your book or a dictionary to define the following terms.

*mantle*

\_\_\_\_\_  
\_\_\_\_\_

*gill*

\_\_\_\_\_  
\_\_\_\_\_

*open circulatory system*

\_\_\_\_\_  
\_\_\_\_\_

*radula*

\_\_\_\_\_  
\_\_\_\_\_

*closed circulatory system*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define relax as it might be used in science.

*relax*

\_\_\_\_\_

Section 1 Mollusks (continued)

**Main Idea**

**Characteristics of Mollusks**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Identify** characteristics of mollusks *in the chart below.*

Characteristics of Mollusks	
Type of symmetry	bilateral
Body description	
Where they live	

**Model** the body of a mollusk by sketching a snail and labeling its shell, mantle, gill, mantle cavity, foot, radula, and other body parts.



Section 1 Mollusks (continued)

**Main Idea**

**Details**

**Classification of Mollusks**

*I found this information on page \_\_\_\_\_.*

**Value of Mollusks**

*I found this information on page \_\_\_\_\_.*

**Compare and contrast** types of mollusks *by completing the chart.*

Types of Mollusks			
Types	Gastropods	Bivalves	Cephalopods
Where do they live?			
How many shells?			
Examples			

**Organize** the uses of mollusks *and the problems they cause by completing the chart below.*

Uses of Mollusks	
Problems Mollusks Cause	

**CONNECT IT**

Discuss several ways you could protect a boat from being damaged by shipworms.

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# Mollusks, Worms, Arthropods, Echinoderms

## Section 2 Segmented Worms

**Skim** Section 2 of your book. Write three questions that come to mind. Look for answers to your questions as you read the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** aerate using your book or a dictionary.

aerate

\_\_\_\_\_

**New Vocabulary**

Use your book or a dictionary to define the following terms. Then use each term in a sentence to show its scientific meaning.

setae

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

crop

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

gizzard

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define survive as it might be used in science.

survive

\_\_\_\_\_  
\_\_\_\_\_

Section 2 Segmented Worms (continued)

**Main Idea**

**Details**

**Segmented Worm Characteristics**

I found this information on page \_\_\_\_\_.

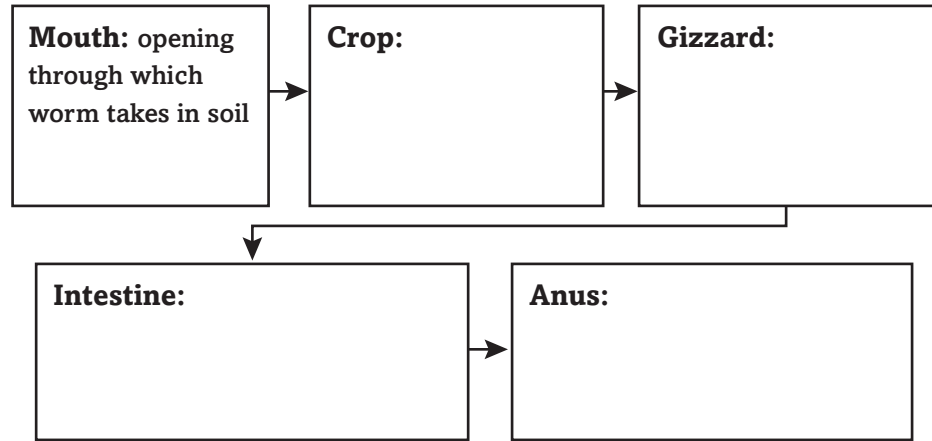
Identify characteristics of segmented worms *in the chart below*.

Characteristics of Segmented Worms	
Type of symmetry	
Body description	
Where they live	

**Earthworm Body Systems**

I found this information on page \_\_\_\_\_.

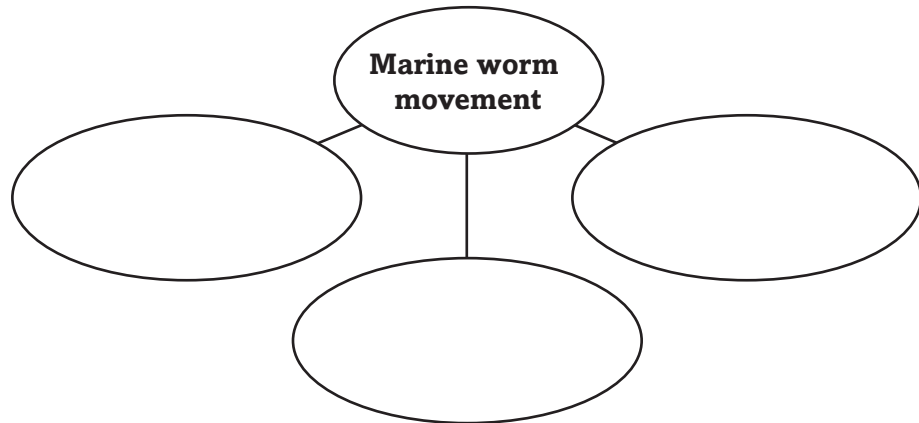
Sequence and define the functions of an earthworm's digestive system by completing the flow chart.



**Marine Worms**

I found this information on page \_\_\_\_\_.

Identify three ways that marine worms move.



Section 2 Segmented Worms (continued)

**Main Idea**

**Leeches and  
Leeches and  
Medicine**

I found this information  
on page \_\_\_\_\_.

**Details**

**Summarize** the process by which leeches feed on the blood of other animals. Then explain how the process is useful in medicine.

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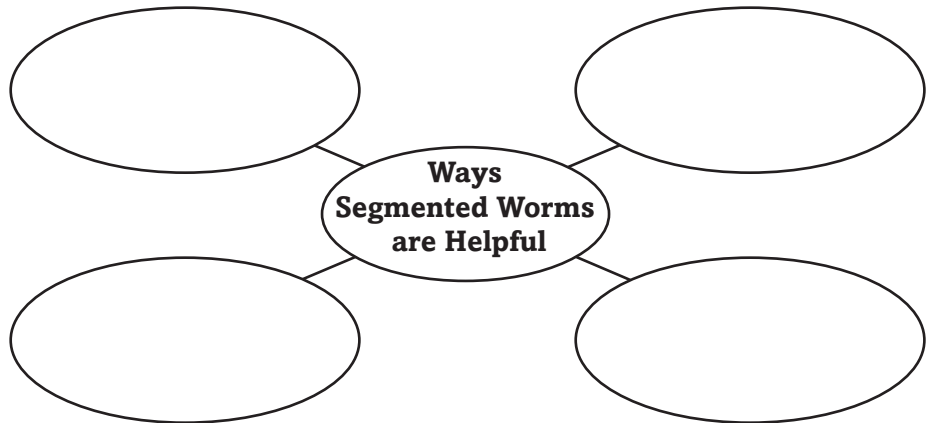
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**Value of  
Segmented  
Worms**

I found this information  
on page \_\_\_\_\_.

**Identify** ways segmented worms are helpful in the organizer below.



**Origin of  
Segmented  
Worms**

I found this information  
on page \_\_\_\_\_.

**Compare** three similarities of mollusks and worms which suggest that they share a common ancestor.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**CONNECT IT**

Explain why there are not many fossils of ancient worms.

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# Mollusks, Worms, Arthropods, Echinoderms

## Section 3 Arthropods

**Scan** the What You'll Learn statements for Section 3 of your book. Identify three topics that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*venom*

**Define** venom using your book or a dictionary.

\_\_\_\_\_

**New Vocabulary**

*appendage*

Use your book or a dictionary to define the following terms.

\_\_\_\_\_  
\_\_\_\_\_

*molting*

\_\_\_\_\_  
\_\_\_\_\_

*spiracle*

\_\_\_\_\_  
\_\_\_\_\_

*metamorphosis*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*individual*

Use a dictionary to define individual as it might be used in science.

\_\_\_\_\_  
\_\_\_\_\_

Section 3 Arthropods (continued)

**Main Idea**

**Characteristics of Arthropods**

I found this information on page \_\_\_\_\_.

**Insects**

I found this information on page \_\_\_\_\_.

**Arachnids**

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the chart below to identify characteristics of arthropods.

Characteristics of Arthropods	
Type of symmetry	
Body description	
Where they live	

**Organize** information about body regions of insects in the outline.

**I. Insect body regions**

**A. Parts of the head**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**B. Parts of the \_\_\_\_\_**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. spiracles

**C. Parts of the \_\_\_\_\_**

1. \_\_\_\_\_
2. \_\_\_\_\_

**Identify** three arachnids and one unique characteristic of each.

Types of Arachnids		

Section 3 Arthropods (continued)

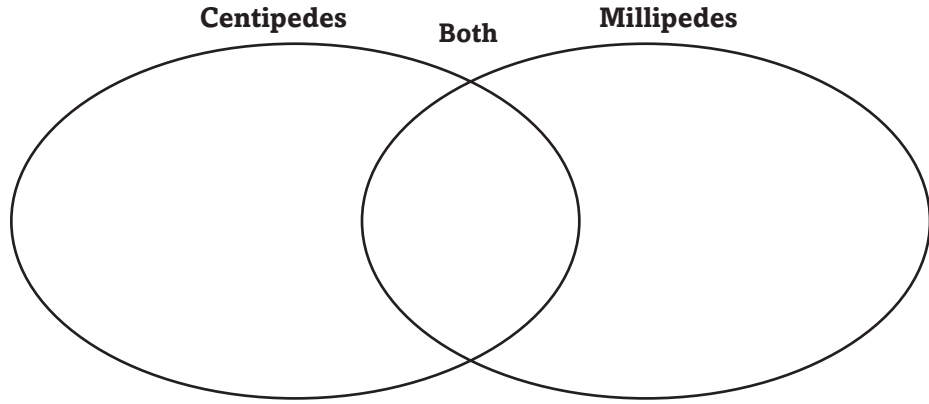
**Main Idea**

**Details**

**Centipedes and Millipedes**

I found this information on page \_\_\_\_\_.

**Compare and contrast** centipedes *and* millipedes *by completing the Venn diagram below with at least six facts.*



**Crustaceans**

I found this information on page \_\_\_\_\_.

**Identify** *two* functions of crustaceans' swimmerets.

1. \_\_\_\_\_
2. \_\_\_\_\_

**Value of Arthropods**

I found this information on page \_\_\_\_\_.

**Summarize** helpful functions *and* problems caused by arthropods.

Helpful Arthropod Functions \_\_\_\_\_  
\_\_\_\_\_

Problems Arthropods Cause \_\_\_\_\_  
\_\_\_\_\_

**SYNTHESIZE IT**

Analyze one method of controlling insect pests. Support your reasoning.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Mollusks, Worms, Arthropods, Echinoderms

## Section 4 Echinoderms

**Scan** Section 4 of your book. Use the checklist below.

- Read all the headings.
- Read all the bold words.
- Look at the charts, graphs, and pictures.
- Think about what you already know about echinoderms.

Now, write three things that you want to learn about echinoderms.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** epidermis using your book or a dictionary.

*epidermis*

\_\_\_\_\_

**New Vocabulary**

Write a paragraph that explains the meaning and functions of both of the vocabulary terms.

*water-vascular system*

*tube feet*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define network in a way that it might be used in science.

*network*

\_\_\_\_\_  
\_\_\_\_\_



Section 4 Echinoderms (continued)

**Main Idea**

**Details**

**Echinoderm Characteristics**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Identify** characteristics of echinoderms *in the chart below.*

Characteristics of Echinoderms	
Type of symmetry	
Body description	
Where they live	

**Create** a graphic organizer to identify the functions of a water-vascular system.

Section 4 Echinoderms (continued)

**Main Idea**

**Types of Echinoderms**

I found this information on page \_\_\_\_\_.

**Value of Echinoderms**

I found this information on page \_\_\_\_\_.

**Details**

**Classify** the types of echinoderms, and identify one characteristic of each in the chart below.

Echinoderms	
Type	Characteristics
Sea stars	have at least five arms that can regenerate if broken off

**Summarize** four reasons that echinoderms are important to ocean environments.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_

**CONNECT IT**

Predict in what part of the ocean echinoderms probably live.

Support your reasoning.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Mollusks, Worms, Arthropods, Echinoderms Chapter Wrap-Up

Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>	<b>L</b> <b>What I learned</b>

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three main ideas that you have learned that you did not know before.

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# Fish, Amphibians, and Reptiles

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Before You Read</b>	<b>Fish, Amphibians, and Reptiles</b>
	• All vertebrates are chordates.
	• Scales can be used to classify fish.
	• The health of amphibians can indicate the health of the environment.
	• Reptiles must lay their eggs in water.



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List two unique characteristics for each animal group you will be studying.*

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# Fish, Amphibians, and Reptiles

## Section 1 Chordates and Vertebrates

**Scan** the headings in Section 1 of your book. Predict three topics that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

*motor responses*

**Define** motor responses using your book or a dictionary.

\_\_\_\_\_

### New Vocabulary

**Read** the definitions below. Write the correct vocabulary term on the blank to the left of each definition.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

animal that at some point in its development has a notochord, postanal tail, nerve cord, and pharyngeal pouches

pairs of openings between the mouth and the digestive tube found in developing chordates

bones that surround and protect the spinal nerve cord

internal supportive and protective framework found in all vertebrates

tubelike structure that develops into the brain and spinal cord

muscular structure at the end of a developing chordate

flexible, firm structure that extends along the upper part of chordate's body

tough, flexible tissue that joins vertebrae and makes up all or part of the vertebrate endoskeleton

### Academic Vocabulary

*external*

**Use** a dictionary to define external as it might be used in science.

\_\_\_\_\_

Section 1 Chordates and Vertebrates (continued)

**Main Idea**

**Chordate Characteristics**

*I found this information on page \_\_\_\_\_.*

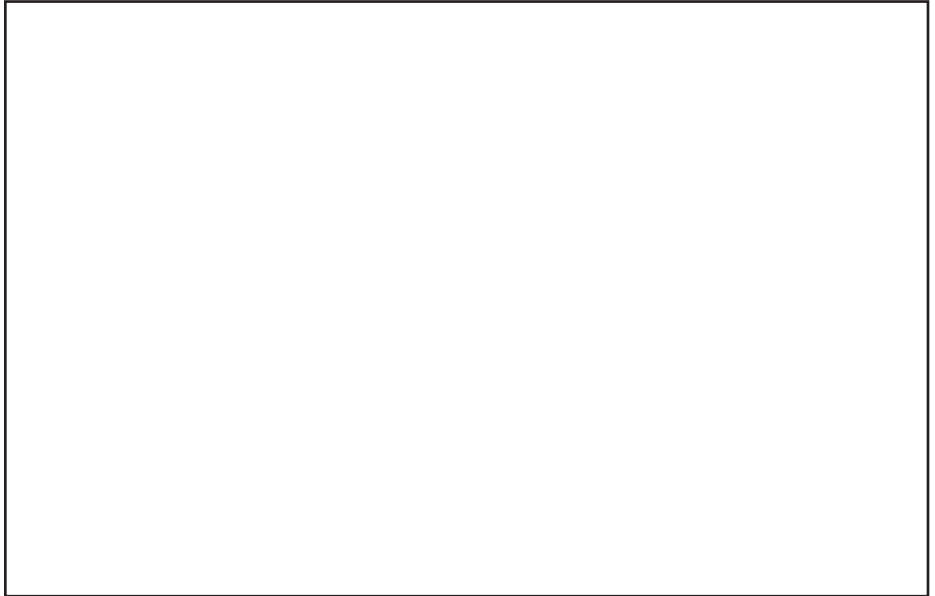
*I found this information on page \_\_\_\_\_.*

**Vertebrate Characteristics**

*I found this information on page \_\_\_\_\_.*

**Details**

**Model** *a* developing chordate. *Label its pharyngeal pouches, postanal tail, notochord, and nerve cord.*



**Summarize** *how the nerve cord develops in most chordates.*

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**Distinguish** *vertebrate chordates from nonvertebrate chordates. List characteristics of vertebrates that nonvertebrates do not have.*

1. internal framework or endoskeleton
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. sometimes have \_\_\_\_\_

Section 1 Chordates and Vertebrates (continued)

**Main Idea**

**Vertebrate Characteristics**

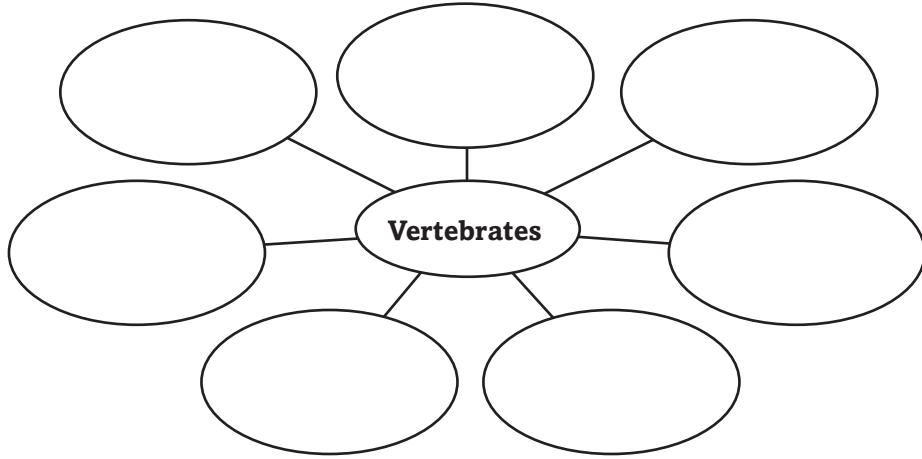
I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

Identify the 7 main groups of vertebrates.



Define ectotherm and endotherm. Provide a synonym (or word that means the same) and examples for each.

Ectotherm
Definition:
Synonym:
Examples:

Endotherm
Definition:
Synonym:
Examples:

Create a timeline to show when vertebrates, amphibians, reptiles, and mammals first appeared. Use a scale of 500 million years ago to the present time.

# Fish, Amphibians, and Reptiles

## Section 2 Fish

**Skim** Section 2 of your book. Write three questions that come to mind. Look for answers to your questions as you read the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** streamline using your book or a dictionary.

streamline

\_\_\_\_\_  
\_\_\_\_\_

### New Vocabulary

Use your book or a dictionary to define the following terms.

lateral line

\_\_\_\_\_  
\_\_\_\_\_

fin

\_\_\_\_\_  
\_\_\_\_\_

spawning

\_\_\_\_\_  
\_\_\_\_\_

scales

\_\_\_\_\_  
\_\_\_\_\_

swim bladder

\_\_\_\_\_  
\_\_\_\_\_

### Academic Vocabulary

Use a dictionary to define detect as it would be used in science.

detect

\_\_\_\_\_  
\_\_\_\_\_



Section 2 Fish (continued)

**Main Idea**

**Details**

**Fish Characteristics**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Summarize** information about structures and functions of fish fins and scales.

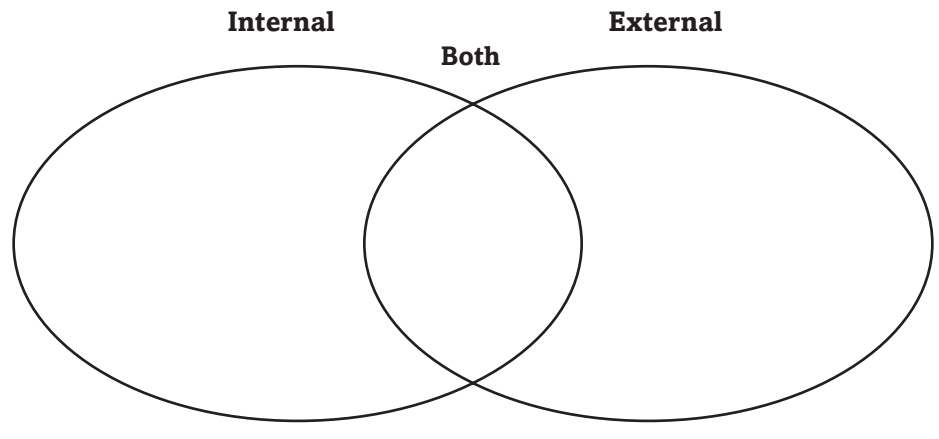
**Fins are** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Scales are** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Sequence** the steps of fish respiration that take place when a fish obtains oxygen and gets rid of carbon dioxide.

1. A fish takes water into its \_\_\_\_\_.
2. Water passes over the \_\_\_\_\_, which contain many tiny \_\_\_\_\_.
3. \_\_\_\_\_ from the water is exchanged with \_\_\_\_\_ from the blood.
4. Water containing \_\_\_\_\_ passes out through openings on the sides of the fish.

**Compare** internal and external fertilization in fish by completing the Venn diagram with at least three facts.



Section 2 Fish (continued)

**Main Idea**

**Types of Fish**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Details**

**Organize** information about the 3 groups of fish by completing the chart.

The Three Groups of Fish		
Group	Description	Examples
Jawless fish		
Jawed cartilaginous fish		
Bony fish		

**Model** the body of a typical bony fish by sketching a cutaway view of one. Label its nostrils, mouth, gills, brain, heart, liver, stomach, intestine, scales, bony vertebrae, and swim bladder.

**CONNECT IT**

Analyze how other organisms in a lake might be affected if all the fish living in it disappeared.

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# Fish, Amphibians, and Reptiles

## Section 3 Amphibians

**Scan** the What You'll Learn statements for Section 3 of your book. Identify three topics that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

*habitat*

**Define** habitat using your book or a dictionary.

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### New Vocabulary

**Read** the definitions below. Write the correct vocabulary term on the blank to the left of each definition.

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inactivity in hot, dry months

developmental process in which most amphibians change their body form to become adults

time of inactivity and slowed metabolism during cold weather

species whose overall health reflects the health of the ecosystem in which it lives

### Academic Vocabulary

*contact*

**Use** a dictionary to define contact as it might be used in science. Then write a sentence that includes the term.

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Section 3 Amphibians (continued)

**Main Idea**

**Amphibian Characteristics**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

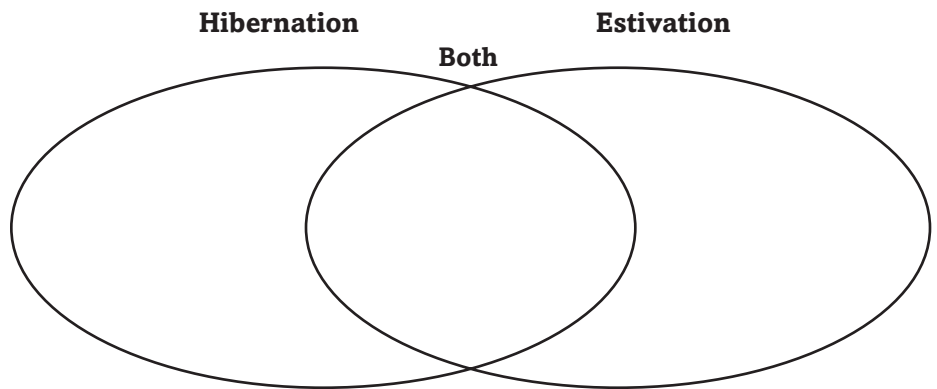
I found this information on page \_\_\_\_\_.

**Details**

Complete the chart about amphibians.

Amphibians	
Definition	
Origin of name	
Examples	

Compare and contrast amphibian hibernation with estivation by completing the Venn diagram with at least four facts.



Summarize amphibian respiration and circulation in the outline.

**I. Gas exchange**

**A.** Skin is thin, \_\_\_\_\_, and lined with \_\_\_\_\_.

**B.** Lungs are small and \_\_\_\_\_.

**II. Three-chambered heart**

**A.** First chamber \_\_\_\_\_  
\_\_\_\_\_.

**B.** Second chamber \_\_\_\_\_  
\_\_\_\_\_.

**C.** Third chamber \_\_\_\_\_  
\_\_\_\_\_.

Section 3 Amphibians (continued)

**Main Idea**

**Amphibian Characteristics**

I found this information on page \_\_\_\_\_.

**Frogs and Toads and Salamanders**

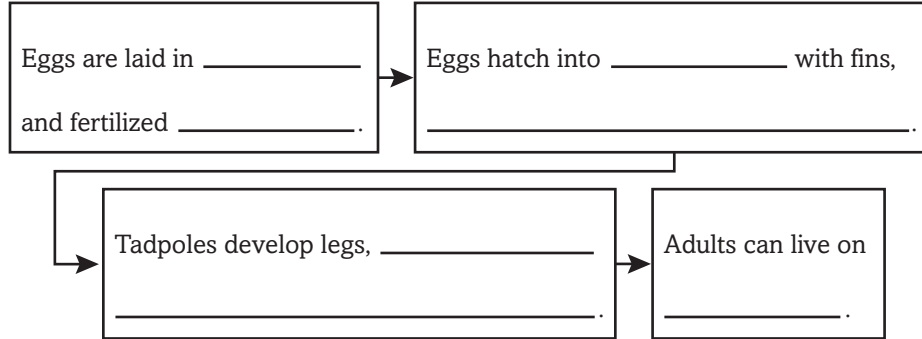
I found this information on page \_\_\_\_\_.

**Importance of Amphibians**

I found this information on page \_\_\_\_\_.

**Details**

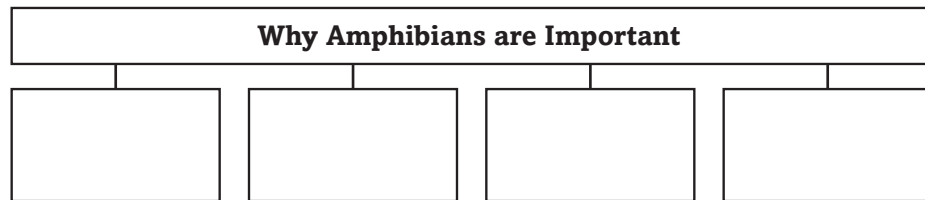
**Sequence** reproduction *and* development in amphibians.



**Classify** amphibians by completing the chart.

Amphibian Groups		
	Frogs and Toads	Salamanders and Newts
Body structure		
Feeding habits		
Reproduction		

**Identify** four ways that amphibians are important to humans.



**CONNECT IT**

Think about where amphibians spend their lives. Analyze how this might make them important biological indicators.

\_\_\_\_\_

\_\_\_\_\_

# Fish, Amphibians, and Reptiles

## Section 4 Reptiles

**Skim** Section 4 of your book. Write three questions that come to mind. Look for answers to your questions as you read the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** *bask* using your book or a dictionary.

*bask*

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### New Vocabulary

Use your book or a dictionary to define the vocabulary term. Then use the term in a sentence that shows its scientific meaning.

*amniotic egg*

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### Academic Vocabulary

Use a dictionary to define *interpret* as it might be used in science.

*interpret*

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Section 4 Reptiles (continued)

**Main Idea**

**Details**

**Reptile Characteristics**

*I found this information on page \_\_\_\_\_.*

**Summarize** reptiles *by completing the chart.*

Characteristics of Reptiles	
Characteristic	Description or Function
Skin	
Scales	
Movement	
Body Temperature	
Circulation	
Respiration	

*I found this information on page \_\_\_\_\_.*

**Model** *the structure of the amniotic egg. Label the embryo, shell, yolk sac, egg membrane, and air space.*

Section 4 Reptiles (continued)

**Main Idea**

**Types of Modern Reptiles**

*I found this information on page \_\_\_\_\_.*

**The Importance of Reptiles**

*I found this information on page \_\_\_\_\_.*

**Details**

**Complete** *the outline about the major groups of modern reptiles.*

**I. Lizards**

**A. Body:**

1. Jaw has \_\_\_\_\_

2. Toes have \_\_\_\_\_

**B. Feeding:** eat \_\_\_\_\_

**II. Snakes**

**A. Jaw:**

1. Has joint that \_\_\_\_\_

2. Lower jaw bone used to \_\_\_\_\_

**B. Have no legs**

**III. Turtles**

**A. Body:**

1. Jaw is \_\_\_\_\_

2. Shell consists of \_\_\_\_\_

**B. Feeding:** eat \_\_\_\_\_

**IV. Crocodylians**

**A. Body:**

1. Shape is \_\_\_\_\_

2. Head

a. Crocodile: \_\_\_\_\_

b. Alligator: \_\_\_\_\_

c. Gavial: \_\_\_\_\_

**B. Feeding:** eat \_\_\_\_\_

**V. The Importance of Reptiles**

**A.** \_\_\_\_\_

**B.** \_\_\_\_\_

**SUMMARIZE IT**

Identify three reptile adaptations that help them survive on land.

\_\_\_\_\_  
\_\_\_\_\_



# Fish, Amphibians, and Reptiles

## Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Fish, Amphibians, and Reptiles</b>	<b>After You Read</b>
• All vertebrates are chordates.	
• Scales can be used to classify fish.	
• The health of amphibians can indicate the health of the environment.	
• Reptiles must lay their eggs in water.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three main ideas that you have learned that you did not know before.

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# Birds and Mammals

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Before You Read</b>	<b>Birds and Mammals</b>
	• A bird has a crop instead of a stomach.
	• Wings are important for nonflying birds.
	• Marsupials are mammals that lay eggs.
	• Bats help pollinate flowers.



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List similar characteristics of a mammal and a bird. What characteristics are different?*

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# Birds and Mammals

## Section 1 Birds

**Scan** the headings in Section 1. Identify three topics that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*thrust*

**Define** thrust using your book or a dictionary.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*contour feather*

Use your book or a dictionary to define the following terms. Then use each term in a sentence to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*endotherm*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*preening*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*migrate*

Use a dictionary to define migrate to reflect its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

Section 1 Birds (continued)

**Main Idea**

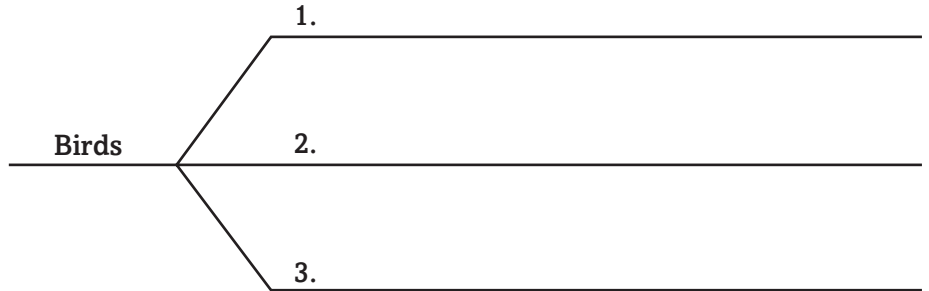
**Bird Characteristics**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the graphic organizer below with three common bird characteristics.



**Summarize** how each structure of a bird's body is adapted for flight. Complete the chart.

Adaptations for Flight	
Adaptation	Description
Skeleton	
Contour feathers	
Wings	

Section 1 Birds (continued)

**Main Idea**

**Body Systems**

I found this information on page \_\_\_\_\_.

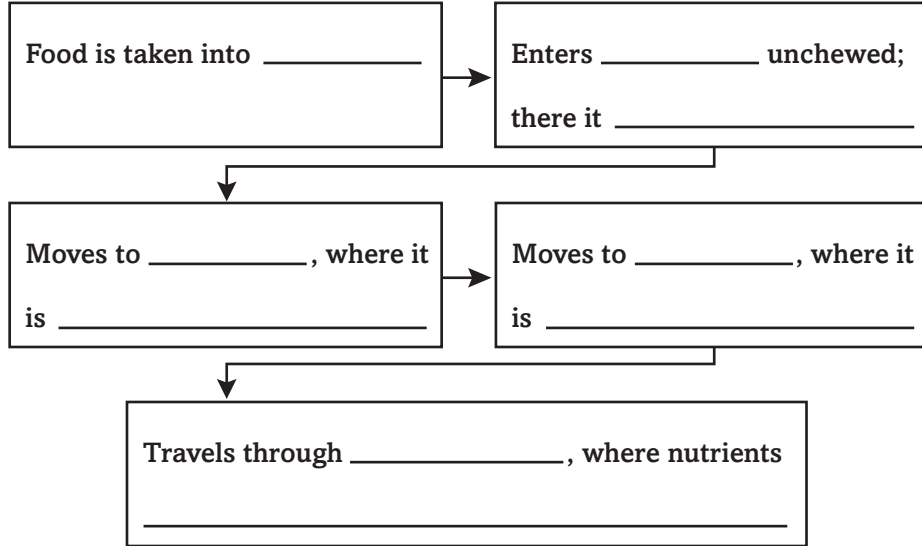
I found this information on page \_\_\_\_\_.

**The Importance of Birds**

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** *the steps in a bird's digestive process in the flow chart.*



**Summarize** *how birds' respiratory and circulatory systems provide muscles with sufficient oxygen.*

Respiratory System	Circulatory System

**Summarize** *three ways birds positively affect human life.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**SYNTHESIZE IT**

List at least three products used in homes that come from birds.

\_\_\_\_\_

\_\_\_\_\_

# Birds and Mammals

## Section 2 Mammals

**Skim** Section 2 of your book. Write three questions that come to mind. Look for answers to your questions as you read the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** gland using your book or a dictionary.

*gland*

\_\_\_\_\_

**New Vocabulary**

Use your book to define the following terms.

*mammary gland*

\_\_\_\_\_

\_\_\_\_\_

*gestation period*

\_\_\_\_\_

\_\_\_\_\_

*umbilical cord*

\_\_\_\_\_

\_\_\_\_\_

*carnivore*

\_\_\_\_\_

\_\_\_\_\_

*herbivore*

\_\_\_\_\_

\_\_\_\_\_

*omnivore*

\_\_\_\_\_

\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define attach to reflect its scientific meaning.

*attach*

\_\_\_\_\_

Section 2 Mammals (continued)

**Main Idea**

**Details**

**Characteristics of Mammals**

I found this information on page \_\_\_\_\_.

**Create** a graphic organizer to identify at least four characteristics of mammals.

**Body Systems**

I found this information on page \_\_\_\_\_.

**Summarize** mammal body systems. Write two facts for each.

<b>Mammal Body Systems</b>	
<b>System</b>	<b>Description</b>
Circulatory	
Respiratory	
Nervous	
Digestive	

Section 2 Mammals (continued)

**Main Idea**

**Types of Mammals**

I found this information on page \_\_\_\_\_.

**Importance of Mammals**

I found this information on page \_\_\_\_\_.

**Details**

Compare the 3 types of mammals by completing the chart below.

Types of Mammals		
Type	How Bear Young	Example
Monotremes		
	give birth to immature young that usually crawl into pouch on female's abdomen	
		human

Complete the outline below.

**A. Mammals help keep balance in the ecosystem**

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

**B. Some mammals are in danger**

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

**CONNECT IT**

A drought kills many of the plants upon which the local herbivores rely upon. Might this affect the local carnivores as well? Explain.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# Birds and Mammals Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Birds and Mammals</b>	<b>After You Read</b>
• A bird has a crop instead of a stomach.	
• Wings are important for nonflying birds.	
• Marsupials are mammals that lay eggs.	
• Bats help pollinate flowers.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three key facts that you have learned that you did not know before.

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# Animal Behavior

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Animal Behavior
	• A bird must learn how to build a nest.
	• A gosling follows the first moving object it sees after hatching.
	• Some animals may show submissive behavior to prevent another animal from attacking.
	• Many animals move to new locations when the seasons change.



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*What behaviors might an animal use to signal that a territory is occupied?*

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# Animal Behavior

## Section 1 Types of Behavior

**Skim** the What You'll Learn statements in Section 1. Predict three topics that you expect will be discussed in this section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

salivate

**Define** salivate to show its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

Read the definitions below. Write the correct vocabulary terms on the blanks in the left column.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

way an organism interacts with other organisms and its environment

behavior that an organism is born with and that does not need to be learned

animal's formation of a social attachment to another organism during a specific period following birth or hatching

modifying behavior so that a response to one stimulus becomes associated with a different stimulus

form of reasoning that allows animals to use past experiences to solve new problems

**Academic Vocabulary**

internal

**Use a dictionary to define** internal to show its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

Section 1 Types of Behavior (continued)

**Main Idea**

**Behavior**

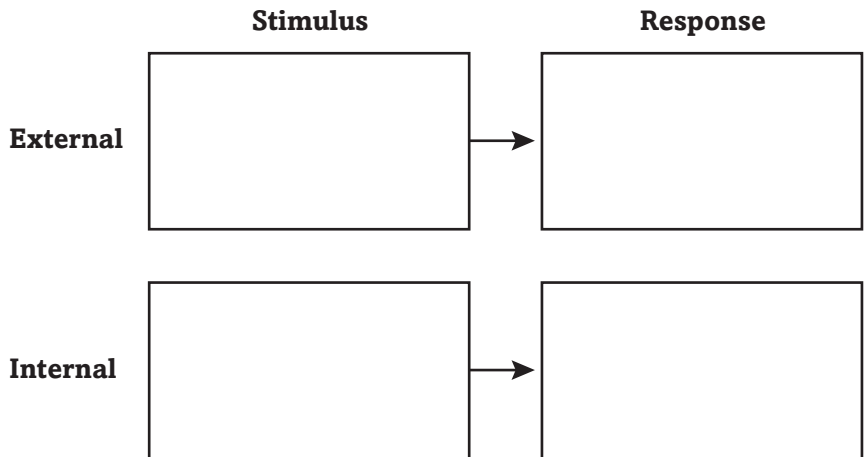
I found this information on page \_\_\_\_\_.

**Innate Behavior**

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the flow charts with examples of internal and external stimuli and responses.



**Identify** two types of innate behavior. Define them and provide at least two examples of each.

Innate Behaviors		
Type of Behavior	What It Is	Examples

Section 1 Types of Behavior (continued)

**Main Idea**

**Details**

**Learned Behavior**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Analyze** *the importance of learned behavior for animals.*

Learned behaviors help animals \_\_\_\_\_  
 \_\_\_\_\_. Animals that can learn are \_\_\_\_\_  
 \_\_\_\_\_ than those that cannot. Learned behavior is most  
 commonly found in animals with \_\_\_\_\_ life spans.

**Summarize** *four ways behaviors are learned.*

Behavior Name: Example:	Behavior Description: An animal forms a social attachment within a short time after birth or hatching.
Behavior Name: Example:	Behavior Description:
Behavior Name: Example:	Behavior Description:
Behavior Name: Example:	Behavior Description:

**CONNECT IT**

Moths move toward light. Cockroaches move away from it.

What type of behavior is this? Would these animals be able to change this behavior?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Animal Behavior

## Section 2 Behavioral Interactions

**Scan** Section 2 by reading the headings and examining the illustrations. Then write three questions that you hope to answer as you read the section. Look for the answers as you read.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**Review Vocabulary**

**Define** nectar to show its scientific meaning.

*nectar*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Use your book to define the following terms. Then use each term in a sentence.

*pheromone*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*cyclic behavior*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*migration*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

**Define** dominate to show its scientific meaning.

*dominate*

\_\_\_\_\_

Section 2 Behavioral Interactions (continued)

**Main Idea**

**Instinctive Behavior Patterns**

I found this information on page \_\_\_\_\_.

**Social Behavior**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Territorial Behavior**

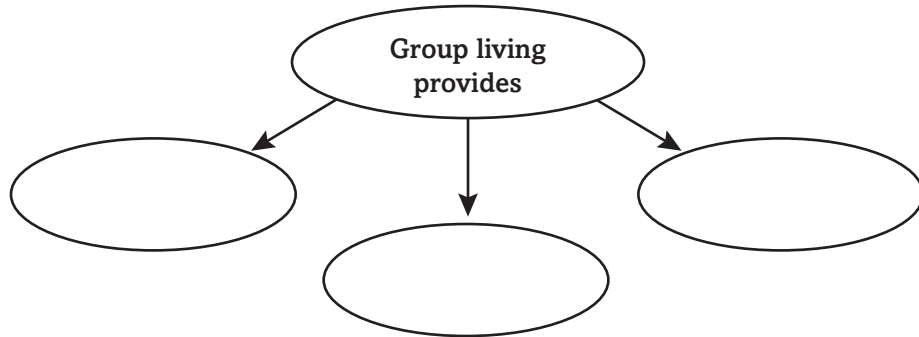
I found this information on page \_\_\_\_\_.

**Details**

**Identify** two instinctive ritual animal behaviors.

1. \_\_\_\_\_
2. \_\_\_\_\_

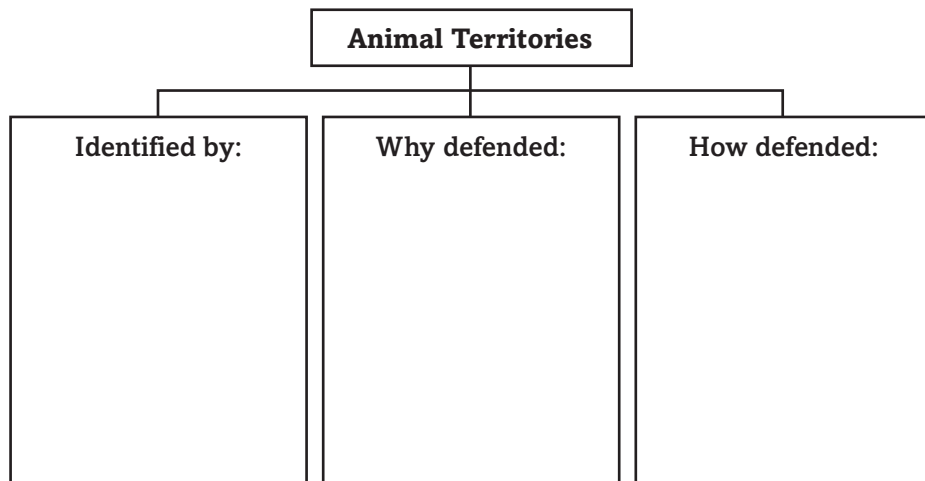
**Identify** three advantages for animals living in groups.



**Summarize** the key features of a society in the paragraph below.

A society is \_\_\_\_\_  
 \_\_\_\_\_ . Members of societies have specific roles. In societies that are organized by dominance, \_\_\_\_\_  
 \_\_\_\_\_ .

**Organize** information about territorial behavior. Identify how animals mark their territories and why and how they defend them.



Section 2 Behavioral Interactions (continued)

**Main Idea**

**Communication**

I found this information on page \_\_\_\_\_.

**Details**

**Classify** types of animal communication. Complete the table below.

Type of Communication	What It Is	Example
	behaviors that allow males and females of a species to recognize and mate with each other	
Chemical communication		
	Animals make sounds to communicate with other animals of the same species.	
		firefly giving off a flash of light to attract a mate

**Cyclic Behavior**

I found this information on page \_\_\_\_\_.

**Define** each of the following cyclic behaviors.

circadian rhythm: \_\_\_\_\_  
 \_\_\_\_\_

hibernation: \_\_\_\_\_  
 \_\_\_\_\_

estivation: \_\_\_\_\_  
 \_\_\_\_\_



# Animal Behavior Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Animal Behavior</b>	<b>After You Read</b>
• A bird must learn how to build a nest.	
• A gosling follows the first moving object it sees after hatching.	
• Some animals may show submissive behavior to prevent another animal from attacking.	
• Many animals move to new locations when the seasons change.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three things that you have learned about animal behavior.

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# Structure and Movement

## Before You Read

*Preview the chapter title, section titles, and section headings. Complete the first two columns of the chart by listing at least two ideas for each section in each column.*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Imagine that your body did not have a support system. Describe how you might perform your daily activities.*

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# Structure and Movement

## Section 1 The Skeletal System

**Skim** the headings in Section 1. Write three questions that come to mind about bones and joints.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*skeleton*

**Define** skeleton to show its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

Write the correct vocabulary word next to each definition.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

smooth, slippery, thick layer of tissue that covers the ends of bones

tough band of tissue that holds bones together at joints

tough, tight-fitting membrane that covers a living bone's surface

all of the bones in the body

place where two or more bones come together

**Academic Vocabulary**

*transfer*

Use a dictionary to define transfer as a verb.

\_\_\_\_\_

\_\_\_\_\_

Section 1 The Skeletal System (continued)

**Main Idea**

**Living Bones**

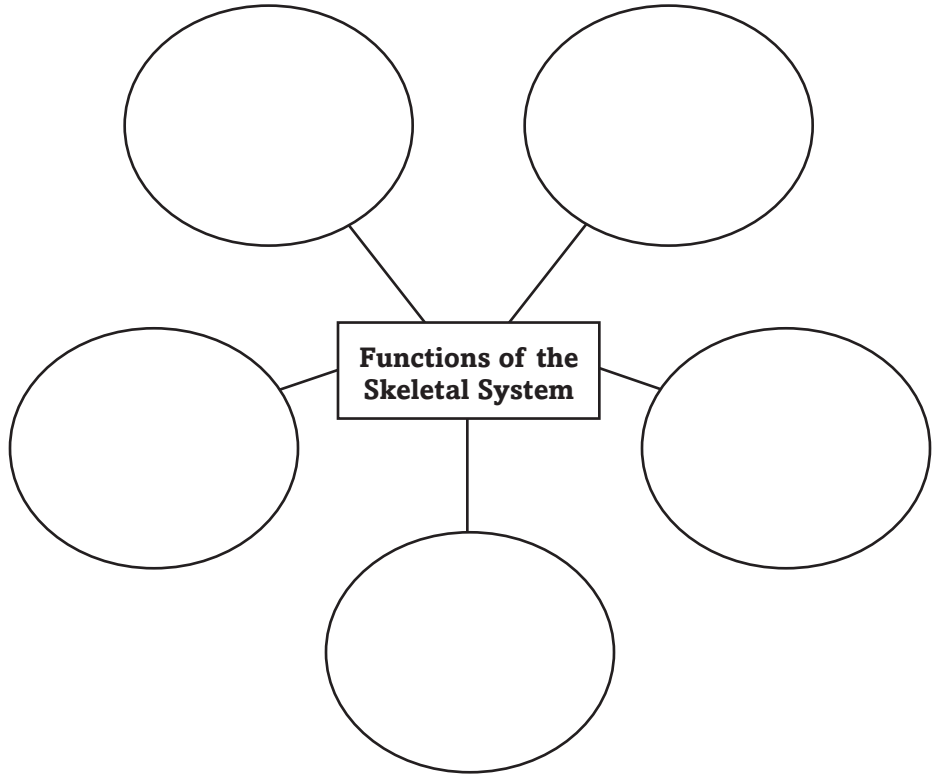
I found this information on page \_\_\_\_\_.

**Bone Structure**

I found this information on page \_\_\_\_\_.

**Details**

**Organize** information about the functions of the skeletal system. Complete the concept web.



**Summarize** the functions of the following five parts of a bone.

Periosteum: \_\_\_\_\_  
\_\_\_\_\_

Compact bone: \_\_\_\_\_  
\_\_\_\_\_

Spongy bone: \_\_\_\_\_  
\_\_\_\_\_

Marrow cavity: \_\_\_\_\_  
\_\_\_\_\_

Cartilage: \_\_\_\_\_  
\_\_\_\_\_

Section 1 The Skeletal System (continued)

**Main Idea**

**Details**

**Bone Formation**

I found this information on page \_\_\_\_\_.

**Joints**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Sequence** *the steps of bone formation.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Classify** *the five types of joints. Describe and give an example of each.*

Type	Description	Example
Immovable		
Pivot		
Ball-and-socket		
Hinge		
Gliding		

**Analyze** *the role of cartilage in bone movement and what happens if bones cannot move smoothly.*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SYNTHESIZE IT**

Suppose that the joints in your shoulders were hinge joints. Evaluate how this would change your daily life.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Structure and Movement

## Section 2 The Muscular System

**Predict** three topics that will be covered in Section 2. Read the section headings, and look at the illustrations to help you make your predictions.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** bone to show its scientific meaning.

*bone*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Write the correct vocabulary term next to each definition.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

involuntary striated muscle found only in the heart

muscle that can be consciously controlled

muscle that moves bones

muscle that cannot be consciously controlled

thick band of tissue that attaches muscles to bones

organ that can relax, contract, and provide the force to move bones and body parts

involuntary, nonstriated muscle found in intestines, bladder, blood vessels, and other organs

**Academic Vocabulary**

**Define** flexible as an adjective.

*flexible*

\_\_\_\_\_  
\_\_\_\_\_

Section 2 The Muscular System (continued)

**Main Idea**

**Details**

**Movement of the Human Body**

*I found this information on page \_\_\_\_\_.*

**Summarize** *the role of muscles in the body.*

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**Contrast** *voluntary and involuntary muscles. Complete the chart.*

Muscle Type	Consciously controlled	Examples
Voluntary		
Involuntary		

**Your Body's Simple Machines—Levers**

*I found this information on page \_\_\_\_\_.*

**Model** *the types of levers found in the human body.*

- Draw each type of lever, and label the fulcrum, load, and direction of force.
- Give an example of where the lever is located in the body.

**First-class lever**

Example: \_\_\_\_\_

**Second-class lever**

Example: \_\_\_\_\_

**Third-class lever**

Example: \_\_\_\_\_

Section 2 The Muscular System (continued)

**Main Idea**

**Classification of Muscle Tissue**

I found this information on page \_\_\_\_\_.

**Working Muscles**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Compare and contrast** *the three types of muscle tissue.*

Type of Muscle	Voluntary or Involuntary	Where Found in the Body
Skeletal muscle		
Cardiac muscle		
Smooth muscle		

**Summarize** *how muscles work in pairs.*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Sequence** *how muscles are fueled by filling in the missing words.*

Blood carries \_\_\_\_\_ to your muscle cells. When your muscles contract, \_\_\_\_\_ from these molecules is converted to \_\_\_\_\_ and \_\_\_\_\_. When the supply of \_\_\_\_\_ in the muscle is \_\_\_\_\_, the muscle becomes \_\_\_\_\_. As the muscle \_\_\_\_\_, blood brings more \_\_\_\_\_ to your muscle cells.

**CONNECT IT**

Suppose a woman began riding her bike more regularly instead of watching TV. Evaluate what kinds of changes in her leg muscles she might start seeing. Explain why this occurs.

\_\_\_\_\_

\_\_\_\_\_



# Structure and Movement

## Section 3 The Skin

**Preview** *the What You'll Learn statements for Section 3. Predict three topics that you will study in this section.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

*vitamin*

**Define** *vitamin to show its scientific meaning.*

---

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---

### New Vocabulary

*epidermis*

**Define** *each vocabulary term.*

---

---

*melanin*

---

---

*dermis*

---

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### Academic Vocabulary

*layer*

**Use a dictionary to define** *layer as a noun. Then find a sentence in Section 3 that uses the term.*

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Section 3 The Skin (continued)

**Main Idea**

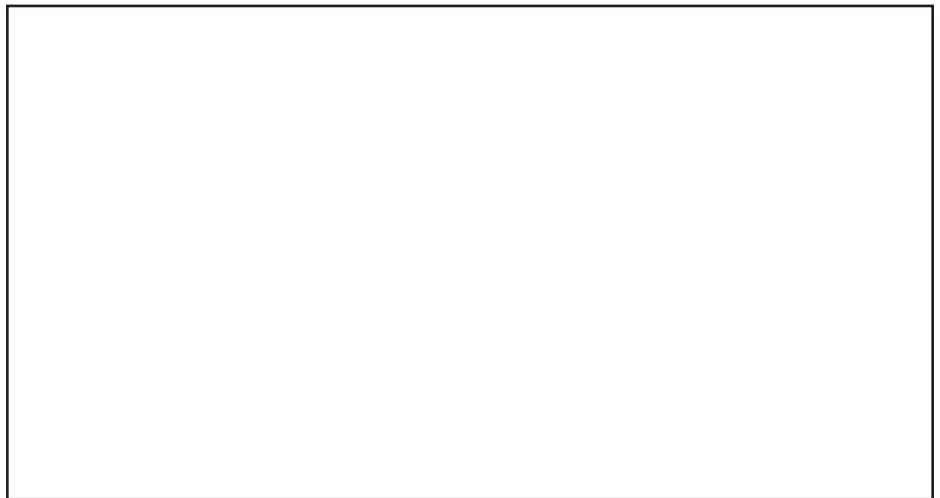
**Your Largest Organ and Skin Structures**

I found this information on page \_\_\_\_\_.

**Details**

**Create** a cross-section drawing of the skin. Label the following structures.

- blood vessels
- dermis
- epidermis
- fatty layer
- hairs
- hair follicles
- nerve endings
- oil glands
- sweat gland
- sweat pore



**Write** captions summarizing key facts about the dermis and epidermis.

Dermis: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Epidermis: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Analyze** the role of melanin in the body.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I found this information on page \_\_\_\_\_.

Section 3 The Skin (continued)

**Main Idea**

**Details**

**Skin Functions**

I found this information on page \_\_\_\_\_.

**Distinguish** the five primary functions of the skin.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Skin Injuries and Repair**

I found this information on page \_\_\_\_\_.

**Summarize** how bruises form.

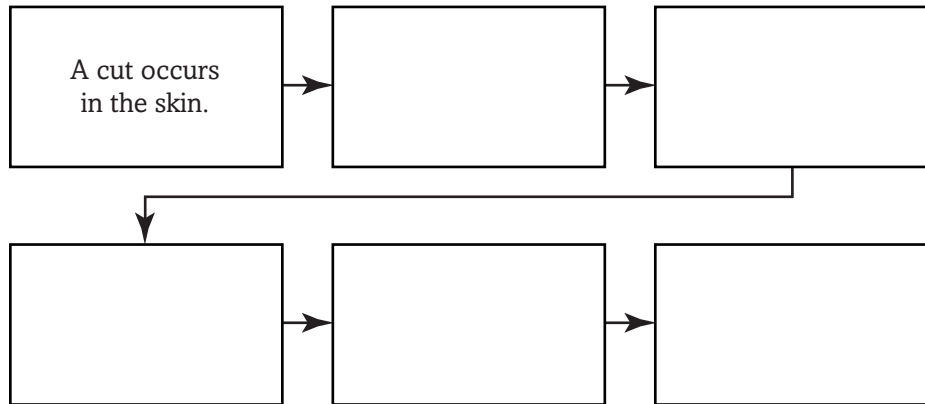
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

I found this information on page \_\_\_\_\_.

**Sequence** the steps as a cut heals.



**CONNECT IT**

Analyze why people with severe burns or other damage to large areas of their skin are especially vulnerable to infections. Explain how skin grafts help prevent infections.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

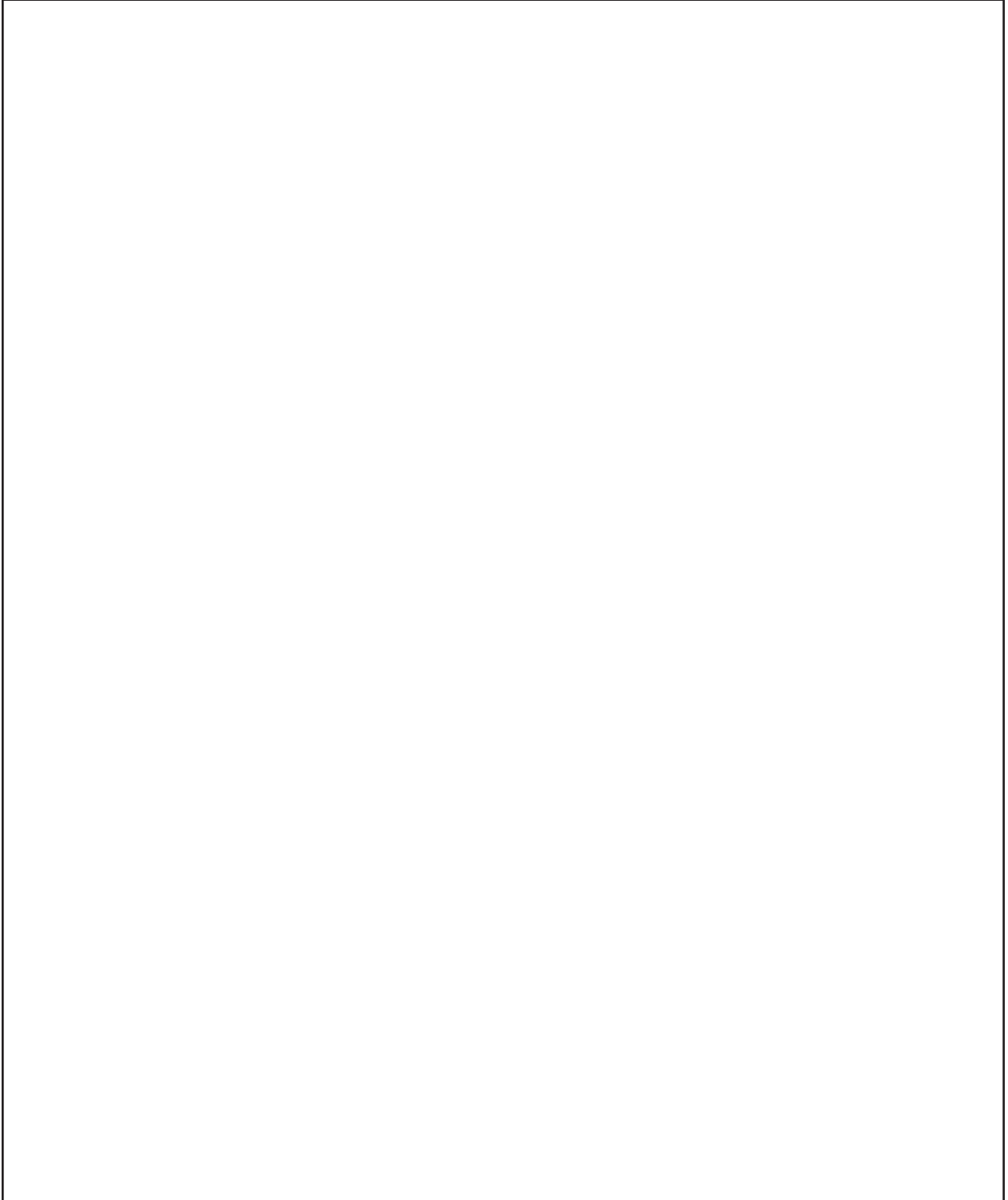
\_\_\_\_\_

# Tie It Together

## Structure and Movement

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*Design a model that shows how the skeletal and muscular systems work together to allow you to bend your elbow. Present your model to the class and explain how it works.*



# Structure and Movement

## Chapter Wrap-Up

*Review the ideas you listed in the chart at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the chart by filling in the third column. How do your ideas now compare with those you provided at the beginning of the chapter?*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>	<b>L</b> <b>What I learned</b>

### Review

*Use this checklist to help you study.*

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

What are the three most important ideas in this chapter?

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# Nutrients and Digestion

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Before You Read</b>	<b>Nutrients and Digestion</b>
	<ul style="list-style-type: none"> <li>• All foods provide the body with the same amount of energy.</li> </ul>
	<ul style="list-style-type: none"> <li>• What you eat does not affect your health.</li> </ul>
	<ul style="list-style-type: none"> <li>• Sixty percent of your body weight is made up of water.</li> </ul>
	<ul style="list-style-type: none"> <li>• There are bacteria in your digestive tract that make vitamins needed for health.</li> </ul>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Make a list of all the organs you think are part of your digestive system.*

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# Nutrients and Digestion

## Section 1 Nutrition

**Skim** the headings in Section 1 of this chapter. Write three questions that come to mind.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*molecule*

**Define** molecule to show its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

*nutrient/food group*

Write a sentence that contains both words in each pair.

\_\_\_\_\_

\_\_\_\_\_

*protein/amino acid*

\_\_\_\_\_

\_\_\_\_\_

*carbohydrate/fat*

\_\_\_\_\_

\_\_\_\_\_

*vitamin/mineral*

\_\_\_\_\_

\_\_\_\_\_

**Academic Vocabulary**

*energy*

Use a dictionary to define energy to show its scientific meaning.

\_\_\_\_\_

\_\_\_\_\_

Section 1 Nutrition (continued)

**Main Idea**

**Why do you eat?**

I found this information on page \_\_\_\_\_.

**Classes of Nutrients**

I found this information on page \_\_\_\_\_.

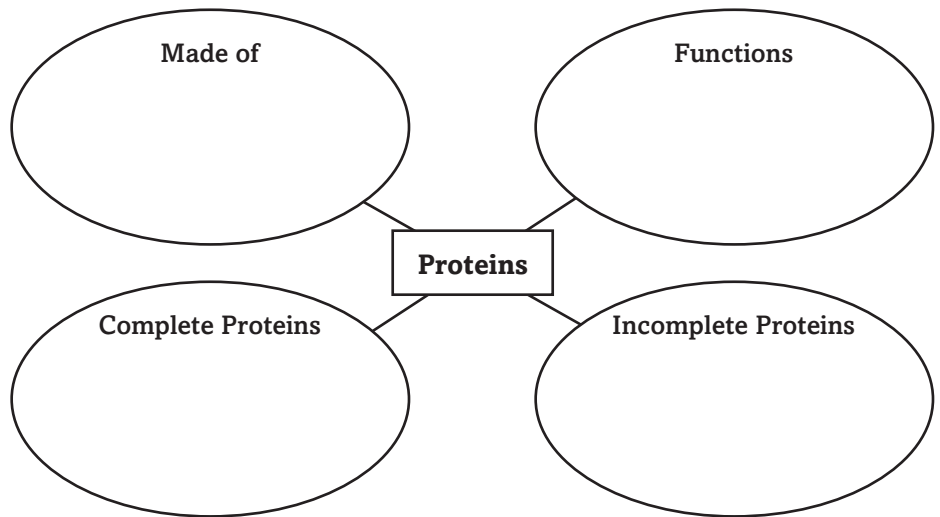
I found this information on page \_\_\_\_\_.

**Details**

**Define** calorie *by completing the statement below.*

Calorie: the amount of heat necessary to \_\_\_\_\_ the temperature of \_\_\_\_\_ of water \_\_\_\_\_.

**Complete** the graphic organizer with key information about proteins.



**Compare** carbohydrates and fats *by completing the chart.*

	Carbohydrates	Fats
Main function(s)		supply energy; help the body absorb vitamins; cushion internal organs
Groups	simple	
Examples		vegetable oils, fats found in meat and animal products



Section 1 Nutrition (continued)

**Main Idea**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Food Groups**

I found this information on page \_\_\_\_\_.

**Details**

**Classify** vitamins by completing the chart.

Vitamin	Soluble in	Most Beneficial to
A		
B		
C		
D		
E		
K		

**Summarize** why water is an important nutrient.

---



---

**Model** serving size for different food categories.

Group	Servings per Day	Serving Size
bread and cereal		
fruits		
vegetables		
milk		
meat, poultry, fish, beans, eggs		

**CONNECT IT**

What is the purpose of the food pyramid?

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# Nutrients and Digestion

## Section 2 The Digestive System

**Preview** Section 2 by restating the What You'll Learn statements as questions. Answer each question as you study.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

**Review Vocabulary**

*bacteria*

**Define** bacteria to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Read the definitions below. Write the correct vocabulary term on the blank in the left column.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

process that breaks down food into small molecules

breakdown of food through chewing, mixing, and churning

occurs when chemical reactions break down large molecules of food into smaller ones

protein that speeds up chemical reactions in the body

muscular contractions that move food through the digestive tract

watery liquid released by the stomach to the small intestine

fingerlike projections covering the wall of the small intestine

**Academic Vocabulary**

*area*

Use a dictionary to define area to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

Section 2 The Digestive System (continued)

**Main Idea**

**Details**

**Functions of the Digestive System**

I found this information on page \_\_\_\_\_.

**Enzymes**

I found this information on page \_\_\_\_\_.

**Organs of the Digestive System**

I found this information on page \_\_\_\_\_.

**Identify** the four stages of processing food that occur in the human body.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**Organize** information about digestive enzymes.

Enzyme	Role in digestion
Amylase	
	helps break down proteins
Pancreatic enzymes	

**Draw and label** the parts of the human digestive system.

- Color the organs through which food passes one color.
- Color the accessory organs another color. Include the: tongue, mouth, rectum, small intestine, pancreas, anus, stomach, gallbladder, liver, large intestine, esophagus, *and* salivary glands.

Section 2 The Digestive System (continued)

**Main Idea**

*I found this information on page \_\_\_\_\_.*

**Details**

**Organize** information about what happens in the digestive tract.

- List the sections of the digestive tract in the first column.
- Place a checkmark in the appropriate columns showing what occurs in each section.

Section of Digestive Tract	What Occurs		
	Mechanical Digestion	Chemical Digestion	Absorption

**Bacteria Are Important**

*I found this information on page \_\_\_\_\_.*

**Complete** the table on two types of essential vitamins made by bacteria in the digestive tract.

Vitamin	Function in Body
Vitamin K	
B vitamins	

**ANALYZE IT**

Choose one organ of the digestive system and describe its role in digestion.

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# Nutrients and Digestion Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Nutrients and Digestion	After You Read
• All foods provide the body with the same amount of energy.	
• What you eat does not affect your health.	
• Sixty percent of your body weight is made up of water.	
• There are bacteria in your digestive tract that make vitamins needed for health.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

List three important ideas in the chapter.

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# Circulation

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Circulation
	<ul style="list-style-type: none"> <li>• The human heart has four chambers.</li> </ul>
	<ul style="list-style-type: none"> <li>• Arteries are blood vessels that carry blood to the heart.</li> </ul>
	<ul style="list-style-type: none"> <li>• Platelets are cell fragments that help fight bacteria and viruses.</li> </ul>
	<ul style="list-style-type: none"> <li>• Lymphatic vessels are like veins in that they have valves.</li> </ul>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Infer how the circulatory system provides your body with the nutrients it needs to stay healthy.*

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# Circulation

## Section 1 The Circulatory System

**Scan** Section 1 of your book. Read the headings and look at the illustrations. Predict three things that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*heart*

**Define** heart using your book or a dictionary.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Read the definitions below. Write the correct vocabulary terms on the blanks in the left column.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

two upper chambers of the heart that contract at the same time

two lower chambers of the heart that contract at the same time

flow of blood to and from the tissues of the heart

flow of blood through the heart to the lungs and back to the heart

flow of blood from the heart to all of the organs and body tissues, except the heart and lungs, with oxygen-poor blood returning to the heart

blood vessel that carries blood away from the heart

blood vessel that carries blood back to the heart

microscopic blood vessel that connects arteries and veins

**Academic Vocabulary**

*transport*

Use a dictionary to define transport as it would be used in science.

\_\_\_\_\_  
\_\_\_\_\_

Section 1 The Circulatory System (continued)

**Main Idea**

**How Materials Move Through the Body**

I found this information on page \_\_\_\_\_.

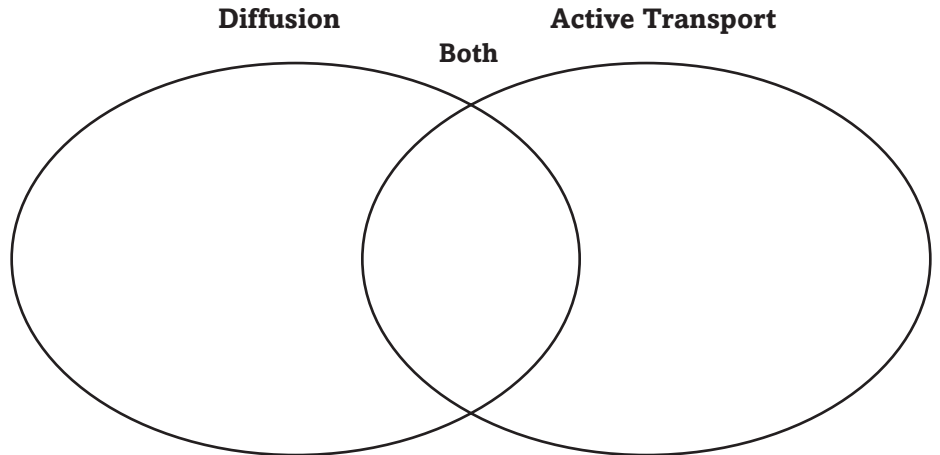
**The Heart**

I found this information on page \_\_\_\_\_.

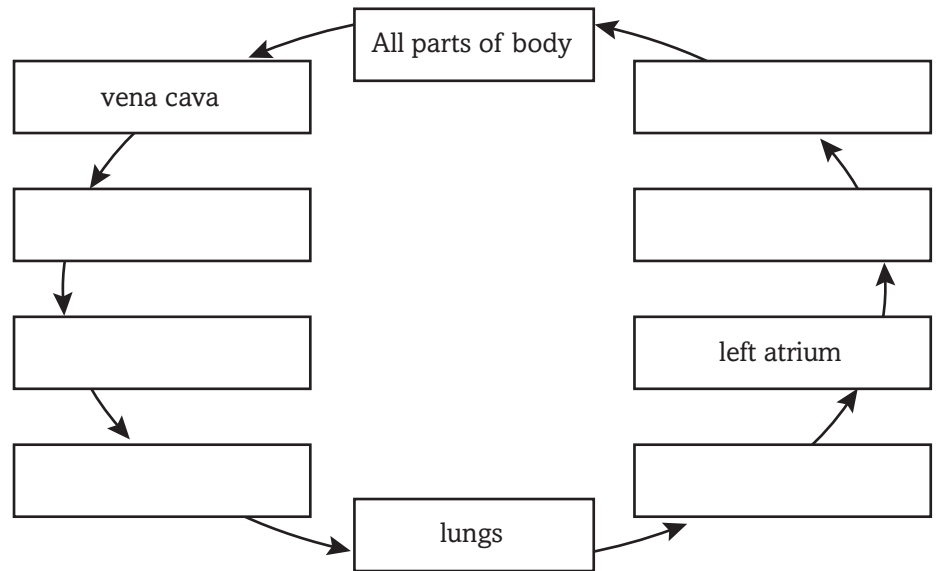
I found this information on page \_\_\_\_\_.

**Details**

**Compare and contrast** diffusion *and* active transport by completing the Venn diagram with at least five facts.



**Sequence** the stages in pulmonary circulation by completing the flow diagram. Include aorta, pulmonary veins, pulmonary arteries, right atrium, left atrium, and right ventricle.



**Summarize** the exchange that occurs between a systemic capillary and the tissue cells it serves.

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Section 1 The Circulatory System (continued)

**Main Idea**

**Blood Vessels**

I found this information on page \_\_\_\_\_.

**Blood Pressure**

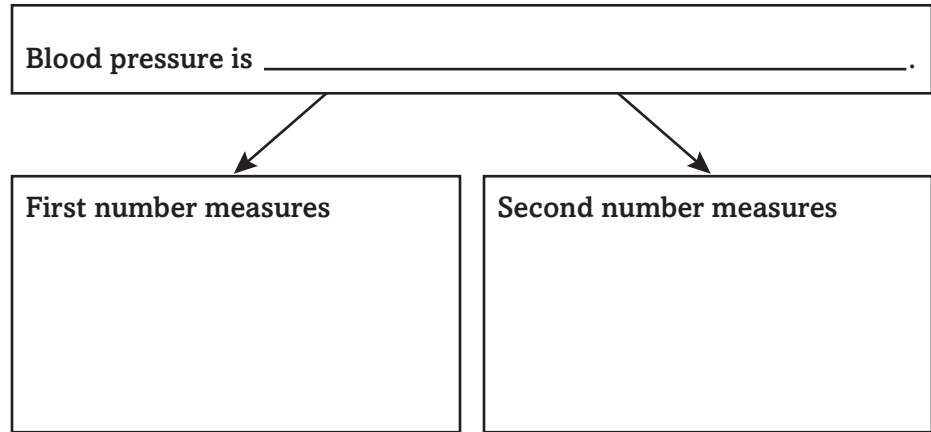
I found this information on page \_\_\_\_\_.

**Details**

**Classify** blood vessels *by completing the chart.*

Blood Vessels		
Type	Function	Description
Arteries		
Capillaries		
Veins		

**Define** blood pressure *and the two numbers used to measure it.*



**CONNECT IT**

A doctor may advise a patient to make lifestyle changes to help prevent cardiovascular disease. Identify several healthful habits the doctor might suggest.

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# Circulation

## Section 2 Blood

**Skim** Section 2 of your book. Write three questions that come to mind. Look for answers to your questions as you read the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** blood vessels using your book or a dictionary.

*blood vessels*

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### New Vocabulary

Use your book or a dictionary to define the following terms.

*platelet*

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*plasma*

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*hemoglobin*

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### Academic Vocabulary

Use a dictionary to define series as it would be used in science.

*series*

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Section 2 Blood (continued)

**Main Idea**

**Functions of Blood**

*I found this information on page \_\_\_\_\_.*

**Parts of Blood**

*I found this information on page \_\_\_\_\_.*

**Blood Clotting**

*I found this information on page \_\_\_\_\_.*

**Details**

**Create** a graphic organizer with facts about the functions of blood.

**Summarize** information about the parts of blood in the chart below.

Parts of Blood	
Part	Function
Plasma	
Red blood cells	
White blood cells	
Platelets	

**Sequence** the steps in wound healing by completing the blanks.

\_\_\_\_\_ stick to the wound and release \_\_\_\_\_  
 \_\_\_\_\_. Next, \_\_\_\_\_ forms a sticky net. The net  
 traps \_\_\_\_\_ and \_\_\_\_\_ to form a clot. The  
 \_\_\_\_\_ forms a \_\_\_\_\_. Then, \_\_\_\_\_  
 form under the \_\_\_\_\_. Finally, the \_\_\_\_\_ falls off.

Section 2 Blood (continued)

**Main Idea**

**Blood Types**

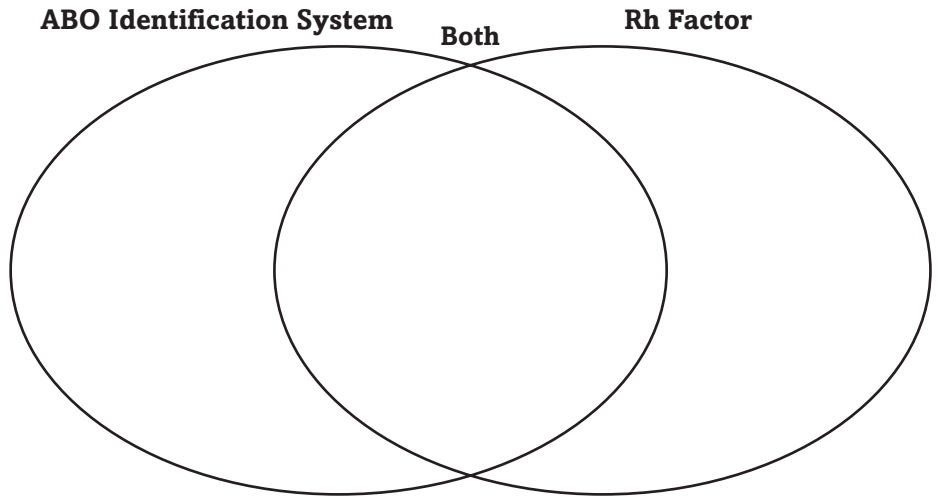
I found this information on page \_\_\_\_\_.

**Diseases of Blood**

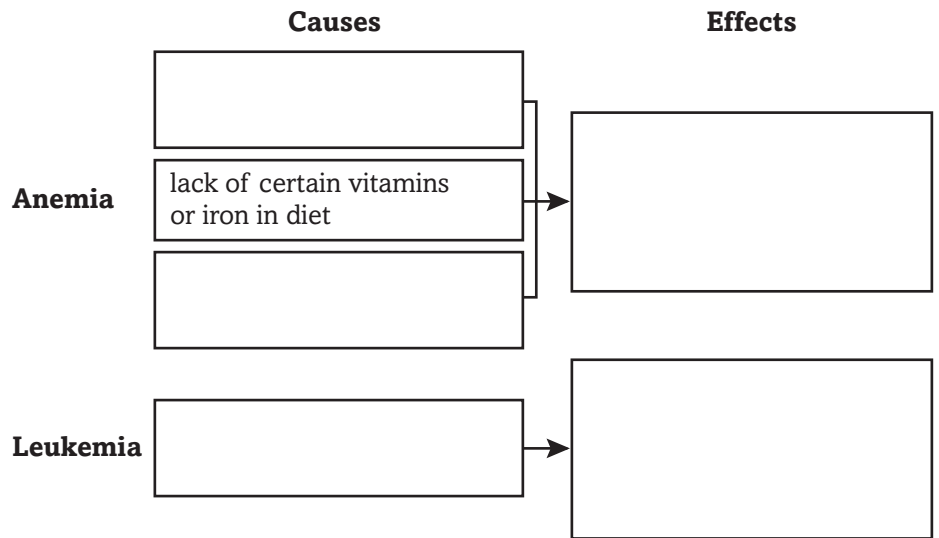
I found this information on page \_\_\_\_\_.

**Details**

**Compare and contrast** *the 2 sets of chemical identification tags in blood by completing the Venn diagram with at least five facts.*



**Identify** *causes and effects of two diseases of the blood.*



**CONNECT IT**

Almost immediately after being born, a baby received a blood transfusion of Rh+ blood. Predict the mother's Rh factor. Why did the baby need a blood transfusion?

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# Circulation

## Section 3 The Lymphatic System

**Scan** the What You'll Learn statements for Section 3 of your book. Identify three topics that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** smooth muscles using your book or a dictionary.

*smooth muscles*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Use your book or a dictionary to define each vocabulary term. Then use the term in a sentence that shows its scientific meaning.

*lymph*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*lymphatic system*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*lymphocyte*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*lymph node*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define occur as it would be used in science.

*occur*

\_\_\_\_\_

### Section 3 The Lymphatic System (continued)

## Main Idea

### Functions of the Lymphatic System

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

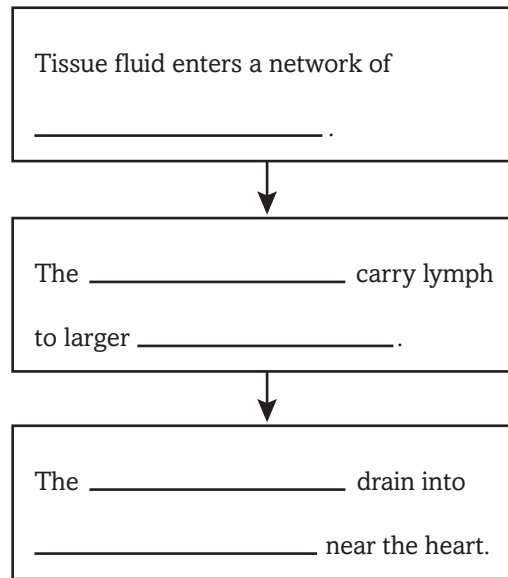
I found this information on page \_\_\_\_\_.

## Details

**Define** tissue fluid *and describe its relationship to the lymphatic system.*

Tissue fluid is _____ _____ _____ _____ _____.	The lymphatic system collects _____ _____. While in the lymphatic system, the fluid is called _____.
--	---

**Sequence** the stages by which lymph travels through the lymphatic system.



**Summarize** how the lymphatic system transports lymph. Discuss the role of smooth muscles and valves.

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Section 3 The Lymphatic System (continued)

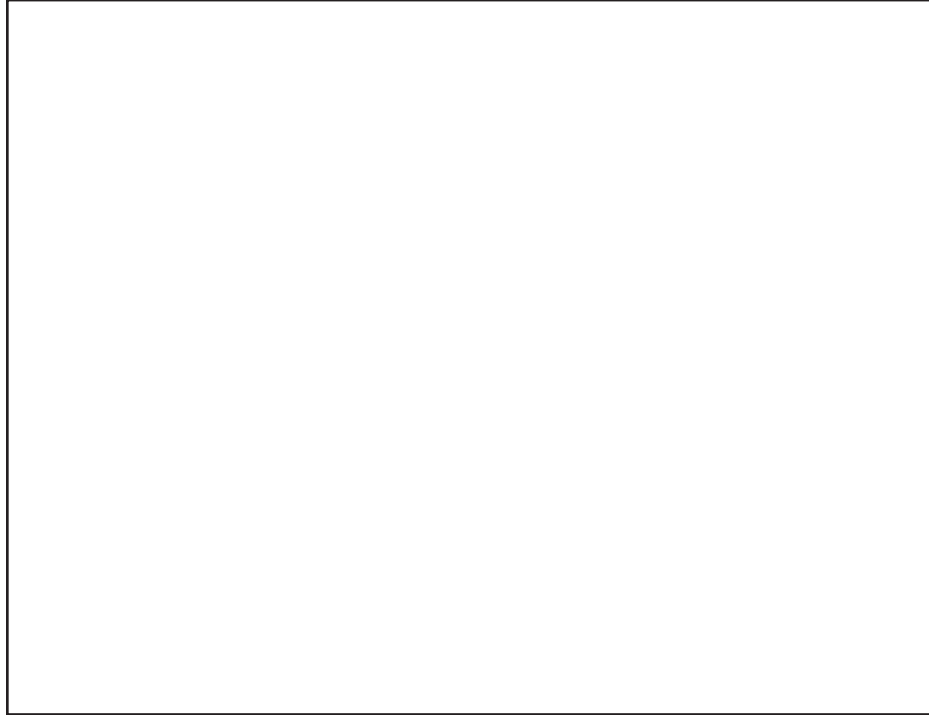
**Main Idea**

**Lymphatic Organs**

I found this information on page \_\_\_\_\_.

**Details**

**Model** *the lymphatic system by drawing it within an outline of the human body. Indicate and label lymph nodes, lymph vessels, lymphatic duct, thoracic duct, tonsils, thymus, and spleen.*



**A Disease of the Lymphatic System**

I found this information on page \_\_\_\_\_.

**Summarize** *how HIV affects the lymphatic system.*

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**CONNECT IT**

Analyze why people who have HIV are at higher risk from the flu or pneumonia than people who are HIV-negative?

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# Tie It Together

## A Checklist for Health

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*You know that a healthy lifestyle is important for the health of your cardiovascular system.*

- Work with a partner to develop a checklist of daily actions to protect your cardiovascular health.
- List actions that are beneficial and actions that should be avoided.
- Provide concrete examples.
- Then make a poster using your checklist.



# Circulation Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Circulation</b>	<b>After You Read</b>
• The human heart has four chambers.	
• Arteries are blood vessels that carry blood to the heart.	
• Platelets are cell fragments that help fight bacteria and viruses.	
• Lymphatic vessels are like veins in that they have valves.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three main concepts that you have learned about circulation.

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# Respiration and Excretion

## Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Respiration and Excretion
	<ul style="list-style-type: none"> <li>• Breathing is the process in which the body obtains oxygen and releases energy from food.</li> </ul>
	<ul style="list-style-type: none"> <li>• The respiratory system contains structures that allow humans to speak.</li> </ul>
	<ul style="list-style-type: none"> <li>• If wastes are not removed from the body, they can build up and damage organs.</li> </ul>
	<ul style="list-style-type: none"> <li>• The bladder filters wastes from blood.</li> </ul>



Construct the Foldable as directed at the beginning of this chapter.

### Science Journal

*How do you think your body adapts to meet your needs while you are playing sports?*

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# Respiration and Excretion

## Section 1 The Respiratory System

**Skim** the headings of Section 1. Write questions about the respiratory system that you think will be answered in the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** lungs to show its scientific meaning.

lungs

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Write four sentences, each containing two of the vocabulary terms. Use each word at least once.

- pharynx
- larynx
- trachea
- bronchi
- alveoli
- diaphragm
- emphysema
- asthma

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define generate as a verb.

generate

\_\_\_\_\_  
\_\_\_\_\_

Section 1 The Respiratory System (continued)

**Main Idea**

**Functions of the Respiratory System**

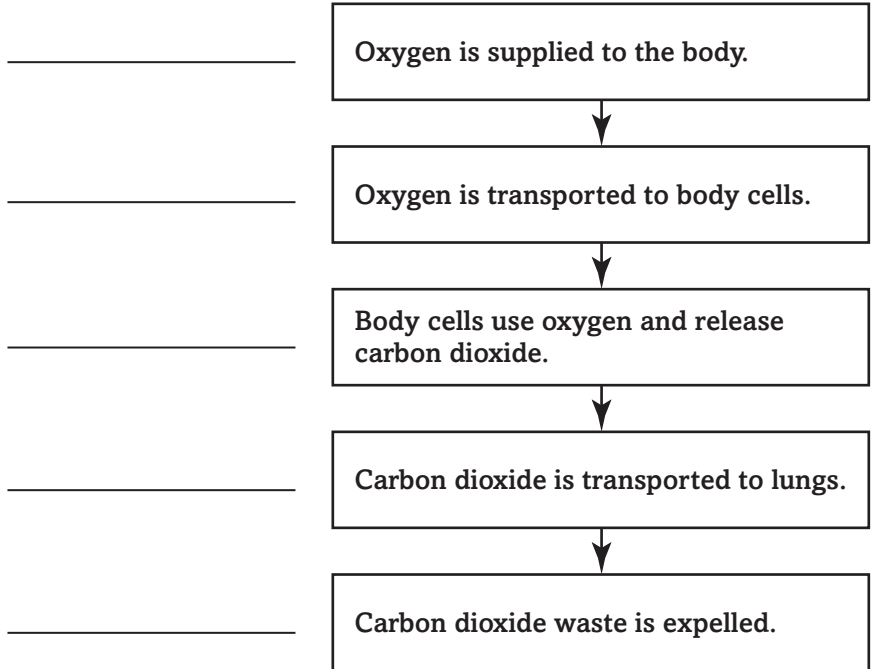
I found this information on page \_\_\_\_\_.

**Organs of the Respiratory System**

I found this information on page \_\_\_\_\_.

**Details**

**Classify** each process involved in obtaining, transporting, and using oxygen as breathing, circulation, or respiration.



**Summarize** respiratory system structures and functions by completing the chart.

Structure	Function
	food, liquid, and air share this passage after the nose and mouth
	stops food from entering airway
	directs air through vocal cords
Trachea	
	take air into and out of lungs
Alveoli	

Section 1 The Respiratory System (continued)

**Main Idea**

**Why do you breathe?**

I found this information on page \_\_\_\_\_.

**Diseases and Disorders of the Respiratory System**

I found this information on page \_\_\_\_\_.

**Details**

**Model** the processes of inhaling and exhaling in the boxes below.

Inhaling	Exhaling

**Summarize** respiratory system diseases and disorders.

Disease/ Disorder	Description
Respiratory infections	
	sometimes caused by bacteria; develops when the bronchial tubes are irritated and swell and too much mucus is produced; lasts for a long time
	disease in which the alveoli enlarge, causing an enzyme that breaks down alveoli walls to be produced; alveoli do not function well and blood receives less oxygen; causes shortness of breath
Lung cancer	
Asthma	

**CONNECT IT**

Identify respiratory diseases and disorders described in this chapter that are related to smoking. List symptoms of these diseases.

---



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# Respiration and Excretion

## Section 2 The Excretory System

**Scan** the headings and illustrations in Section 2 to determine three processes that are involved in the urinary system's function.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** blood to show its scientific meaning.

*blood*

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

**Write** a paragraph using all seven of the new vocabulary terms. Try to use sentences that show the meaning of each term.

*urinary system*

*urine*

*kidney*

*nephron*

*ureter*

*bladder*

*urethra*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Academic Vocabulary**

**Use** a dictionary to define remove.

*remove*

\_\_\_\_\_

\_\_\_\_\_

Section 2 The Excretory System (continued)

**Main Idea**

**Functions of the Excretory System**

*I found this information on page \_\_\_\_\_.*

**The Urinary System**

*I found this information on page \_\_\_\_\_.*

**Details**

**Complete** *the following statement with the words provided.*

damage illness wastes death toxic

If \_\_\_\_\_ are not removed from the body, \_\_\_\_\_ substances build up and \_\_\_\_\_ organs. Serious \_\_\_\_\_ or \_\_\_\_\_ may occur.

**Model** *the urinary system. Draw and label the organs of the urinary system.*



**Summarize** *how blood is processed in the kidneys. Identify substances that pass through the filter and substances that are left behind. Identify the structures involved in each stage.*

First stage: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Second stage: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 2 The Excretory System (continued)

**Main Idea**

I found this information on page \_\_\_\_\_.

**Other Organs of Excretion**

I found this information on page \_\_\_\_\_.

**Urinary Diseases and Disorders**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** the structures of the urinary system.

bladder kidney ureter urethra

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_

**Summarize** other processes of excretion.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Analyze** the effects of each urinary system problem.

Salt imbalance →

Blockage of the ureters and urethra →

**Identify** information about the diagnoses of urinary diseases.

Disease	Method of Diagnosis
Urinary tract disease	
	change in the urine's color
Diabetes	
	increased amounts of albumin

**CONNECT IT**

Describe how blood helps rid the body of wastes.

\_\_\_\_\_

\_\_\_\_\_



# Respiration and Excretion

## Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Respiration and Excretion	After You Read
• Breathing is the process in which the body obtains oxygen and releases energy from food.	
• The respiratory system contains structures that allow humans to speak.	
• If wastes are not removed from the body, they can build up and damage organs.	
• The bladder filters wastes from blood.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

List three processes of excretion described in this chapter.

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# Control and Coordination

## Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Control and Coordination
	<ul style="list-style-type: none"> <li>• You are subjected to thousands of stimuli every day.</li> </ul>
	<ul style="list-style-type: none"> <li>• The brain is made up of about 10,000 neurons.</li> </ul>
	<ul style="list-style-type: none"> <li>• You can't control reflexes because they occur before you know what has happened.</li> </ul>
	<ul style="list-style-type: none"> <li>• You can smell food because it gives off molecules into the air.</li> </ul>



Construct the Foldable as directed at the beginning of this chapter.

### Science Journal

*Which senses do you think are involved when you respond to a glass crashing on a tile floor?*

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# Control and Coordination

## Section 1 The Nervous System

**Scan** the headings in Section 1 of your book. Write three questions that come to mind.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** response using its scientific meaning.

response

\_\_\_\_\_

**New Vocabulary**

Use your book to define the following vocabulary terms.

homeostasis

\_\_\_\_\_  
\_\_\_\_\_

neuron

\_\_\_\_\_  
\_\_\_\_\_

synapse

\_\_\_\_\_  
\_\_\_\_\_

reflex

\_\_\_\_\_  
\_\_\_\_\_

central nervous system

\_\_\_\_\_

peripheral nervous system

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define coordinate using its scientific meaning.

coordinate

\_\_\_\_\_

Section 1 The Nervous System (continued)

**Main Idea**

**How the Nervous System Works**

I found this information on page \_\_\_\_\_.

**Nerve Cells**

I found this information on page \_\_\_\_\_.

**The Central Nervous System**

I found this information on page \_\_\_\_\_.

**Details**

**Define** stimulus and describe the relationship between stimuli and the nervous system.

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**Sequence** the passage of an impulse through a nerve cell. Start with receiving the impulse at a dendrite and end with the part of the nerve cell that carries the impulse to muscles, neurons, and glands.



**Organize** information about the parts of the brain and their functions by completing the chart below.

Part of the brain	Function
Cerebrum	
Cerebellum	
Brain stem	

**Describe** the function of the spinal cord.

Spinal cord: \_\_\_\_\_

Section 1 The Nervous System (continued)

**Main Idea**

**The Peripheral Nervous System**

I found this information on page \_\_\_\_\_.

**Safety and the Nervous System**

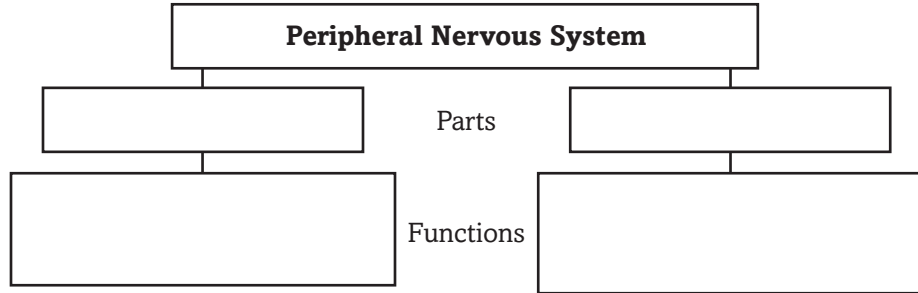
I found this information on page \_\_\_\_\_.

**Drugs and the Nervous System**

I found this information on page \_\_\_\_\_.

**Details**

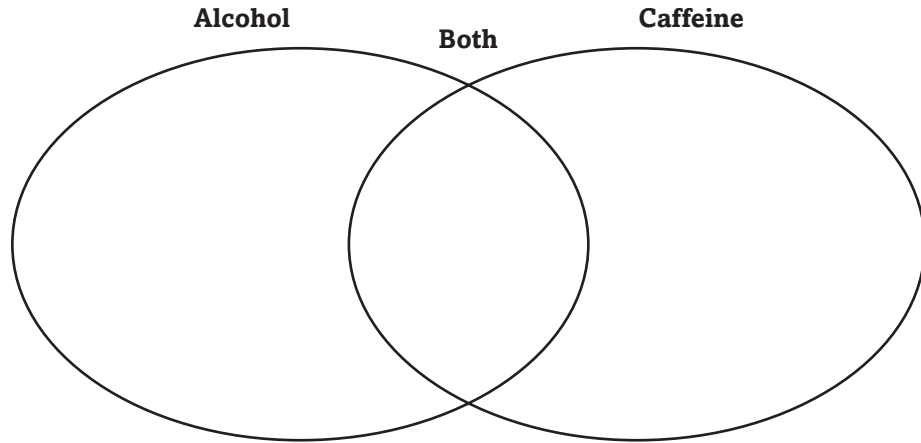
**Compare and contrast** the two major parts of the peripheral nervous system by completing the graphic organizer below.



**Analyze** the diagram of the reflex arc provided in your book. List in order the three neurons involved in the reflex pathway, or arc.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Distinguish** between alcohol and caffeine by completing the Venn diagram with at least two facts for each drug.



**CONNECT IT**

Infer why alcohol is a controlled substance and caffeine is not.

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# Control and Coordination

## Section 2 The Senses

**Skim** the headings of Section 2 to determine the four senses that will be discussed in detail.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**Review Vocabulary**

*sense organ*

**Define** sense organ using a dictionary or your book.

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

**Write the correct vocabulary term beside the definition.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

light-sensitive tissue at the back of the eye; contains rods and cones

fluid-filled structure in the inner ear in which sound vibrations are converted into nerve impulses that are sent to the brain

nasal nerve cells that become stimulated by molecules in the air and send impulses for interpretation of odors

major sensory receptor on the tongue; contains taste hairs that send impulses for interpretation of tastes

**Academic Vocabulary**

*interpret*

**Use a dictionary to define interpret. Use the term in a sentence to show its scientific meaning.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Section 2 The Senses (continued)

**Main Idea**

**Details**

**The Body's Alert System**

I found this information on page \_\_\_\_\_.

**Create** a graphic organizer to identify three common stimuli that the senses are able to detect.

**Vision**

I found this information on page \_\_\_\_\_.

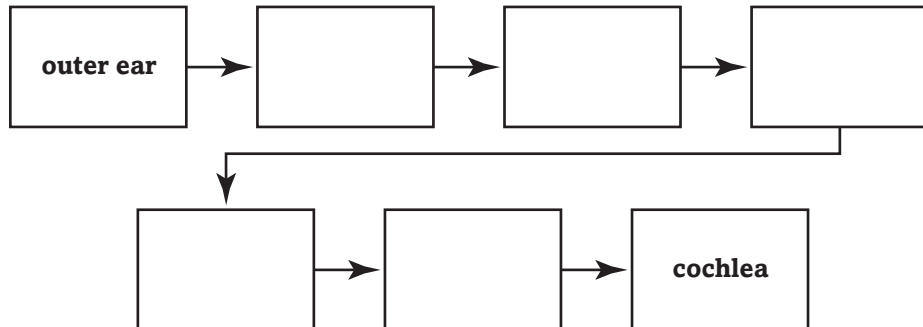
**Identify** the functions of each part of the eye.

Part of Eye	Function
Cornea	
Lens	
Retina	
Optic nerve	

**Hearing**

I found this information on page \_\_\_\_\_.

**Sequence** the parts of the ear in the order that a signal travels.



Section 2 The Senses (continued)

**Main Idea**

**Details**

**Smell**

*I found this information on page \_\_\_\_\_.*

**Summarize** *how food is smelled by the nose.*

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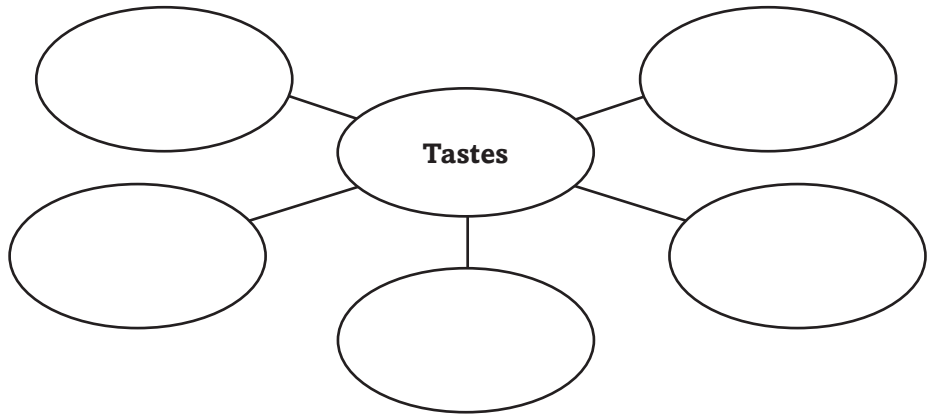


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**Taste**

*I found this information on page \_\_\_\_\_.*

**Distinguish** *the five kinds of tastes in the graphic organizer below.*



**Other Sensory Receptors in the Body**

*I found this information on page \_\_\_\_\_.*

**Summarize** *the kinds of stimuli to which the receptors in internal organs and in fingertips can respond by listing them below.*

Internal Organs	Fingertips

**EVALUATE IT**

Identify some advantages of having fingertips and skin with many types of receptors for touch.

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# Control and Coordination

## Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Control and Coordination	After You Read
• You are subjected to thousands of stimuli every day.	
• The brain is made up of about 10,000 neurons.	
• You can't control reflexes because they occur before you know what has happened.	
• You can smell food because it gives off molecules into the air.	

## Review

Use this checklist to help you study.

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- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

Describe how your nervous system helps protect you.

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# Regulation and Reproduction

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Regulation and Reproduction
	• Endocrine glands are tissues that produce hormones.
	• Testosterone is the male sex hormone and sperm is the male reproductive cell.
	• Identical twins are not always the same sex.
	• Adulthood is the final stage of human development.



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Write a paragraph describing how an emergency call might be handled at a fire station.*

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# Regulation and Reproduction

## Section 1 The Endocrine System

**Scan** the headings, charts, and illustrations in Section 1. Find two glands of the endocrine system that are involved in regulating blood sugar levels and two glands that are involved in regulating calcium levels.

Helps Regulate Blood Sugar Levels	Helps Regulate Calcium Levels

### Review Vocabulary

**Define** tissue to show its scientific meaning. Then use the word in an original sentence.

tissue

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### New Vocabulary

**Define** hormone to show its scientific meaning.

hormone

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### Academic Vocabulary

**Define** distribute to show its scientific meaning. Then use the word in an original sentence.

distribute

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Section 1 The Endocrine System (continued)

**Main Idea**

**Functions of the Endocrine System**

I found this information on page \_\_\_\_\_.

**Endocrine Glands**

I found this information on page \_\_\_\_\_.

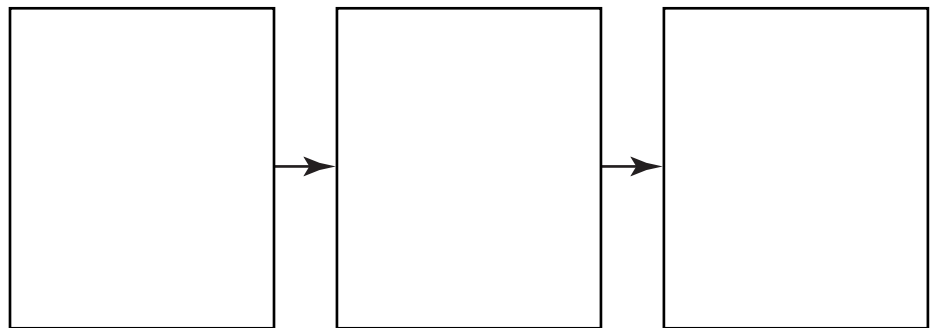
I found this information on page \_\_\_\_\_.

**Details**

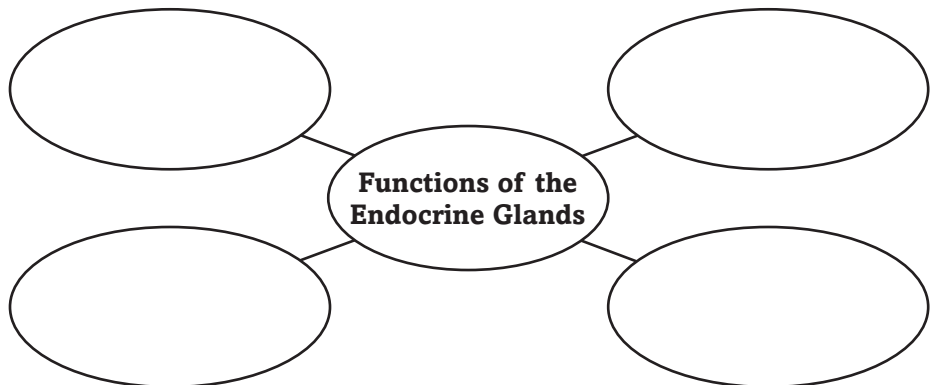
**Organize** information about the body's control systems by completing the chart below.

Body System	Function	Body's Response Time

**Sequence** the events that occur when a gland produces a hormone and sends it to a target tissue.



**Distinguish** the four main functions of the endocrine glands by completing the graphic organizer below.



Section 1 The Endocrine System (continued)

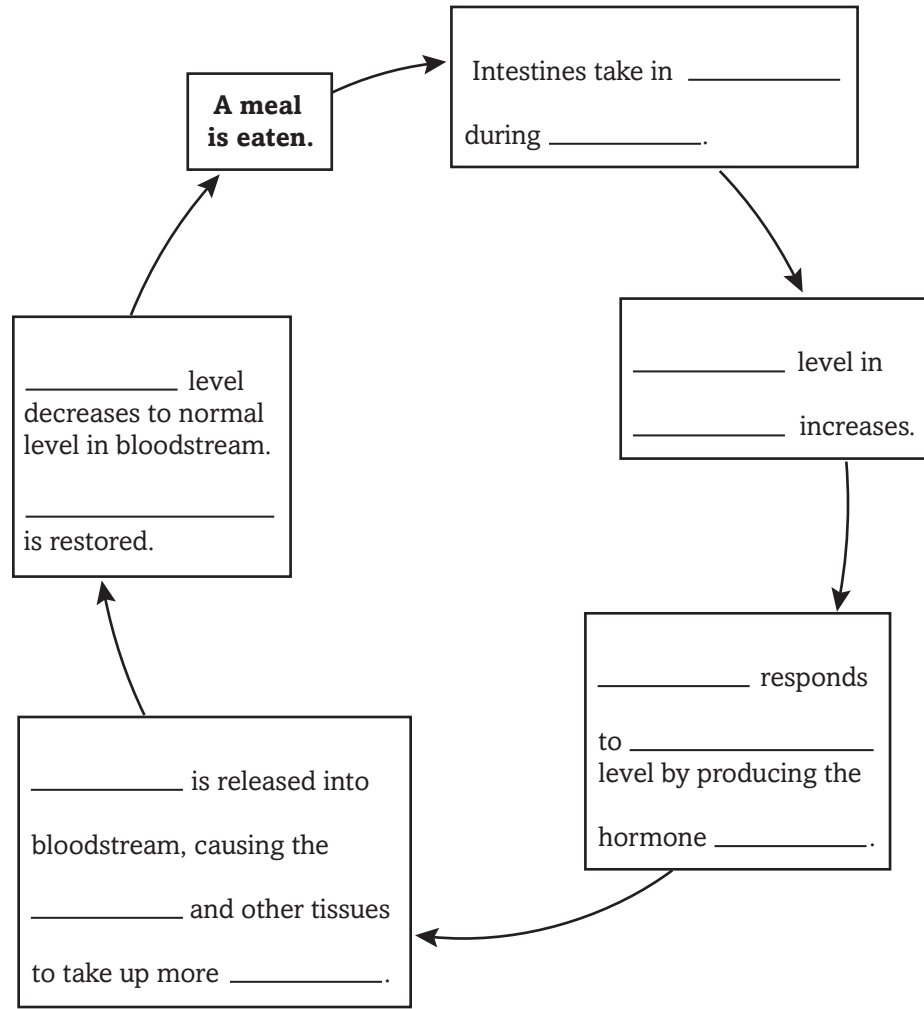
**Main Idea**

**A Negative Feedback System**

I found this information on page \_\_\_\_\_.

**Details**

**Model** a negative-feedback system by completing the cycle chart below.



**CONNECT IT**

Draw an outline of the human body on a separate sheet of paper.

Label it *male* or *female*. Using information provided in your book, show where endocrine glands are located and then describe their functions.

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# Regulation and Reproduction

## Section 2 The Reproductive System

**Predict** *three things that might be discussed in Section 2 as you read the headings.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** *cilia as it relates to this section.*

*cilia*

\_\_\_\_\_

\_\_\_\_\_

**New Vocabulary**

**Identify the vocabulary terms that match the definitions.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

male organ that produces sperm and testosterone

male reproductive cells

mixture of sperm and a fluid that helps sperm move and supplies the sperm with an energy source

in humans, female reproductive organ that produces eggs

monthly release of an egg from an ovary in a hormone-controlled process

hollow, pear-shaped, muscular organ in which a fertilized egg develops

monthly flow of blood and tissue cells that occurs when the lining of the uterus breaks down and is shed

**Academic Vocabulary**

**Define** *respond using its scientific meaning. Write a sentence that reflects this meaning.*

*respond*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Section 2 The Reproductive System (continued)

**Main Idea**

**Reproduction and the Endocrine System**

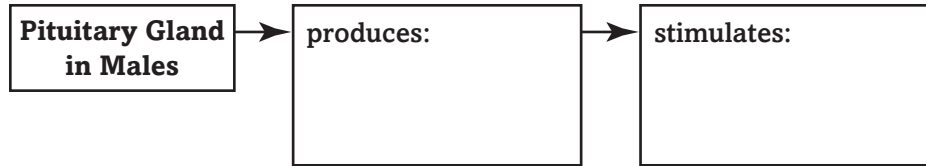
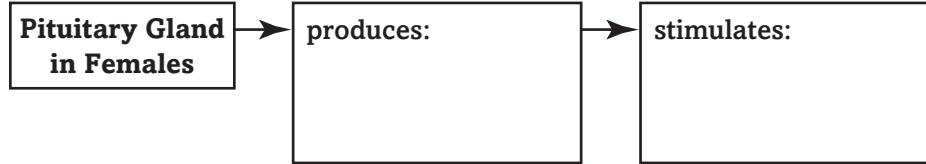
I found this information on page \_\_\_\_\_.

**The Male Reproductive System**

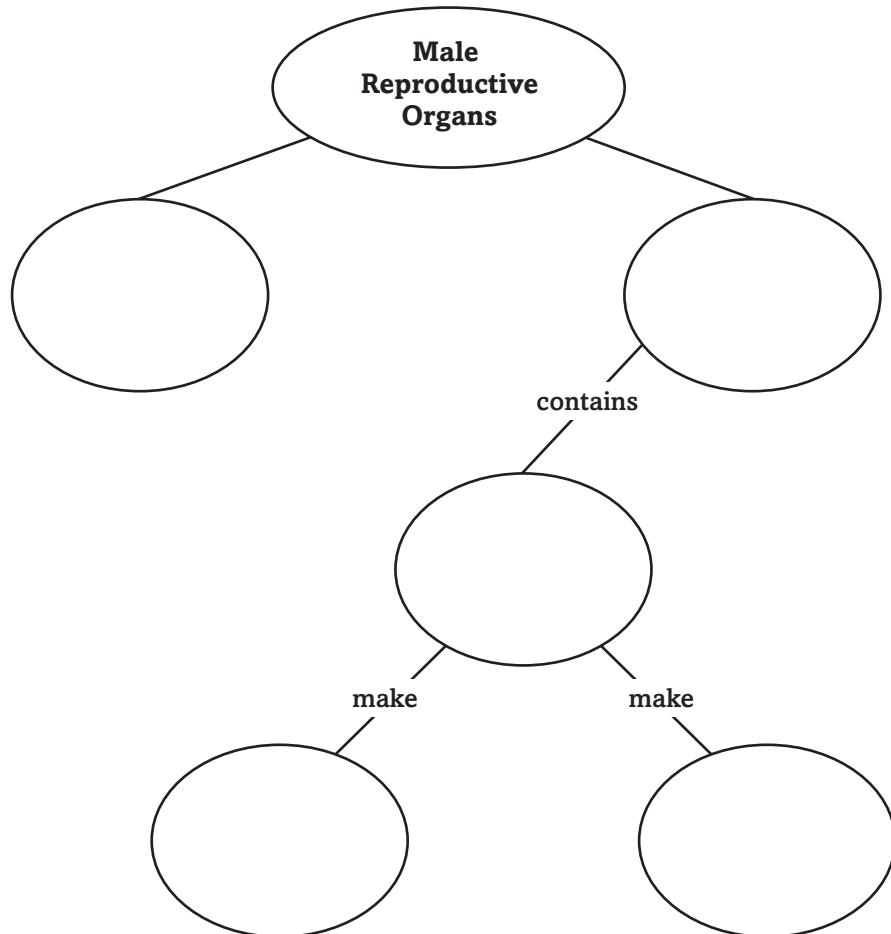
I found this information on page \_\_\_\_\_.

**Details**

**Complete** the graphic organizers below to differentiate the role of the pituitary gland in females and males.



**Summarize** information about the male reproductive organs in the graphic organizer below.



Section 2 The Reproductive System (continued)

**Main Idea**

**The Female Reproductive System**

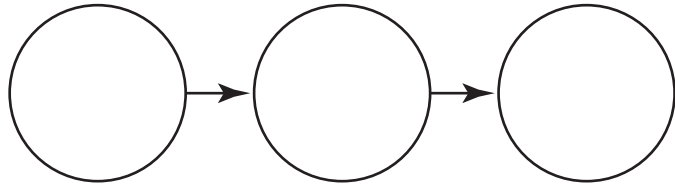
I found this information on page \_\_\_\_\_.

**The Menstrual Cycle**

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** the steps through which an egg moves in the female reproductive system.



**Analyze** the phases of the menstrual cycle, and then complete the chart below.

	Description	Duration
Phase 1		
Phase 2		
Phase 3 (if fertilized egg does not arrive)		

**CONNECT IT**

Describe how the menstrual cycle would differ in phase 3 if the egg were fertilized. Then infer how future cycles would be affected.

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# Regulation and Reproduction

## Section 3 Human Life Stages

**Skim** the headings in Section 3. Then write three questions that you have about human life stages.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** nutrient to show its scientific meaning.

nutrient

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---

**New Vocabulary**

**Define** the new vocabulary terms to show their scientific meaning.

embryo

---

---

amniotic sac

---

---

fetus

---

---

fetus stress

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**Academic Vocabulary**

**Define** capable. Use capable in an original sentence to show its scientific meaning.

capable

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Section 3 Human Life Stages (continued)

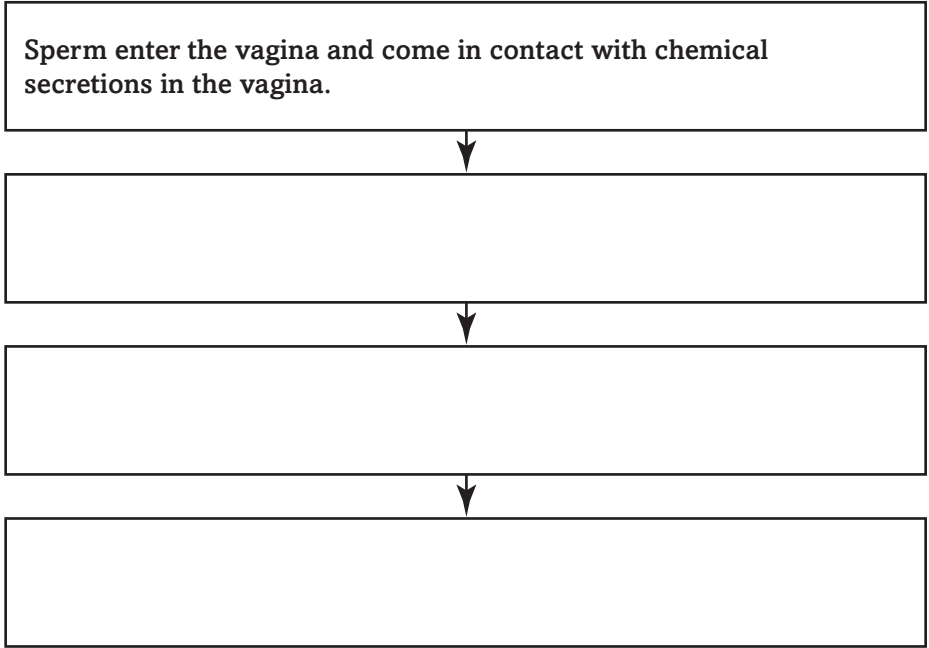
**Main Idea**

**Fertilization**

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** the events that result in the formation of a zygote by completing the following graphic organizer.



**Multiple Births**

I found this information on page \_\_\_\_\_.

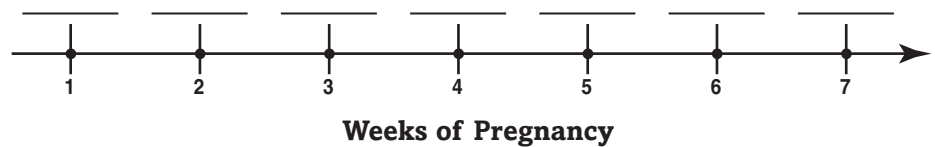
**Classify** the following descriptions as applying to either identical twins or fraternal twins. Write either for a description that could fit both categories.

- \_\_\_\_\_ Two eggs are released and both are fertilized.
- \_\_\_\_\_ A fertilized zygote divides into two separate zygotes.
- \_\_\_\_\_ Twins of the same sex are born.
- \_\_\_\_\_ Twins with different sexes are born.

**Development Before Birth**

I found this information on page \_\_\_\_\_.

**Create** a time line to indicate when the following events occur: a) embryo forms; b) amniotic sac forms; c) head forms; d) fingers and toes form. Not all weeks will be filled in.



Section 3 Human Life Stages (continued)

**Main Idea**

**The Birthing Process**

*I found this information on page \_\_\_\_\_.*

**Stages After Birth**

*I found this information on page \_\_\_\_\_.*

**Details**

**Sequence** *the events that occur during the birthing process. The first one has been completed for you.*

1.	Contractions increase.
2.	
3.	
4.	
5.	

**Summarize** *information about the stages after birth using the chart below.*

Stage	Period in Life	Changes That Occur
Infancy		
Childhood		
Adolescence		
Adulthood		
Older Adulthood		



# Regulation and Reproduction

## Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Regulation and Reproduction</b>	<b>After You Read</b>
• Endocrine glands are tissues that produce hormones.	
• Testosterone is the male sex hormone and sperm is the male reproductive cell.	
• Identical twins are not always the same sex.	
• Adulthood is the final stage of human development.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

Explain how the title “Regulation and Reproduction” fits with the content of this chapter.

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# Immunity and Disease

## Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Immunity and Disease
	• Your skin is one of your body's first lines of defense against disease.
	• A vaccine is given to cure a disease.
	• AIDS and HIV are the same thing.
	• You can catch diabetes from another person.



Construct the Foldable as directed at the beginning of this chapter.

### Science Journal

*Write a paragraph describing a battle between your white cells and a foreign invader.*

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# Immunity and Disease

## Section 1 The Immune System

**Read** the title and headings of the section. Predict two topics that will be discussed in this section.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

**Review Vocabulary**

enzyme

**Define** enzyme to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Write** the vocabulary term that matches each definition.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

complex group of defenses that protects the body against pathogens

molecule that is foreign to the body

protein made in response to a specific antigen

immunity in which the body makes its own antibodies in response to an antigen

immunity in which antibodies that have been produced in another animal are introduced to the body

process of giving a vaccine by injection or by mouth

**Academic Vocabulary**

specific

**Use** a dictionary to define specific to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

Section 1 The Immune System (continued)

**Main Idea**

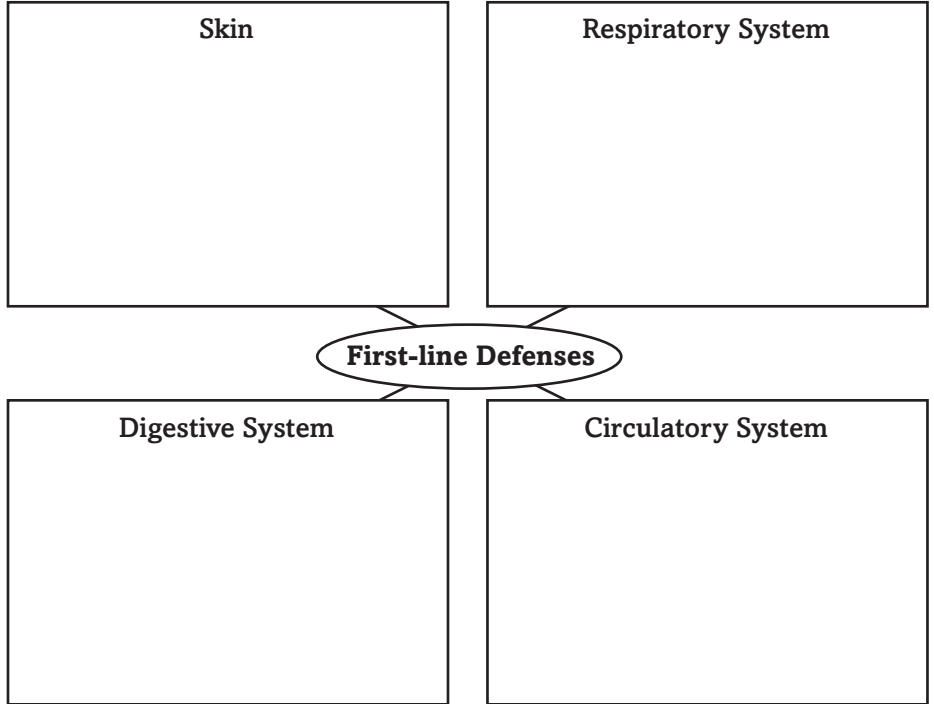
**Lines of Defense**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

**Details**

**Summarize** *your body's* first-line defense strategies.



**Sequence** *what happens when an antigen enters the body.*

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_



Section 1 The Immune System (continued)

**Main Idea**

**Details**

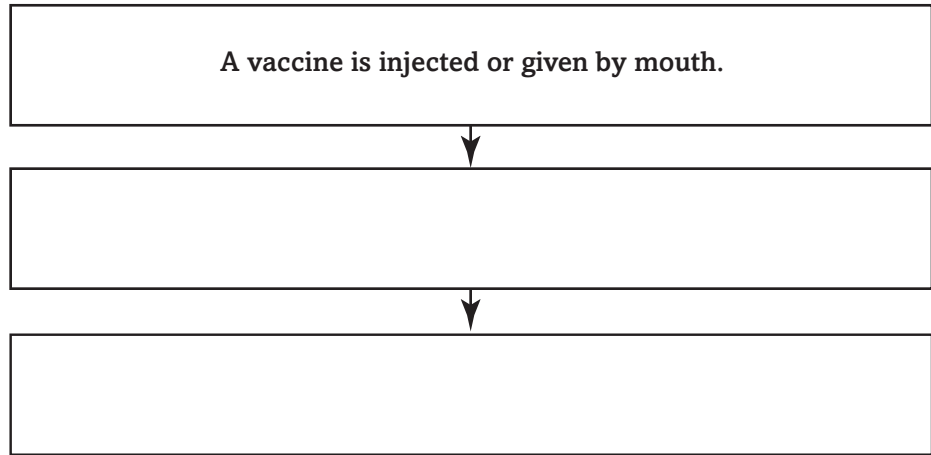
I found this information on page \_\_\_\_\_.

**Contrast** active and passive immunity. Complete the chart.

	Active Immunity	Passive Immunity
What It Is		
How You Get It		
How Long It Lasts		

I found this information on page \_\_\_\_\_.

**Summarize** how a vaccine helps protect your body against a pathogen. Complete the flow chart.



**CONNECT IT**

Many schools require children to be vaccinated against diseases such as measles before they begin school. Analyze why the schools might have this requirement.

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# Immunity and Disease

## Section 2 Infectious Diseases

**Skim** Section 2. Write three questions you would like to have answered. Then look for the answers as you read.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** protist using your book or a dictionary.

*protist*

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Use your book to define each vocabulary term.**

*pasteurization*

\_\_\_\_\_  
\_\_\_\_\_

*virus*

\_\_\_\_\_  
\_\_\_\_\_

*infectious disease*

\_\_\_\_\_  
\_\_\_\_\_

*biological vector*

\_\_\_\_\_  
\_\_\_\_\_

*sexually transmitted disease (STD)*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

**Use a dictionary to define complex using its scientific meaning.**

*complex*

\_\_\_\_\_  
\_\_\_\_\_

Section 2 Infectious Diseases (continued)

**Main Idea**

**Disease in History**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**How Diseases Are Spread**

I found this information on page \_\_\_\_\_.

**Details**

**Distinguish** the important contributions of Louis Pasteur, Robert Koch, and Joseph Lister to the treatment of infectious diseases.

Pasteur: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Koch: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Lister: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

**Identify** examples of diseases caused by each type of organism.

Pathogen	Diseases Caused
Bacteria	
Protists	
Fungi	
Viruses	

**Identify** four ways in which diseases can be transmitted.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

Section 2 Infectious Diseases (continued)

**Main Idea**

**Sexually Transmitted Diseases**

I found this information on page \_\_\_\_\_.

**HIV and Your Immune System**

I found this information on page \_\_\_\_\_.

**Details**

Identify examples of each type of sexually transmitted disease and list its symptoms and possible effects.

**Bacterial**

Disease: gonorrhea or chlamydia  
Symptoms: \_\_\_\_\_  
Effects: \_\_\_\_\_



Disease: syphilis  
Symptoms: \_\_\_\_\_  
Effects: \_\_\_\_\_



**Viral**

Disease: genital herpes  
Symptoms: \_\_\_\_\_  
Effects: \_\_\_\_\_

Analyze how HIV harms the immune system. Explain how HIV causes AIDS and what happens when a person has AIDS.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SUMMARIZE IT**

Describe several things that you can do to prevent infections.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Immunity and Disease

## Section 3 Noninfectious Diseases

**Scan** the section headings, bold words, and illustrations in Section 3. Write two facts you discovered as you scanned the section.

1. \_\_\_\_\_

2. \_\_\_\_\_

**Review Vocabulary**

**Define** gene using your book or a dictionary.

gene

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Use your book to define each vocabulary term.

noninfectious disease

\_\_\_\_\_  
\_\_\_\_\_

allergy

\_\_\_\_\_  
\_\_\_\_\_

allergen

\_\_\_\_\_  
\_\_\_\_\_

chemotherapy

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define react. Then write what you predict reaction means. Check your definition in the dictionary.

react

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 3 Noninfectious Diseases (continued)

**Main Idea**

**Chronic Disease**

I found this information on page \_\_\_\_\_.

**Allergies**

I found this information on page \_\_\_\_\_.

**Diabetes**

I found this information on page \_\_\_\_\_.

**Details**

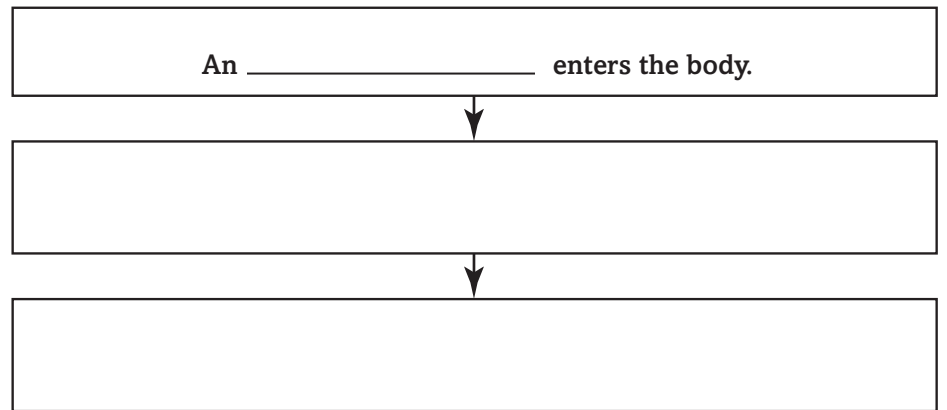
**Contrast** infectious disease *and* noninfectious disease.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Sequence** what happens during an allergic reaction. Then list some typical symptoms of an allergy.



Typical symptoms: \_\_\_\_\_

\_\_\_\_\_

**Compare and contrast** Type 1 *and* Type 2 diabetes. Complete the chart. Then list common symptoms of both types of diabetes and the possible long-term effects of the disease.

	Type 1	Type 2
Cause		
Treatment		

Symptoms: \_\_\_\_\_

\_\_\_\_\_

Long-term effects: \_\_\_\_\_

\_\_\_\_\_

Section 3 Noninfectious Diseases (continued)

**Main Idea**

**Details**

**Chemicals and Disease**

*I found this information on page \_\_\_\_\_.*

**Cancer**

*I found this information on page \_\_\_\_\_.*

*I found this information on page \_\_\_\_\_.*

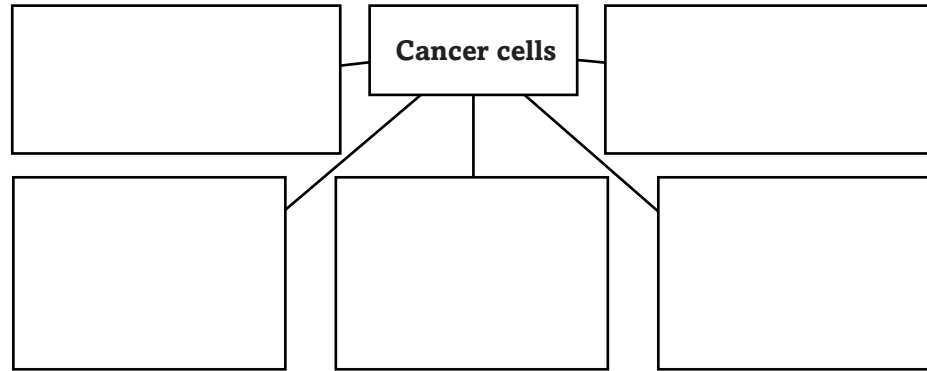
**Identify the possible harmful effects of the chemicals listed.**

Asbestos: \_\_\_\_\_

Lead-based paints: \_\_\_\_\_

Alcohol: \_\_\_\_\_

**Summarize information about cancer cells below.**



**Summarize the causes, warning signs, and treatments of cancer. Complete the chart.**

Causes	
Warning Signs	
Treatments	

**CONNECT IT**

A friend's family has a history of lung and skin cancer. Evaluate some steps your friend could take to reduce his risk of getting these diseases.

\_\_\_\_\_

\_\_\_\_\_





# Immunity and Disease Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Immunity and Disease</b>	<b>After You Read</b>
• Your skin is one of your body's first lines of defense against disease.	
• A vaccine is given to cure a disease.	
• AIDS and HIV are the same thing.	
• You can catch diabetes from another person.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

What are the three most important ideas in this chapter?

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# Interactions of Life

## Before You Read

*Before you read the chapter, respond to these statements.*

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Interactions of Life
	<ul style="list-style-type: none"> <li>• The community includes the top part of Earth’s crust, water that covers Earth’s surface, and Earth’s atmosphere.</li> </ul>
	<ul style="list-style-type: none"> <li>• In nature, most competition occurs between individuals of the same species.</li> </ul>
	<ul style="list-style-type: none"> <li>• Plants and microscopic organisms can move from place to place.</li> </ul>
	<ul style="list-style-type: none"> <li>• Living organisms do not need a constant supply of energy.</li> </ul>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*Describe how a familiar bird, insect, or other animal depends on other organisms.*

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# Interactions of Life

## Section 1 Living Earth

**Skim** through Section 1 of your book. Read the headings and look at the figures. Write three questions that come to mind.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Review Vocabulary

**Define** adaptation using your book or a dictionary.

*adaptation*

---

---

### New Vocabulary

**Define** each new vocabulary term using your book.

*biosphere*

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*ecology*

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*population*

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*community*

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*habitat*

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### Academic Vocabulary

**Define** interact using a dictionary.

*interact*

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Section 1 Living Earth (continued)

**Main Idea**

**The Biosphere**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

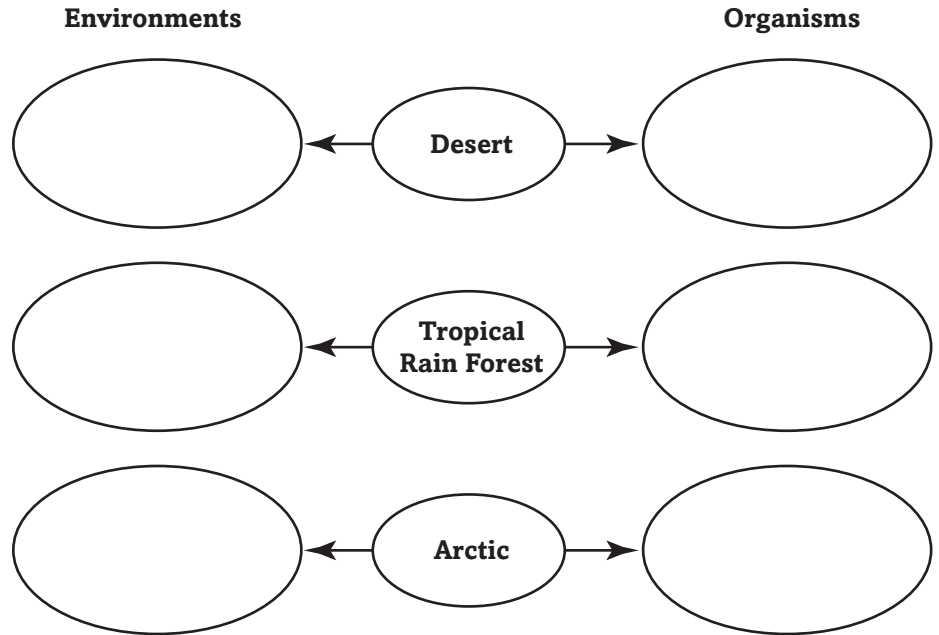
I found this information on page \_\_\_\_\_.

**Details**

Complete this chart to identify three parts of the biosphere.

Parts of the Biosphere		

Contrast the organisms found in different environments as you complete the concept map. Provide examples of both plants and animals.



Analyze the amount of solar energy that makes Earth the only planet known to support life. Explain why other planets are not suitable for life.

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Section 1 Living Earth (continued)

**Main Idea**

**Ecosystems**

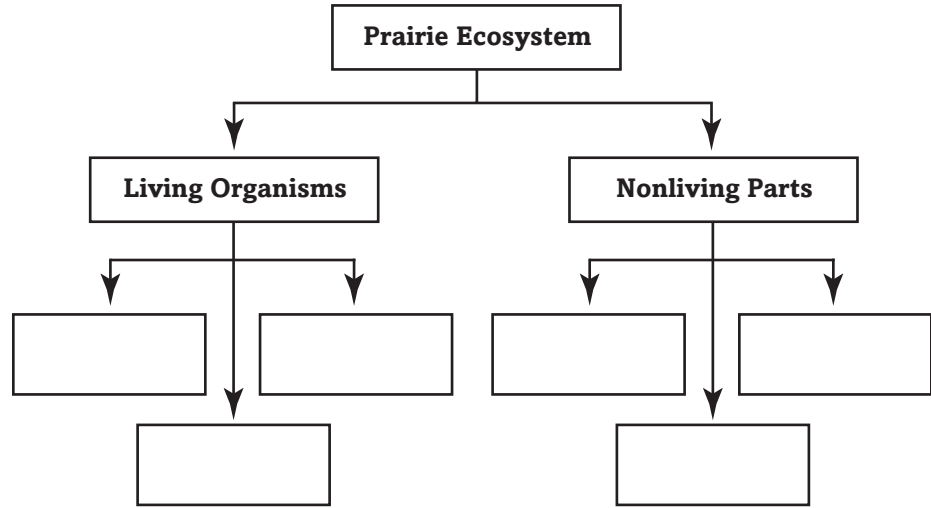
I found this information on page \_\_\_\_\_.

**Populations**

I found this information on page \_\_\_\_\_.

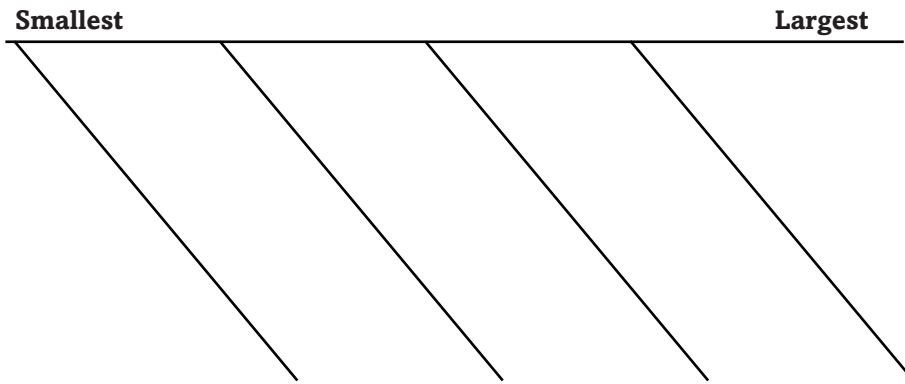
**Details**

**Organize** the parts of a prairie ecosystem. List three living organisms and three nonliving parts of the ecosystem.



**Sequence** the four levels of organization of living organisms from smallest to largest. Then write an example of each one.

community      organism      ecosystem      population



**SYNTHESIZE IT**

Write about your own life. Use the terms habitat, community, population, and ecosystem to describe your every day interactions.

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# Interactions of Life

## Section 2 Populations

**Predict** Read the headings in Section 2. Predict three topics that you think will be discussed in this section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** natural selection using your book or a dictionary. Then use it in a sentence to show its scientific meaning.

*natural selection*

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**New Vocabulary**

Create an original sentence using each vocabulary term to show its scientific meaning.

*limiting factor*

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*carrying capacity*

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**Academic Vocabulary**

Define resource using a dictionary. Then write a sentence related to the topic of Section 2 using the term.

*resource*

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Section 2 Populations (continued)

**Main Idea**

**Competition**

I found this information on page \_\_\_\_\_.

**Population Size**

I found this information on page \_\_\_\_\_.

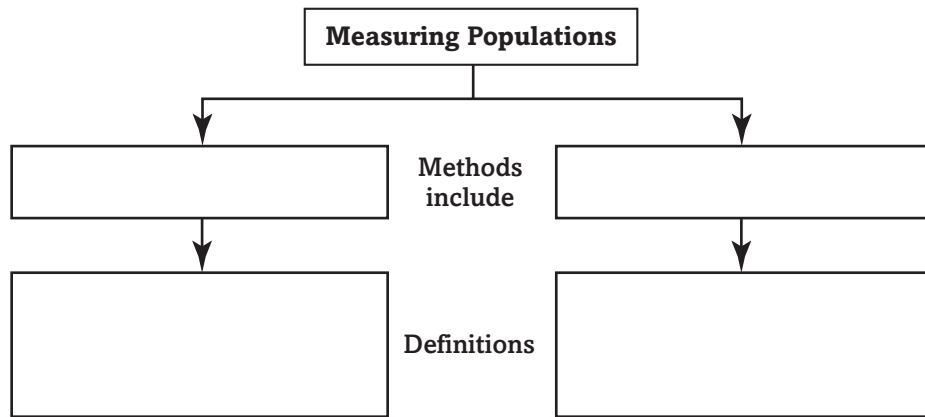
I found this information on page \_\_\_\_\_.

**Details**

**Complete** the chart below to identify how competing for certain limited resources can affect population growth.

Limited Resource	Why It Limits Population Growth

**Compare** the two ways of measuring populations by filling in the graphic organizer below.



**Contrast** carrying capacity and biotic potential. Then identify one factor that can limit each.

	What It Is	Limiting Factor
Carrying capacity		
Biotic potential		

Section 2 Populations (continued)

**Main Idea**

**Changes in Populations**

I found this information on page \_\_\_\_\_.

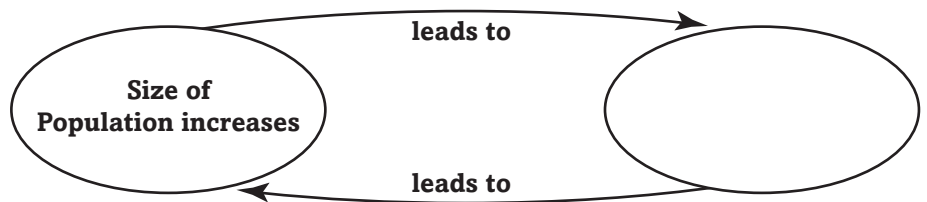
I found this information on page \_\_\_\_\_.

**Details**

**Compare** the effect of differing birth rates and death rates on population growth as you complete the chart below.

Population Growth	
Birth Rate Compared to Death Rate	Change in Population
much higher	
slightly higher	
lower	

**Evaluate** the effects of exponential growth on a population.



**Summarize** the environmental effects of the exponential growth of a population.

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**SYNTHESIZE IT**

A field is crowded with mice. A new group of mice migrate into the field. Describe how the crowded conditions could affect the mice.

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# Interactions of Life

## Section 3 Interactions Within Communities

**Scan** the What You'll Learn statements for Section 3. Rewrite each statement as a question. As you read the section, try to answer your questions.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*social behavior*

**Define** social behavior using your book or a dictionary.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Label** each definition with the correct vocabulary term.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*an organism that can use an outside energy source like the Sun to make energy-rich molecules*

*an organism that cannot make its own energy-rich molecules*

*any close relationship between species*

*an organism's role in its environment*

**Academic Vocabulary**

*constant*

**Define** constant as an adjective. Then use it in a scientific sentence.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 3 Interactions Within Communities (continued)

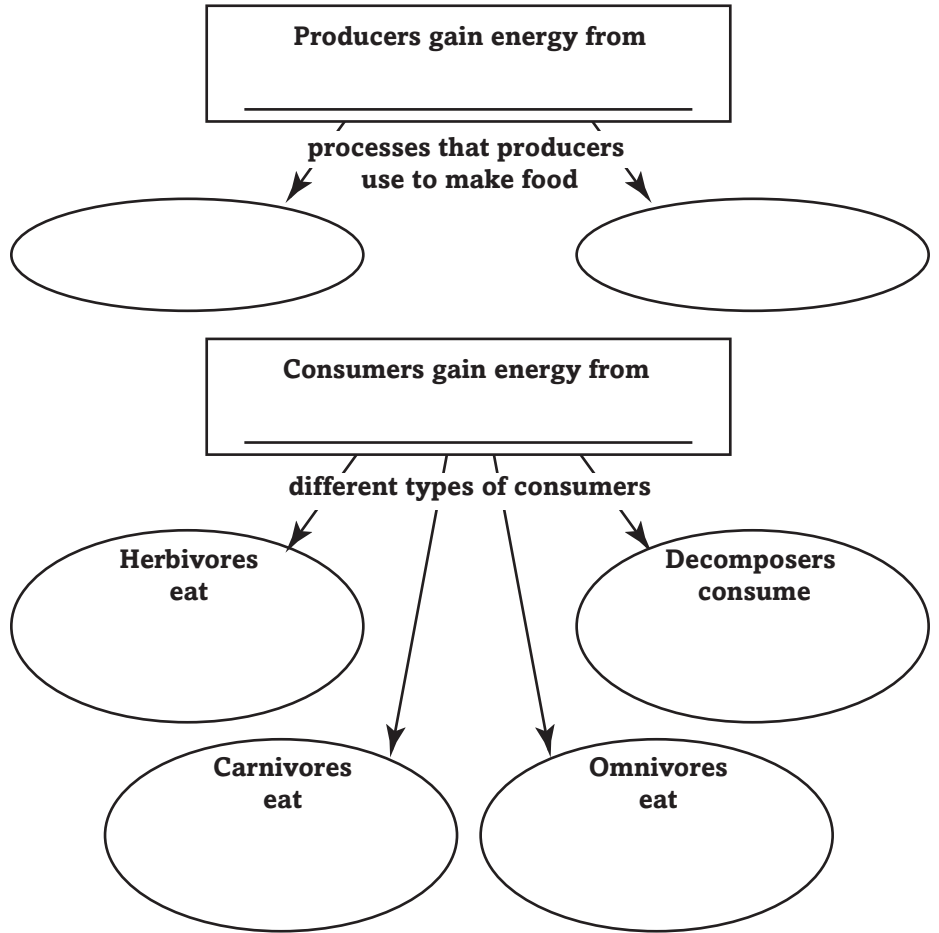
**Main Idea**

**Obtaining Energy**

I found this information on page \_\_\_\_\_.

**Details**

**Compare and contrast** producers and consumers by describing the processes by which each group gets the energy it needs.



**Symbiotic Relationships**

I found this information on page \_\_\_\_\_.

**Classify** examples of symbiosis by completing the chart below.

Type of Symbiosis	Who Benefits?	Example
mutualism		
commensalism		
parasitism		

Section 3 Interactions Within Communities (continued)

**Main Idea**

**Details**

**Niches**

I found this information on page \_\_\_\_\_.

**Organize** *important points about niches by creating an outline of your reading.*

I. A niche is \_\_\_\_\_.

A. how it obtains food

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_

E. \_\_\_\_\_

II. Special adaptations that \_\_\_\_\_ can be part of a niche.

A. **Example:** \_\_\_\_\_

\_\_\_\_\_

B. **Example:** \_\_\_\_\_

\_\_\_\_\_

**SYNTHESIZE IT**

Draw and label organisms that are in your food chain. Include at least three organisms. Then show how each of these organisms can get the energy it needs.

# Tie It Together

## Observation

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*Observe the behaviors of a species of animal (for example, squirrels in a park) for at least 15 minutes. Use the chart below to take notes on your observations.*

Species:
Date and time of observation:
Number of individuals observed:
Interactions within species:
Food sources observed:
Habitat:
Special adaptations of species:
Interactions observed with other species:

# Interactions of Life Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Interactions of Life</b>	<b>After You Read</b>
• The community includes the top part of Earth’s crust, water that covers Earth’s surface, and Earth’s atmosphere.	
• In nature, most competition occurs between individuals of the same species.	
• Plants and microscopic organisms can move from place to place.	
• Living organisms do not need a constant supply of energy.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three things that you have learned about interactions among living organisms.

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# The Nonliving Environment

## Before You Read

*Preview the chapter title, the section titles, and the section headings. List at least two ideas for each section in each column.*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*List all the nonliving things that you might see in a picture of a beach, in order of importance. Explain your reasoning for the order you choose.*

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# The Nonliving Environment

## Section 1 Abiotic Factors

**Preview** the What You'll Learn statements for Section 1. Rewrite each statement into a question.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*environment*

**Define** environment to show its scientific meaning.

---

---

**New Vocabulary**

*biotic*

**Define** the following terms to show their scientific meanings.

---

---

*abiotic*

---

---

*atmosphere*

---

---

*soil*

---

---

*climate*

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---

**Academic Vocabulary**

*fundamental*

**Use a dictionary** to define fundamental as an adjective.

---

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Section 1 Abiotic Factors (continued)

**Main Idea**

**Environmental Factors**

I found this information on page \_\_\_\_\_.

**Air**

I found this information on page \_\_\_\_\_.

**Water and Soil**

I found this information on page \_\_\_\_\_.

**Details**

**Classify** seven environmental factors as biotic or abiotic.

Factors needed for life	
Biotic	Abiotic
1. _____	1. _____
2. _____	2. _____
	3. _____
	4. _____
	5. _____

**Compare and contrast** how gases are used during photosynthesis and respiration.

	Photosynthesis	Respiration
Gas used		
Gas released		
Purpose		

**Summarize** how organisms use water and soil. Complete the sentences.

Most organisms are \_\_\_\_\_ percent water. Processes such as \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ need water to occur. Environments with plenty of water usually have \_\_\_\_\_ of organisms than environments with little water. Organisms also need \_\_\_\_\_. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ all live in soil. The type of soil influences the types of \_\_\_\_\_ that can grow in a region.



Section 1 Abiotic Factors (continued)

**Main Idea**

**Sunlight**

I found this information on page \_\_\_\_\_.

**Temperature**

I found this information on page \_\_\_\_\_.

**Climate**

I found this information on page \_\_\_\_\_.

**Details**

**Label** the diagram to show the flow of energy through living things. Label consumers, producers, and sunlight.



**Analyze** how latitude and elevation affect temperature.

**Latitude:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Elevation:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Sequence** steps to explain the rain shadow effect.

1.	Moist air is forced upward by a mountain.
2.	
3.	
4.	

**CONNECT IT**

Describe the climate of your community. Identify its latitude, elevation, temperature, and precipitation characteristics.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# The Nonliving Environment

## Section 2 Cycles in Nature

**Skim** the headings and illustrations in Section 2. List three kinds of cycles you will learn about in the section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** biosphere to show its scientific meaning.

*biosphere*

**New Vocabulary**

Read the definitions below. Write the correct vocabulary term on the blank to the left.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

model describing how carbon molecules move between the living and the nonliving world

process that takes place when a gas changes to a liquid

process in which some types of bacteria in the soil change nitrogen gas into a form of nitrogen that plants can use

process that takes place when a liquid changes to a gas

model describing how water moves from Earth's surface to the atmosphere and back again through evaporation, condensation, and precipitation

model describing how nitrogen moves from the atmosphere to the soil, to living organisms, and then back to the atmosphere

**Academic Vocabulary**

**Define** model as it is used in the definitions above. Use a dictionary to help you.

*model*

\_\_\_\_\_

\_\_\_\_\_

Section 2 Cycles in Nature (continued)

**Main Idea**

**The Cycles of Matter**

I found this information on page \_\_\_\_\_.

**The Water Cycle**

I found this information on page \_\_\_\_\_.

**The Nitrogen Cycle**

I found this information on page \_\_\_\_\_.

**Details**

**Summarize** *the importance of cycles to life on Earth.*

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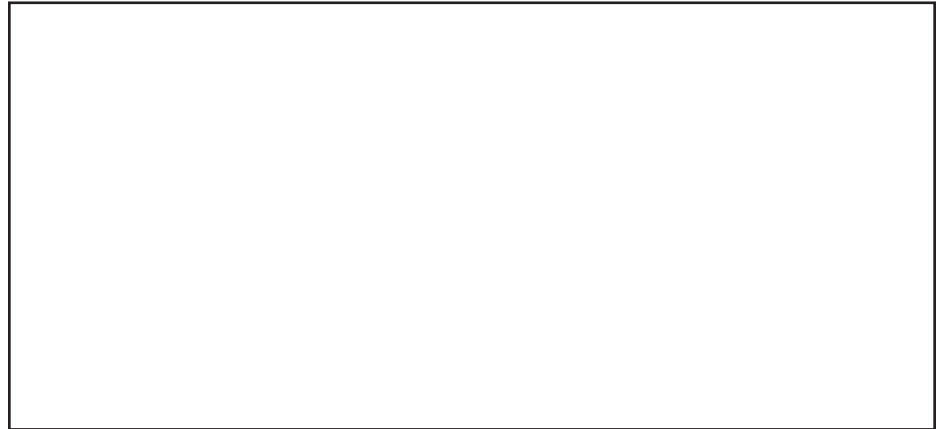
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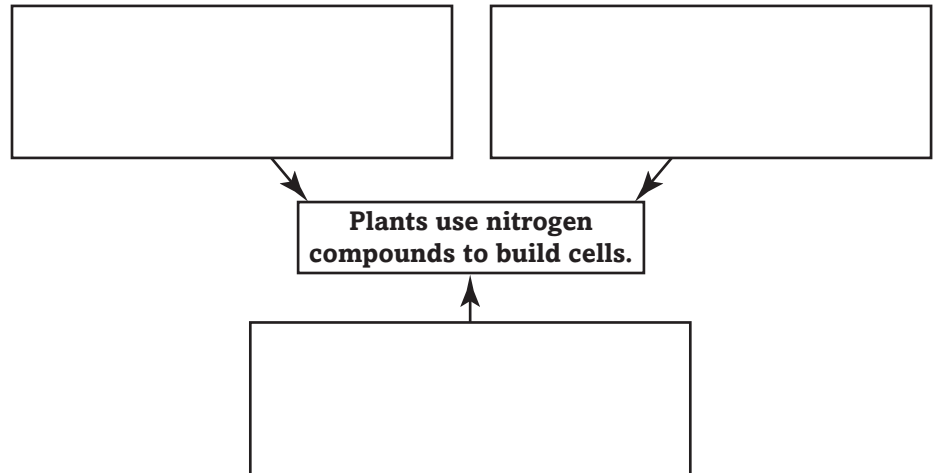
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**Model** *the water cycle in a drawing.*

- Label phases of the cycle including evaporation, transpiration, condensation, and precipitation.
- Label the sources and forms the water takes.
- Use arrows to show the direction in which water is moving at each part of the cycle.



**Identify** *the three ways that nitrogen is made available to plants.*



Section 2 Cycles in Nature (continued)

**Main Idea**

I found this information on page \_\_\_\_\_.

**Details**

**Describe** how harvesting removes soil nitrogen and how fertilizer and nitrogen-fixing crops can increase the amount of nitrogen in soil.

Harvesting: \_\_\_\_\_

Fertilizer: \_\_\_\_\_

Nitrogen-fixing crops: \_\_\_\_\_

**The Carbon Cycle**

I found this information on page \_\_\_\_\_.

**Model** the carbon cycle. Identify the role of each item shown in the cycle. Draw arrows showing the flow of carbon through the system.

Air \_\_\_\_\_

**Producers (Plants and algae)**  
\_\_\_\_\_  
\_\_\_\_\_.

**Burning wood and fossil fuels**  
\_\_\_\_\_  
\_\_\_\_\_.

**Consumers** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

**CONNECT IT**

Choose an organism. Explain its role in the water, nitrogen, and carbon cycles.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# The Nonliving Environment

## Section 3 Energy Flow

**Skim** Section 3 of your book. Read the headings and look at the illustrations. Write three questions that come to mind.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** energy to show its scientific meaning.

energy

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

**Define** the following terms to show their scientific meanings.

chemosynthesis

\_\_\_\_\_  
\_\_\_\_\_

food web

\_\_\_\_\_  
\_\_\_\_\_

energy pyramid

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

**Use a dictionary** to locate the scientific meaning of convert. Write a sentence using that scientific meaning.

convert

\_\_\_\_\_  
\_\_\_\_\_

Section 3 Energy Flow (continued)

**Main Idea**

**Converting Energy**

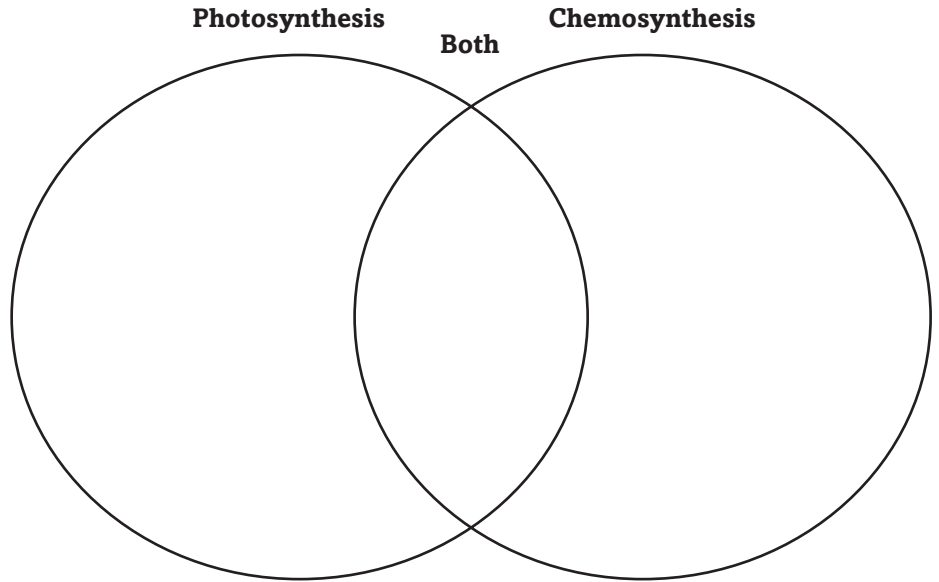
I found this information on page \_\_\_\_\_.

**Energy Transfer**

I found this information on page \_\_\_\_\_.

**Details**

**Compare and contrast** photosynthesis *and* chemosynthesis. Complete the Venn diagram with at least seven points of information from your book.



**Create** an example of a food chain.

- Include and label a producer, a herbivore, and a carnivore or omnivore that eats the herbivore.
- Use arrows to show the transfer of energy.

Section 3 Energy Flow (continued)

**Main Idea**

**Details**

I found this information on page \_\_\_\_\_.

**Synthesize** information about food webs. Draw arrows to show the energy transfers in the food web shown.

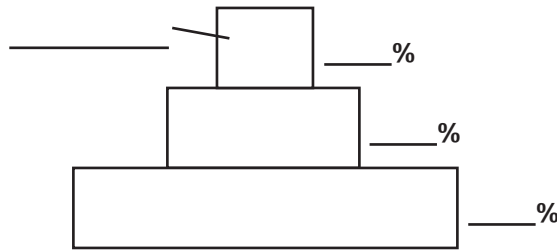


**Energy Pyramids**

I found this information on page \_\_\_\_\_.

**Sequence** the levels of an energy pyramid.

- Label each level as containing carnivores, herbivores, or producers.
- Label each level with the percentage of total energy that is available at that level.



**SYNTHESIZE IT**

Describe the flow of matter and energy in a food chain made up of grasses, mice, and hawks, and what might happen to the food chain if a fire destroyed much of the grass.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

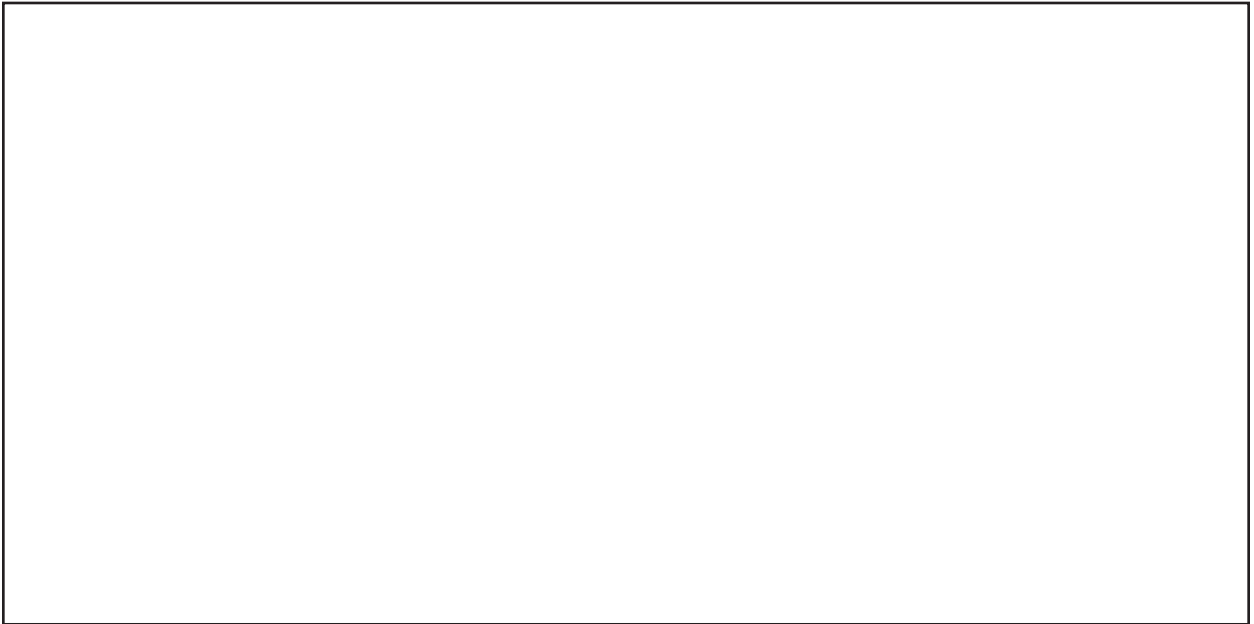
# Tie It Together

*A developer wants to build homes on land near your community and wants to know how the environment will affect the people who live in the homes, and how the homes will affect the environment.*

*Prepare an environmental study for the developer, including information about*

- the abiotic factors in the area that could affect the people in the home
- how the new homes might affect natural cycles and food webs in the area

*Use paragraphs and/or pictures to help you explain your points.*



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# The Nonliving Environment

## Chapter Wrap-Up

*Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column, then complete the table by filling in the third column. How do your ideas compare with those you provided at the beginning of the chapter?*

<b>K</b> <b>What I know</b>	<b>W</b> <b>What I want to find out</b>	<b>L</b> <b>What I learned</b>

### Review

*Use this checklist to help you study.*

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

Write three things that you learned while studying this chapter.

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# Ecosystems

## Before You Read

*Think about the terms and descriptions below. Infer which term most closely matches the description and write it on the line.*

	<b>biome</b>	<b>ecosystem</b>	<b>estuary</b>	<b>intertidal zone</b>
_____		community of living organisms interacting with each other and their physical environment		
_____		part of the shoreline that is under water at high tide and exposed to the air at low tide		
_____		a large geographic area with an interactive environmental community and similar climate		
_____		extremely fertile area where a river meets an ocean; contains a mixture of freshwater and saltwater and serves as a nursery for many species		



*Construct the Foldable as directed at the beginning of this chapter.*

### Science Journal

*What traits might plants on a burning hillside have that enable them to survive and reproduce?*

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# Ecosystems

## Section 1 How Ecosystems Change

**Skim** through Section 1 of your text. Write three things that might be discussed in this section.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*ecosystem*

**Define** the following key terms using your book or a dictionary.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*climax community*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*pioneer species*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*succession*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*stable*

\_\_\_\_\_  
\_\_\_\_\_

Section 1 How Ecosystems Change (continued)

**Main Idea**

**Ecological Succession**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Sequence** *the steps in the succession of a lawn to a climax community. The first one has been completed for you.*

Succession of a Lawn to Climax Community	
1.	The grass would get longer.
2.	
3.	
4.	
5.	

**Organize** *the information from your book to compare primary succession with secondary succession.*

	Primary Succession	Secondary Succession
	Lava from a volcano	Fire consumes a forest
Land consists of		
Starts with	_____ break down rock and decay, adding _____.	Soil contains _____.
Animals and wind carry		
Plants add		
Wildlife		

Section 1 How Ecosystems Change (continued)

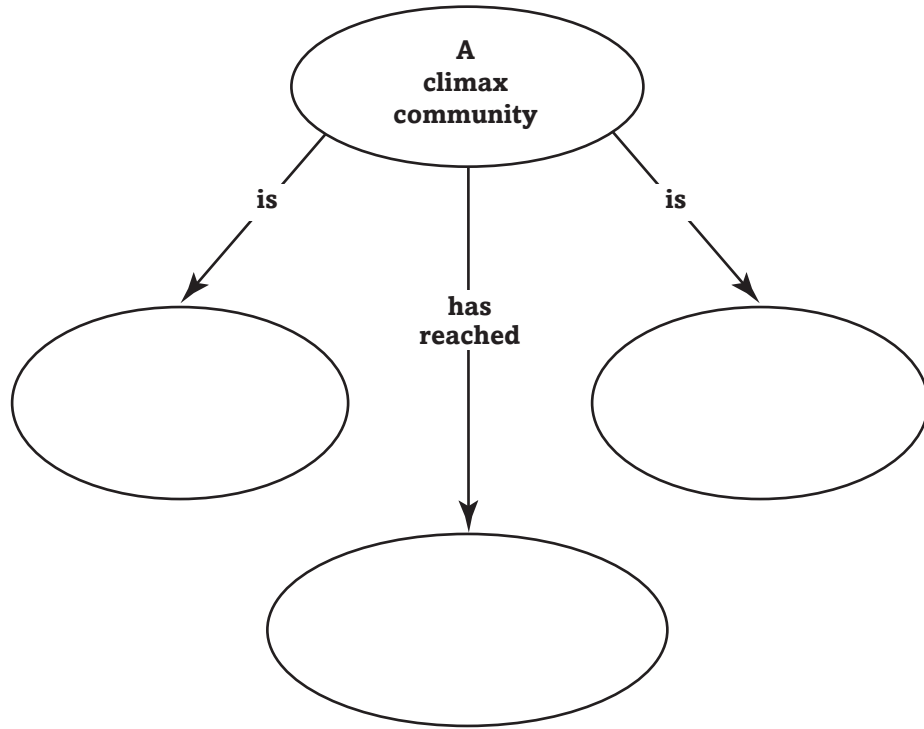
**Main Idea**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Complete** the graphic organizer to better understand the characteristics of a climax community.



**Identify** the three main characteristics of a forest climax community.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**CONNECT IT**

Use the information you have learned about succession to predict the growth of a community in a flooded river basin. Hypothesize whether the succession would be primary succession or secondary succession. Support your answer with facts from your book.

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# Ecosystems

## Section 2 Biomes

I found this information on page \_\_\_\_\_.

**Analyze** Look at the world map of the seven major land biomes in your book. Infer two factors you think scientists might use to classify biomes of the world.

1. \_\_\_\_\_

2. \_\_\_\_\_

### Review Vocabulary

Use the word *climate* in a scientific sentence.

*climate*

\_\_\_\_\_

\_\_\_\_\_

### New Vocabulary

**Define** Read the definitions below. Write the key terms on the blanks in the left column.

\_\_\_\_\_

most biologically diverse biome

\_\_\_\_\_

ideal biome for growing crops and raising cattle and sheep

\_\_\_\_\_

biome usually having four distinct seasons

\_\_\_\_\_

cold, dry, treeless biome with a short growing season and permafrost

\_\_\_\_\_

biome with thin soil where organisms are adapted to survive extreme conditions

\_\_\_\_\_

biome containing cone-bearing evergreen trees and dense forests

### Academic Vocabulary

Use a dictionary to define *mature* as a verb.

*mature*

\_\_\_\_\_

\_\_\_\_\_

Section 2 Biomes (continued)

**Main Idea**

**Details**

**Major Biomes**

I found this information on page \_\_\_\_\_.

**Complete** the comparison chart using the world map of seven biomes.

	Physical Description	Average Precipitation	Temperature	Location	Plant and Animal Life
Tundra		less than 25 cm per year			Plants:  Animals:
Taiga			temperature range: $-54^{\circ}\text{C}$ to $21^{\circ}\text{C}$		Plants:  Animals:
Temperate Deciduous Forest				eastern US, Europe, parts of Asia and Africa	Plants:  Animals:
Temperate Rain Forest	dense forest with a variety of plants and animals				Plants:  Animals:

Section 2 Biomes (continued)

**Main Idea** \_\_\_\_\_ **Details** \_\_\_\_\_

	Physical Description	Average Precipitation	Temperature	Location	Plant and Animal Life
Tropical Rain Forest					4 zones of plant and animal life <b>Plants:</b>  <b>Animals:</b>
Desert				western US and S. America, Africa, parts of Australia and Asia	<b>Plants:</b>  <b>Animals:</b>
Grasslands			mild to hot	prairies— N. America, steppes— Asia, savannas— Africa pampas— S. America	<b>Plants:</b>  <b>Animals:</b>

**CONNECT IT**

Analyze the information you recorded about biomes. Compare and contrast the tundra with the desert.

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# Ecosystems

## Section 3 Aquatic Ecosystems

*Read the What You'll Learn objectives of Section 3. Write questions that come to mind from reading these statements.*

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

**Review Vocabulary**

*aquatic*

**Define** the key terms using your book or a dictionary.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*coral reef*

\_\_\_\_\_  
\_\_\_\_\_

*wetland*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*promote*

\_\_\_\_\_  
\_\_\_\_\_

**Freshwater Ecosystems**

*I found this information on page \_\_\_\_\_.*

**Organize** the four important factors that determine how well a species can survive in an aquatic environment.

1.
2.
3.
4.

Section 3 Aquatic Ecosystems (continued)

**Main Idea**

**Freshwater Ecosystems**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Compare** fast-moving streams with slower-moving streams as you complete the sentences below about freshwater environments.

**Fast-moving Streams**

Currents quickly \_\_\_\_\_

\_\_\_\_\_.

As water tumbles, air \_\_\_\_\_.

These streams have clearer \_\_\_\_\_ and higher

\_\_\_\_\_.

**Slow-moving Streams**

Water moves slowly and debris \_\_\_\_\_.

These environments have higher \_\_\_\_\_, more

plant \_\_\_\_\_, and organisms \_\_\_\_\_

\_\_\_\_\_.

**Classify** each statement as a characteristic of pond ecosystems, lake ecosystems, or both. Mark **P** for pond, **L** for lake, or **B** for both ecosystems.

\_\_\_\_\_ more plants than flowing water environments

\_\_\_\_\_ deeper water and colder water temperatures

\_\_\_\_\_ larger body of water

\_\_\_\_\_ plankton floating near the surface

\_\_\_\_\_ ecosystem high in nutrients

\_\_\_\_\_ small, shallow body of water

\_\_\_\_\_ lower light levels at depth limit types of organisms

\_\_\_\_\_ plant growth limited to shallow water near shore

\_\_\_\_\_ water hardly moves

Section 3 Aquatic Ecosystems (continued)

**Main Idea**

**Freshwater Ecosystems**

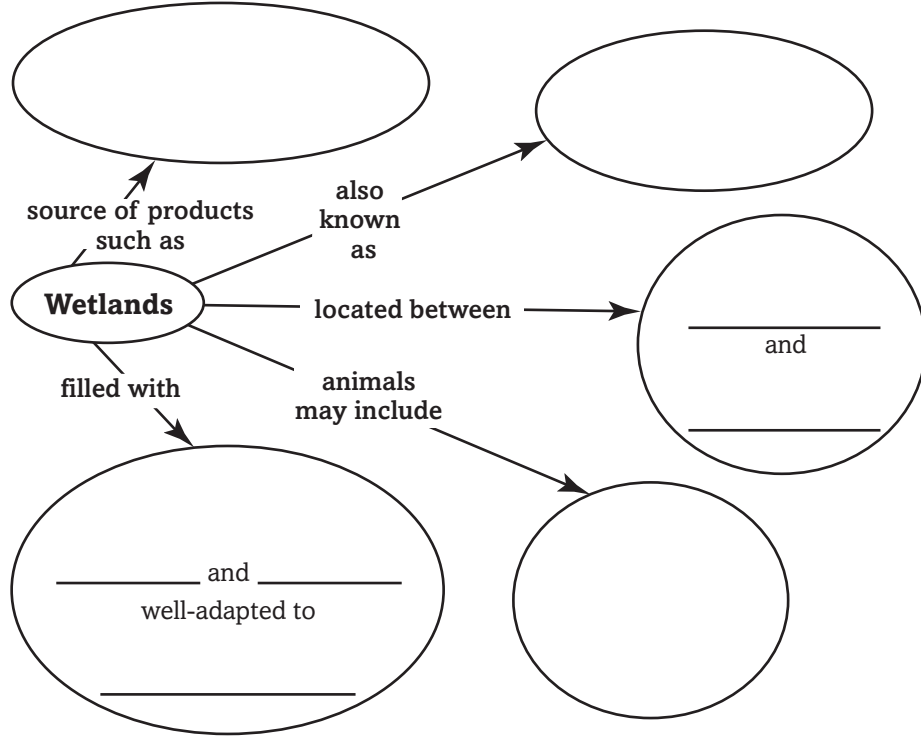
I found this information on page \_\_\_\_\_.

**Saltwater Ecosystems**

I found this information on page \_\_\_\_\_.

**Details**

Organize information about wetlands in the concept map.



Complete the outline about saltwater ecosystems.

I. Coral Reef ecosystems are \_\_\_\_\_  
\_\_\_\_\_

A. reefs formed by \_\_\_\_\_

B. damaged by \_\_\_\_\_

II. Seashores

A. affected by \_\_\_\_\_ and \_\_\_\_\_

B. intertidal zone organisms must adapt to \_\_\_\_\_,  
\_\_\_\_\_, and \_\_\_\_\_ changes

III. Estuaries

A. contain \_\_\_\_\_

B. are important for \_\_\_\_\_  
\_\_\_\_\_

# Tie It Together

## Interactions within Ecosystems

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*Select one of the ecosystems discussed in this chapter. You might choose a tundra ecosystem, a rain forest ecosystem, a coral reef ecosystem, or one of the other ecosystems. Take notes about your ecosystem on the lines below. Then, draw a picture of your ecosystem with its animal and plant inhabitants. Show any interactions that you described in your picture.*

**My ecosystem is a/an** \_\_\_\_\_.

**It includes these plants:**

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**Interactions between organisms include these:**

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**It includes these animals:**

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**Interactions between organisms and the environment include these:**

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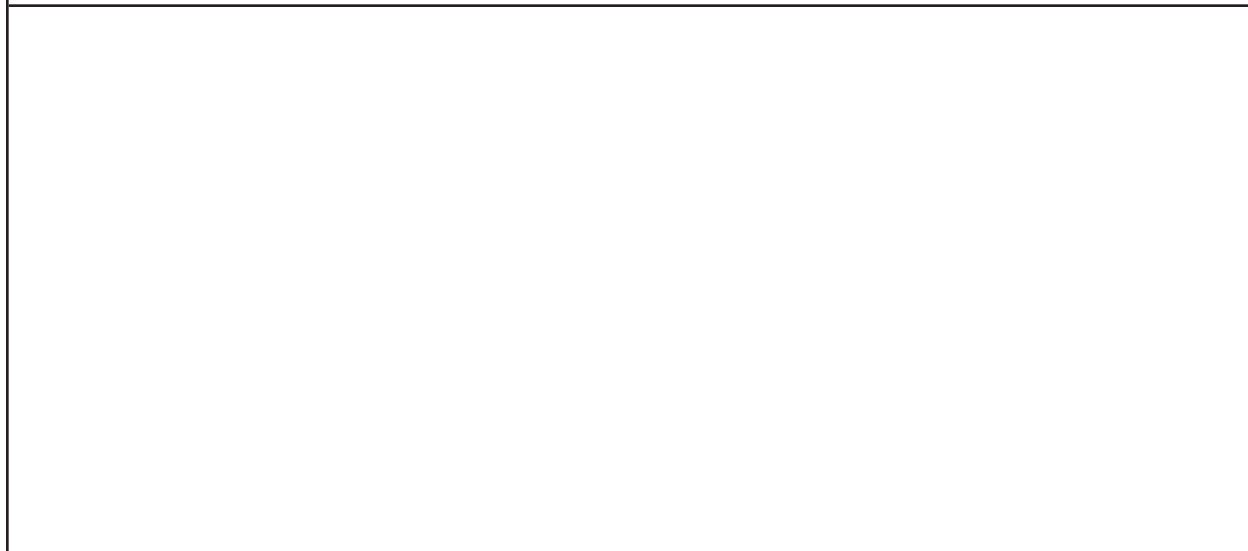
**Its environment includes these conditions:**

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### Sketch of My Ecosystem



# Ecosystems Chapter Wrap-Up

Think about the terms and descriptions below. Write the term that most closely matches the description on the line in front of the description. Compare your previous responses with these.

	biome	ecosystem	estuary	intertidal zone
_____		community of living organisms interacting with each other and their physical environment		
_____		part of the shoreline that is under water at high tide and exposed to the air at low tide		
_____		a large geographic area with an interactive environmental community and similar climate		
_____		extremely fertile area where a river meets an ocean; contains a mixture of freshwater and saltwater and serves as a nursery for many species		

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three things that you have learned about ecosystems.

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# Conserving Resources

## Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Conserving Resources
	<ul style="list-style-type: none"> <li>• There is an unlimited supply of fossil fuels.</li> </ul>
	<ul style="list-style-type: none"> <li>• Sun, wind, and heat within Earth’s crust can be used to generate power.</li> </ul>
	<ul style="list-style-type: none"> <li>• Acid precipitation washes nutrients from the soil.</li> </ul>
	<ul style="list-style-type: none"> <li>• The ozone layer emits radiation that can harm living cells.</li> </ul>



Construct the Foldable as directed at the beginning of this chapter.

### Science Journal

List some resources, other than water, air, and fossil fuels, that we depend on and describe how we use them.

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# Conserving Resources

## Section 1 Resources

**Predict** the topics that will be discussed in Section 1 after reading the headings and looking at the illustrations.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*geyser*

**Define** geyser to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*natural resource*

**Define** the following terms to show their scientific meanings.

\_\_\_\_\_  
\_\_\_\_\_

*hydroelectric power*

\_\_\_\_\_  
\_\_\_\_\_

*nuclear energy*

\_\_\_\_\_  
\_\_\_\_\_

*geothermal energy*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*modify*

**Define** modify. Then use it in an original sentence to show its scientific meaning.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 1 Resources (continued)

**Main Idea**

**Natural Resources**

I found this information on page \_\_\_\_\_.

**Fossil Fuels**

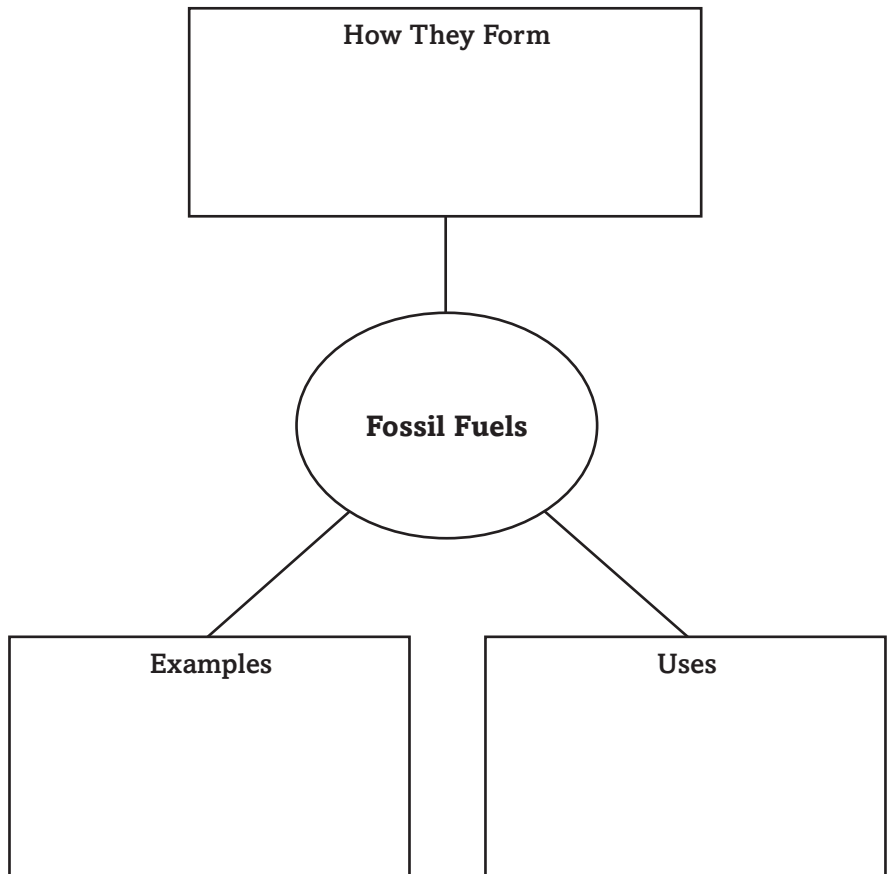
I found this information on page \_\_\_\_\_.

**Details**

**Compare** renewable *and* nonrenewable resources *by completing the chart below.*

Type of Resource	Description	Examples
Renewable		
Nonrenewable		

**Organize** information about fossil fuels in the concept web below.





Section 1 Resources (continued)

**Main Idea**

**Details**

*I found this information on page \_\_\_\_\_.*

**Summarize** three reasons that fossil fuels need to be conserved.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Alternatives to Fossil Fuels**

*I found this information on page \_\_\_\_\_.*

**Organize** information about alternative energy resources below.

Alternative Energy Resource	Important Information
Hydroelectric power	
Wind energy	
Geothermal energy	
Nuclear power	
Solar energy	

**SUMMARIZE IT**

Examine the circle graph in your book showing energy usage in the United States. Explain why so much of the United States' energy comes from fossil fuels in spite of the fact that fossil fuels cause pollution and are limited in supply.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Conserving Resources

## Section 2 Pollution

**Skim** the headings of Section 2 to determine three main types of pollution that will be discussed.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

**Define** atmosphere to show its scientific meaning.

atmosphere

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

Read each definition below. Write the correct vocabulary term in the blank to the left.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

substance that contaminates the environment

precipitation that has a pH below 5.6

trapping of heat from the Sun by Earth's atmosphere

waste materials that are harmful to human health or poisonous to living organisms

**Academic Vocabulary**

**Define** affect to show its scientific meaning.

affect

\_\_\_\_\_  
\_\_\_\_\_

Section 2 Pollution (continued)

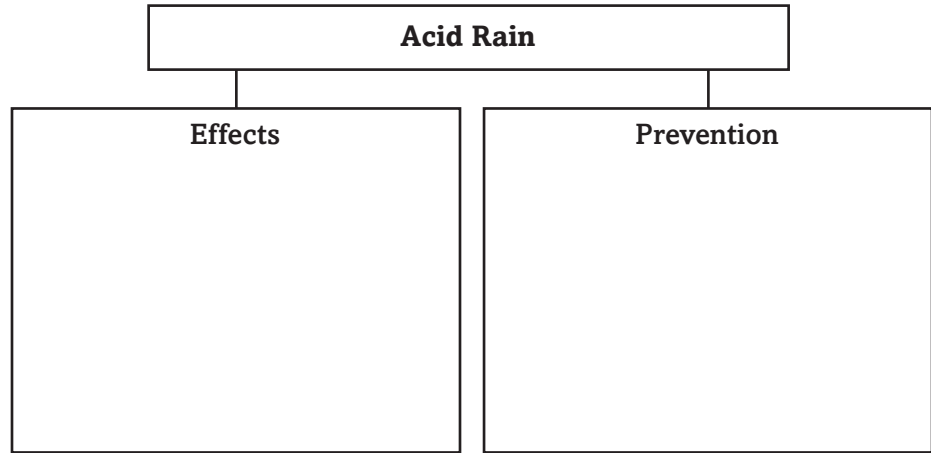
**Main Idea**

**Details**

**Acid Precipitation**

I found this information on page \_\_\_\_\_.

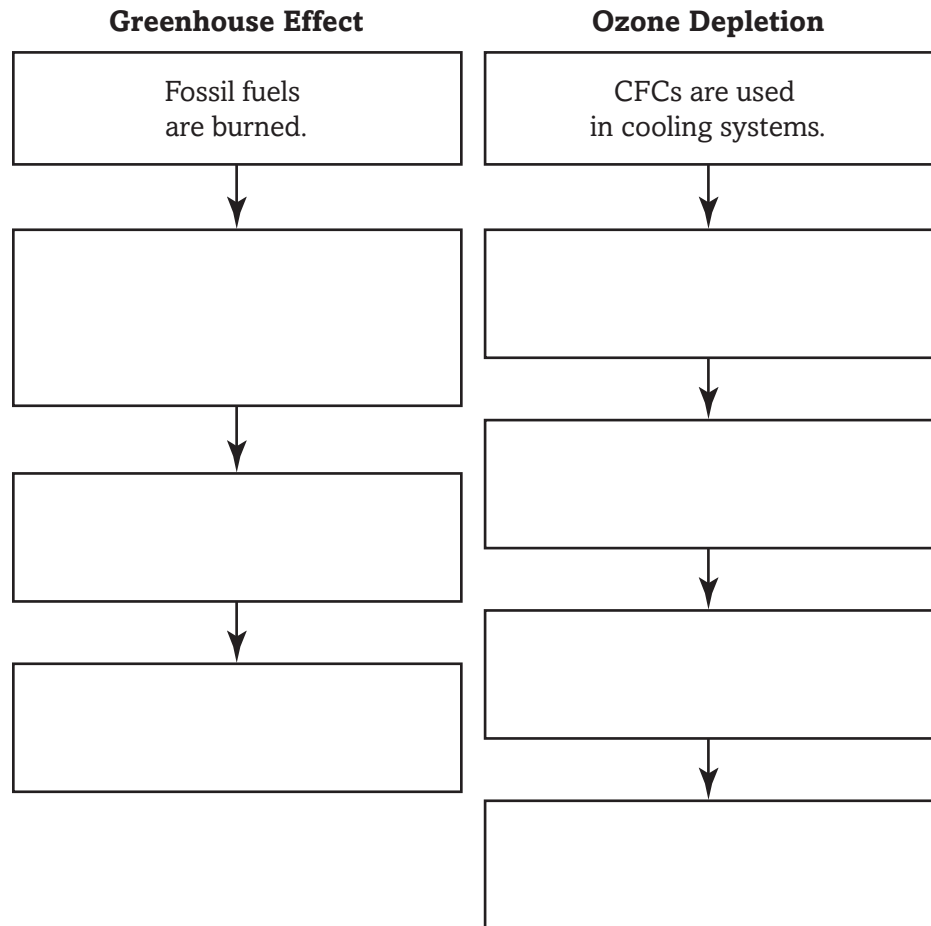
**Complete** the graphic organizer below to identify the effects of acid rain and ways to prevent acid rain.



**Greenhouse Effect and Ozone Depletion**

I found this information on page \_\_\_\_\_.

**Sequence** the events that cause the greenhouse effect and ozone depletion by completing the following graphic organizers.



Section 2 Pollution (continued)

**Main Idea**

**Indoor Air Pollution**

*I found this information on page \_\_\_\_\_.*

**Water Pollution**

*I found this information on page \_\_\_\_\_.*

**Soil Loss and Soil Pollution**

*I found this information on page \_\_\_\_\_.*

**Details**

**Compare and contrast** carbon monoxide and radon as sources of indoor air pollution by completing the following chart.

Gas	Source	Effect
Carbon monoxide		
Radon		

**Identify causes of the following three examples of water pollution.**

- Surface water pollution: \_\_\_\_\_  
\_\_\_\_\_
- Ocean water pollution: \_\_\_\_\_  
\_\_\_\_\_
- Groundwater pollution: \_\_\_\_\_  
\_\_\_\_\_

**Analyze causes of soil loss and soil pollution.**

**A. Causes of soil loss**

- \_\_\_\_\_
- \_\_\_\_\_

**B. Causes of soil pollution**

- \_\_\_\_\_
- \_\_\_\_\_

**CONNECT IT**

Explain in one sentence why people are concerned about pollution.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Conserving Resources

## Section 3 The Three Rs of Conservation

**Scan** the headings of Section 3. List the three Rs of conservation below.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

*reprocessing*

**Define** the following terms. Then write a paragraph that includes the scientific meaning of all three terms.

\_\_\_\_\_  
\_\_\_\_\_

**New Vocabulary**

*recycling*

\_\_\_\_\_  
\_\_\_\_\_

**Academic Vocabulary**

*participate*

\_\_\_\_\_  
\_\_\_\_\_

**Paragraph:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 3 The Three Rs of Conservation (continued)

**Main Idea**

**Conservation**

I found this information on page \_\_\_\_\_.

**Reduce**

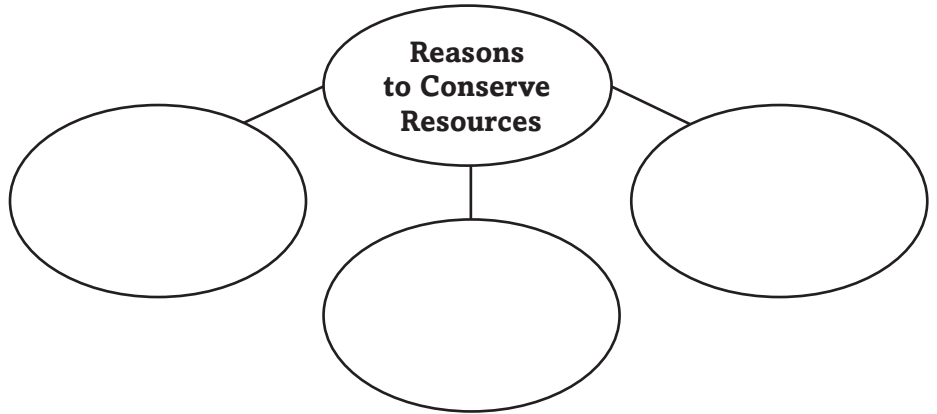
I found this information on page \_\_\_\_\_.

**Reuse**

I found this information on page \_\_\_\_\_.

**Details**

Identify reasons for conserving resources by completing the graphic organizer below.



Summarize four ways to reduce your own use of natural resources.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

Define reusing an item. Then identify at least two examples of ways to reuse items.

Definition: \_\_\_\_\_  
\_\_\_\_\_

Examples: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Section 3 The Three Rs of Conservation (continued)

**Main Idea**

**Details**

**Recycle**

I found this information on page \_\_\_\_\_.

**Summarize** recycling in the following chart.

Recycling	
Definition:	
Items that can be recycled	
Advantages of recycling	
How recycling is done	

**Analyze** the graph that describes the recycling rates of key household items. Then complete the statements.

The percentages of \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ being recycled increased from 1990 to 2000.

The percentages of \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ being recycled decreased from 1995 to 2000.

**SYNTHESIZE IT**

In a small group, discuss why some people do not recycle.

Summarize your discussion in the space below.

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# Conserving Resources Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Conserving Resources	After You Read
• There is an unlimited supply of fossil fuels.	
• Sun, wind, and heat within Earth's crust can be used to generate power.	
• Acid precipitation washes nutrients from the soil.	
• The ozone layer emits radiation that can harm living cells.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Self Check at the end of each section.
- Look over the Chapter Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, identify three new ways you could practice conservation.

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**adapt:** to change to fit new conditions

**affect:** to make something happen; to have an effect on

**annual:** plant that completes its life cycle in one year

**apparent:** readily seen, visible, readily understood or perceived; evident; obvious

**area:** amount or extent of a surface

**attach:** to be connected

**benefit:** to help

**capable:** able to do things; fit

**chemical:** made by chemistry

**chemical bond:** the force holding atoms together in a molecule

**code:** (noun) set of signals representing letters or numerals, used to send messages; (verb) to put in the form or symbols of a code

**complex:** composed of two or more parts; complicated

**compound:** (adjective) made of two or more separate parts or elements

**constant:** not changing; staying the same

**contact:** act or state of touching or meeting

**convert:** to change from one form or function to another

**coordinate:** to cause to work well together

**cycle:** a complete set of events or phenomena recurring in the same sequence

**decline:** to weaken or lessen

**definite:** having exact limits in size, shape, or number of parts

**detect:** to catch or discover; to manage to perceive

**distribute:** to divide among several or many

**dominate:** to control or rule

**energy:** capacity to perform some type of work or activity

**environment:** living and nonliving factors that surround an organism

**estimate:** (noun) an opinion of the value, quality, size, or cost of something; (verb) to form an opinion by reasoning

**external:** on, or for use on, the outside of the body

**facilitate:** to make easy or easier

**flexible:** able to bend or flex

**function:** (noun) a specific job or purpose; (verb) to carry out a specific action

**fundamental:** serving as an original or generating source; primary

**generate:** to originate or bring into existence

**hypothesis:** something that is suggested as being true for the purposes of argument or of further investigation

**identical:** same

**individual:** separate

**insert:** to put or fit (something) into something else

# Academic Vocabulary

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**interact:** to act on one another

**intermediate:** in the middle or being between

**internal:** of or on the inside

**interpret:** to tell the meaning of; to understand

**involve:** to include; to have as part of itself

**layer:** one thickness of something

**mature:** to become fully developed or ripe

**method:** way of doing something; a process

**migrate:** to move from one place to another place

**model:** a description used to help visualize something that cannot be directly observed

**modify:** to undergo change

**network:** a group of related parts

**obtain:** to get possession of, especially by some effort

**occur:** to take place; to be found

**participate:** to take part; share

**physical:** having to do with the body

**process:** series of steps performed in doing something

**promote:** to contribute to the growth of; to help bring into being

**react:** to act because something has happened; respond

**reject:** to refuse to accept or use

**relax:** to become inactive and lengthen

**release:** to set free; to let go

**remove:** to get rid of

**require:** to be in need of

**resource:** something used for help or support

**respond:** to react in response

**series:** a number of similar things coming one after another

**similar:** almost, but not exactly the same

**soil:** mixture of weathered rock, organic matter, water, and air that supports the growth of plant life

**source:** any person, place, or thing by which something is supplied

**specific:** exact; particular

**stable:** firmly established; not changing or fluctuating

**structure:** arrangement of parts or the way parts are arranged

**survive:** to continue living

**transfer:** to convey or transport from one place to another

**transport:** to carry from one place to another; the act, process, or means of transporting

**visible:** able to be seen

**widespread:** widely scattered or prevalent