Science Notebook

Glencoe Science

Science Level Green

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Mc Graw Hill Glencoe

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About the Consultant

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

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 emphasis 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.

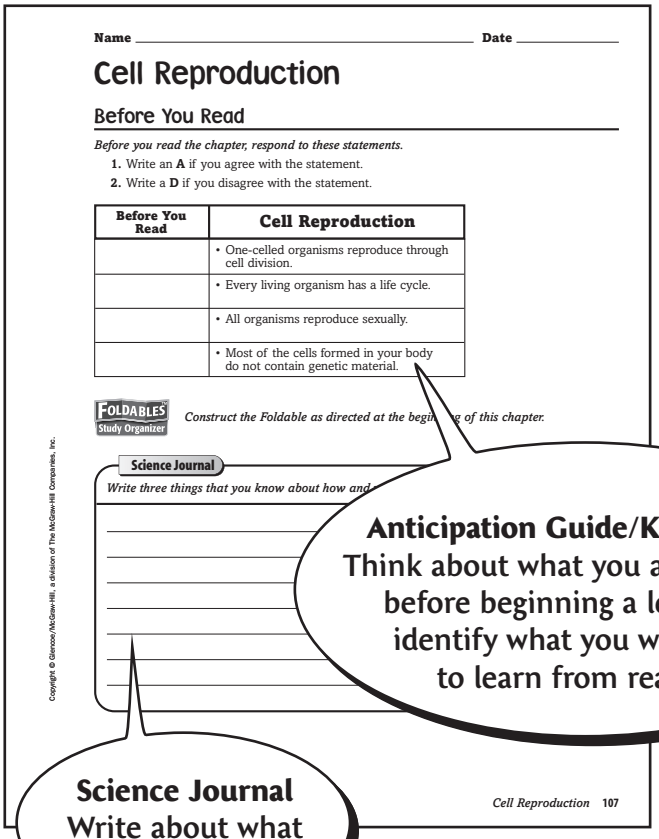
Note-Taking Don'ts

- **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:

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



Name _____ Date _____

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.

Before You Read	Cell Reproduction
	• 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.

FOLDABLES Study Organizer *Construct the Foldable as directed at the begi[illegible]g of this chapter.*

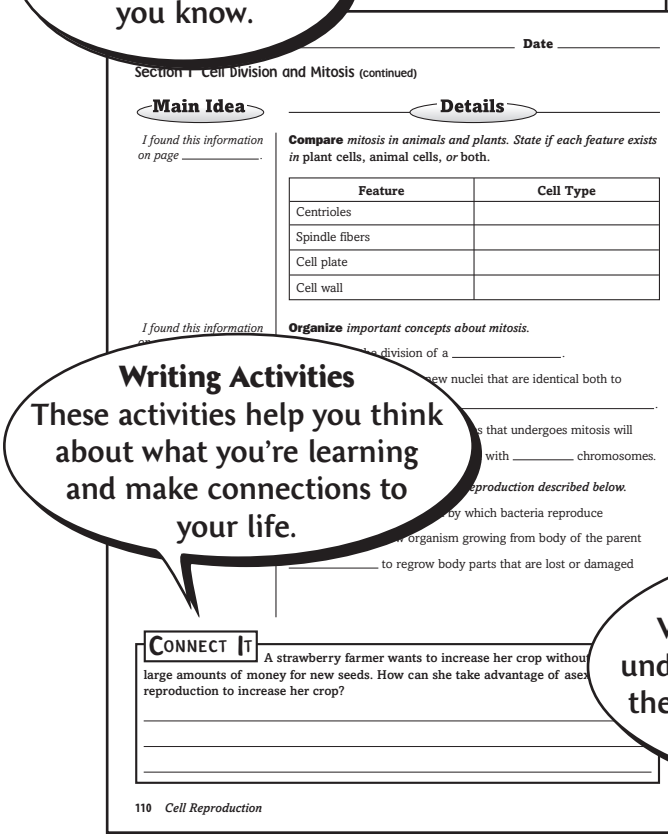
Science Journal

Write three things that you know about how and

Cell Reproduction **107**

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 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

Organize *important concepts about mitosis.*

[illegible]e division of a _____.

[illegible]ew nuclei that are identical both to _____.

[illegible]s that undergoes mitosis will [illegible] with _____ chromosomes.

[illegible]eproduction described below.

[illegible] by which bacteria reproduce

[illegible] 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[illegible] large amounts of money for new seeds. How can she take advantage of asex[illegible] reproduction to increase her crop?**

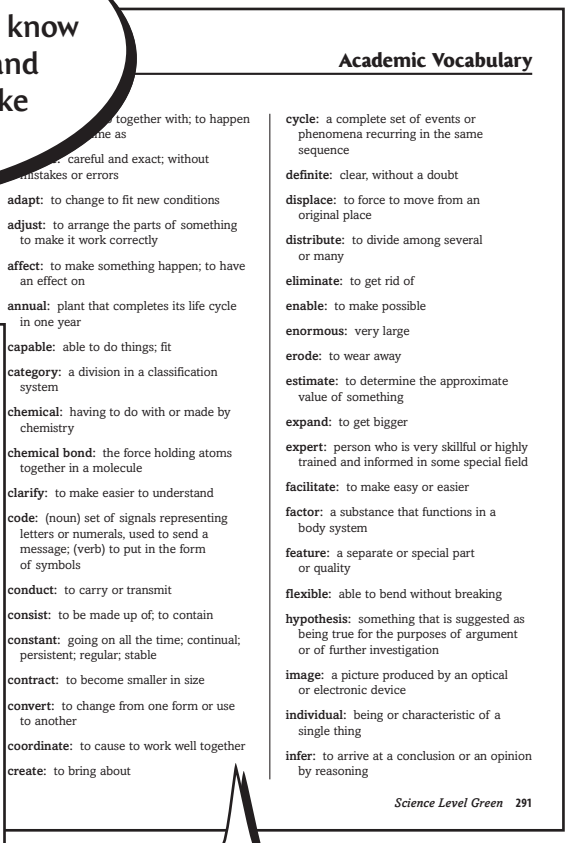
_____

_____

_____

110 *Cell Reproduction*

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



Academic Vocabulary

[illegible] together with; to happen [illegible]me as

[illegible]: careful and exact; without [illegible]mistakes or errors

adapt: to change to fit new conditions

adjust: to arrange the parts of something to make it work correctly

affect: to make something happen; to have an effect on

annual: plant that completes its life cycle in one year

capable: able to do things; fit

category: a division in a classification system

chemical: having to do with or made by chemistry

chemical bond: the force holding atoms together in a molecule

clarify: to make easier to understand

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

conduct: to carry or transmit

consist: to be made up of; to contain

constant: going on all the time; continual; persistent; regular; stable

contract: to become smaller in size

convert: to change from one form or use to another

coordinate: to cause to work well together

create: to bring about

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

definite: clear, without a doubt

displace: to force to move from an original place

distribute: to divide among several or many

eliminate: to get rid of

enable: to make possible

enormous: very large

erode: to wear away

estimate: to determine the approximate value of something

expand: to get bigger

expert: person who is very skillful or highly trained and informed in some special field

facilitate: to make easy or easier

factor: a substance that functions in a body system

feature: a separate or special part or quality

flexible: able to bend without breaking

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

image: a picture produced by an optical or electronic device

individual: being or characteristic of a single thing

infer: to arrive at a conclusion or an opinion by reasoning

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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 Cell Division and Mitosis (continued)

Main Idea — **Details**

Why is cell division important?

I found this information on page _____.

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

1. _____
2. _____
3. _____

The Cell Cycle

I found this information on page _____.

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 _____ _____.

Mitosis

I found this information on page _____.

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

1. _____
2. _____
3. _____

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

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 _____

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.

Cell Reproduction	After You Read
• 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, a
- ☐ Review the Self Check at the end of e
- ☐ Look over the Chapter Review

SUMMARIZE IT Li

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

Name _____ Date _____

Section 2 Sexual Reproduction and Meiosis (continued)

Main Idea — **Details**

Sexual Reproduction

I found this information on page _____.

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		

Meiosis and Sex Cells

I found this information on page _____.

Model *the four 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

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

Name _____ Date _____

The Nature of Science

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	The Nature of Science
	• Scientific methods are step-by-step procedures for solving problems.
	• Scientists work only in laboratories.
	• The last step in finding a scientific solution is to recognize a problem.
	• An independent variable is a factor in an experiment that is changed by the investigator.

FOLDABLES™ Study Organizer

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

Science Journal

Write about a human artifact you know of that was discovered in an area near your home, or that was unearthed in another region.

Name _____ **Date** _____

The Nature of Science

Section 1 How Science Works

Skim *Section 1 of your book. Read the headings and look at the illustrations. Write three questions that come to mind.*

1. _____
2. _____
3. _____

Review Vocabulary

Define *the following term using your book or a dictionary.*

artifact _____

New Vocabulary

Use your book to define the following terms.

science _____

technology _____

Academic Vocabulary

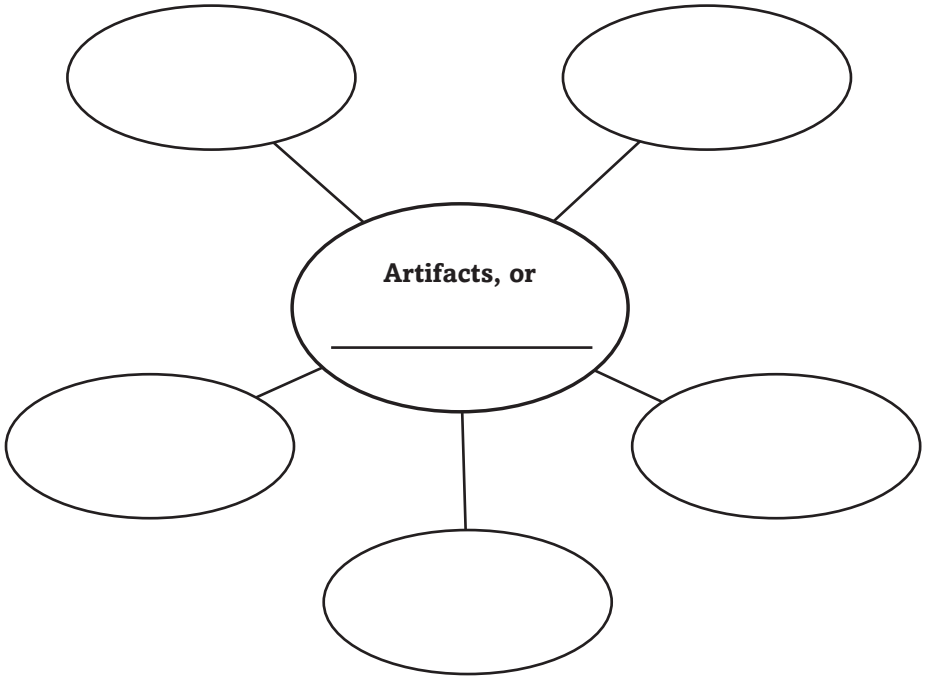
Use your book or dictionary to define the following term.

expert _____

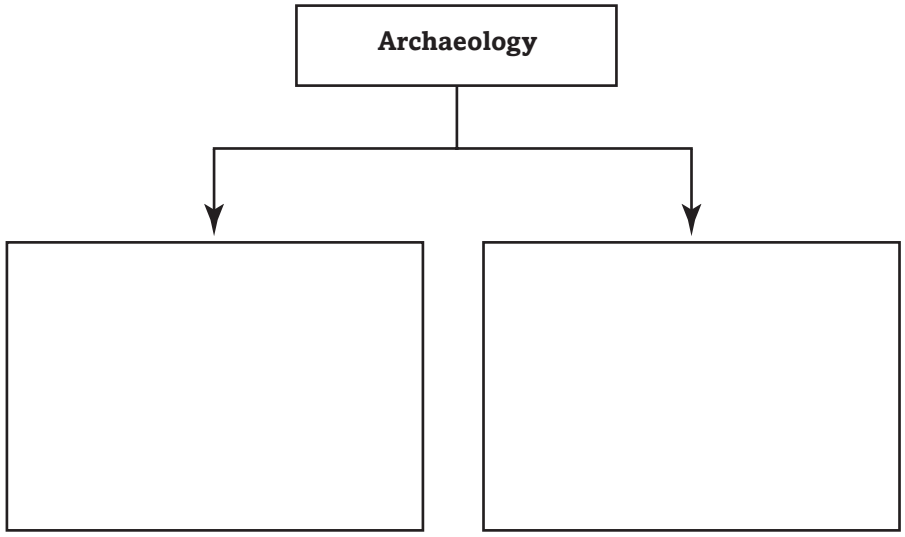
Name _____ **Date** _____

Section 1 How Science Works (continued)

Main Idea	Details
Groundbreaking News *I found this information on page _____.*	**Classify** *objects that archaeologists study as artifacts. Identify what an artifact is, and then complete the concept map.*



Researching the Past *I found this information on page _____.*	**Contrast** *the two branches of archaeology. Complete the diagram.*



Name _____ **Date** _____

Section 1 How Science Works (continued)

Main Idea

I found this information on page _____.

Details

Summarize technology *and how it is used in archaeology.*

Technology
Definition:
Examples:
Uses in Archaeology:

Digging In

I found this information on page _____.

Sequence *steps used by archaeologists to remove and study artifacts from a site.*

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Connect It

Describe why the study of past cultures is important.

_____

_____

_____

_____

Name _____ Date _____

The Nature of Science

Section 2 Scientific Problem Solving

Predict *Read the title of Section 2 and make three predictions about what might be discussed in this section.*

1. _____
2. _____
3. _____

Review Vocabulary

analyze

Write a sentence using the word **analyze**.

_____

_____

New Vocabulary

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

_____ conclusion about an observation

_____ factor or outcome that will be measured in an experiment

_____ factor in an experiment that stays the same

_____ step-by-step procedures of scientific problem solving

_____ statement that can be tested

_____ information that you gather with your senses

_____ factor that you change in an experiment

_____ standard used for comparison

Academic Vocabulary

project

Use your book or a dictionary to define **project** *as a noun and as a verb.*

_____

_____

_____

Name _____ **Date** _____

Section 2 Scientific Problem Solving (continued)

Main Idea

Details

Scientific Methods

I found this information on page _____.

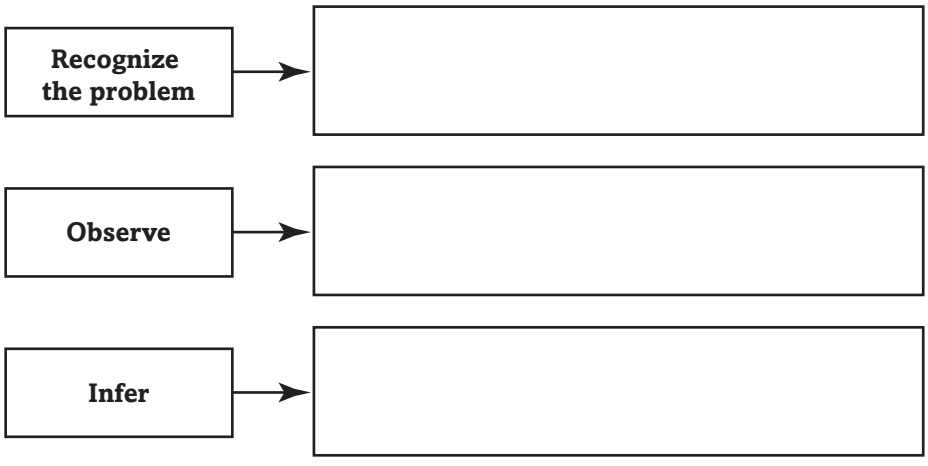
Complete *the list of nine steps that might be used to solve a problem scientifically. Use the headings in the section to help you.*

Steps	
1. Recognize the problem	6.
2.	7.
3.	8.
4.	9.
5.	

Recognize the Problem

I found this information on page _____.

Organize *information about the first steps in the* scientific method *described in your book. Complete the concept maps.*



Form a Hypothesis

I found this information on page _____.

Complete *the description of a* hypothesis. *Fill in the missing words.*

A hypothesis is a statement that can be _____. It is based on _____, _____, and _____.

Name _____ **Date** _____

Section 2 Scientific Problem Solving (continued)

Main Idea

Details

Test Your Hypothesis

I found this information on page _____.

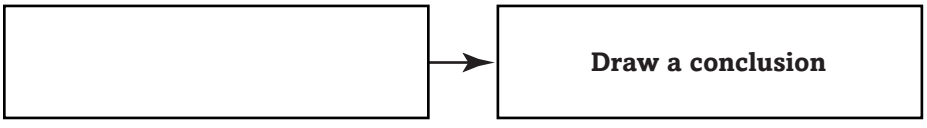
Compare independent variables, dependent variables, constants, *and* controls. *Complete the chart.*

	Role in Experiment
Independent Variable	
Dependent Variable	
Constant	
Control	

Analyze Your Data

I found this information on page _____.

Analyze *what needs to happen before drawing a conclusion.*



Draw Conclusions and Communicate

I found this information on page _____.

Summarize *the last two steps in the scientific method described in your book. Describe each step and give an example.*

Draw Conclusions: _____

_____

Example: _____

_____

Communicate: _____

Example: _____

CONNECT IT

You are a medical researcher, testing a new drug to treat asthma. State why it is important to repeat your experiments.

_____

_____

_____

Name _____ **Date** _____

The Nature of Science 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.

The Nature of Science	After You Read
• Scientific methods are step-by-step procedures for solving problems.	
• Scientists work only in laboratories.	
• The last step in finding a scientific solution is to recognize a problem.	
• An independent variable is a factor in an experiment that is changed by the investigator.	

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 the nature of science.**

_____

_____

_____

_____

Name _____ Date _____

Minerals

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	Minerals
	• Atoms in a mineral are arranged in an orderly pattern.
	• Minerals are made in the lab from natural materials.
	• Diamonds are so hard they cannot be broken.
	• Minerals are a source of metals and other useful elements.

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

Science Journal

Write two questions that you would ask a gemologist—one who studies gems and gemstones—about the minerals that he or she works with.

Name _____ **Date** _____

Minerals

Section 1 Minerals

Skim *through Section 1 of your book. Read the headings and examine the illustrations. Write three questions that come to mind.*

1. _____
2. _____
3. _____

Review Vocabulary

Define atoms *using your book or a dictionary.*

atoms _____

New Vocabulary

Use your book to define the following terms.

mineral _____

crystal _____

magma _____

silicate _____

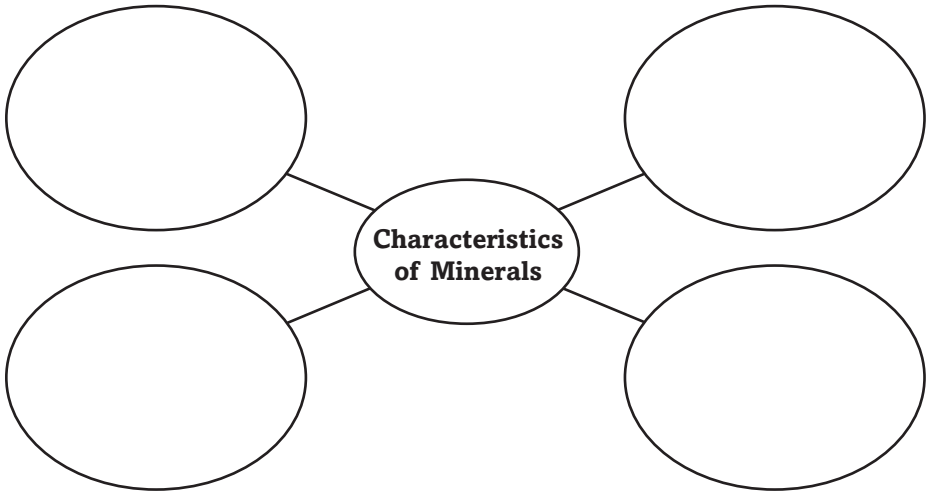
Academic Vocabulary

Use a dictionary to define occur.

occur _____

Name _____ **Date** _____

Section 1 Minerals (continued)

Main Idea	Details
What is a mineral? *I found this information on page _____.*	**Organize** *the four characteristics shared by all* minerals *in the concept web below.* 
The Structure of Minerals *I found this information on page _____.*	**Model** *the structure of minerals by using simple geometric shapes or dot patterns to represent atoms arranged in a* crystalline pattern. **Summarize** *how* atoms *are arranged in* minerals. _____ _____ _____

Name _____ **Date** _____

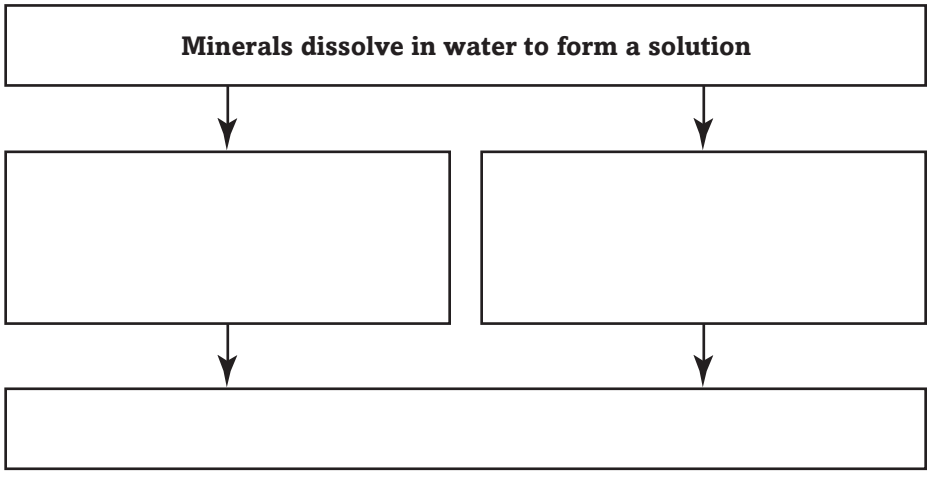
Main Idea

Details

The Structure of Minerals

I found this information on page _____.

Sequence *the two processes by which minerals form from solution by completing the diagram below.*



Mineral Compositions and Groups

I found this information on page _____.

Analyze *the chart of* Elements in Earth's Crust *that is provided in your book, and complete the following sentences.*

1. Most of Earth's crust is made up of only _____ elements.
2. _____ and _____ are the most abundant elements, making up about _____ percent of Earth's crust.
3. Six other common elements are _____ _____.

Distinguish *between a* carbonate *and a* silicate. *Then identify two carbonates and two silicates.*

_____

_____

_____

Connect It

Critique the statement "Coal is an essential mineral for society."

_____

_____

_____

Name _____ Date _____

Minerals

Section 2 Mineral Identification

Predict *three things that you expect to learn based on the headings in Section 2.*

1. _____

2. _____

3. _____

Review Vocabulary

Define physical property *using your book or a dictionary.*

physical property _____

New Vocabulary

Write the correct vocabulary term next to its definition.

_____ measure of how easily a mineral can be scratched

_____ describes the way a mineral reflects light from its surface; can be metallic or nonmetallic

_____ color of a mineral when it is in powdered form

_____ physical property of some minerals that causes them to break along smooth, flat surfaces

_____ physical property of some minerals that causes them to break with uneven, rough, or jagged surfaces

Academic Vocabulary

Use a dictionary to define obvious.

obvious _____

Name _____ **Date** _____

Section 2 Mineral Identification (continued)

Main Idea | **Details**

Physical Properties

I found this information on page _____.

Summarize *why attempting to identify a mineral by its color alone may sometimes be deceiving.*

_____

_____

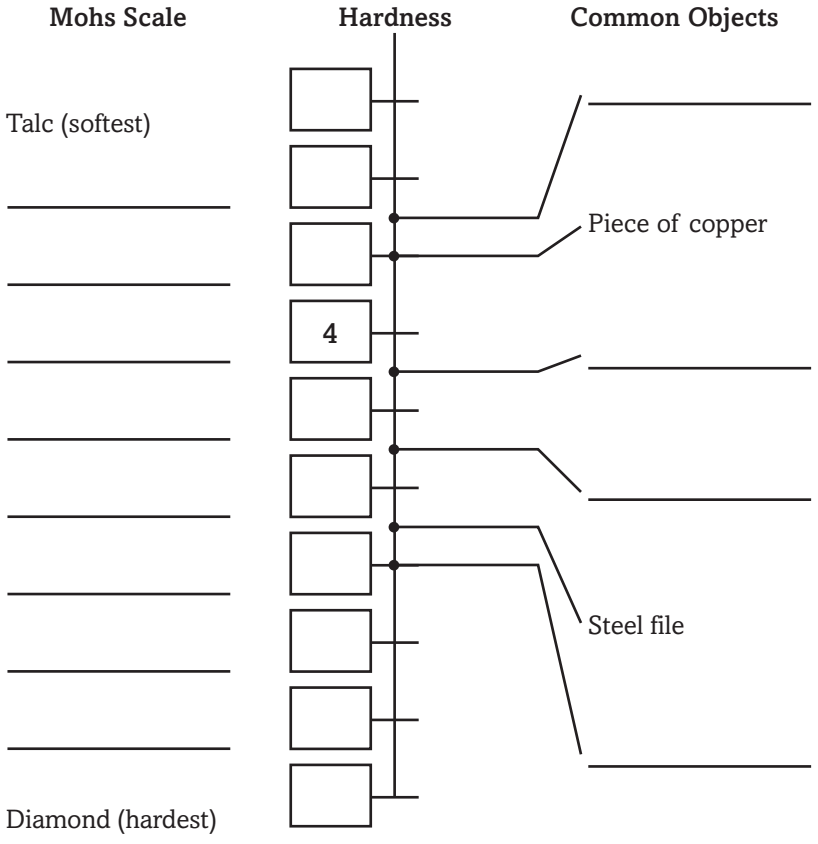
_____

_____

I found this information on page _____.

Compare and contrast mineral hardness *with the hardness of common objects by completing the diagram below.*

Mineral Hardness



Analyze *the chart by completing the prompts.*

Your fingernail can scratch the minerals _____ and _____.

A streak plate is softer than the minerals _____, _____, and _____.

Name _____ **Date** _____

Section 2 Mineral Identification (continued)

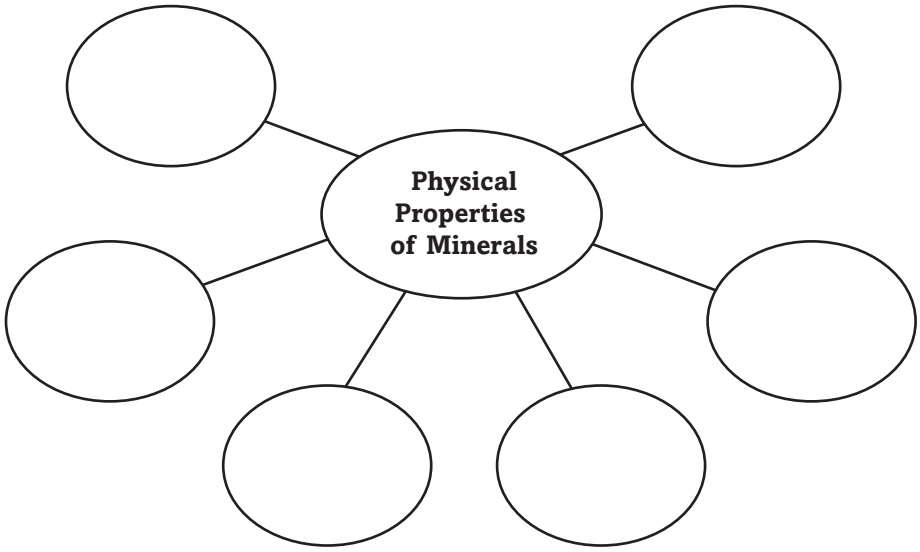
Main Idea

Physical Properties

I found this information on page _____.

Details

Create *a concept web that identifies* six properties *used to identify minerals.*



I found this information on page _____.

Identify *the unique properties of* lodestone *and* calcite.

lodestone	calcite

Connect It

Suppose you were given an assignment to scratch your name into a piece of glass on a special name plate. Identify which of the following minerals you could use. Which would work best? Support your choices with reasons and examples.

diamond gypsum apatite quartz

_____

_____

_____

_____

Name _____ **Date** _____

Minerals

Section 3 Uses of Minerals

Predict *three things that might be discussed in Section 3. Read the headings to help you make your predictions.*

1. _____
2. _____
3. _____

Review Vocabulary

Define metal *using your book or a dictionary.*

metal _____

New Vocabulary

Use your book to define the following terms. Then use each term in a sentence that shows its scientific meaning.

gem _____

ore _____

Academic Vocabulary

Use a dictionary to define accurate.

accurate _____

Name _____ **Date** _____

Section 3 Uses of Minerals

Main Idea	Details

Gems

I found this information on page _____.

Summarize *what distinguishes* gems *from common samples of minerals.*

_____

_____

I found this information on page _____.

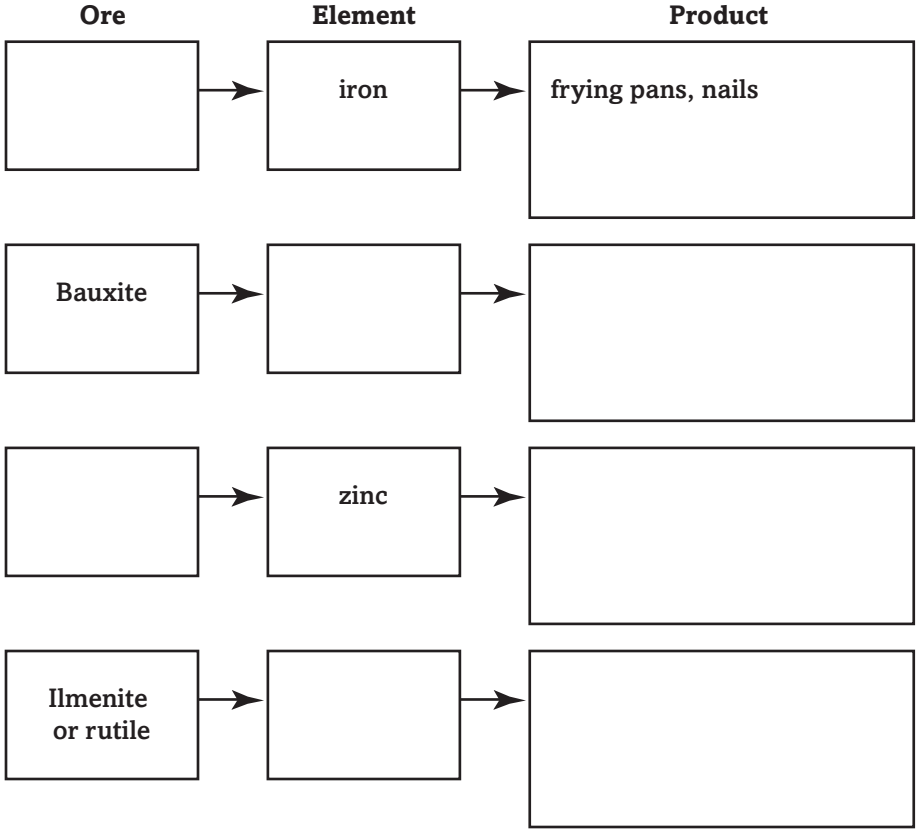
Complete *the chart to list some gems and their uses.*

Useful Gems	
Gem	Uses
	in cutting tools
Rubies	
Quartz crystals	

Useful Elements in Minerals

I found this information on page _____.

Sequence *the stages from ore, to refined element, to manufactured product.*



Name _____ **Date** _____

Section 3 Uses of Minerals

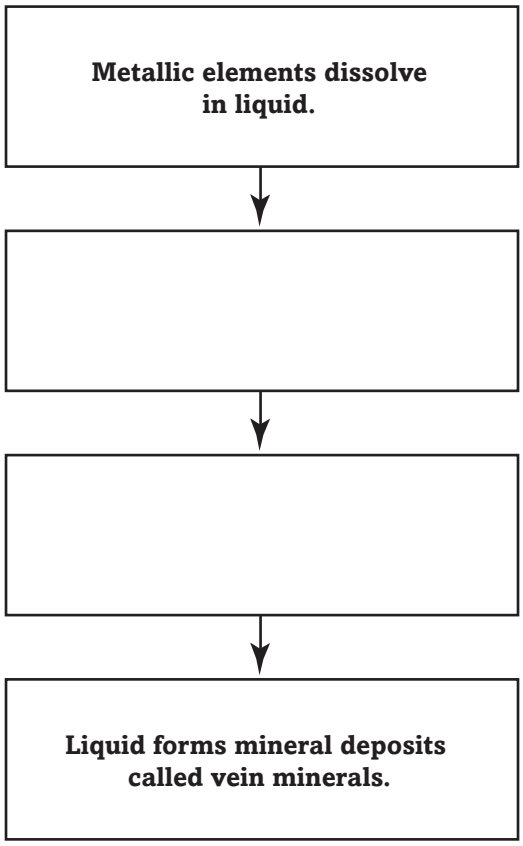
Main Idea

Useful Elements in Minerals

I found this information on page _____.

Details

Complete *the flow chart to describe how vein minerals form.*



Synthesize It

Infer why aluminum is more expensive than iron or steel. Compare the availability of aluminum recycling to that of iron or steel. Explain your reasoning.

_____

_____

_____

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Synthesize

Create a concept web to summarize what you have learned about mineral characteristics, composition, identifcation, and uses. (Hint: You may find it easier to write a list of facts to include, and then organize them into the web.)

Name _____ **Date** _____

Minerals 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.

Minerals	After You Read
• Atoms in a mineral are arranged in an orderly pattern.	
• Minerals are made in the lab from natural materials.	
• Diamonds are so hard they cannot be broken.	
• Minerals are a source of metals and other useful elements.	

Review

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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

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

_____

_____

_____

_____

Name _____ Date _____

Rocks

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	Rocks
	• Heat can melt rock.
	• Rocks from lava form only under Earth's surface.
	• Rocks on Earth change slowly over time.
	• Many rocks form in layers.

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

Science Journal

Are you a rock collector? If so, write two sentences about your favorite rock. If not, describe rocks that you have seen in enough detail that a non-sighted person could visualize them.

Name _____ **Date** _____

Rocks

Section 1 The Rock Cycle

Skim *Section 1 of your book. Read the headings and examine the illustrations. Write three questions that come to mind.*

1. _____

2. _____

3. _____

Review Vocabulary

Define mineral *using your book or a dictionary.*

mineral _____

New Vocabulary

Use your book to define the following terms. Then use each term in an original sentence to show its scientific meaning.

rock _____

rock cycle _____

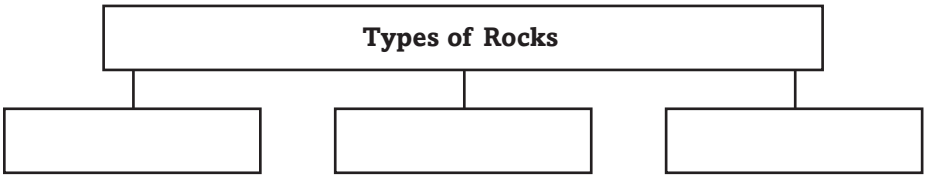
Academic Vocabulary

Use your book or a dictionary to define erode.

erode _____

Name _____ **Date** _____

Section 1 The Rock Cycle (continued)

Main Idea	Details
What is a rock? *I found this information on page* _____.	**Complete** *the blanks in this description of* **rock.** Most common rock contains one or more _____ such as _____ or _____. Rock types may also contain _____, _____, or _____.
The Rock Cycle *I found this information on page* _____.	**Classify** *the three major types of rocks. Complete the graphic organizer.* 
I found this information on page _____.	**Model** *the* **rock cycle.** ***Draw a diagram showing the ways in which rock can change. Include the five types of rock and the processes through which they can change.***

Name _____ **Date** _____

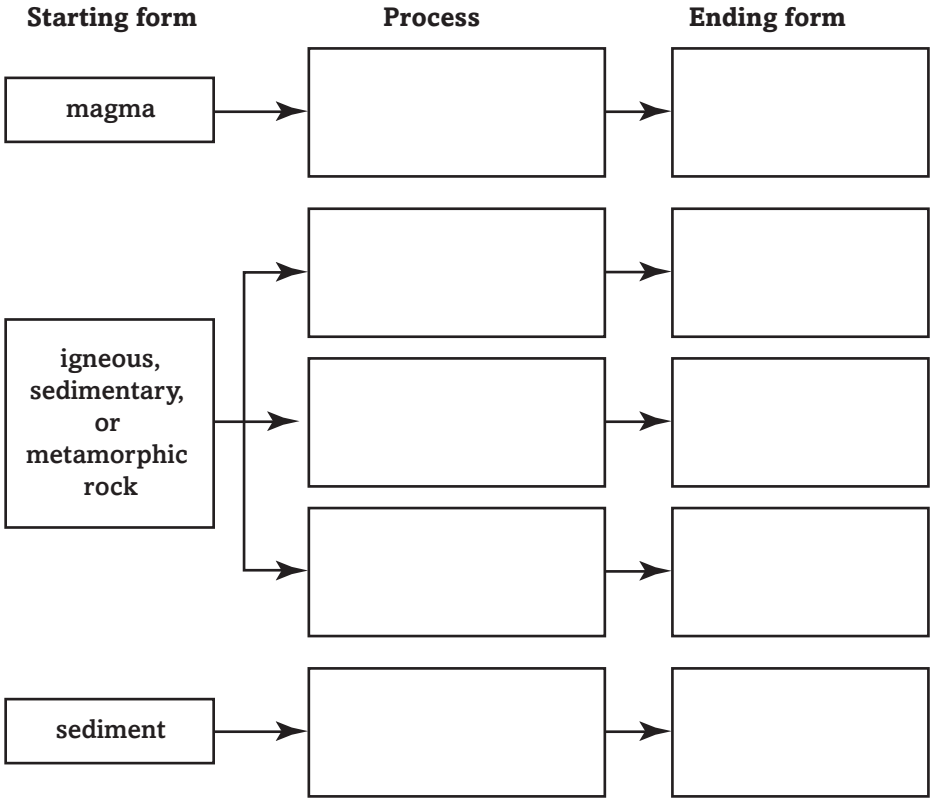
Section 1 The Rock Cycle (continued)

Main Idea | **Details**

The Rock Cycle

I found this information on page _____.

Organize *ways that each form of rock can change in the rock cycle. Complete the flowcharts.*



I found this information on page _____.

Complete *the blanks in the statements about the rock cycle.*

In the rock cycle, matter is _____ lost or destroyed. It is _____ and used in other forms. Neither _____, weathering, nor _____ destroys matter.

SUMMARIZE IT

Choose a form of rock. Then use the rock cycle diagram to describe all the possible ways that rock could form.

_____

_____

_____

_____

Name _____ **Date** _____

Rocks

Section 2 Igneous Rocks

Scan *the headings of Section 2. Identify three categories of formation of igneous rocks and three classification groups.*

1. _____, _____, or _____

2. _____, _____, or _____

Review Vocabulary

Explain how an element *is different from a* compound *or a* mixture.

element _____

New Vocabulary

Use your book to define the following terms.

igneous rock _____

lava _____

intrusive _____

extrusive _____

Academic Vocabulary

Use your book or a dictionary to define infer. *Then explain why inferring is important to scientists.*

infer _____

Name _____ **Date** _____

Section 2 Igneous Rocks (continued)

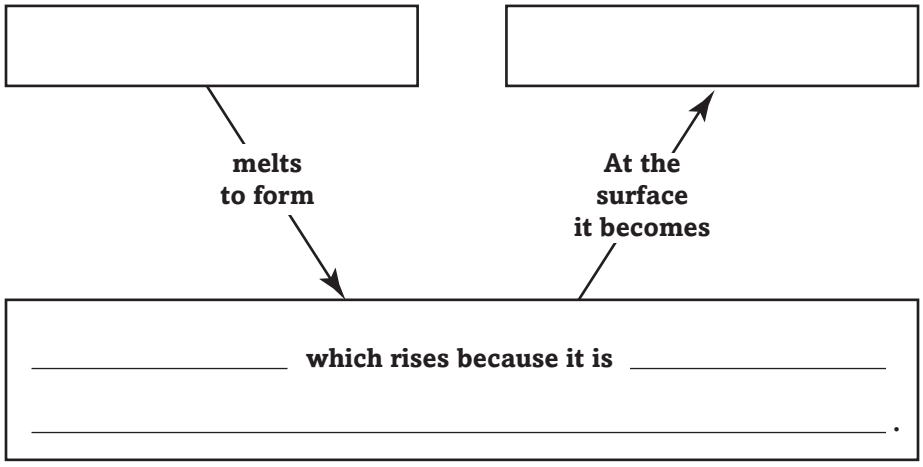
Main Idea

Details

Formation of Igneous Rocks

I found this information on page _____.

Complete *the flow chart about* lava.



I found this information on page _____.

Identify *two sources of heat that melt rocks beneath Earth's surface.*

1. _____

2. _____

I found this information on page _____.

Distinguish *among the types of* igneous rocks *and the processes by which they form. Complete the chart.*

Type of Rock	Characteristics	Formation Process
Intrusive		
Extrusive		
Volcanic Glass		

Name _____ **Date** _____

Section 2 Igneous Rocks (continued)

Main Idea

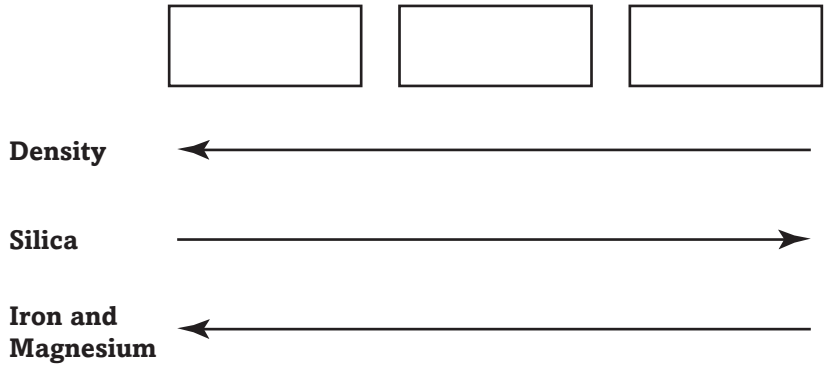
Classifying Igneous Rocks

I found this information on page _____.

I found this information on page _____.

Details

Sequence *the three types of igneous rock. The arrows show how the density, silica content, and iron and magnesium content increase among the types of igneous rock.*



Analyze *how the characteristics of each type of magma affect how it rises to the surface.*

Type of Magma	Characteristics	How It Rises to the Surface
Basaltic		oozes out through cracks in ocean floor or spills out of volcanos
Granitic		
Andesitic		

SYNTHESIZE IT

Classify the following rocks on the basis of what you have learned from this section. Identify whether each is intrusive or extrusive, and identify its composition as basaltic, granitic, or andesitic.

a) a dark-colored rock containing a high level of iron that formed from magma that cooled beneath Earth's surface

_____

b) a light-colored rock with high silica content that formed from lava on Earth's surface

_____

Name _____ **Date** _____

Rocks

Section 3 Metamorphic Rocks

Scan *the headings in Section 3. Predict two subjects that you expect will be discussed in this section.*

1. _____

2. _____

Review Vocabulary

Define pressure *using your book or a dictionary. Then write a sentence that shows its scientific meaning.*

pressure _____

New Vocabulary

Write the vocabulary term that matches each definition.

_____ rock formed when heat, pressure, or fluids act on other rock to change its form, its composition, or both

_____ describes metamorphic rock whose mineral grains line up in parallel layers

_____ describes metamorphic rock whose mineral grains generally do not form layers

Academic Vocabulary

Use a dictionary to define transform.

transform _____

Name _____ **Date** _____

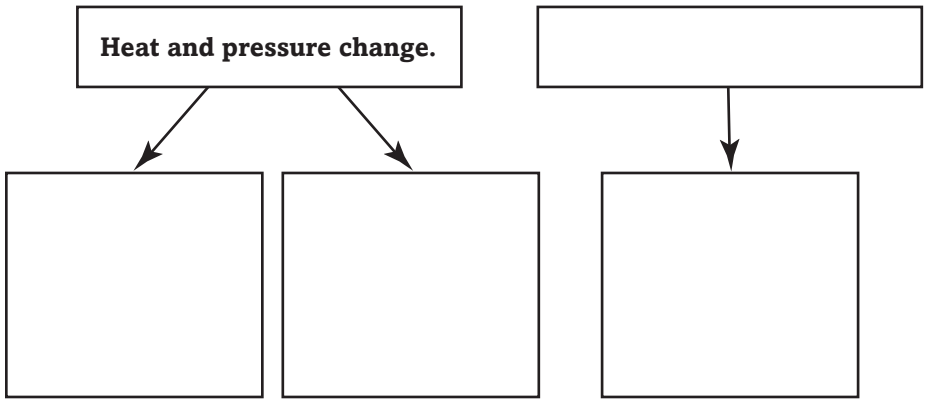
Section 3 Metamorphic Rocks (continued)

Main Idea | **Details**

Formation of Metamorphic Rocks

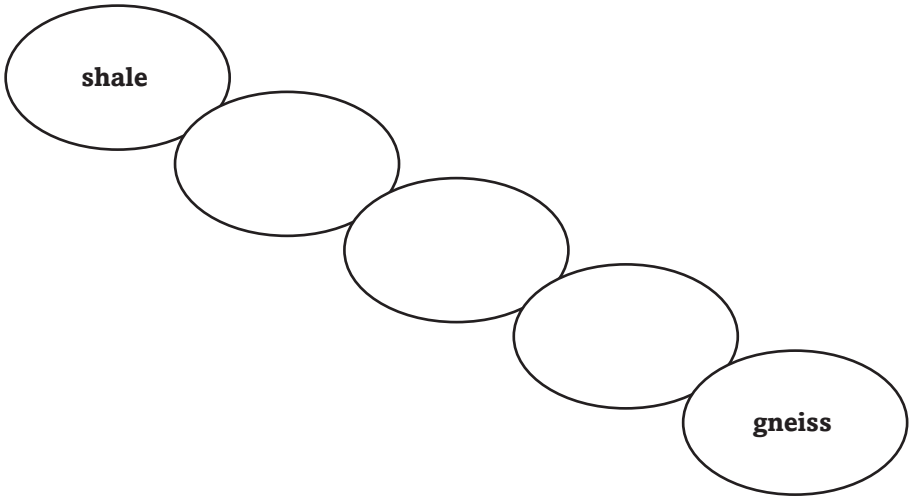
I found this information on page _____.

Organize *information about the processes that can form* metamorphic rock.



I found this information on page _____.

Sequence *the types of rocks in the process from shale to gneiss.*



I found this information on page _____.

Describe *the formation of* foliated *rock.*

_____

_____

Describe *the growth of grains in sandstone to change it to quartzite, a* nonfoliated *rock.*

_____

_____

_____

Name _____ **Date** _____

Section 3 Metamorphic Rocks (continued)

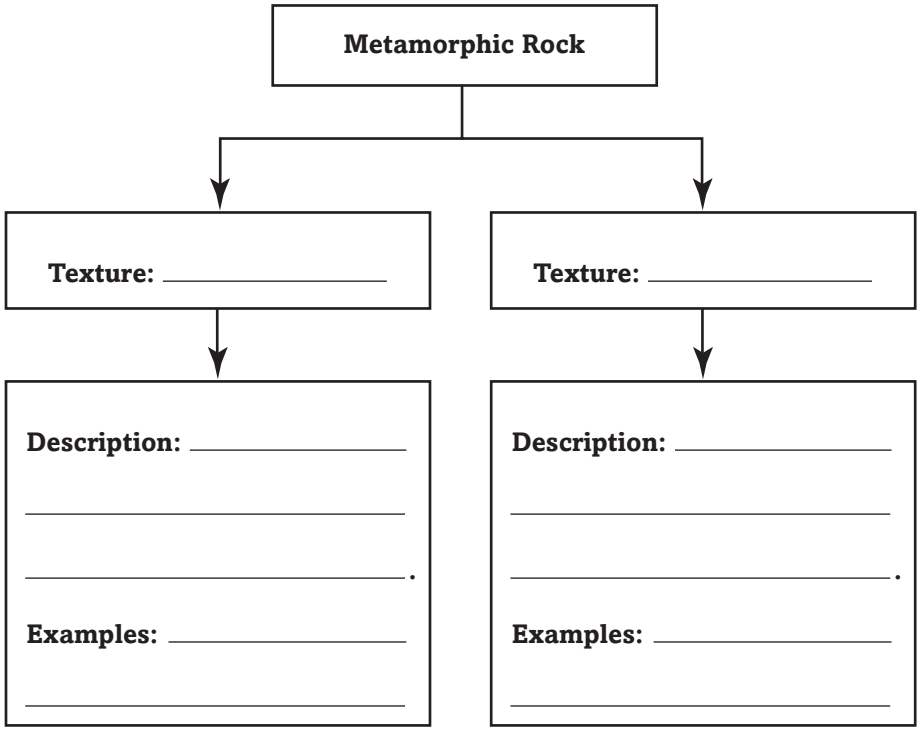
Main Idea

Classifying Metamorphic Rocks

I found this information on page _____.

Details

Summarize *the two textures of* metamorphic rocks. *Describe each texture and give two examples of rocks with that texture.*



Synthesize It

A planner is designing a new office building. The building will have an open courtyard around it. Analyze what metamorphic rocks the planner might use. Explain why each rock would be useful.

_____

_____

_____

_____

_____

_____

_____

Name _____ Date _____

Rocks

Section 4 Sedimentary Rocks

Skim *Section 4. Write three questions you would like to answer. Find the answers to your questions as you read.*

1. _____

2. _____

3. _____

Review Vocabulary

Define weathering *using your book or a dictionary.*

weathering _____

New Vocabulary

Write a sentence from Section 4 that uses each term.

sediments _____

sedimentary rock _____

compaction _____

cementation _____

Academic Vocabulary

Use a dictionary to define consist.

consist _____

Name _____ **Date** _____

Section 4 Sedimentary Rocks (continued)

Main Idea

Details

Formation of Sedimentary Rocks

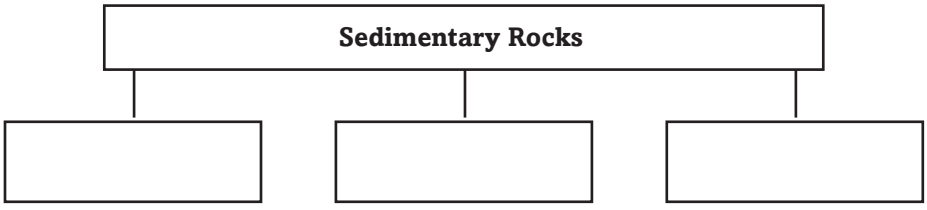
I found this information on page _____.

Model *the relative ages of* sedimentary rock *layers. Draw a cross-section of undisturbed sedimentary rocks. Label the oldest and youngest layers.*

Classifying Sedimentary Rocks

I found this information on page _____.

Identify and define *the three types of sedimentary rock in the graphic organizer below.*



Detrital Sedimentary Rocks

I found this information on page _____.

Classify *types of detrital sedimentary rock by the size and shape (where shape is relevant) of the particles found in them.*

Type	Conglomerate	Breccia	Sandstone	Shale
Size/ shape				
Sketch of rock				

Name _____ **Date** _____

Section 4 Sedimentary Rocks (continued)

Main Idea	Details
Chemical Sedimentary Rocks *I found this information on page _____.*	**Sequence** *the steps in the formation of chemical sedimentary rocks. Complete the graphic organizer.* **1.** Minerals are dissolved in water. **2.** **3.** **4.**
Organic Sedimentary Rocks *I found this information on page _____.*	**Identify** *two examples of chemical sedimentary rocks.* **Examples:** _____ _____ **List** *three organic sedimentary rocks and explain how each forms.* **Rock:** _____ **How It Forms:** _____ _____ **Rock:** _____ **How It Forms:** _____ _____ **Rock:** _____ **How It Forms:** _____ _____

CONNECT IT

Describe at least four uses for sedimentary rocks in your life.

_____

_____

_____

Name _____ **Date** _____

Rocks 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.

Rocks	After You Read
• Heat can melt rock.	
• Rocks from lava form only under Earth's surface.	
• Rocks on Earth change slowly over time.	
• Many rocks form in layers.	

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.

SYNTHESIZE IT

The rock cycle is said to have no beginning and no end. Discuss why this is true. Use an example to illustrate your answer.

_____

_____

_____

_____

_____

Name _____ Date _____

Atmosphere

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	Atmosphere
	• Earth's early atmosphere was produced by erupting volcanoes.
	• Nitrogen makes up most of Earth's atmosphere.
	• Energy from the Moon causes winds and ocean currents.
	• Wind is the movement of air from an area of higher pressure to an area of lower pressure.

FOLDABLES™ Study Organizer

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

Science Journal

Write an article describing how you might prepare to climb Mt. Everest.

Name _____ **Date** _____

Atmosphere

Section 1 Earth's Atmosphere

Skim *the headings in Section 1. Then make three predictions about what you will learn.*

1. _____

2. _____

3. _____

Review Vocabulary

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

pressure _____

New Vocabulary

Use your book or a dictionary to define the following key terms.

atmosphere _____

ionosphere _____

ultraviolet radiation _____

chlorofluorocarbon _____

Academic Vocabulary

Use a dictionary to define trace *in terms of a scientific amount.*

trace _____

Name _____ **Date** _____

Section 1 Earth's Atmosphere (continued)

Main Idea	Details
Importance of the Atmosphere *I found this information on page _____.*	**Summarize** *why Earth's* atmosphere *is important to life on Earth.* _____ _____ _____
Makeup of the Atmosphere *I found this information on page _____.*	**Compare** *the amount of gases in the atmosphere by rereading the section and analyzing the circle graph in your book. Then complete the following paragraph.* The gas that makes up most of the atmosphere is _____. _____ makes up 21 percent of the atmosphere. Oxygen gas is important because _____ _____ Although carbon dioxide makes up only 0.03% of the atmosphere it is a concern because _____ _____
Layers of the Atmosphere *I found this information on page _____.*	**Model** *the layers of the atmosphere by drawing them below. Label and describe the characteristics of each layer.*

Name _____ **Date** _____

Section 1 Earth's Atmosphere (continued)

Main Idea	Details
Atmospheric Pressure *I found this information on page _____.*	**Model** *how* air pressure *changes as you go higher in the atmosphere with dots representing air molecules. Describe the cause of air pressure.* **Air Molecules**
Temperature in Atmospheric Layers *I found this information on page _____.*	**Compare** *the temperature changes that occur as you go higher in the* troposphere, stratosphere, mesosphere, *and* thermosphere. *Use the figure in your book to help you.*

CONNECT IT Why did many governments around the world agree to ban the production and use of CFCs in the mid-1990s?

Name _____ **Date** _____

Atmosphere

Section 2 Energy Transfer in the Atmosphere

Skim *through Section 2 of your book. Write three questions that come to mind from reading the headings and examining the illustrations.*

1. _____
2. _____
3. _____

Review Vocabulary

Use your book to define the term **evaporation.**

evaporation _____

_____

New Vocabulary

Write the correct key term next to each definition.

_____ energy that is transferred in the form of rays or waves

_____ transfer of energy that occurs when molecules bump into one another

_____ transfer of heat by the flow of material

_____ term that describes all of the water on Earth's surface

_____ process of water vapor changing to a liquid

Academic Vocabulary

Use a dictionary to define **displace.**

displace _____

_____

Name _____ **Date** _____

Section 2 Energy Transfer in the Atmosphere (continued)

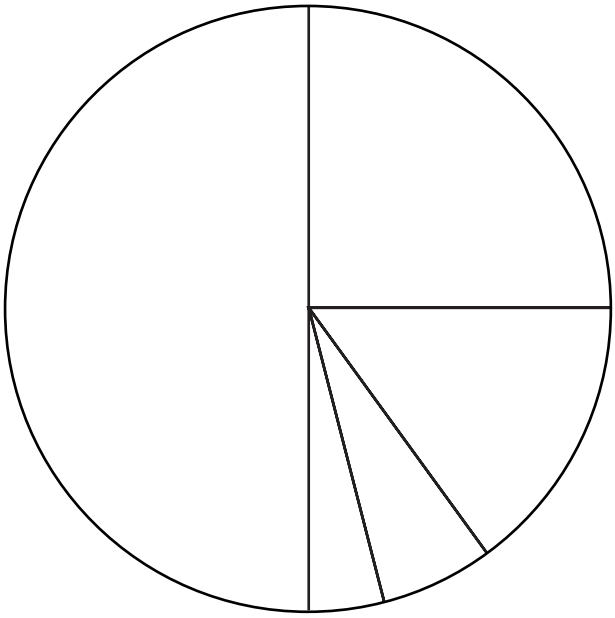
Main Idea

Details

Energy from the Sun

I found this information on page _____.

Analyze *the figure in your book that shows what percent of the Sun's energy is absorbed and reflected by Earth. Then, label the circle graph to represent the data.*



Heat

I found this information on page _____.

Compare and contrast *the three forms of energy transfer in the chart.*

Heat Energy	
Process	How Energy Is Transferred
Radiation	
Conduction	
Convection	

Describe *the types of energy transfer that occur when you burn your bare feet when walking on hot sand.*

_____

_____

Name _____ Date _____

Section 2 Energy Transfer in the Atmosphere (continued)

Main Idea	Details
The Water Cycle *I found this information on page _____.*	**Create** *a flow chart to describe the water cycle.*
Earth's Atmosphere is Unique *I found this information on page _____.*	**Compare** *Earth's atmosphere to the atmospheres of Venus and Mars.*

Amount of Heat Held by Atmospheres	
Planet	**Description of Atmosphere**
Venus	
Mars	
Earth	

SUMMARIZE IT

Infer from your reading three ways in which the atmosphere allows for life on Earth.

Name _____ **Date** _____

Atmosphere

Section 3 Air Movement

Scan *Section 3 in your book. Then write three ways that moving air affects people.*

1. _____
2. _____
3. _____

Review Vocabulary

density

Use density *in a sentence that shows its scientific meaning.*

_____

_____

New Vocabulary

Use the following key terms in sentences that reflect their scientific meanings.

Coriolis effect _____

_____

jet stream _____

_____

sea breeze _____

_____

land breeze _____

_____

Academic Vocabulary

create

Define create *using a dictionary.*

_____

_____

Name _____ **Date** _____

Section 3 Air Movement (continued)

Main Idea — **Details**

Forming Wind

I found this information on page _____.

Sequence ***how heated air and the*** **Coriolis effect** ***form wind.***

1.	The equator receives _____ _____
2.	As a result, air near the equator is _____ _____
3.	Dense air moves from _____ _____
4.	The rotation of Earth causes _____ _____
5.	Thus, the Coriolis effect causes _____ _____

Global Winds

I found this information on page _____.

Analyze ***the models of the surface winds and winds of the upper troposphere in your book. Then complete the following statements.***

1. The equatorial doldrums are located at _____ latitude.

2. _____ blow from the east in areas north and south of the equator.

3. _____ move weather systems across most of North America.

4. Most surface wind systems are named _____ _____.

5. The jet stream in the United States travels from _____ _____.

6. The jet stream travels at the border between _____ _____.

Name _____ **Date** _____

Section 3 Air Movement (continued)

Main Idea

Details

Local Wind Systems

I found this information on page _____.

Model *how air flows where the land meets the sea during the day and at night. Draw the two conditions below using arrows to indicate the direction of air flow.*

Day	Night

I found this information on page _____.

Sequence *three steps that occurred in each of your drawings above.*

Day:	Night:
1.	1.
2.	2.
3.	3.

Connect It

Describe the role that the Sun's energy has in creating wind.

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Model

Design a way to model how the curved surface of Earth affects how much direct sunlight the equator receives compared to the north pole. Discuss how you could test your model, and describe what you would hope to observe.

Materials might include: flashlight or lamp, a round object like a basketball, darkened room

1. _____

_____

2. _____

_____

Results: _____

_____

Name _____ **Date** _____

Atmosphere 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.

Atmosphere	After You Read
• Earth's early atmosphere was produced by erupting volcanoes.	
• Nitrogen makes up most of Earth's atmosphere.	
• Energy from the Moon causes winds and ocean currents.	
• Wind is the movement of air from an area of higher pressure to an area of lower pressure.	

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

After reading this chapter, identify three main ideas that you have learned about Earth's atmosphere.

_____

_____

_____

_____

Name _____ Date _____

Weather

Before You Read

Before you read the chapter, look at the headings throughout the chapter and complete the chart below.

What I know	What I want to find out

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

Science Journal

Write three questions you would ask a meteorologist about weather.

Name _____ **Date** _____

Weather

Section 1 What is weather?

Scan *the headings of the paragraphs throughout Section 1. Write a sentence about a topic that interests you.*

_____

_____

Review Vocabulary **Define** *each vocabulary term below.*

factor _____

New Vocabulary

weather _____

_____

humidity _____

_____

relative humidity _____

_____

dew point _____

_____

fog _____

_____

precipitation _____

_____

Academic Vocabulary *Use a dictionary to define* role.

role _____

_____

Name _____ **Date** _____

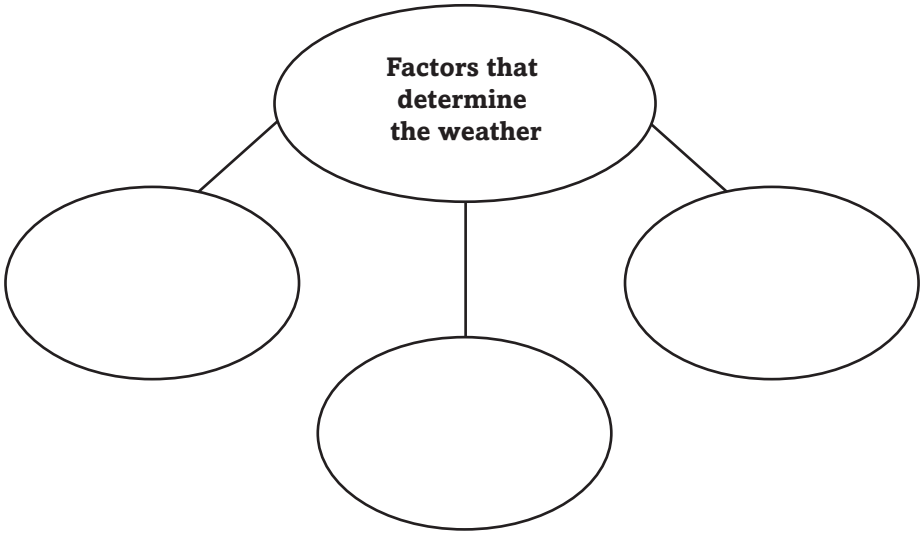
Section 1 What is weather? (continued)

Main Idea	Details

Weather Factors

I found this information on page _____.

Organize *information about factors that determine the* weather *by completing the concept map.*



I found this information on page _____.

Contrast *the characteristics of low and high air pressure.*

Air Pressure	
Low	High

Dew Point

I found this information on page _____.

Summarize *the relationship between the* dew point *and the amount of water vapor in the air.*

_____

_____

_____

_____

Name _____ **Date** _____

Section 1 What is weather? (continued)

Main Idea

Details

Forming Clouds

I found this information on page _____.

Sequence *the steps in* cloud formation. *The first step is filled in for you.*

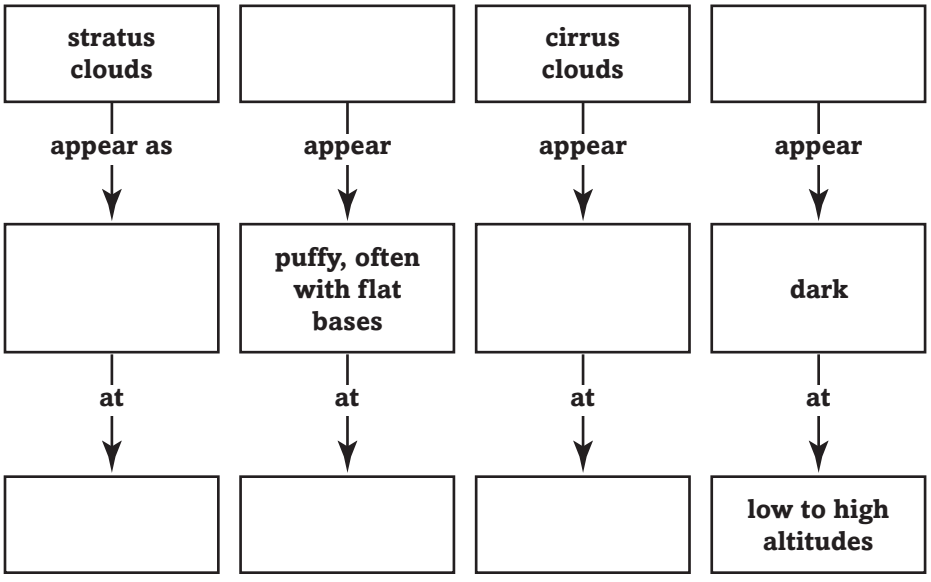
Cloud Formation	
1.	Warm air is forced upward.
2.	
3.	
4.	
5.	

Classifying Clouds

I found this information on page _____.

Complete *the following concept map about clouds and cloud types.*

Types of Clouds



Connect It

A bottle of water sitting on a picnic table has droplets of water covering it. Analyze what this tells you about the temperatures of the water bottle and the air around it.

_____

_____

_____

Name _____ **Date** _____

Weather

Section 2 Weather Patterns

Scan *the headings throughout Section 2. Write three questions about the topics covered in the section.*

1. _____
2. _____
3. _____

Review Vocabulary

Define barometer *using your book or a dictionary.*

barometer _____

New Vocabulary

Use your book or a dictionary to define each key term.

air mass _____

front _____

tornado _____

hurricane _____

blizzard _____

Academic Vocabulary

Use a dictionary to define the term accompany.

accompany _____

Name _____ **Date** _____

Section 2 Weather Patterns (continued)

Main Idea

Details

Weather Changes

I found this information on page _____.

Classify *the characteristics of* air masses *according to where they develop by completing the chart below.*

	Tropics	Polar regions
Land	warm, dry	
Water		

I found this information on page _____.

Model ***the directions in which winds blow in high- and low-pressure systems of the northern hemisphere. Use arrows to draw the direction the winds move. Then describe the weather associated with each.***

Low-pressure Winds	High-pressure Winds

Fronts

I found this information on page _____.

Compare *and describe the four types of* fronts.

Fronts	
Type	Description

Name _____ **Date** _____

Section 2 Weather Patterns (continued)

Main Idea

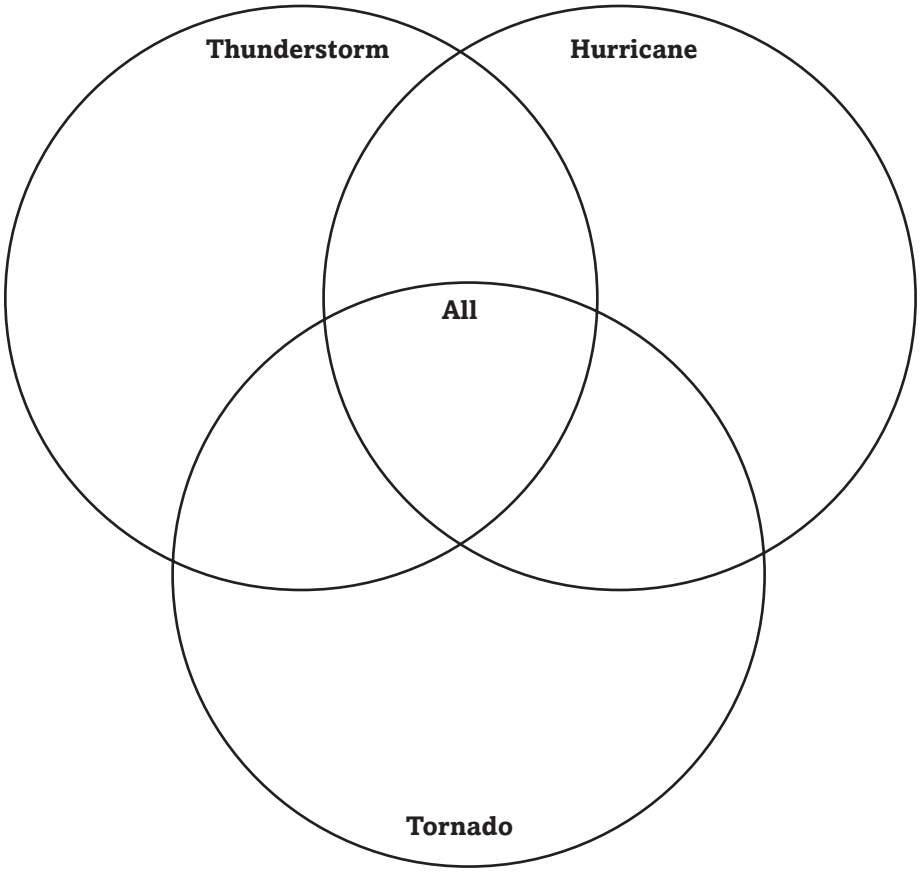
Severe Weather

I found this information on page _____.

Details

Organize ***the information on severe weather by completing the Venn diagram using the list of items below.***

- may be accompanied by damaging hail
- pose danger to people, structures, and animals
- measured by the Fujita scale
- the most powerful type of storm
- occurs in warm, moist air masses along fronts
- violently rotating column of air in contact with ground
- heavy rains can cause flooding
- turns heat from ocean into wind



Connect It

Summarize what actions to take during severe weather.

_____

_____

_____

Name _____ **Date** _____

Weather

Section 3 Weather Forecasts

Scan *the headings and look at the illustrations throughout Section 3. List four things you would like to learn about.*

1. _____
2. _____
3. _____
4. _____

Review Vocabulary

Write the correct vocabulary term next to each definition.

_____ to predict a condition or event on the basis of observations

New Vocabulary

_____ a scientist who studies weather and weather patterns in an effort to predict changing weather conditions

_____ combination of symbols that meteorologists record on a map showing weather conditions at one specific location

_____ line on a weather map drawn to connect locations of equal temperature

_____ line on a weather map drawn to connect points of equal atmospheric pressure

Academic Vocabulary

Define **predict** *using a dictionary.*

predict _____

_____

Name _____ **Date** _____

Section 3 Weather Forecasts (continued)

Main Idea

Details

Weather Observations

I found this information on page _____.

Organize *information about a meteorologist's work. List five measurements that a* meteorologist *takes and four instruments that improve a meteorologist's ability to predict weather.*

Measurements

1. _____
2. _____
3. _____
4. _____
5. _____

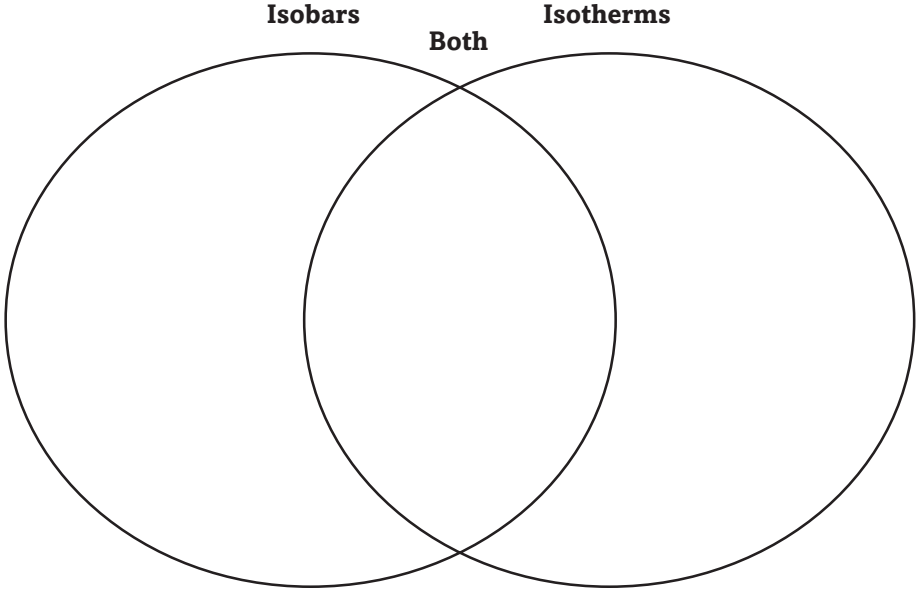
Instruments

1. _____
2. _____
3. _____
4. _____

Forecasting Weather

I found this information on page _____.

Compare and contrast isobars *and* isotherms *by completing the Venn diagram with at least one fact in each part of the diagram.*



Name _____ **Date** _____

Section 3 Weather Forecasts (continued)

Main Idea

I found this information on page _____.

Details

Summarize *information provided by the spacing of isobars on a weather map by completing the chart.*

Spacing of Isobars		
	What spacing indicates about atmospheric pressure	What spacing indicates about wind conditions
Isobars close together		
Isobars far apart		

I found this information on page _____.

Analyze *the information provided by the weather map in your book. Choose a city, and describe the weather it is experiencing.*

_____

_____

_____

_____

CONNECT IT **Evaluate the information you have learned in this chapter to predict whether forecasting the weather will become more accurate or less accurate in the coming years. Support your position with facts.**

_____

_____

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Synthesize

You live in a region that sometimes is struck by hurricanes. Describe the plans that you would make to prepare for and respond to a hurricane.

Long-term planning for hurricane _____

When a hurricane has been predicted _____

Following a hurricane _____

Name _____ **Date** _____

Weather Chapter Wrap-Up

Review the chart that you completed before you read the chapter. Then complete the chart below.

What I learned	What I still want to find out

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 weather.

_____

_____

_____

_____

_____

Name _____ Date _____

Climate

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	Climate
	• Climate is the state of the atmosphere at a specific time and place.
	• The polar zones generally have cooler temperatures because solar radiation hits these zones at a more direct angle.
	• The climate of an area can be affected by a large lake.
	• El Niño and La Niña are climatic events that can disrupt normal temperature and precipitation patterns around the world.

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

Science Journal

Write a paragraph explaining what you already know about the causes of seasons.

Name _____ **Date** _____

Climate

Section 1 What is climate?

Scan *the Section 1 headings and illustrations. Formulate two questions about this section that come to mind.*

1. _____

2. _____

Review Vocabulary

Define *the following key terms to show their scientific meanings.*

latitude _____

New Vocabulary

climate _____

tropics _____

polar zone _____

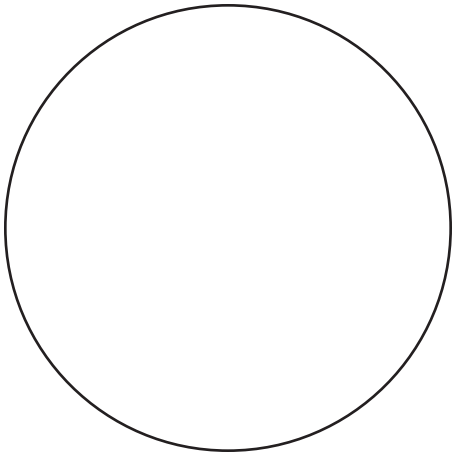
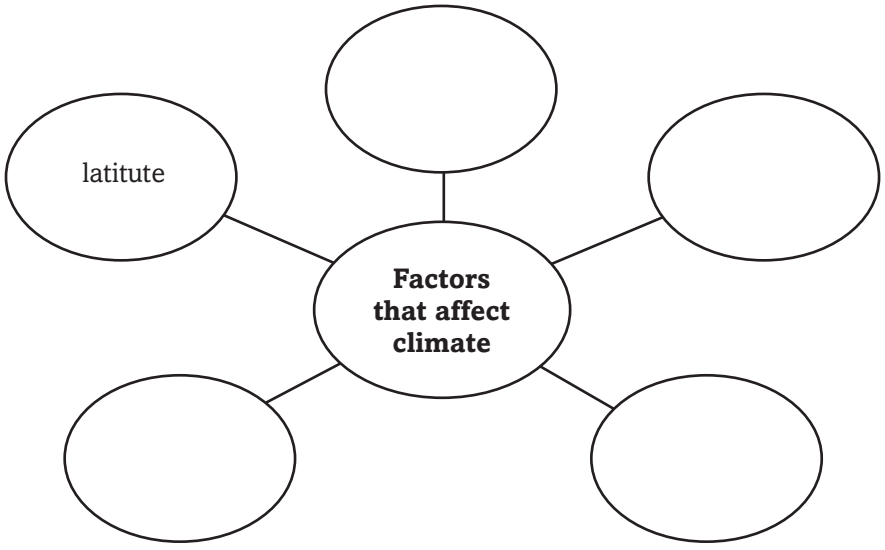
temperate zone _____

Academic Vocabulary

minimum _____

Name _____ **Date** _____

Section 1 What is climate? (continued)

Main Idea	Details
Latitude and Climate *I found this information on page _____.*	**Identify** *and label the* climate zones *on the globe below. Also include:* the equator Tropic of Cancer Tropic of Capricorn 
Other Factors *I found this information on page _____.*	**Organize** *factors that affect climate on the concept map below.* 

COMPARE IT **Contrast the climate of Buffalo, New York, and Yuma, Arizona. Discuss the geographical features that affect the two climates.**

_____

_____

_____

Name _____ Date _____

Climate

Section 2 Climate Types

Predict *Read the title and the headings of Section 2. List three things that might be discussed in this section.*

1. _____
2. _____
3. _____

Review Vocabulary

Define *the following key terms. Use your book or a dictionary to help you.*

regions _____

_____

New Vocabulary

adaptation _____

_____

hibernation _____

_____

Academic Vocabulary

vary _____

_____

Classifying Climates

I found this information on page _____.

Complete *the following paragraph about climates.*

Wladimir Köppen developed a _____ _____. He noticed that different types of _____ _____. He was able to relate _____ _____.

Name _____ **Date** _____

Section 2 Climate Types (continued)

Main Idea

Classifying Climates

I found this information on page _____.

Details

Summarize *the six major climate zones shown in your book. Describe the important characteristics of each.*

World Climates	
Climate Zone	Description

Synthesize It

Analyze the two types of adaptations organisms have to climate. Discuss structural and behavioral adaptations, give an example of each, and then tell how both are similar.

Name _____ Date _____

Climate

Section 3 Climate Changes

Scan *Use the checklist below to preview Section 3 of your book.*

- ☐ Read all section titles.
- ☐ Read all bold words.
- ☐ Look at all pictures, charts, and graphs.
- ☐ Think about what you already know about climates.

Write three facts you discovered about climatic changes as you scanned the section.

1. _____

2. _____

3. _____

Review Vocabulary **Define** solar radiation *using a dictionary.*

solar radiation _____

_____

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

_____ increase in the average world temperature of Earth

_____ natural heating that occurs when certain gases in Earth's atmosphere trap heat

_____ climatic event that may occur when trade winds weaken or reverse, and can disrupt normal temperature and precipitation patterns around the world

_____ destruction of woodlands that can result in increased atmospheric carbon dioxide levels

_____ short period of climatic change caused by the tilt of Earth's axis as Earth revolves around the Sun

Academic Vocabulary *Use a dictionary to find the scientific definition of* reverse.

reverse _____

Name _____ **Date** _____

Section 3 Climate Changes (continued)

Main Idea | **Details**

Earth's Seasons

I found this information on page _____.

Synthesize ***information from your book to explain why the northern hemisphere has winter at the time when Earth is closest to the Sun.***

El Niño and La Niña

I found this information on page _____.

Contrast ***conditions that occur during*** El Niño ***years with those that occur during*** La Niña ***years in the chart below.***

El Niño and La Niña		
	El Niño Year	La Niña Year
Strength of trade winds		
Water temperature along west coast of South America		
Typical climate effects		

Name _____ **Date** _____

Section 3 Climate Changes (continued)

Main Idea | **Details**

Climatic Change

I found this information on page _____.

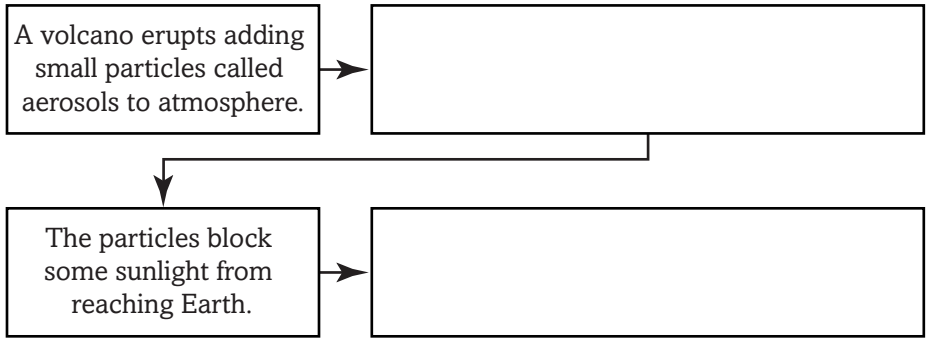
Complete *the paragraph below about* **climate change.**

In the past, Earth's overall climate has been _____ _____ and _____. During the last two million years, Earth's climate has cycled between _____ when glaciers advanced and _____ when climate was similar to today's climate.

What causes climatic change?

I found this information on page _____.

Sequence ***events to explain how an erupting volcano can cause short-term climate change.***



Complete ***the following chart about sunspots.***

Sunspots	
Definition of sunspots	How sunspots affect climate
Period between 1645 and 1715	Safety warning

Name _____ **Date** _____

Section 3 Climate Changes (continued)

Main Idea	Details

Climatic Changes Today

I found this information on page _____.

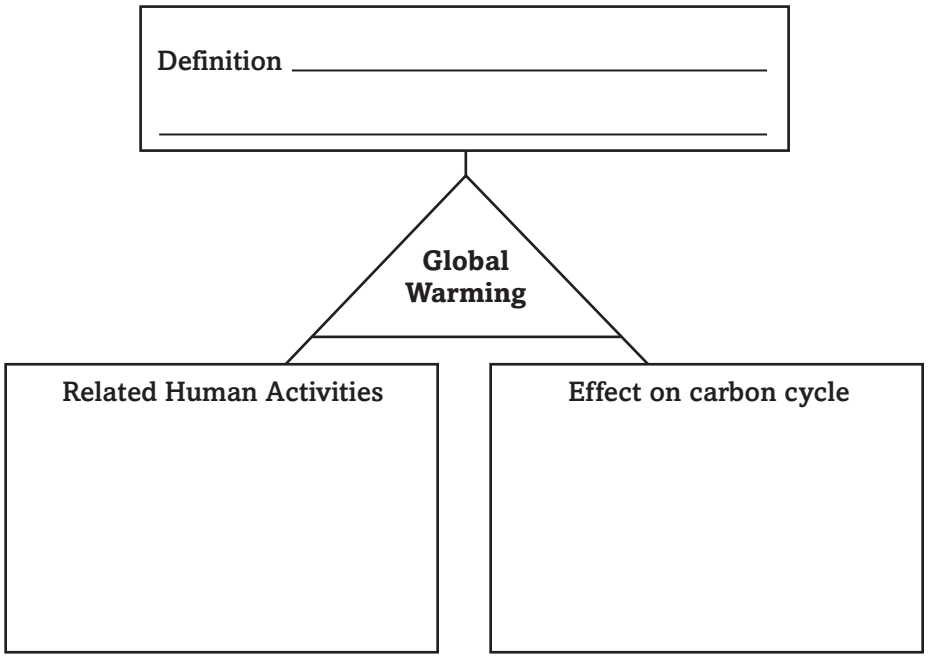
Sequence *steps explaining the* greenhouse effect. *The first one has been done for you.*

The Greenhouse Effect	
1.	Radiation from the Sun strikes Earth's surface.
2.	
3.	
4.	
5.	

Global Warming and Human Activities and The Carbon Cycle

I found this information on page _____.

Analyze global warming *by completing the concept map below.*



SYNTHESIZE IT

Analyze how humans impact Earth's atmosphere and how it may have long term effects on global climates.

_____

_____

_____

Name _____ **Date** _____

Climate 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.

Climate	After You Read
• Climate is the state of the atmosphere at a specific time and place.	
• The polar zones generally have cooler temperatures because solar radiation hits these zones at a more direct angle.	
• The climate of an area can be affected by a large lake.	
• El Niño and La Niña are climatic events that can disrupt normal temperature and precipitation patterns around the world.	

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 climate.

_____

_____

_____

_____

Name _____ Date _____

Earth in Space

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	Earth in Space
	• Seasons on Earth and phases of the Moon occur in repeating patterns.
	• Observers on Earth always see the same side of the Moon.
	• Most asteroids are about the same size as Earth.
	• The solar system probably formed from a collapsing cloud of gas, ice, and dust.

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

Science Journal

Describe how our view of Earth has changed in the past 50 years.

Name _____ **Date** _____

Earth in Space

Section 1 Earth's Motion and Seasons

Scan *the illustrations in Section 1. Write three questions that come to mind about Earth's motions. Look for answers to your questions as you read through the section.*

1. _____
2. _____
3. _____

Review Vocabulary

Define equator. *Then use the term in a sentence that shows its scientific meaning.*

equator _____

New Vocabulary

Read the definitions below. Write the correct vocabulary term on the blank to the left of each definition.

_____ imaginary line around which Earth spins; drawn from Earth's north geographic pole to its south geographic pole

_____ time when the Sun reaches its greatest distance north or south of the equator

_____ curved path followed by Earth as it moves around the Sun

_____ motion of Earth around the Sun in about $365\frac{1}{4}$ days, or one year

_____ twice-yearly time when the Sun is directly above Earth's equator

_____ spinning of Earth on its axis which causes day and night

Academic Vocabulary

Use a dictionary to define **sphere** *to show its scientific meaning.*

sphere _____

Name _____ **Date** _____

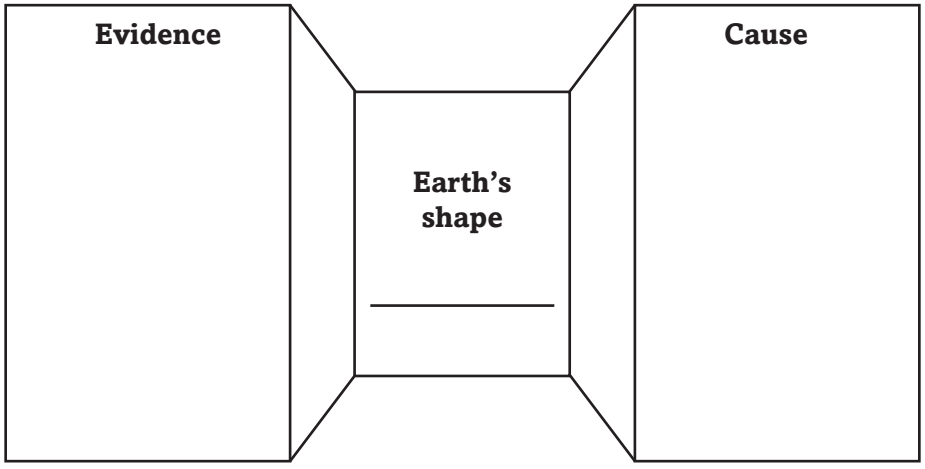
Section 1 Earth's Motion and Seasons (continued)

Main Idea | **Details**

Earth's Physical Data

I found this information on page _____.

Summarize *key facts about* Earth's shape *in the graphic organizer.*



I found this information on page _____.

Model *Earth's shape, and then write a caption below your diagram.*

Motions of Earth

I found this information on page _____.

Complete *the paragraph below to explain why people on Earth experience day and night.*

Earth rotates once _____ around an imaginary line called _____. As Earth rotates, each location on Earth will face toward the Sun and have _____ and then face away from the Sun and have _____.

Name _____ **Date** _____

Section 1 Earth's Motion and Seasons (continued)

Main Idea

Motions of Earth

I found this information on page _____.

Details

Summarize *factors that cause* seasons. *Complete the outline.*

I. Earth's Orbit

A. _____

B. _____

1. _____

2. _____

II. Earth's Tilt

A. _____

B. _____

1. _____

2. _____

I found this information on page _____.

Draw *a sketch of Earth's* orbit *around the Sun. Label the* solstices *and* equinoxes. *Include their approximate dates.*

Summarize It

Using the information that you have learned, write a short summary explaining why seasons occur.

_____

_____

_____

_____

Name _____ **Date** _____

Earth in Space

Section 2 Earth's Moon

Predict *three things that might be discussed in Section 2 after you have read its title and headings.*

1. _____
2. _____
3. _____

Review Vocabulary

Define density *to show its scientific meaning. Then give an example of one high-density material and one low-density material.*

density _____

New Vocabulary

Use your book to define each vocabulary term.

moon phase _____

solar eclipse _____

lunar eclipse _____

Academic Vocabulary

Use the term cycle *in a scientific sentence.*

cycle _____

Name _____ **Date** _____

Section 2 Earth's Moon (continued)

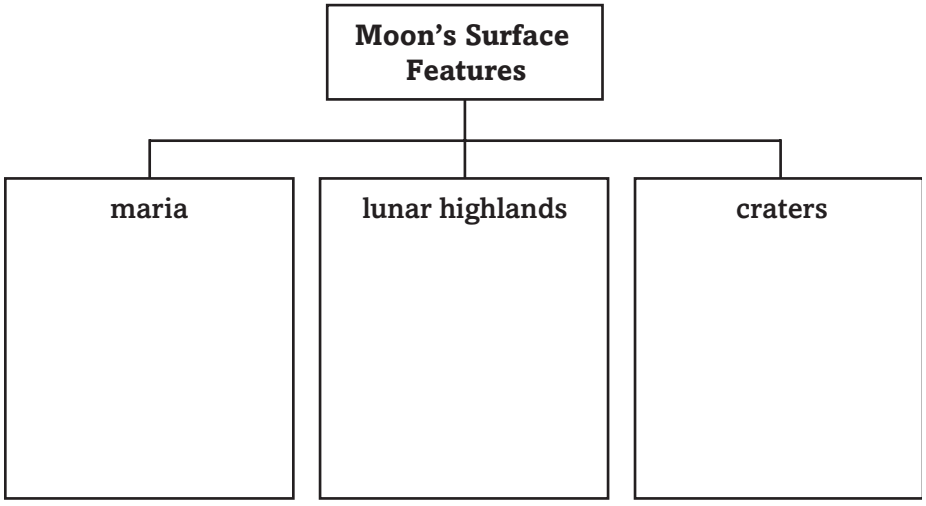
Main Idea

Details

The Moon's Surface and Interior

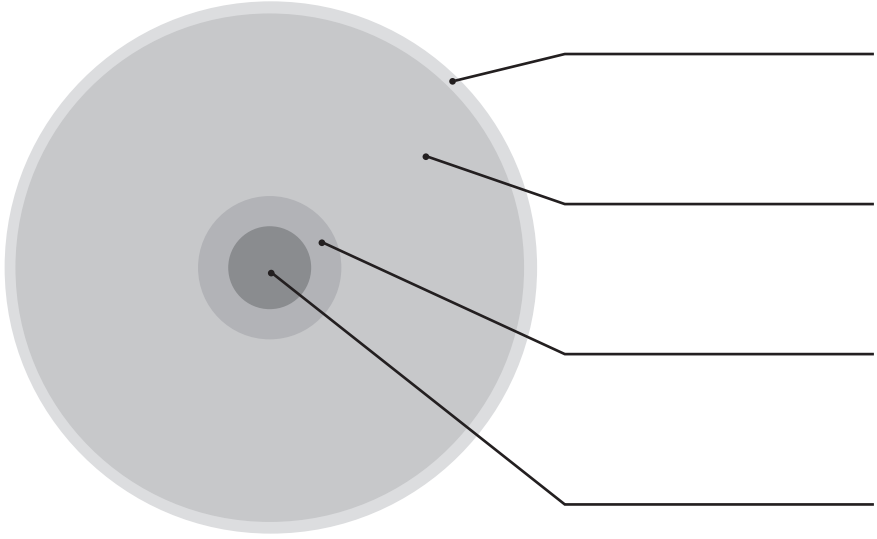
I found this information on page _____.

Complete *the graphic organizer with information about the* Moon's surface features.



I found this information on page _____.

Model *the* Moon's interior. *Label each of the main layers of the Moon.*



Motions of the Moon

I found this information on page _____.

Analyze *the reason that the same side of the Moon always faces Earth.*

_____

_____

_____

Name _____ **Date** _____

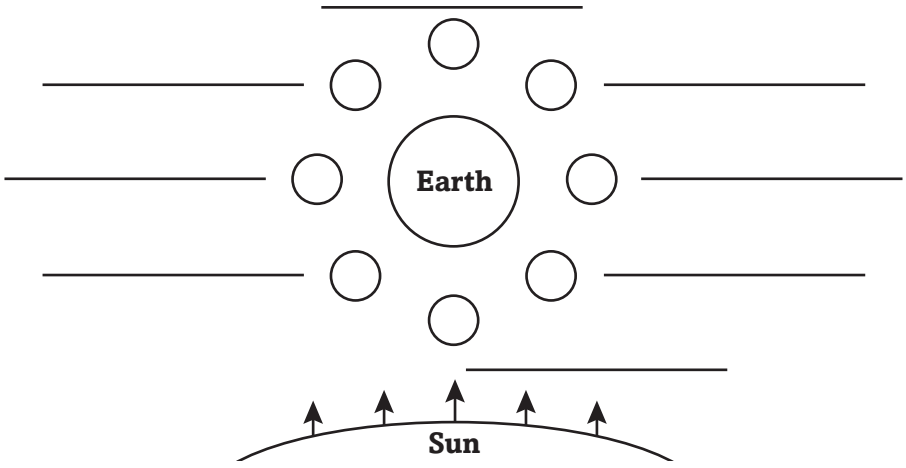
Section 2 Earth's Moon (continued)

Main Idea	Details

Motions of the Moon

I found this information on page _____.

Label *each* Moon phase *on the diagram below. Shade the Moon at each position to show the dark side.*



Eclipses

I found this information on page _____.

Contrast solar *and* lunar eclipses. *Complete the chart.*

	Solar Eclipse	Lunar Eclipse
Moon phase		
What happens		

Origin of the Moon

I found this information on page _____.

Summarize *four hypotheses about how the Moon formed. Place a star next to the most widely accepted hypothesis.*

1. _____

2. _____

3. _____

4. _____

Name _____ **Date** _____

Earth in Space

Section 3 Our Solar System

Skim *Section 3. Write three things you think you will learn about the solar system.*

1. _____
2. _____
3. _____

Review Vocabulary

Define atmosphere *in a scientific sentence.*

atmosphere _____

_____

New Vocabulary

Use your book to define each vocabulary term.

solar system _____

_____

astronomical unit _____

_____

asteroid _____

_____

nebula _____

_____

Academic Vocabulary

Use a dictionary to define image *as it is used in science.*

image _____

_____

Name _____ Date _____

Section 3 Our Solar System (continued)

Main Idea

Details

Size of the Solar System

I found this information on page _____.

Summarize ***key facts about*** **the Sun** ***and*** **its role in the solar system.**

The Sun contains _____ of the matter in the solar system. It is a _____ star that gives off _____ amounts of light. The Sun is about _____ km from Earth. This distance is also called 1 _____, or _____.

The Planets

I found this information on page _____.

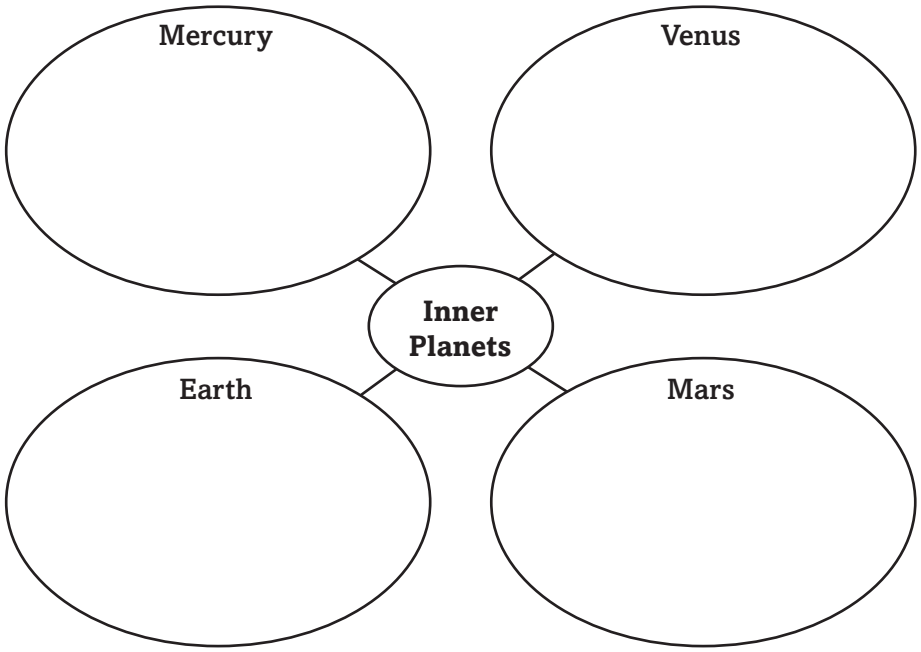
Contrast ***the*** **inner** ***and*** **outer planets.** ***Complete the chart.***

	Inner Planets	Outer Planets
Location		
Composition		

Inner Planets

I found this information on page _____.

Organize ***information about the*** **inner planets.** ***Complete the graphic organizer with at least three facts about each one.***



Name _____ **Date** _____

Section 3 Our Solar System (continued)

Main Idea

Details

Outer Planets

I found this information on page _____.

Distinguish *major characteristics of the* **outer planets.** ***Complete the chart.***

	Composition	Moons/Rings
Jupiter		63 moons; Io is volcanic; Europa may have liquid water
Saturn		
Uranus	hydrogen, helium, and methane; methane gives bluish-green color	
Neptune	hydrogen, helium, and methane; faster winds than on any other planet	
Pluto		

Other Objects in the Solar System

I found this information on page _____.

Summarize *important facts about* **asteroids** *and* **comets.**

Asteroids are _____ objects. Comets are made of _____. As a comet approaches the Sun, it forms a _____ as solar winds blow small particles _____.

Origin of the Solar System

I found this information on page _____.

Sequence *the steps in the* **formation of the solar system.**

1. _____
2. _____
3. _____

Name _____ **Date** _____

Tie It Together

Make a Scale Model

Make a scale model of the solar system's planets.

Use the diameters in the chart to make your model. Set one planet's scale diameter to calculate the others. Use math and ratios to figure out the size each planet should be on paper. For example, if Jupiter was to be 10 cm on your scale drawing,

$$\frac{\text{Jupiter 142,984 km}}{\text{Mercury 4,879 km}} = \frac{\text{10 cm}}{x}$$

$x = \dfrac{(4{,}789 \times 10)}{142{,}984} = 0.34$ cm *Mercury would be 0.34 cm on the same drawing.*

Label each planet in your model with one important fact about that planet.

Planet	Diameter (km)	Scale diameter (cm)
Mercury	4,879	0.34
Venus	12,104	
Earth	12,756	
Mars	6,794	
Jupiter	142,984	10.0
Saturn	120,536	
Uranus	51,118	
Neptune	49,528	
Pluto	2,390	

Name _____ Date _____

Earth in Space 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.

Earth in Space	After You Read
• Seasons on Earth and phases of the Moon occur in repeating patterns.	
• Observers on Earth always see the same side of the Moon.	
• Most asteroids are about the same size as Earth.	
• The solar system probably formed from a collapsing cloud of gas, ice, and dust.	

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 the solar system.

_____

_____

_____

_____

Name _____ Date _____

Life's Structure and Classification

Before You Read

Before you read the chapter, think about what you know about the topic. List three things that you already know about life's structure and classification in the first column. Then list three things that you would like to learn about life's structure and classification in the second column.

K What I know	W What I want to find out

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

Science Journal

Make a list of the living things you might see in a forest.

Name _____ **Date** _____

Life's Structure and Classification

Section 1 Living Things

Scan *the headings in Section 1 of your book. Identify three topics that will be discussed.*

1. _____
2. _____
3. _____

Review Vocabulary

Define trait *using your book or a dictionary.*

trait _____

New Vocabulary

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

organism _____

cell _____

homeostasis _____

Academic Vocabulary

Use a dictionary to define feature *to show its scientific meaning.*

feature _____

Name _____ **Date** _____

Section 1 Living Things (continued)

Main Idea	Details
What are living things like?	**Create** *a graphic organizer about the cell in the space below.*
I found this information on page _____.	
I found this information on page _____.	**Analyze** *how organisms grow by completing the statements below.*
	1. A one-celled organism grows by _____ _____.
	2. A many-celled organism grows by _____ _____.
I found this information on page _____.	**Contrast** *the way plants get energy with the way animals get energy by completing the paragraph below.*
	Plants make food by using _____ to combine _____ and _____. Plant cells then use this food as a source of _____. Animals cannot use _____ to make their own food. Animals must get the energy they need by _____. The energy is then released in animal cells when food is combined with _____.

Name _____ **Date** _____

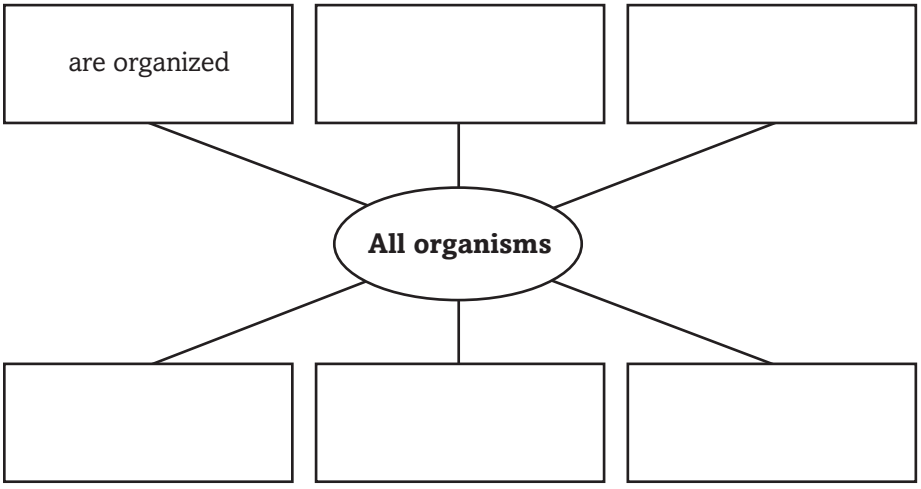
Section 1 Living Things (continued)

Main Idea

I found this information on page _____.

Details

Summarize *six features that all organisms have in common by completing the graphic organizer.*



What do living things need?

I found this information on page _____.

Identify *three factors living things need to survive and an example of each.*

1. _____
2. _____
3. _____

I found this information on page _____.

Describe *how substances that make up living things are recycled.*

_____

_____

_____

_____

SYNTHESIZE IT

Infer why you depend on the Sun for energy.

_____

_____

_____

_____

Name _____ Date _____

Life's Structure and Classification

Section 2 How are living things classified?

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 hereditary *using your book or a dictionary.*

hereditary _____

New Vocabulary

Use your book to define the following terms.

binomial nomenclature _____

genus _____

phylogeny _____

kingdom _____

Academic Vocabulary

Use a dictionary to define category *to show its scientific meaning.*

category _____

Name _____ **Date** _____

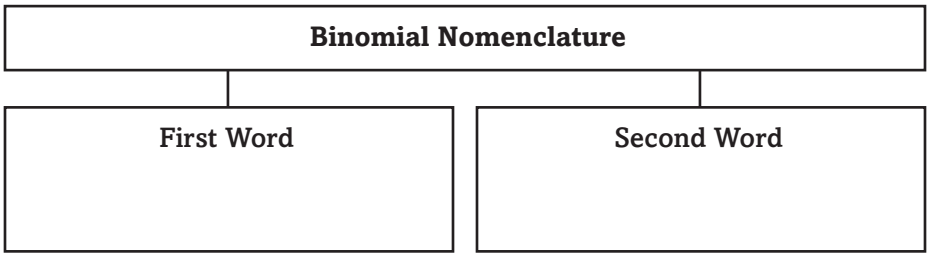
Section 2 How are living things classified? (continued)

Main Idea | **Details**

Classification

I found this information on page _____.

Complete *the graphic organizer below to identify the parts of a two-word scientific name.*



I found this information on page _____.

Summarize *four reasons for using scientific names to classify organisms.*

1. _____

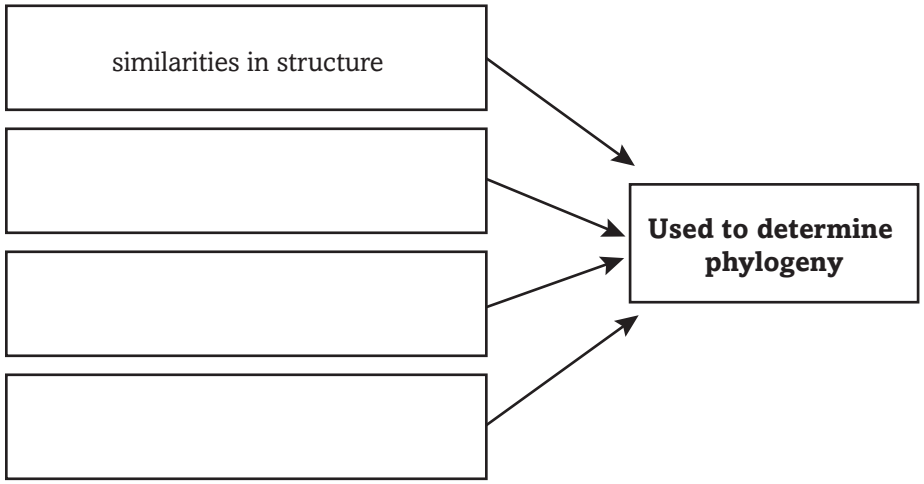
2. _____

3. _____

4. _____

I found this information on page _____.

Organize *the kinds of information modern scientists use to determine the phylogeny of a type of organism.*



Name _____ **Date** _____

Section 2 How are living things classified? (continued)

Main Idea	Details
I found this information on page _____.	**Sequence** *today's classification system from the largest group to the smallest group.* **1.** _____ **2.** _____ **3.** _____ **4.** _____ **5.** _____ **6.** _____ **7.** _____
Tools for Identifying Organisms *I found this information on page _____.*	**Identify** *the characteristics used in the dichotomous key to identify the different types of mice in North America.* **1.** _____ **2.** _____ **3.** _____ **4.** _____
I found this information on page _____.	**Classify** *a mouse that has the following features: hair on tail, ears nearly hidden in fur, tail more than 25 mm long.* Common name: _____ Scientific name: _____

SYNTHESIZE IT

Suggest at least three characteristics that could be used to identify your favorite type of pet.

Type of animal: _____

Characteristics: _____

_____

Name _____ **Date** _____

Life's Structure and Classification

Section 3 Cell Structure

Scan *the* What You'll Learn *statements for Section 3 of your book. Identify four topics that will be discussed.*

1. _____
2. _____
3. _____
4. _____

Review Vocabulary

Define theory *using your book or a dictionary.*

theory _____

New Vocabulary

Use your book to define the following terms. Then provide an example of each.

tissue _____

organ _____

organ system _____

Academic Vocabulary

Use a dictionary to define rigid *to show its scientific meaning.*

rigid _____

Name _____ **Date** _____

Section 3 Cell Structure (continued)

Main Idea	Details
Viewing Cells and **Development of Cell Theory** *I found this information on page* _____.	**Sequence** *the contributions that different scientists made toward the development of cell theory.*

Antonie van Leeuwenhoek →	
→	
→	
→	
→	proposed that every cell came from a cell that already existed

I found this information on page _____.

Summarize *cell theory by writing its three main points.*

1. _____

2. _____

3. _____

Cellular Organization

I found this information on page _____.

Model *a prokaryotic cell, and label its parts.*

Name _____ **Date** _____

Section 3 Cell Structure (continued)

Main Idea

I found this information on page _____.

Details

Model *a eukaryotic cell and label its parts.*

Many-Celled Organisms

I found this information on page _____.

Organize *the levels of cell organization from simplest to most complex.*

1. _____
2. _____
3. _____
4. _____

Compare and Contrast It

Compare and contrast the way single-celled organisms carry out life processes with the way many-celled organisms carry out life processes.

_____

_____

_____

_____

Name _____ **Date** _____

Life's Structure and Classification

Section 4 Viruses

Scan *Section 4 of your book. Use the checklist below.*

- ☐ Read all section headings.
- ☐ Read all bold words.
- ☐ Look at the charts, graphs, and pictures.
- ☐ Think about what you already know about viruses.

Write three things that you want to learn about viruses.

1. _____

2. _____

3. _____

Review Vocabulary

Define bacteria *using your book or a dictionary.*

bacteria _____

New Vocabulary

Use your book to define the following terms. Then use both terms in a single sentence that shows the relationship between the terms.

virus _____

_____

host cell _____

_____

_____

_____

Academic Vocabulary

Use a dictionary to define substitute *to show its scientific meaning.*

substitute _____

_____

Name _____ **Date** _____

Section 4 Viruses (continued)

Main Idea

Details

What are viruses?

I found this information on page _____.

Model *the process by which a virus multiplies and destroys the host cell.*

Drawing	Caption

I found this information on page _____.

Identify *what a latent virus is and an example of one.*

_____

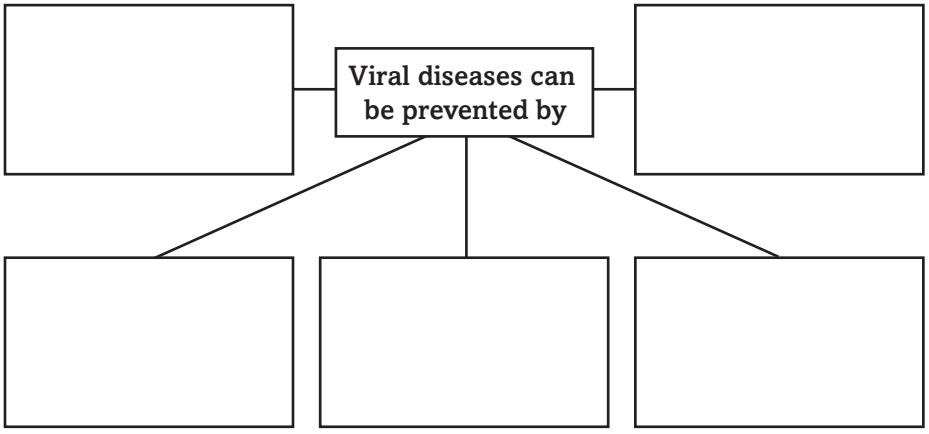
_____

_____

Name _____ **Date** _____

Section 4 Viruses (continued)

Main Idea	Details
How do viruses affect organisms? *I found this information on page _____.*	**Analyze** *why the potato leafroll virus can infect only a potato and not a human.*
Treating and Preventing Viral Diseases *I found this information on page _____.*	**Organize** *the ways viral diseases can be prevented by completing the graphic organizer below.*
Research with Viruses *I found this information on page _____.*	**Summarize** *how viruses are used in gene therapy.*



SYNTHESIZE IT

List diseases caused by viruses that you have been vaccinated against.

Name _____ **Date** _____

Life's Structure and Classification

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.

K What I know	W What I want to find out	L What I learned

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 you learned that you did not know before.

_____

_____

_____

_____

Name _____ Date _____

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.

Name _____ **Date** _____

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 bond *as used in chemistry.*

bond _____

Name _____ **Date** _____

Main Idea

Details

The Nature of Matter

I found this information on page _____.

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

	Elements	Compounds
Number of types of atom		
Example		

I found this information on page _____.

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

Mixtures

I found this information on page _____.

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

A mixture is _____

_____

Both solutions and suspensions _____

_____

In a solution, _____

_____

In a suspension, _____

_____

Name _____ **Date** _____

Main Idea

Details

Organic Compounds

I found this information on page _____.

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

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

Inorganic Compounds

I found this information on page _____.

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

Characteristic	Organic	Inorganic
Contains carbon?		
Role in living things		

I found this information on page _____.

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

1. _____

_____

2. _____

_____

3. _____

_____

Name _____ **Date** _____

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 _____

_____

Name _____ **Date** _____

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 _____.

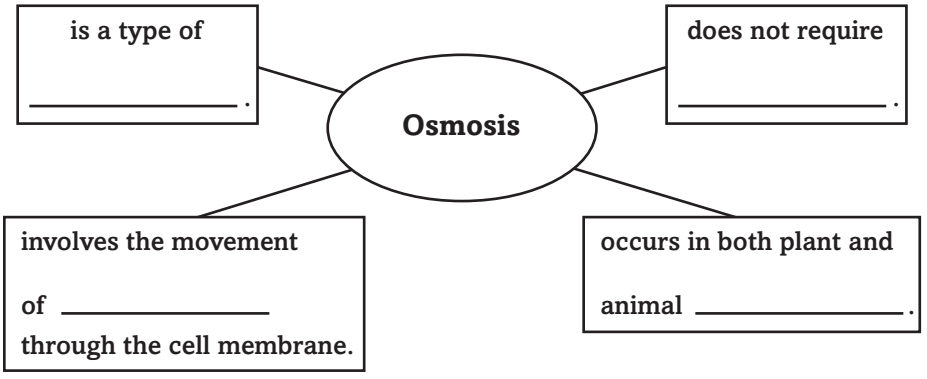
Write a short caption on how oxygen moves from the lungs to toe cells.

_____

_____

_____

Complete *the concept map of* osmosis.



I found this information on page _____.

List *three facts about* facilitated diffusion.

1. _____
2. _____
3. _____

Name _____ **Date** _____

Section 2 Moving Cellular Materials (continued)

Main Idea | **Details**

Active Transport

I found this information on page _____.

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

1. _____
2. _____
3. _____

I found this information on page _____.

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?		

Endocytosis and Exocytosis

I found this information on page _____.

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		

Name _____ Date _____

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

Define mitochondrion *to show its scientific meaning.*

mitochondrion _____

_____

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

Use a dictionary to define **obtain.**

obtain _____

_____

Name _____ **Date** _____

Section 3 Energy for Life (continued)

Main Idea

Details

Trapping and Using Energy

I found this information on page _____.

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

I found this information on page _____.

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

Material	Role in Photosynthesis
Water	
Carbon dioxide	
	products of photosynthesis
Chlorophyll	

I found this information on page _____.

Analyze *why photosynthesis is important to animals.*

Name _____ **Date** _____

Section 3 Energy for Life (continued)

Main Idea

I found this information on page _____.

Details

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

_____

_____

_____

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_2 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

_____

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Synthesize

Suppose that you are small enough to be able to move around within the cytoplasm of a cell. Write a story about what it might be like to move through the cell membrane, including the method the cell would use to let you in. Explain why this is the best method.

Name _____ **Date** _____

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 this chapter.

_____

_____

_____

_____

_____

Name _____ Date _____

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.

Before You Read	Cell Reproduction
	• 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.

Name _____ Date _____

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

Define nucleus *to show its scientific meaning.*

nucleus _____

New Vocabulary

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.

mitosis _____

chromosome _____

asexual reproduction _____

Academic Vocabulary

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.*

cycle _____

Name _____ **Date** _____

Section 1 Cell Division and Mitosis (continued)

Main Idea	Details
Why is cell division important? *I found this information on page _____.*	**Identify** *the three reasons* **cell division** *is important.* **1.** _____ **2.** _____ **3.** _____
The Cell Cycle *I found this information on page _____.*	**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 _____ _____.
Mitosis *I found this information on page _____.*	**Sequence** *the steps of* **mitosis**, *and write a short description of what takes place in each phase.* **1.** _____ **2.** _____ **3.** _____ **4.** _____ **5.** _____ **6.** _____

Name _____ **Date** _____

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?

_____

_____

_____

Name _____ Date _____

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

Define organism *to show its scientific meaning.*

organism _____

_____

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

Use a dictionary to write a definition of **similar.**

similar _____

_____

Name _____ **Date** _____

Section 2 Sexual Reproduction and Meiosis (continued)

Main Idea

Details

Sexual Reproduction

I found this information on page _____.

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		

Meiosis and Sex Cells

I found this information on page _____.

Model *the four 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

Name _____ **Date** _____

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 four 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?

_____

_____

Name _____ Date _____

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

Define heredity *to show its scientific meaning.*

heredity _____

_____

New Vocabulary

Write the correct vocabulary term next to each definition.

_____ 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

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.*

code

Noun: _____

_____

Verb: _____

_____

Name _____ **Date** _____

Section 3 DNA (continued)

Main Idea	Details
What is DNA?	**Identify** *the 4* nitrogen bases *found in* DNA.
I found this information on page _____.	**1.** _____ **3.** _____
	2. _____ **4.** _____
I found this information on page _____.	**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.*
I found this information on page _____.	**Summarize** *how DNA copies itself.*
	_____
	_____
	_____
	_____
Genes	**Complete** *the following paragraph on the relationship of proteins and* genes.
I found this information on page _____.	Proteins are made up of long chains of _____. Genes determine the _____ of _____ in a protein. Changing the _____ of the amino acids makes a _____ protein.

Name _____ **Date** _____

Section 3 DNA (continued)

Main Idea

Details

I found this information on page _____.

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

I found this information on page _____.

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

1. mRNA moves into the cytoplasm.
2. A(n) _____ attaches to it.
3. _____ molecules bring _____ to the ribosomes.
4. Nitrogen bases on the _____ temporarily _____ the nitrogen bases on the _____.
5. The same process occurs with another _____ molecule and the next portion of the _____ molecule.
6. The _____ attached to the two _____ molecules _____, beginning the formation of a protein.

Mutations

I found this information on page _____.

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.

_____

_____

Name _____ **Date** _____

Tie It Together

Synthesize

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.

Name _____ **Date** _____

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.

Cell Reproduction	After You Read
• 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.
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- ☐ 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.

_____

_____

_____

_____

_____

Name _____ Date _____

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.

Name _____ **Date** _____

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 _____

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

Punnett square _____

genotype _____

phenotype _____

homozygous _____

heterozygous _____

Academic Vocabulary

Use a dictionary to define physical *as it applies to life science.*

physical _____

Name _____ **Date** _____

Section 1 Genetics (continued)

Main Idea	Details

Inheriting Traits

I found this information on page _____.

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

_____

_____

_____

_____

Mendel—The Father of Genetics

I found this information on page _____.

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

1. _____

_____

2. _____

_____

3. _____

_____

Genetics in a Garden

I found this information on page _____.

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	

Name _____ **Date** _____

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 three* **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.

_____

_____

_____

Name _____ **Date** _____

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 _____

sex-linked gene _____

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 _____

Name _____ **Date** _____

Section 2 Genetics Since Mendel (continued)

Main Idea | **Details**

Incomplete Dominance

I found this information on page _____.

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.

_____

_____

I found this information on page _____.

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

_____

_____

_____

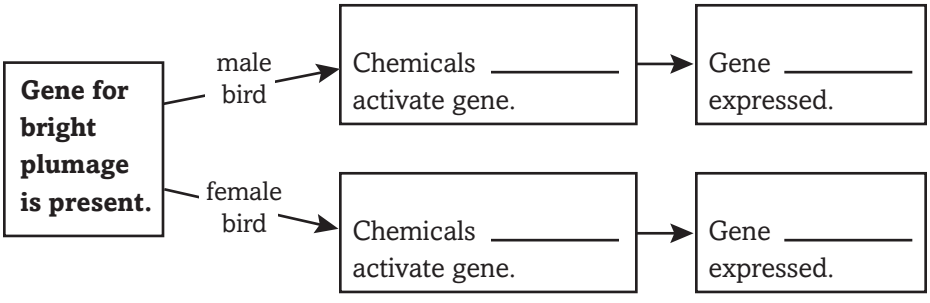
_____

_____

Polygenic Inheritance

I found this information on page _____.

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



Name _____ Date _____

Section 2 Genetics Since Mendel (continued)

Main Idea	Details
Human Genes and Mutations *I found this information on page _____.*	**Analyze** *how* chromosome disorders *occur.* A chromosome disorder occurs as a result of a _____ _____. It causes an organism to have _____ chromosomes than normal.
I found this information on page _____.	**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.*** **Mother's genotype:** _____ **Father's genotype:** _____ → **Child's genotype:** _____
Sex-Linked Disorders *I found this information on page _____.*	**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 _____ _____.
Pedigrees Trace Traits *I found this information on page _____.*	**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.

Name _____ Date _____

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

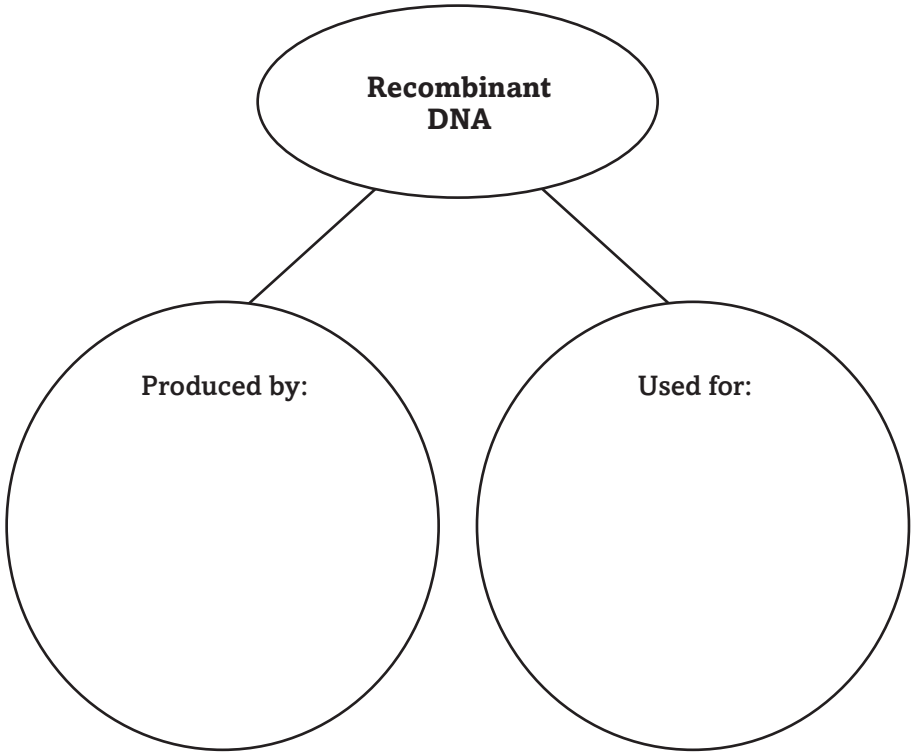
Use a dictionary to define insert *as a verb. Then find a sentence in Section 3 that uses the term or a form of the term.*

_____

Name _____ **Date** _____

Section 3 Biotechnology (continued)

Main Idea	Details
Genetic Engineering *I found this information on page* _____.	**Distinguish** *three uses for* genetic engineering. **1.** _____ **2.** _____ **3.** _____
I found this information on page _____.	**Organize** *information about* recombinant DNA. ***Complete the graphic organizer.***
I found this information on page _____.	**Summarize** *how* gene therapy *may be used in the future.*



Name _____ **Date** _____

Main Idea

Details

Genetic Engineering

I found this information on page _____.

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. _____

I found this information on page _____.

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.

_____

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Explain Genetics

Suppose that Gregor Mendel came to visit a modern genetics laboratory and you were asked to give him a tour. Write a report describing what you would show him and how you would explain modern genetics. Remember that he does not know the words gene *or* allele*, although he described "factors" that controlled traits.*

Name _____ Date _____

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.

Heredity	After You Read
• 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.

_____

_____

_____

_____

Name _____ Date _____

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
	• 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.

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.

Name _____ **Date** _____

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

Define gene *using your book.*

gene

_____

_____

_____

New Vocabulary

Write the correct term next to its definition.

_____ 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

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

hypothesis

_____

_____

_____

Name _____ **Date** _____

Section 1 Ideas About Evolution (continued)

Main Idea	Details
Early Models of Evolution *I found this information on page _____.*	**Identify** *why Lamarck's theory of* evolution *was not accepted.* _____ _____ _____
Darwin's Model of Evolution *I found this information on page _____.*	**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 _____.
Natural Selection *I found this information on page _____.*	**State** *5 main principles of* natural selection. **1.** _____ **2.** _____ **3.** _____ **4.** _____ _____ **5.** _____ _____
Variation and Adaptation *I found this information on page _____.*	**Compare and contrast** variations *and* adaptations.

	Variation	Adaptation
Definition		
Examples		

Name _____ **Date** _____

Main Idea

Details

Variation and Adaptation

I found this information on page _____.

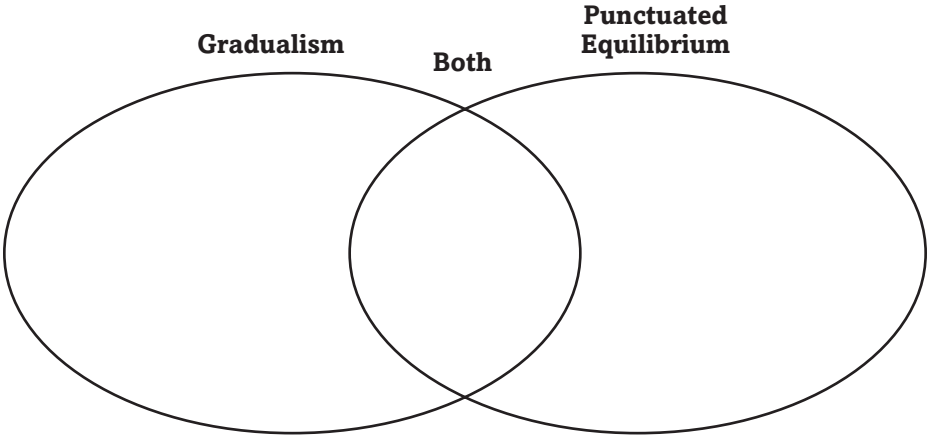
Complete *the table explaining factors that can lead to changes in a population.*

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

The Speed of Evolution

I found this information on page _____.

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.

_____

_____

_____

_____

_____

Name _____ Date _____

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.

_____ 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

_____

_____

Name _____ **Date** _____

Section 2 Clues About Evolution (continued)

Main Idea	Details

Clues from Fossils

I found this information on page _____.

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.

Types of Fossils

I found this information on page _____.

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

Most fossils are found in _____ rock. They are most often found in _____.

Determining a Fossil's Age

I found this information on page _____.

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

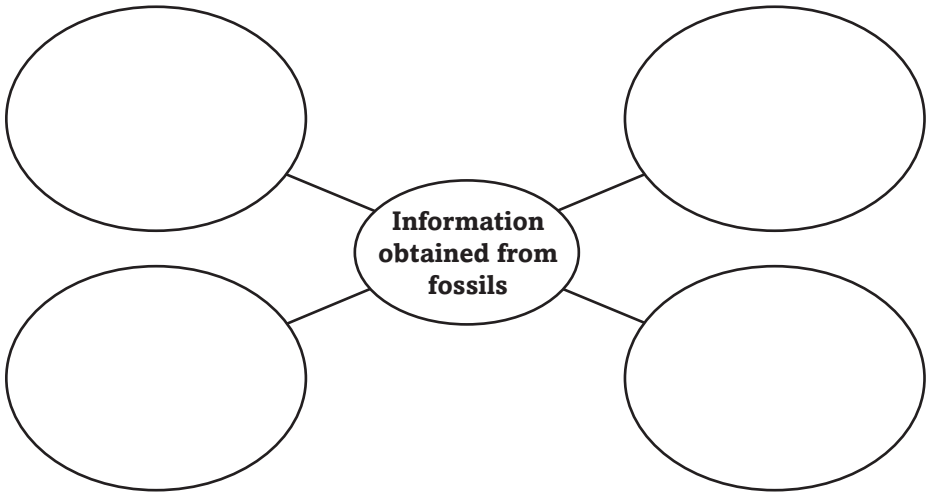
_____

_____

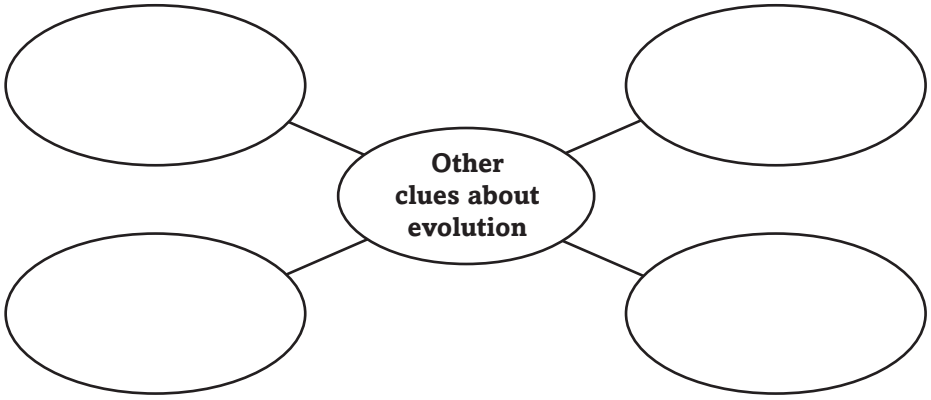
Name _____ **Date** _____

Section 2 Clues About Evolution (continued)

Main Idea	Details
Fossils and Evolution *I found this information on page _____.*	**Create** *a graphic organizer to identify what scientists learn from fossils.*



More Clues About Evolution *I found this information on page _____.*	**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.

_____

_____

_____

_____

Name _____ **Date** _____

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 _____

_____

Name _____ **Date** _____

Section 3 The Evolution of Primates (continued)

Main Idea | **Details**

Primates

I found this information on page _____.

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

Adaptation	Function

I found this information on page _____.

Distinguish *three characteristics of* hominids.

1. _____
2. _____
3. _____

I found this information on page _____.

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:

Name _____ **Date** _____

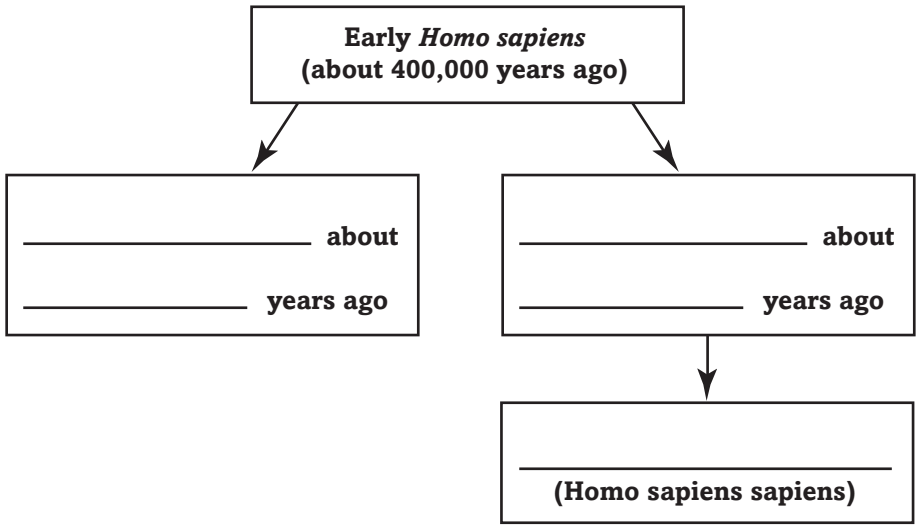
Section 3 The Evolution of Primates (continued)

Main Idea | **Details**

Humans

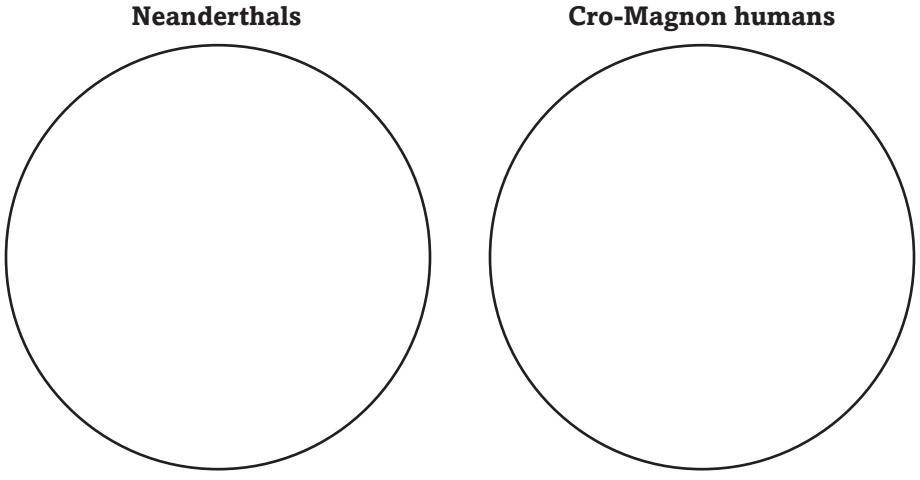
I found this information on page _____.

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



I found this information on page _____.

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



Connect It

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

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Make Fossils

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?

Name _____ Date _____

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.

Adaptations over Time	After You Read
• 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.

_____

_____

_____

_____

Name _____ Date _____

Circulation and Immunity

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 and Immunity
	• All blood cells are the same.
	• Your heart is an organ made of muscle tissue.
	• White blood cells help your body fight disease.
	• Washing a small wound with soap and water is helpful in preventing an infection.

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

Science Journal

Write three questions you have about blood, circulation, and how diseases are spread.

Name _____ **Date** _____

Circulation and Immunity

Section 1 Blood

Scan *Section 1 of your book. Write two facts you discovered about blood while scanning the section.*

1. _____

2. _____

Review Vocabulary

Define diffusion.

diffusion _____

New Vocabulary

Use your book to define the following terms.

plasma _____

hemoglobin _____

platelet _____

Academic Vocabulary

Use a dictionary to find the scientific definition of the term factor. *Find a sentence in the section in which the word is used and write the sentence below.*

factor

Definition: _____

Sentence: _____

Name _____ **Date** _____

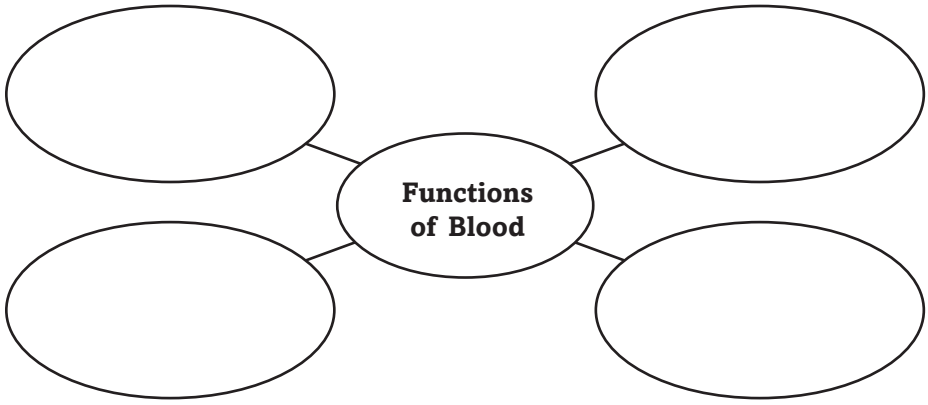
Section 1 Blood (continued)

Main Idea | **Details**

Functions of Blood

I found this information on page _____.

Organize *information about the functions of blood by completing the graphic organizer.*



Parts of Blood

I found this information on page _____.

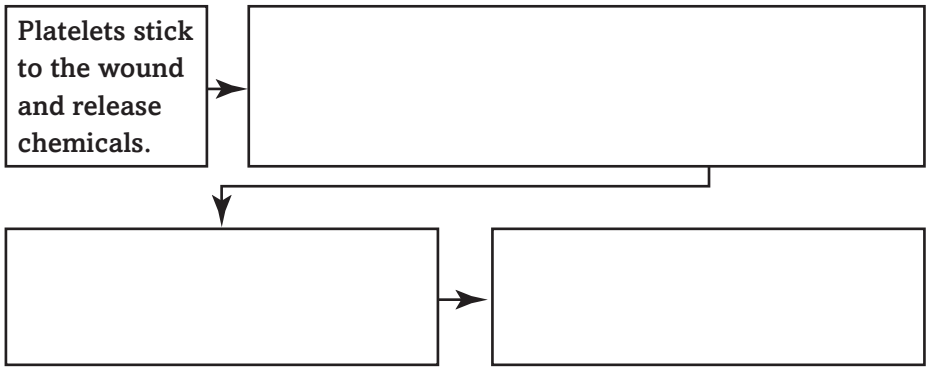
Compare *the parts of blood by completing the chart.*

Parts of Blood	
Part	**Function**
Plasma	
Red blood cells	
White blood cells	
Platelets	

Blood Clotting

I found this information on page _____.

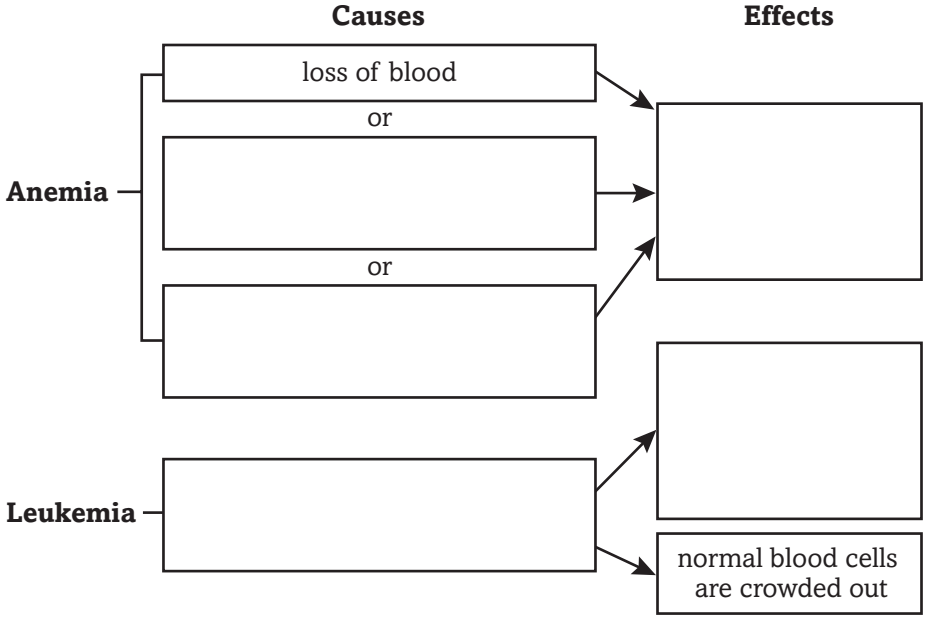
Sequence *events that happen as a cut begins to heal.*



Name _____ **Date** _____

Section 1 Blood (continued)

Main Idea	Details
Blood Types *I found this information on page _____.*	**Define** antigens *and* antibody. Antigens: _____ Antibody: _____
Diseases of Blood *I found this information on page _____.*	**Organize** *information about the causes and effects of diseases of the blood.*



Connect It

Your aunt needs a blood transfusion. She has type AB− blood. You have type O+ blood. Can you donate blood to her? Explain.

_____

_____

_____

_____

_____

_____

Name _____ Date _____

Circulation and Immunity

Section 2 Circulation

Preview *Section 2 by reading the* What You'll Learn *statements. Rewrite them as questions. Answer these questions as you read.*

1. _____

2. _____

3. _____

4. _____

Review Vocabulary

Define tissue *using its scientific meaning.*

tissue _____

New Vocabulary

Match the correct vocabulary term with its definition.

_____ blood vessel that connects arteries and veins

_____ fluid that has diffused into the lymphatic capillaries

_____ blood vessel that carries blood to the heart

_____ blood vessel that carries blood away from the heart

Academic Vocabulary

Use a dictionary to define the term **constant** *as it is used in the following sentence.*

This message from the brain helps keep blood pressure *constant* within your arteries so that enough blood reaches all organs and tissues in your body.

constant _____

_____

Name _____ **Date** _____

Section 2 Circulation (continued)

Main Idea

Details

The Heart

I found this information on page _____.

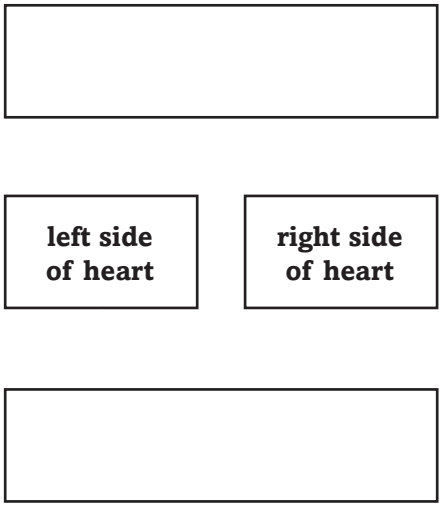
Complete *the paragraph describing the heart.*

The heart is a(n) _____ made of _____ tissue. It is located behind the _____ and between the _____. The heart has _____. The upper chambers are called the _____ and _____. The lower chambers are called the _____ and _____.

Types of Circulation

I found this information on page _____.

Label *the diagram, and add arrows to trace the flow of blood between the heart, lungs, and body.*



Blood Vessels

I found this information on page _____.

Compare *blood vessels by describing them in the chart below.*

Types of Blood Vessels	
Vessel	**Description**
Arteries	
Veins	
Capillaries	

Name _____ Date _____

Section 2 Circulation (continued)

Main Idea

Details

Blood Pressure

I found this information on page _____.

Summarize *how blood pressure is maintained by the body.*

_____

_____

_____

Cardiovascular Disease

I found this information on page _____.

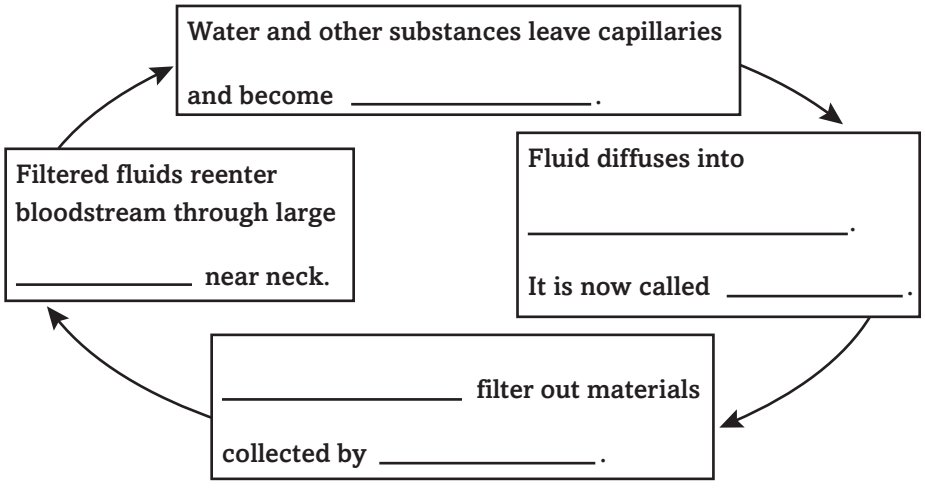
Organize *information about cardiovascular disease in the chart.*

Cardiovascular disease		
Disease	Atherosclerosis	Hypertension
Description		
Effect		

Functions of the Lymphatic System

I found this information on page _____.

Model *the pathway of fluid through the circulatory and lymphatic systems by completing the cycle chart below.*



CONNECT IT Identify habits that may decrease or increase your chances of developing atherosclerosis and hypertension.

_____

_____

Name _____ **Date** _____

Circulation and Immunity

Section 3 Immunity

Skim *through Section 3 of this chapter. Identify two things you think you will learn in this section.*

1. _____

2. _____

Review Vocabulary

Define *the word* enzyme *using its scientific meaning.*

enzyme _____

_____

New Vocabulary

Use your book or a dictionary to define the new vocabulary terms.

passive immunity _____

_____

antibody _____

_____

active immunity _____

_____

antigen _____

_____

Academic Vocabulary

Use a dictionary to define the word passive *using its scientific meaning. Find a sentence in your book that uses the word.*

passive

Definition: _____

_____

Sentence: _____

_____

Name _____ **Date** _____

Section 3 Immunity (continued)

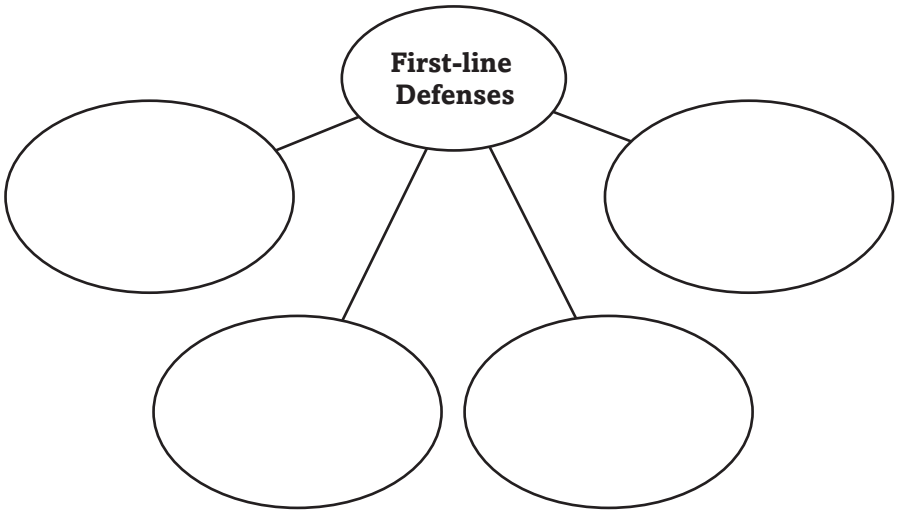
Main Idea

Details

Lines of Defense

I found this information on page _____.

Organize *information about the body's first-line defenses against disease.*



I found this information on page _____.

Summarize *two ways your skin protects you from disease.*

1. _____

_____

2. _____

_____

_____

I found this information on page _____.

Compare and contrast *characteristics of the 3 systems of internal first-line defenses.*

Internal First-line Defenses		
Respiratory System	Digestive System	Circulatory System

Name _____ **Date** _____

Section 3 Immunity (continued)

Main Idea

Lines of Defense

I found this information on page _____.

I found this information on page _____.

Details

Sequence *events that occur when tissue becomes inflamed.*

Pathogens infect tissue and cause it to be inflamed.

↓

↓

↓

↓

White blood cells surround and engulf pathogenic bacteria.

Summarize *the 4 steps of response to disease-causing organisms.*

1. Recognition: _____

_____

2. Mobilization: _____

_____

3. Disposal: _____

_____

4. Immunity: _____

_____

Connect It

A woman had chicken pox when she was a child. Explain how this affects her susceptibility to chicken pox as an adult.

_____

_____

_____

Name _____ **Date** _____

Circulation and Immunity

Section 4 Diseases

Skim *Section 4 and predict four topics that you will study in this section.*

1. _____
2. _____
3. _____
4. _____

Review Vocabulary

Define virus *using its scientific meaning.*

virus _____

New Vocabulary

Write the correct vocabulary term next to its definition.

_____ disease caused by a virus, bacterium, fungus, or protist that is spread from one person to another

_____ substance that causes an allergic reaction

_____ disease that is not caused by a pathogen

_____ process in which a liquid is heated to a temperature that kills most bacteria

Academic Vocabulary

Use a dictionary to define the word **enable**. *Rewrite the following sentence, substituting the new meaning.*

Insulin is a hormone that enables glucose to pass from the bloodstream into your cells.

enable _____

_____

_____

Name _____ **Date** _____

Section 4 Diseases (continued)

Main Idea	Details

Disease in History

I found this information on page _____.

Summarize *the discoveries made by these scientists about disease.*

Louis Pasteur: _____

_____

Robert Koch: _____

_____

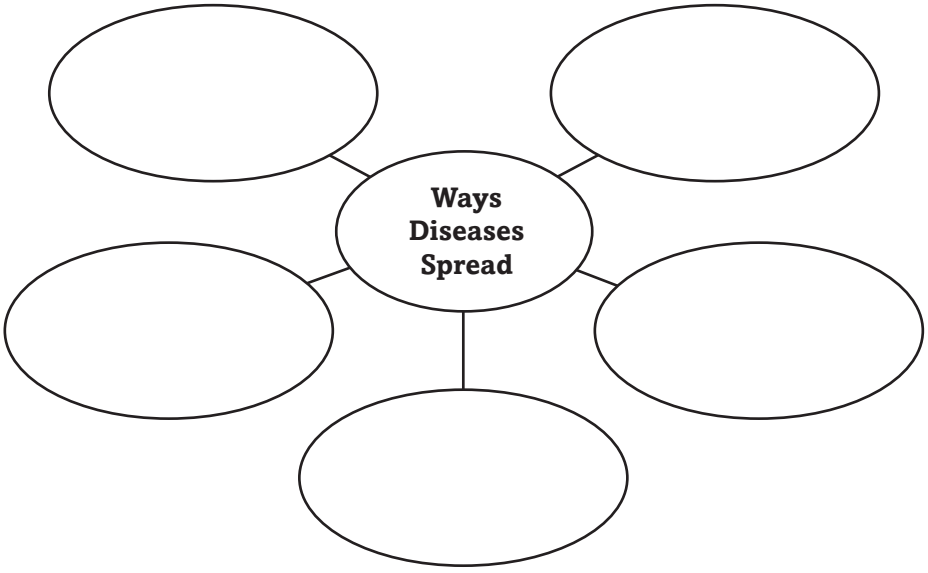
Joseph Lister: _____

_____

Infectious Diseases

I found this information on page _____.

Organize *information on the ways* infectious diseases *can spread.*



HIV and Your Immune System

I found this information on page _____.

Complete *the following paragraph about AIDS.*

HIV attacks the _____ in the immune system. The virus enters the T cell and _____. When the infected cell _____, it releases more _____. These infect other _____. Soon, _____ cannot produce _____. The immune system is unable to fight HIV or any other _____.

Name _____ **Date** _____

Section 4 Diseases (continued)

Main Idea

Details

Fighting Disease

I found this information on page _____.

Organize *information by listing five ways to prevent infection.*

1. _____
2. _____
3. _____
4. _____
5. _____

Chronic Disease

I found this information on page _____.

Summarize *the characteristics of allergies and diabetes.*

	Allergies	Diabetes
Cause		
Effect		

Connect It

Choose one behavior that can help prevent cancer or another chronic disease. Explain how the behavior helps prevent the disease.

_____

_____

_____

_____

_____

_____

Name _____ Date _____

Circulation and Immunity 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.

Circulation and Immunity	After You Read
• All blood cells are the same.	
• Your heart is an organ made of muscle tissue.	
• White blood cells help your body fight disease.	
• Washing a small wound with soap and water is helpful in preventing an infection.	

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 of the most important ideas in this chapter.

_____

_____

_____

_____

Name _____ Date _____

Digestion, Respiration, and Excretion

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.

K What I know	W What I want to find out

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

Science Journal

Write a paragraph describing what you do to help your body recover after an active game.

Name _____ Date _____

Digestion, Respiration, and Excretion

Section 1 The Digestive System

Scan *the title and headings in Section 1. Predict three topics that might be discussed in this section.*

1. _____
2. _____
3. _____

Review Vocabulary

Write an original sentence to show the scientific meaning of the word bacteria.

bacteria _____

New Vocabulary

Find a sentence in Section 1 that uses each vocabulary term or a form of the term.

nutrient _____

_____

enzyme _____

_____

peristalsis _____

_____

chyme _____

_____

villi _____

_____

Academic Vocabulary

Define contract *as a verb using a dictionary.*

contract _____

_____

Name _____ **Date** _____

Section 1 The Digestive System (continued)

Main Idea	Details
Functions of the Digestive System *I found this information on page* _____.	**Sequence** *the steps of the digestive process. Identify what occurs during each step.*

Step: _____

What happens: _____

↓

Step: Digestion

What happens: _____

Chemical: _____

Mechanical: _____

↓

Step: _____

What happens: _____

↓

Step: _____

What happens: _____

Enzymes

I found this information on page _____.

Summarize *how* **enzymes** *are important by completing the statements below.*

Enzymes _____ and help you digest _____.

They are produced in _____

_____.

Enzymes also are important because they _____

_____ and

_____.

Name _____ **Date** _____

Section 1 The Digestive System (continued)

Main Idea

Details

Organs of the Digestive System

I found this information on page _____.

Model and label *the organs involved in digestion. Circle the labels of organs that are part of the digestive tract.*

Bacteria Are Important

I found this information on page _____.

Identify *two ways bacteria in the digestive system help the body.*

1. _____

2. _____

SUMMARIZE IT

Suppose you eat a sandwich that provides protein, carbohydrates, and fat. Describe what happens to the sandwich as it moves through your digestive system.

_____

_____

_____

_____

Name _____ Date _____

Digestion, Respiration, and Excretion

Section 2 Nutrition

Scan *the illustrations in Section 2. Write three questions that come to mind. As you read, look for answers to your questions.*

1. _____
2. _____
3. _____

Review Vocabulary

Define molecule *to show its scientific meaning.*

molecule _____

New Vocabulary

Use your book to define the following terms.

amino acid _____

carbohydrate _____

vitamin _____

mineral _____

Academic Vocabulary

Use a dictionary to define source. *Then write an original sentence using the term.*

source _____

Name _____ **Date** _____

Main Idea

Details

Why do you eat?

I found this information on page _____.

Complete *the paragraph to summarize the importance of food.*

Food provides _____.

The _____ of food is its most important quality, but many people choose food based on _____ and _____.

Classes of Nutrients

I found this information on page _____.

Identify *the 6 major classes of nutrients.*

1. _____ **3.** _____ **5.** _____

2. _____ **4.** _____ **6.** _____

Summarize *why proteins are important nutrients.*

_____

_____

I found this information on page _____.

Organize *information about the three types of* carbohydrates.

Type	Food Sources	Use in Body
Sugar		
Starch		
Fiber		

I found this information on page _____.

Summarize *four functions that fat has in the body.*

1. _____

2. _____

3. _____

4. _____

Name _____ **Date** _____

Section 2 Nutrition (continued)

Main Idea

Details

I found this information on page _____.

Distinguish *between water-soluble and fat-soluble* vitamins.

Water-Soluble Vitamins	Fat-Soluble Vitamins

I found this information on page _____.

Label *each description with the mineral it describes.*

_____ helps clot blood and maintain strong teeth and bones.

_____ helps muscle contraction.

_____ allows oxygen to be transported by red blood cells.

Food Groups

I found this information on page _____.

Model *serving size for different food categories.*

Group	Recommended Servings per Day	Examples of 1 Serving Size
Bread and cereal		
Fruits		
Vegetables		
Milk, yogurt, or cheese		
Meat, beans, and eggs		

Connect It

Plan a daily menu that provides the recommended servings from each food group. Identify some nutrients that each food in your menu provides.

_____

_____

_____

Name _____ Date _____

Digestion, Respiration, and Excretion

Section 3 The Respiratory System

Scan *Section 3 using the checklist below.*

- ☐ Read all headings.
- ☐ Read all bold words.
- ☐ Look at each illustration.
- ☐ Think about what you already know about breathing.

Write two predictions you have for subjects that will be covered in this section.

1. _____

2. _____

Review Vocabulary

Define diaphragm *as it relates to the respiratory system.*

diaphragm _____

_____

New Vocabulary

Write the vocabulary term that matches each definition.

_____ tiny, thin-walled sacs at the end of bronchioles

_____ air-conducting tube that connects the larynx with the bronchi

_____ airway to which the vocal cords are attached

_____ two short tubes that carry air into the lungs

Academic Vocabulary

Read the sentence below. Analyze what **coordinate** ***means in this sentence.***

Your brain coordinates the movement of the muscles in your throat, tongue, cheeks, and lips when you talk.

coordinate _____

_____

Name _____ **Date** _____

Section 3 The Respiratory System (continued)

Main Idea

Details

Functions of the Respiratory System

I found this information on page _____.

Sequence *the process of breathing and cellular respiration.*

Breathing in brings oxygen into the body.

↓

Blood _____.

↓

Cells _____.

↓

Cells produce carbon dioxide and water as waste.

↓

Blood _____.

↓

Breathing out _____.

Organs of the Respiratory System

I found this information on page _____.

Create *a drawing of the respiratory system. Label the* nasal cavity, larynx, pharynx, trachea, lungs, bronchi, *and* alveoli. *Write a caption explaining the function of each part of the system.*

Name _____ **Date** _____

Section 3 The Respiratory System (continued)

Main Idea

Details

Why do you breathe?

I found this information on page _____.

Analyze *how carbon dioxide in the blood affects breathing rate.*

_____

_____

Model *the role of the diaphragm in breathing. Make one diagram of the lungs and diaphragm for when a person inhales and one for exhaling. Use arrows to show how the lungs and diaphragm move.*

Diseases and Disorders of the Respiratory System

I found this information on page _____.

Classify *respiratory diseases and disorders. Complete the chart.*

Disease or Disorder	Cause or Contributing Factors
Respiratory infections	
Chronic bronchitis	
Lung cancer	
Asthma	

Synthesize It

Describe how emphysema affects cellular respiration and cell function.

_____

_____

_____

Name _____ Date _____

Digestion, Respiration, and Excretion

Section 4 The Excretory System

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

1. _____

2. _____

3. _____

Review Vocabulary

Define capillary *to show its scientific meaning.*

capillary _____

New Vocabulary

Use your book to define the following terms.

nephron _____

ureter _____

bladder _____

Academic Vocabulary

Use a dictionary to define eliminate. *Then rewrite the following sentence, substituting the meaning you found for the word* eliminate.

You eliminate some salts when you sweat.

eliminate _____

Name _____ **Date** _____

Section 4 The Excretory System (continued)

Main Idea

Details

Functions of the Excretory System

I found this information on page _____.

Summarize *the ways in which the body excretes, or removes, waste. Complete the chart to show what each body system excretes.*

Excretion	
Digestive System	Respiratory System
Skin	Urinary System

Analyze *the importance of excretion by completing the sentence.*

If the body did not excrete wastes, _____

_____

The Urinary System

I found this information on page _____.

Summarize *the function of each part of the urinary system.*

Kidneys: _____

Renal arteries: _____

Renal veins: _____

Ureters: _____

Bladder: _____

Urethra: _____

Name _____ **Date** _____

Section 4 The Excretory System (continued)

Main Idea

I found this information on page _____.

Details

Sequence *the steps of filtration in the kidneys.*

1.	Blood enters the kidneys through the renal artery.
2.	
3.	
4.	
5.	
6.	The liquid left behind flows into collecting tubules and then into ureters.

Urinary Diseases and Disorders

I found this information on page _____.

Identify *the effects of kidney failure.*

_____

_____

_____

_____

SYNTHESIZE IT

Identify effects of excretory system malfunction.

_____

_____

_____

_____

_____

Name _____ **Date** _____

Digestion, Respiration, and Excretion

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 compare with those you provided at the beginning of the chapter?

K What I know	W What I want to find out	L What I learned

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 from this chapter.

_____

_____

_____

_____

Name _____ Date _____

Support, Movement, and Responses

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	Support, Movement, and Responses
	• Your skin is the largest organ of your body.
	• No matter how still you might be, some muscles in your body are always moving.
	• Living bone is an organ made of several different tissues.
	• The basic working units of the nervous system are nerve cells.

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

Science Journal

Imagine for a moment that your body does not have a support system. How will you perform your daily activities? Explain your reasoning.

Name _____ **Date** _____

Support, Movement, and Responses

Section 1 The Skin

Scan *the section by following the checklist below.*

- ☐ Read all of the section headings.
- ☐ Read all of the bold words.
- ☐ Read all charts and graphs.
- ☐ Look at all of the pictures.
- ☐ Think about what you already know about the skin.

Write three facts that you discovered about the skin as you scanned this section.

1. _____

2. _____

3. _____

Review Vocabulary

Define organ *as it relates to the body, and use it in an original sentence.*

organ _____

_____

_____

New Vocabulary

Use your book to define the following terms.

epidermis _____

_____

melanin _____

_____

Academic Vocabulary

Use a dictionary to define regulate.

regulate _____

_____

Name _____ **Date** _____

Section 1 The Skin (continued)

Main Idea	Details
Skin Structures *I found this information on page _____.*	**Model** *the skin by drawing and labeling its parts.*
Skin Functions *I found this information on page _____.*	**Create** *a graphic organizer to identify the five major functions of the skin.*

Name _____ **Date** _____

Section 1 The Skin (continued)

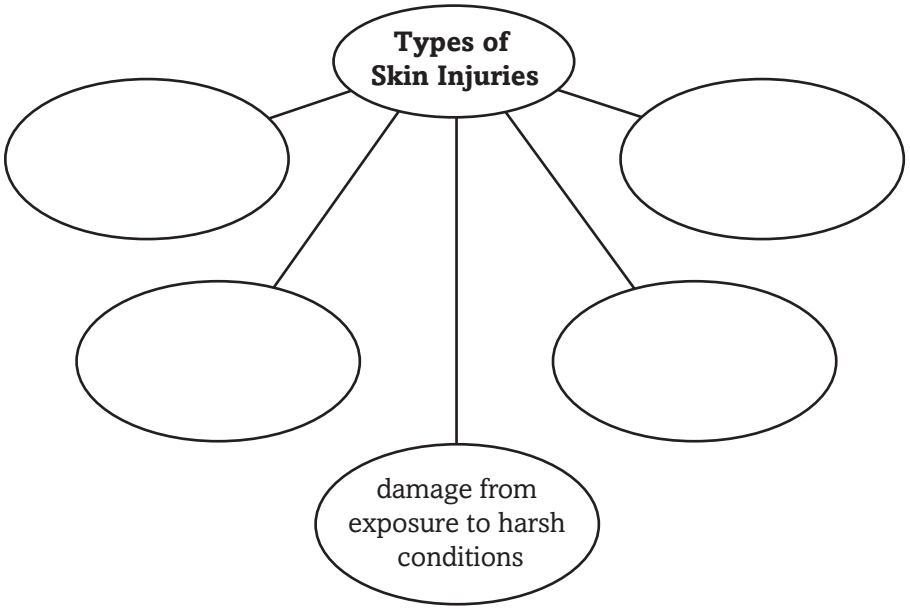
Main Idea

Details

Skin Injuries and Repair

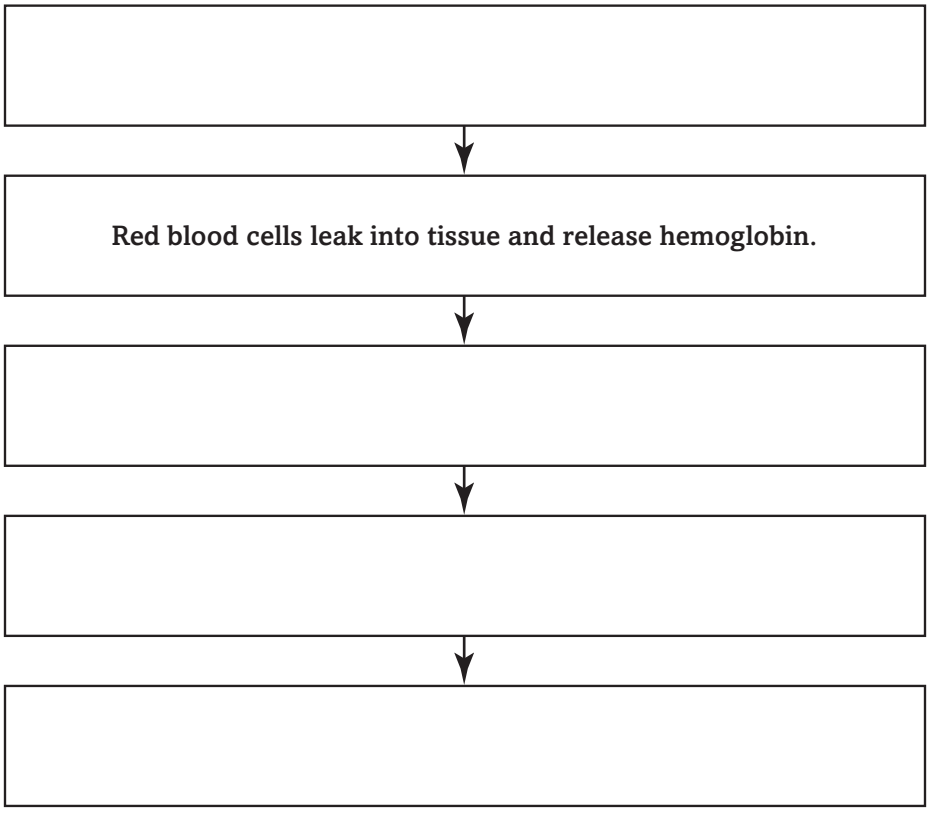
I found this information on page _____.

Complete *the graphic organizer to identify types of skin injuries.*



I found this information on page _____.

Sequence *the steps involved in the formation of a bruise and its healing.*



Name _____ **Date** _____

Support, Movement, and Responses

Section 2 The Muscular System

Scan *the headings in Section 2. Read the headings and examine the illustrations. Write three questions that come to mind.*

1. _____
2. _____
3. _____

Review Vocabulary

Define muscle *using your book or a dictionary.*

muscle _____

New Vocabulary

Use your book to define the following terms. Then write a sentence for each term.

voluntary muscle _____

involuntary muscle _____

tendon _____

Academic Vocabulary

Use a dictionary to define voluntary.

voluntary _____

Name _____ **Date** _____

Section 2 The Muscular System (continued)

Main Idea

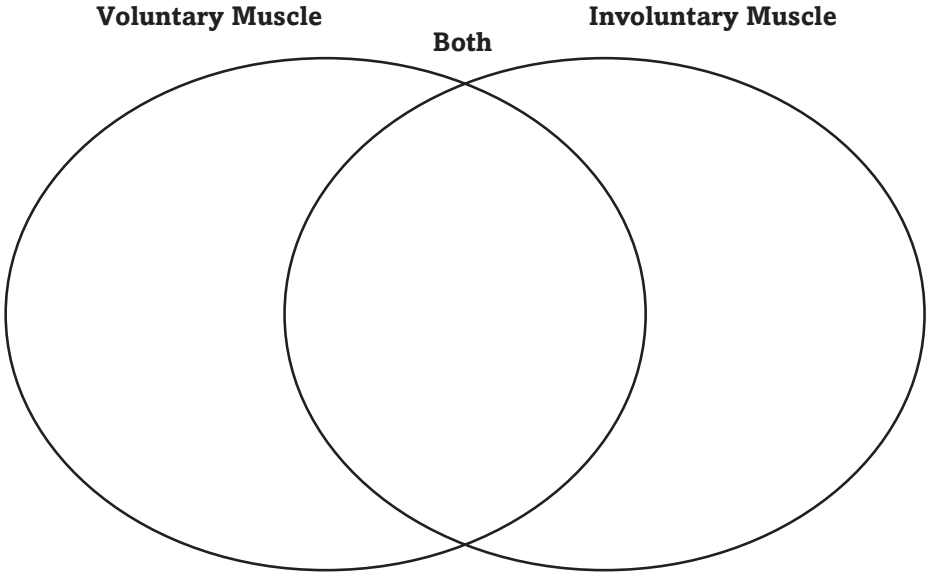
Details

Movement of the Human Body

I found this information on page _____.

Compare and contrast *movements of* **voluntary** *and* **involuntary** *muscles by using the terms provided to complete the Venn diagram.*

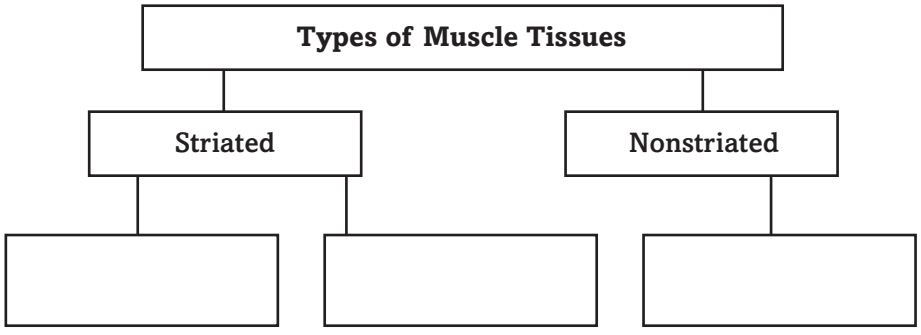
- able to relax
- controlled consciously
- able to contract
- cannot control consciously
- provides force for movement
- face muscle
- stomach muscle



Classification of Muscle Tissue

I found this information on page _____.

Classify *the types of muscle tissues in the graphic organizer.*



Name _____ **Date** _____

Section 2 The Muscular System (continued)

Main Idea	Details
Your Body's Simple Machines–Levers *I found this information on page _____.*	**Model** *the three types of levers found in the body by providing simple drawings to illustrate the positions of the fulcrum, effort force, and load in each type.* **first-class lever** | **second-class lever** | **third-class lever**
Working Muscles *I found this information on page _____.*	**Complete** *the following paragraph about how muscles work by filling in the missing words or phrases.* Muscles work together in _____ so that your body can move. As one muscle _____, the other _____. Muscles _____ push; they always _____. When the muscles on the back of your upper leg contract, they _____ and pull your lower leg back and up. When you straighten your leg, the muscles on the back of your upper leg _____ and lengthen, and the muscles on the front of your upper leg _____.

SYNTHESIZE IT

Explain why a runner may have difficulty walking steadily after a long race.

_____

_____

_____

_____

Name _____ **Date** _____

Support, Movement, and Responses

Section 3 The Skeletal System

Predict *three things that will be discussed in Section 3. Read the section's headings to help you make your predictions.*

1. _____
2. _____
3. _____

Review Vocabulary

Define skeleton.

skeleton _____

New Vocabulary

Find a sentence in Section 3 that includes each vocabulary term.

periosteum _____

cartilage _____

joint _____

ligament _____

Academic Vocabulary

Use a dictionary to define internal.

internal _____

Name _____ **Date** _____

Section 3 The Skeletal System (continued)

Main Idea

Details

Functions of Your Skeletal System

I found this information on page _____.

Summarize *the functions of the* skeletal system *on the lines below.*

1. _____
2. _____
3. _____
4. _____
5. _____

Bone Structure

I found this information on page _____.

Distinguish compact bone *from* spongy bone *by identifying a characteristic and the importance of each type of bone.*

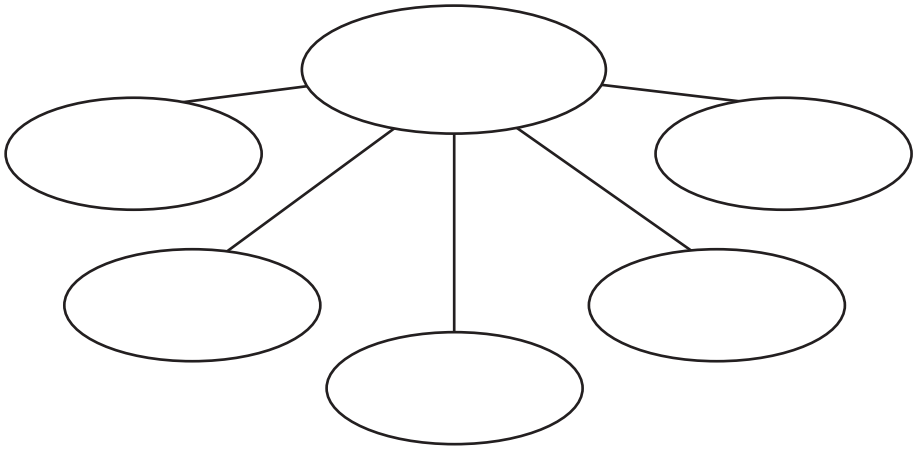
Type of Bone	Characteristic	Importance

I found this information on page _____.

Create *a graphic organizer to identify five characteristics of* cartilage *that make it important in joints.*

Name _____ **Date** _____

Section 3 The Skeletal System (continued)

Main Idea	Details
Bone Formation *I found this information on page _____.*	**Compare** *the roles of* osteoblasts *and* osteoclasts *in the formation and breakdown of bone tissue.* Osteoblasts _____ Osteoclasts _____
Joints *I found this information on page _____.*	**Organize** *the different types of joints in a graphic organizer.* 
I found this information on page _____.	**Summarize** *the* purpose of cartilage *at joints in the human body on the lines below.*

Name _____ Date _____

Support, Movement, and Responses

Section 4 The Nervous System

Scan *the headings in Section 3 to identify the body's senses.*

1. _____
2. _____
3. _____
4. _____
5. _____

Review Vocabulary

Define homeostasis.

homeostasis _____

_____

New Vocabulary

Scan *within the section for bold words and their meanings. Then write the correct term next to its definition.*

_____ brain and spinal cord

_____ all of the nerves that connect the brain and spinal cord to other body parts

_____ nerve cell

_____ small space in which an impulse crosses from one neuron to another

Academic Vocabulary

Use a dictionary to define **adjust.**

adjust _____

_____

Name _____ **Date** _____

Section 4 The Nervous System (continued)

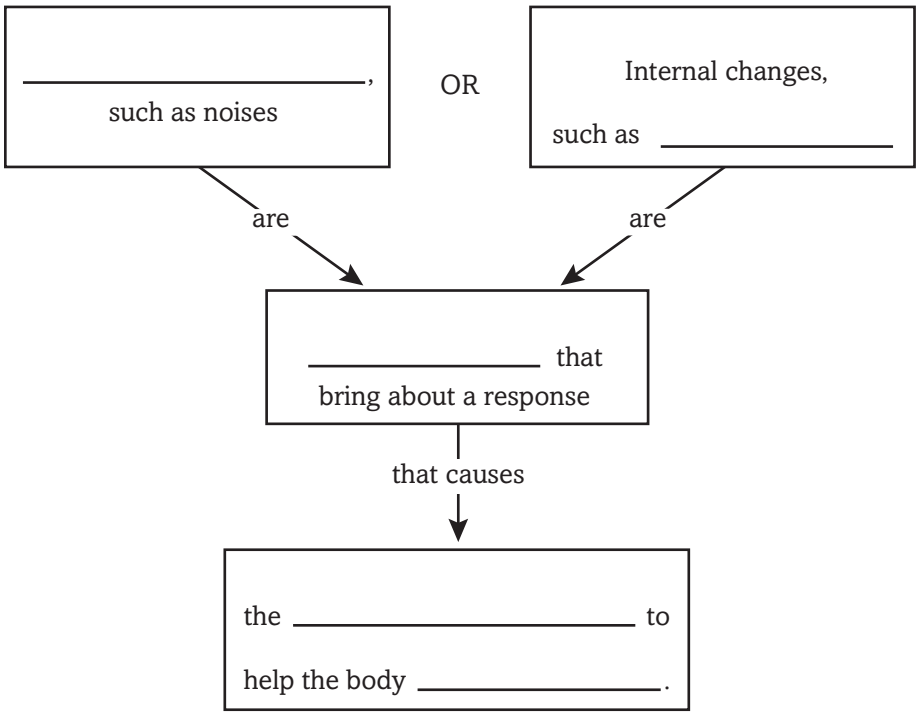
Main Idea

Details

How the Nervous System Works

I found this information on page _____.

Complete *the graphic organizer below to illustrate how the* nervous system *acts as a control system for the body.*



Nerve Cells

I found this information on page _____.

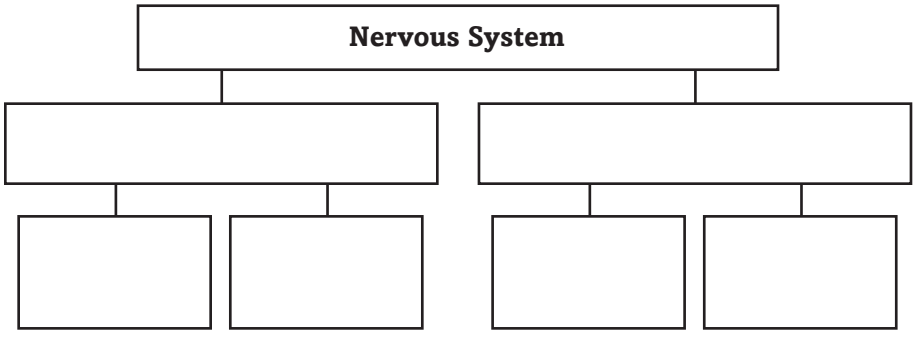
Sequence *the structures of a* neuron *in the order in which an impulse travels.*

1. _____ **2.** _____ **3.** _____

The Divisions of the Nervous System

I found this information on page _____.

Organize *the parts of the* nervous system *in this graphic organizer.*



Name _____ Date _____

Section 4 The Nervous System (continued)

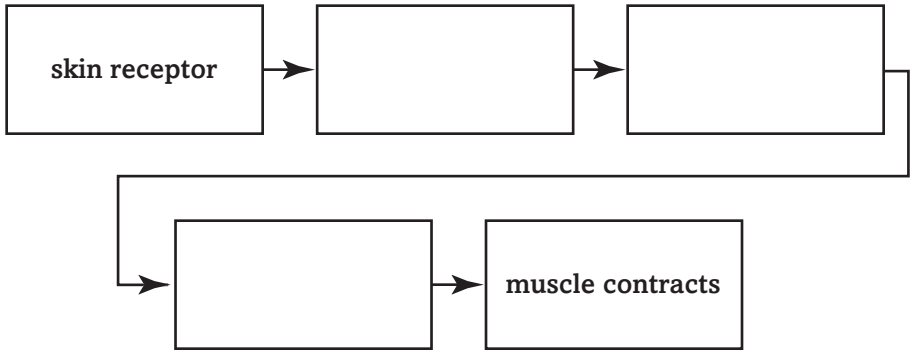
Main Idea

Details

Safety and the Nervous System

I found this information on page _____.

Sequence *the reflex arc by tracing the path of an* impulse, *for example after a person touches a hot object.*



The Senses

I found this information on page _____.

Identify *the sensory organs and their* receptors *for each sense.*

Sense	Sensory Organ	Sensory Receptors
Smell		
Taste		
Vision		
Hearing		

Drugs Affect the Nervous System

I found this information on page _____.

Summarize *the effects of* depressants *and* stimulants *on the body.*

1. Depressants _____

2. Stimulants _____

Connect It

Evaluate how alcohol use could affect the ability of a person riding a bicycle.

Name _____ **Date** _____

Support, Movement, and Responses

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.

Support, Movement, and Responses	After You Read
• Your skin is the largest organ of your body.	
• No matter how still you might be, some muscles in your body are always moving.	
• Living bone is an organ made of several different tissues.	
• The basic working units of the nervous system are nerve 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 main ideas that you have learned about body systems.**

_____

_____

_____

Name _____ Date _____

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.

Name _____ Date _____

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

New Vocabulary

Define hormone *to show its scientific meaning.*

hormone

Academic Vocabulary

Define distribute *to show its scientific meaning. Then use the word in an original sentence.*

distribute

Name _____ Date _____

Section 1 The Endocrine System (continued)

Main Idea | **Details**

Functions of the Endocrine System

I found this information on page _____.

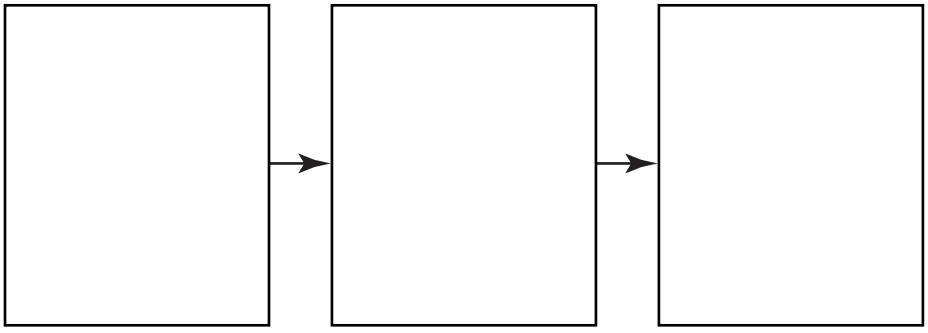
Organize *information about the body's control systems by completing the chart below.*

Body System	Function	Body's Response Time

Endocrine Glands

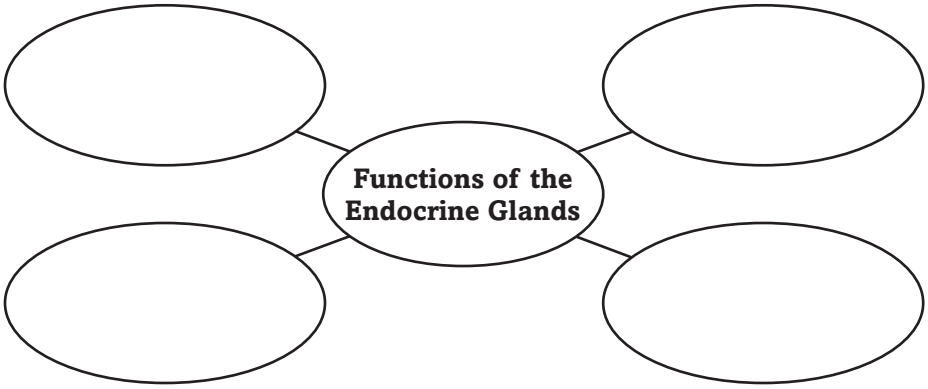
I found this information on page _____.

Sequence *the events that occur when a* gland *produces a* hormone *and sends it to a* target tissue.



I found this information on page _____.

Distinguish *the four main functions of the endocrine glands by completing the graphic organizer below.*



Name _____ **Date** _____

Section 1 The Endocrine System (continued)

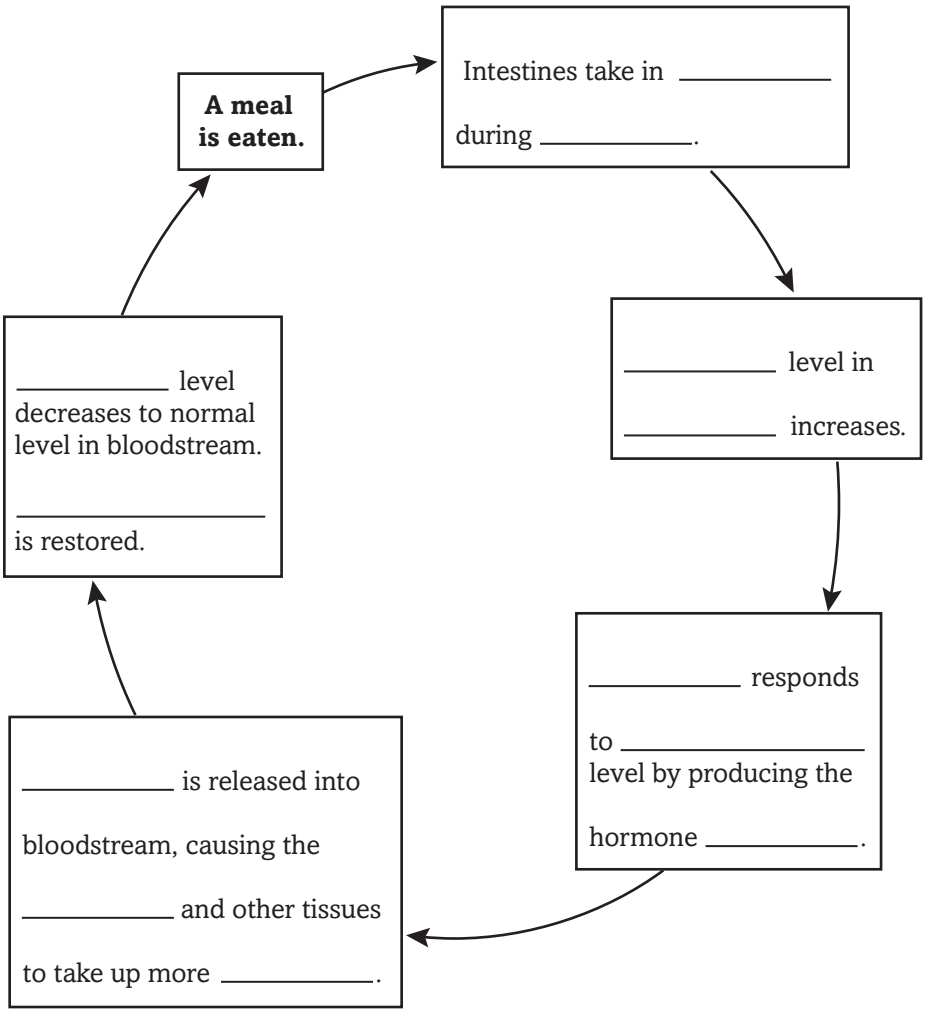
Main Idea

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.

_____

_____

_____

_____

Name _____ Date _____

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 _____

_____

_____

Name _____ Date _____

Section 2 The Reproductive System (continued)

Main Idea

Details

Reproduction and the Endocrine System

I found this information on page _____.

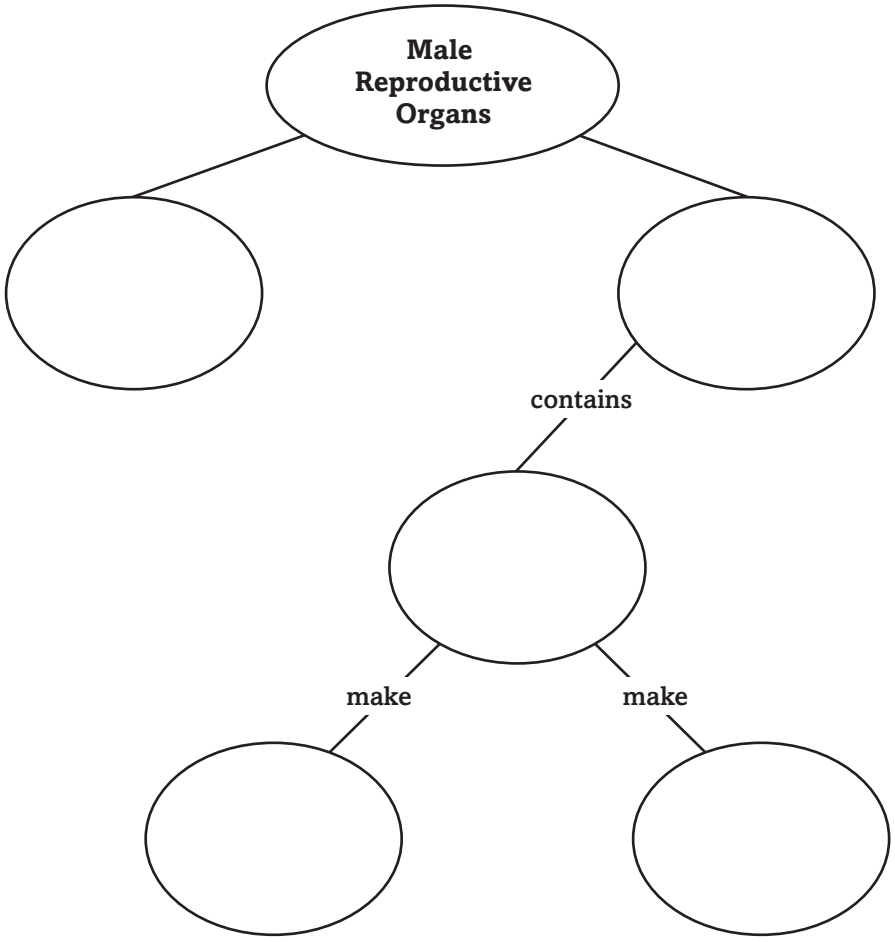
Complete *the graphic organizers below to differentiate the role of the* pituitary gland *in females and males.*

Pituitary Gland in Females →	produces: →	stimulates:
Pituitary Gland in Males →	produces: →	stimulates:

The Male Reproductive System

I found this information on page _____.

Summarize *information about the* male reproductive organs *in the graphic organizer below.*



Name _____ Date _____

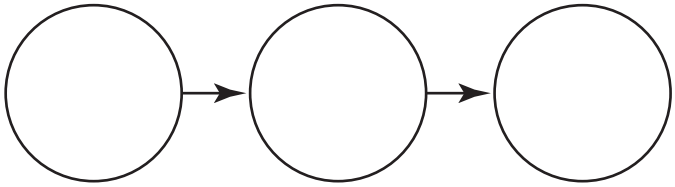
Section 2 The Reproductive System (continued)

Main Idea | **Details**

The Female Reproductive System

I found this information on page _____.

Sequence *the steps through which an egg moves in the* female reproductive system.



The Menstrual Cycle

I found this information on page _____.

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.

Name _____ **Date** _____

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 _____

New Vocabulary

Define the new vocabulary terms to show their scientific meaning.

embryo _____

amniotic sac _____

fetus _____

fetus stress _____

Academic Vocabulary

Define capable. *Use* capable *in an original sentence to show its scientific meaning.*

capable _____

Name _____ Date _____

Section 3 Human Life Stages (continued)

Main Idea	Details

Fertilization

I found this information on page _____.

Sequence *the events that result in the* formation of a zygote *by completing the following graphic organizer.*

Sperm enter the vagina and come in contact with chemical secretions in the vagina.

↓

↓

↓

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.*

Weeks of Pregnancy

Name _____ **Date** _____

Section 3 Human Life Stages (continued)

Main Idea

Details

The Birthing Process

I found this information on page _____.

Sequence *the events that occur during the* birthing process. *The first one has been completed for you.*

1.	Contractions increase.
2.	
3.	
4.	
5.	

Stages After Birth

I found this information on page _____.

Summarize *information about the* stages after birth *using the chart below.*

Stage	Period in Life	Changes That Occur
Infancy		
Childhood		
Adolescence		
Adulthood		
Older Adulthood		

Name _____ **Date** _____

Tie It Together

Synthesize It

Create a journal that reflects your own stages of development. Interview your parents to record information about your size at various ages (including birth weight and length) and when you learned certain skills such as the ability to crawl and walk, when you lost your baby teeth, and so on. Try to find pictures of yourself at various ages to include in your journal.

Name _____ Date _____

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.

Regulation and Reproduction	After You Read
• 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.**

_____

_____

_____

_____

Name _____ Date _____

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
	• 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.

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

Science Journal

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

Name _____ **Date** _____

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

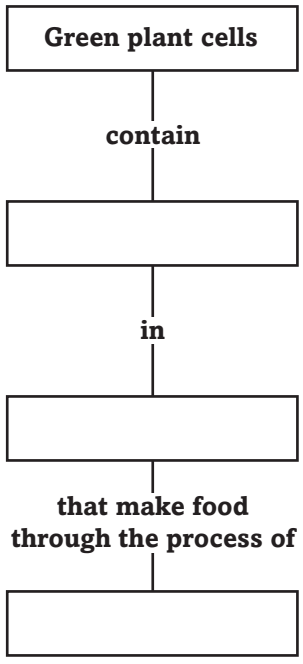
Use a dictionary to define adapt *to reflect its scientific meaning.*

adapt _____

Name _____ Date _____

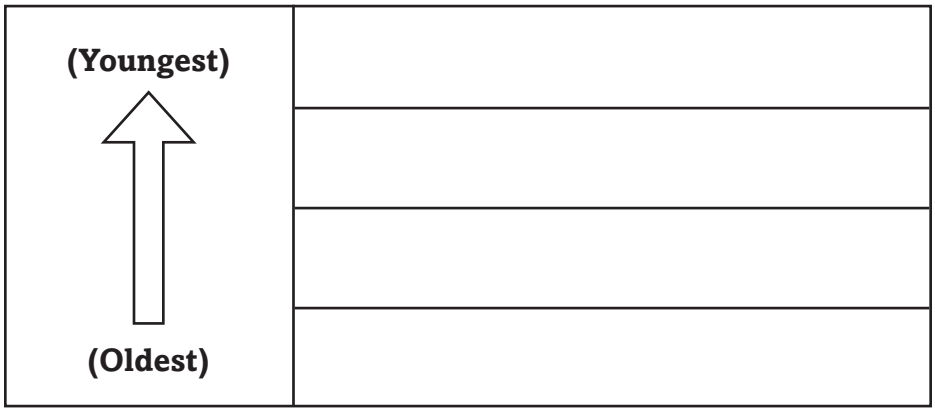
Section 1 An Overview of Plants (continued)

Main Idea	Details
What is a plant? *I found this information on page _____.*	**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 flowering plants
- First green algae
- First land plants



Name _____ **Date** _____

Section 1 An Overview of Plants (continued)

Main Idea	Details

Life on Land

I found this information on page _____.

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

_____

_____

_____

Adaptations to Land

I found this information on page _____.

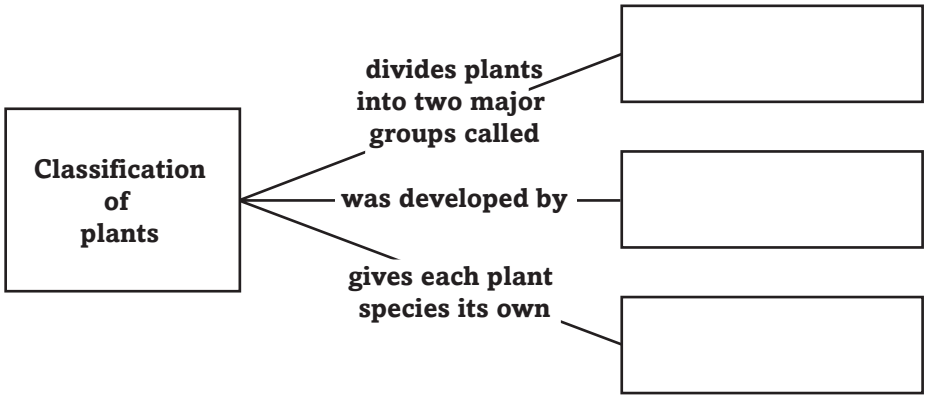
Identify *the four adaptations that make it possible for plants to live on land.*

Plant Adaptations to Land	
Structure	Function

Classification of Plants

I found this information on page _____.

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.

_____

_____

Name _____ **Date** _____

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 _____

New Vocabulary

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

rhizoid _____

pioneer species _____

Academic Vocabulary

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

soil _____

Main Idea

Details

Seedless Nonvascular Plants

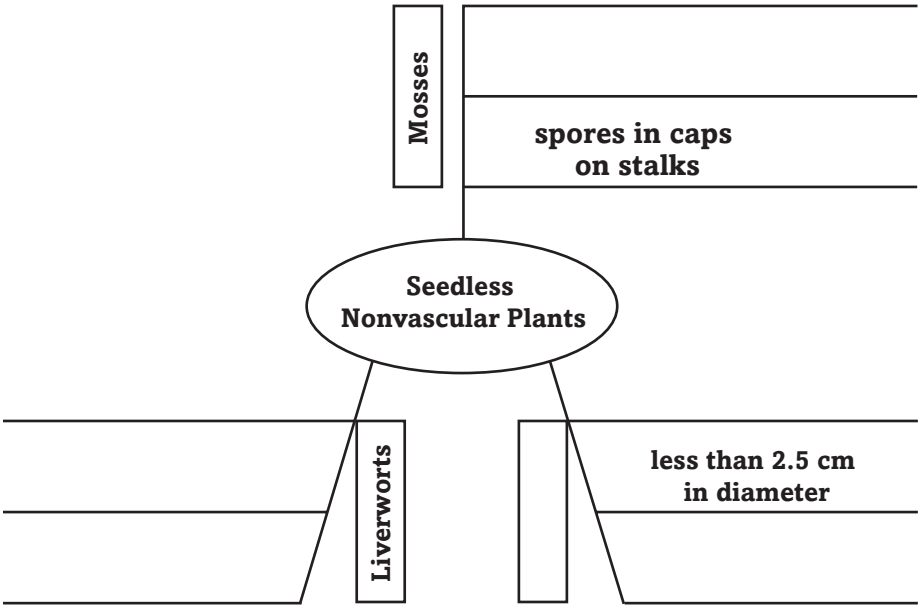
I found this information on page _____.

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.	

I found this information on page _____.

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



Name _____ **Date** _____

Section 2 Seedless Plants (continued)

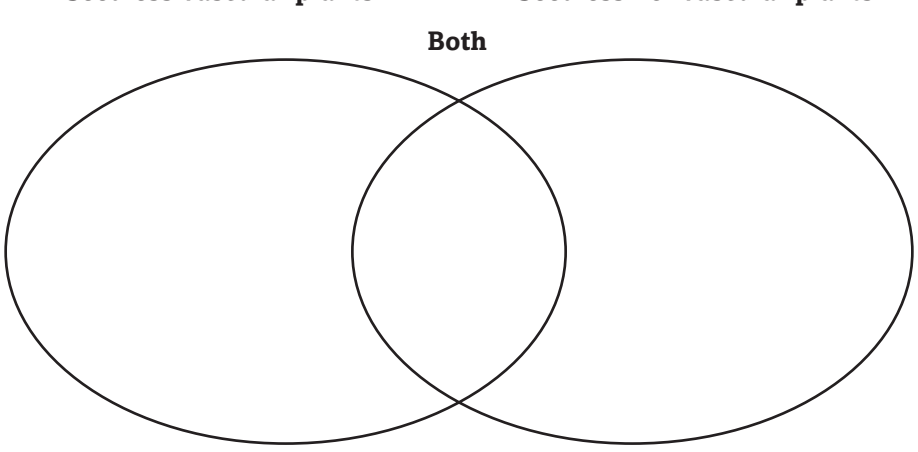
Main Idea

Seedless Vascular Plants

I found this information on page _____.

Details

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



Importance of Seedless Plants

I found this information on page _____.

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.

_____

_____

_____

Name _____ **Date** _____

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

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

seed _____

_____

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

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

annual _____

_____

Name _____ **Date** _____

Section 3 Seed Plants (continued)

Main Idea

Characteristics of Seed Plants

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.*

I found this information on page _____.

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

Structure	Function
Leaves	
Stems	
Roots	
Vascular tissue	

Name _____ **Date** _____

Section 3 Seed Plants (continued)

Main Idea

Details

Gymnosperms

I found this information on page _____.

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

Gymnosperms	
Divisions	Seeds
Flowers	Leaves

Angiosperms

I found this information on page _____.

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

Angiosperms	
Division	Seeds
Flowers	Fruits

Importance of Seed Plants

I found this information on page _____.

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

Gymnosperms:

1. _____

2. _____

Angiosperms:

1. _____

2. _____

Name _____ **Date** _____

Tie It Together

Synthesize

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.

Name _____ Date _____

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.

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2. Write a **D** if you disagree with the statement.

Plants	After You Read
• 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

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- ☐ 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.

_____

_____

_____

_____

Name _____ Date _____

Interactions of Living Things

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 Living Things
	• Both living and nonliving factors affect the organisms in an ecosystem.
	• Some environments have no limiting factors.
	• Organisms interact only with other members of their species.
	• Energy flows from an organism that is being eaten to the organism that is eating.

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

Science Journal

Write a list of things you interact with each day.

Name _____ Date _____

Interactions of Living Things

Section 1 The Environment

Skim *through Section 1 of your book. Write three questions that come to mind from reading the headings and examining the illustrations.*

1. _____
2. _____
3. _____

Review Vocabulary

Define climate *to show its scientific meaning.*

climate _____

_____

New Vocabulary

Use your book to identify the terms. Write the correct term in front of its definition.

_____ study of all of the interactions among organisms and their environment

_____ nonliving part of the environment

_____ living part of the environment

_____ all members of one species that live in the same area at the same time

_____ group of populations that interact with one another in a given area

_____ the biotic community in a given area and the abiotic factors that affect it

_____ part of Earth that supports life—the top part of Earth's crust, all of the waters covering Earth's surface, and the surrounding atmosphere

Academic Vocabulary

Use a dictionary to define **interact.**

interact _____

_____

Name _____ **Date** _____

Section 1 The Environment (continued)

Main Idea | **Details**

Ecology

I found this information on page _____.

Organize *the factors in the environment that influence organisms by completing the graphic organizer below.*

Abiotic Factors

I found this information on page _____.

Summarize *why the five* abiotic factors *are important to organisms in a particular environment.*

Abiotic Factor	Importance
Water	
Sunlight	
Temperature	
Air	
Soil	

Name _____ **Date** _____

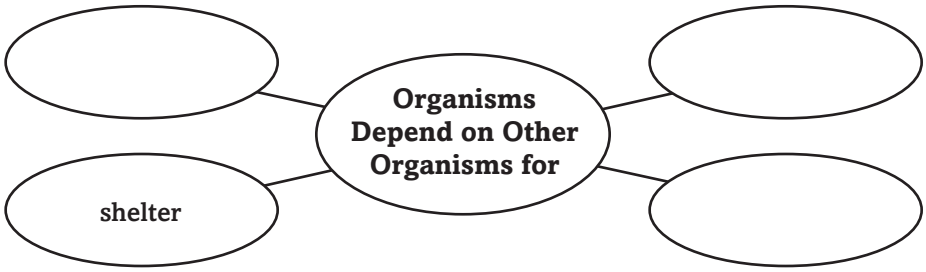
Main Idea

Details

Biotic Factors

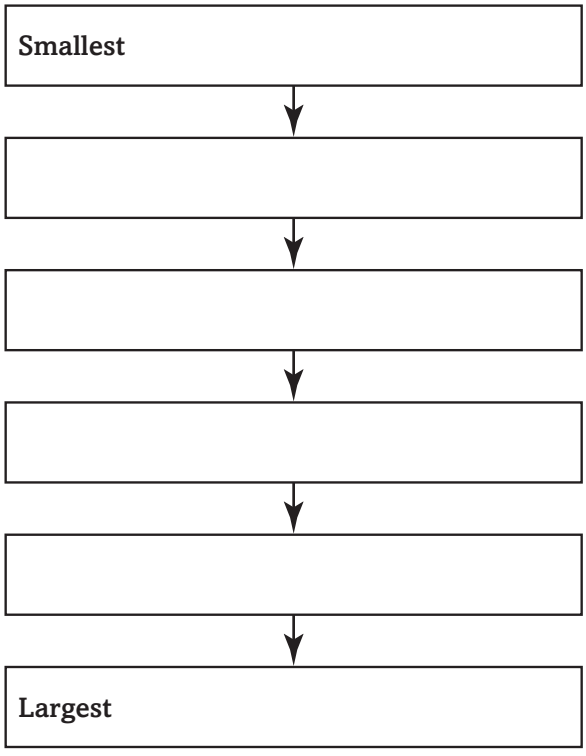
I found this information on page _____.

Complete *the graphic organizer below to identify three other things that organisms depend on one another for.*



I found this information on page _____.

Sequence *from smallest to largest the levels of organization in which organisms interact with one another and with* abiotic factors.



Synthesize It

The living world also can be organized into smaller levels. Working backwards from organism, describe four smaller levels arranged from largest to smallest.

_____

_____

Name _____ **Date** _____

Interactions of Living Things

Section 2 Interactions Among Living Organisms

Predict *three things that might be discussed in Section 2 as you read the headings.*

1. _____
2. _____
3. _____

Review Vocabulary

Define coexistence *to show its scientific meaning.*

coexistence _____

_____

New Vocabulary

Use your book to identify the correct terms. Write them in the spaces provided.

_____ number of individuals in a population that occupy a definite area

_____ any biotic or abiotic factor that limits the number of individuals in a population

_____ any close interaction among two or more different species

_____ role of an organism in the ecosystem: including what it eats, how it interacts with other organisms, and how it gets its food

_____ place where an organism lives

Academic Vocabulary

Use a dictionary to define **estimate.**

estimate _____

_____

Name _____ **Date** _____

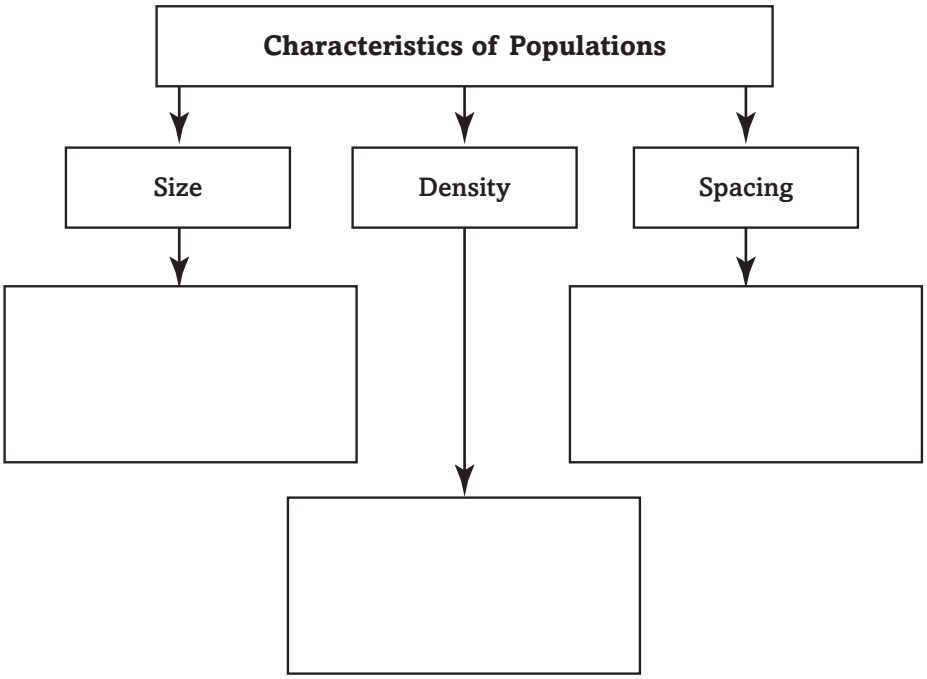
Section 2 Interactions Among Living Organisms (continued)

Main Idea | **Details**

Characteristics of Populations

I found this information on page _____.

Organize *information about the characteristics of populations. Fill in the definitions in the graphic organizer.*



I found this information on page _____.

Compare *the terms* **limiting factor** *and* **carrying capacity.**

Term	Description
Limiting factor	
Carrying capacity	

I found this information on page _____.

Define **biotic potential** *by filling in the missing words.*

Biotic potential: The _____ rate at which a population _____ when there are no _____ or enemies, there is plenty of food and _____, and the weather is ideal.

Name _____ **Date** _____

Section 2 Interactions Among Living Organisms (continued)

Main Idea | **Details**

Symbiosis and Other Interactions

I found this information on page _____.

Distinguish *the types of* **symbiotic relationships** *by completing the chart below.*

Symbiotic Relationship	Description
	Both organisms benefit.
Commensalism	
	One organism benefits and the other is harmed.

I found this information on page _____.

Analyze ***how predators may cause a prey population to grow more healthy and stronger over several generations.***

_____

_____

_____

_____

I found this information on page _____.

Summarize ***the difference between a*** **habitat** ***and a*** **niche.**

_____

_____

_____

_____

_____

SYNTHESIZE IT

Compare disease with predation as a limiting factor for human populations.

_____

_____

_____

Name _____ Date _____

Interactions of Living Things

Section 3 Matter and Energy

Scan *the headings and illustrations of Section 3 to identify two cycles that will be discussed.*

1. _____

2. _____

Review Vocabulary

Define consumer. *Then write a sentence using the term.*

consumer _____

New Vocabulary

Use your book to define the following terms.

food chain _____

food web _____

water cycle _____

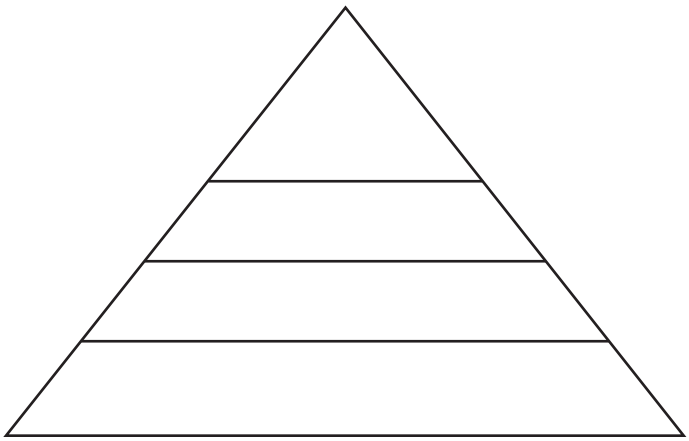
Academic Vocabulary

Use a dictionary to define transfer.

transfer _____

Name _____ **Date** _____

Section 3 Matter and Energy (continued)

Main Idea	Details
Energy Flow Through Ecosystems *I found this information on page _____.*	**Complete** *a pond* food chain *such as the one shown in your book. Then describe what the arrows in the food chain show.* Aquatic plants → Insects → _____ → _____ → _____
I found this information on page _____.	**Define** *what a* food web *is and summarize why it is a more complete model than a food chain.*
I found this information on page _____.	**Identify** *organisms for each level of an ecological pyramid. Write the name of the organism inside the correct level of the pyramid. Then, label each level as consisting of producers or consumers.* _____ _____ _____ _____ 

Name _____ **Date** _____

Section 3 Matter and Energy (continued)

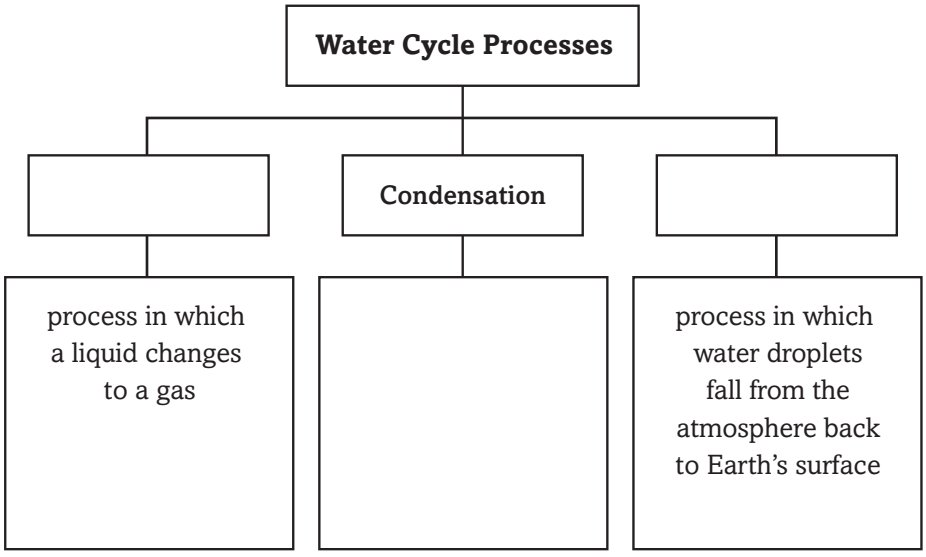
Main Idea

Details

The Cycles of Matter

I found this information on page _____.

Complete *the organizer about* water cycle *processes.*



I found this information on page _____.

Model *the* carbon cycle *in the space below. You may draw any picture that shows how carbon moves among the atmosphere, organisms, and solid Earth.*

CONNECT IT

Describe two ways in which you are a part of the carbon cycle.

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Synthesize It

Create a food web.

1. Make a list of foods that you ate yesterday.
2. Determine whether the main component of each food was a producer or a consumer.
3. For each consumer, identify at least one food that it ate.
4. Then, create a food web that includes yourself.

Name _____ **Date** _____

Interactions of Living Things

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.

Interactions of Living Things	After You Read
• Both living and nonliving factors affect the organisms in an ecosystem.	
• Some environments have no limiting factors.	
• Organisms interact only with other members of their species.	
• Energy flows from an organism that is being eaten to the organism that is eating.	

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 of living things.

_____

_____

_____

Name _____ Date _____

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
	• 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.

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.

Name _____ **Date** _____

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

Define geyser *to show its scientific meaning.*

geyser _____

New Vocabulary

Define the following terms to show their scientific meanings.

natural resource _____

hydroelectric power _____

nuclear energy _____

geothermal energy _____

Academic Vocabulary

Define modify. *Then use it in an original sentence to show its scientific meaning.*

modify _____

Name _____ **Date** _____

Section 1 Resources (continued)

Main Idea	Details

Natural Resources

I found this information on page _____.

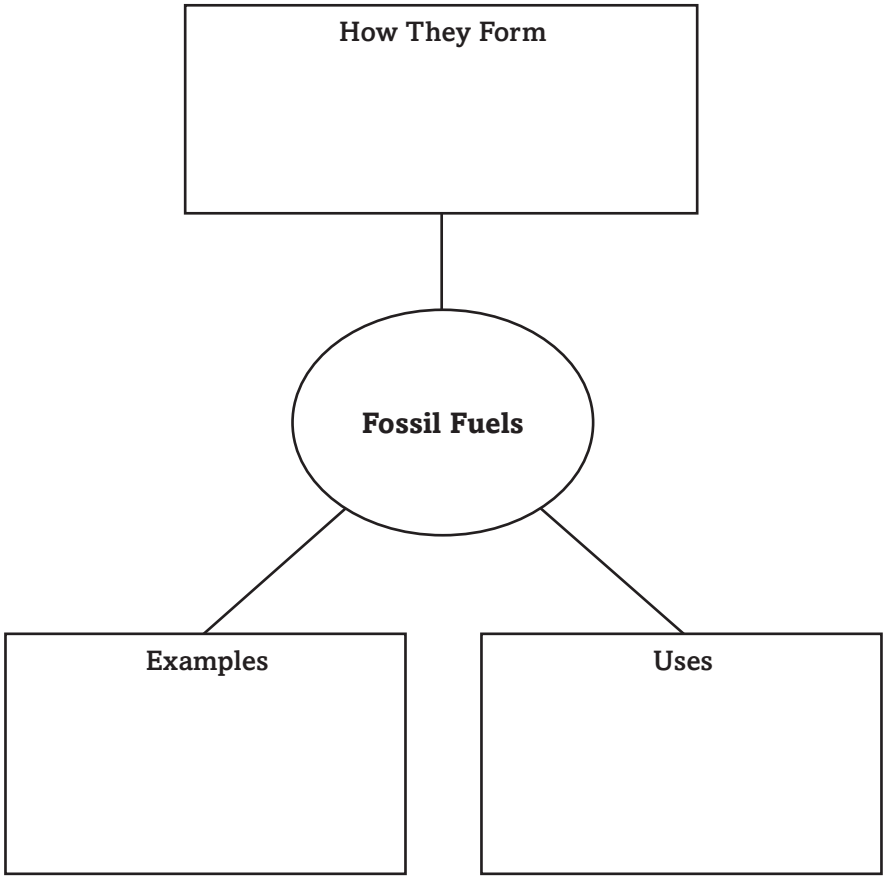
Compare renewable *and* nonrenewable resources *by completing the chart below.*

Type of Resource	Description	Examples
Renewable		
Nonrenewable		

Fossil Fuels

I found this information on page _____.

Organize *information about* fossil fuels *in the concept web below.*



Name _____ **Date** _____

Section 1 Resources (continued)

Main Idea

I found this information on page _____.

Details

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.

_____

_____

_____

Name _____ Date _____

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 _____

_____

Name _____ **Date** _____

Section 2 Pollution (continued)

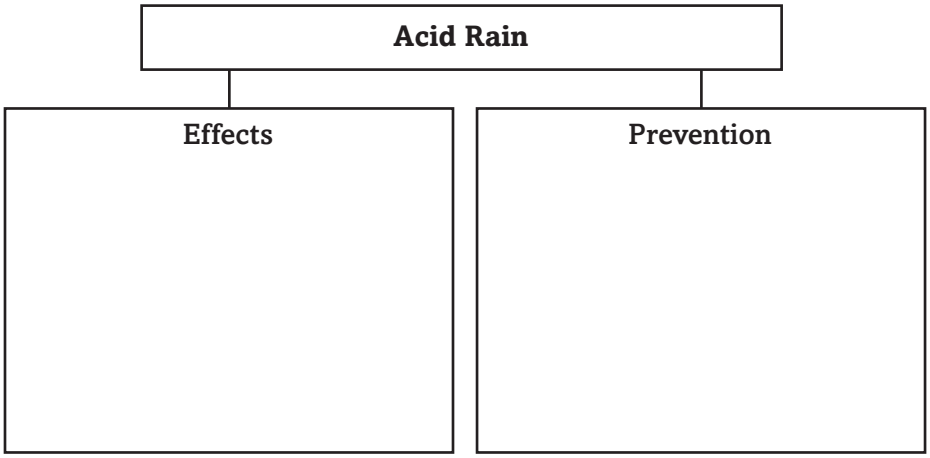
Main Idea

Details

Acid Precipitation

I found this information on page _____.

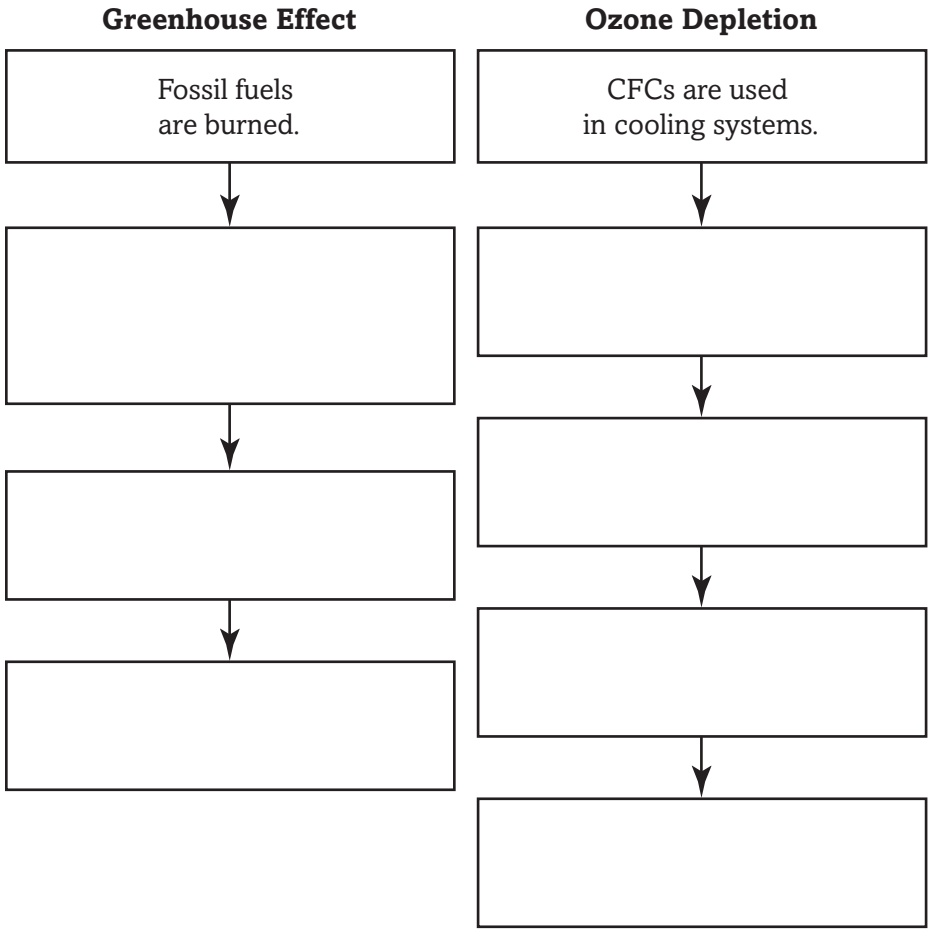
Complete *the graphic organizer below to identify the effects of* acid rain *and ways to prevent acid rain.*



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.*



Name _____ **Date** _____

Section 2 Pollution (continued)

Main Idea — Details

Indoor Air Pollution

I found this information on page _____.

Compare and contrast *carbon monoxide and radon as sources of* indoor air pollution *by completing the following chart.*

Gas	Source	Effect
Carbon monoxide		
Radon		

Water Pollution

I found this information on page _____.

Identify *causes of the following three examples of* water pollution.

1. Surface water pollution: _____

2. Ocean water pollution: _____

3. Groundwater pollution: _____

Soil Loss and Soil Pollution

I found this information on page _____.

Analyze *causes of* soil loss *and* soil pollution.

A. Causes of soil loss

1. _____
2. _____

B. Causes of soil pollution

1. _____
2. _____

CONNECT IT

Explain in one sentence why people are concerned about pollution.

_____

_____

_____

Name _____ **Date** _____

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

Define *the following terms. Then write a paragraph that includes the scientific meaning of all three terms.*

reprocessing _____

_____

New Vocabulary

recycling _____

_____

Academic Vocabulary

participate _____

_____

Paragraph: _____

_____

_____

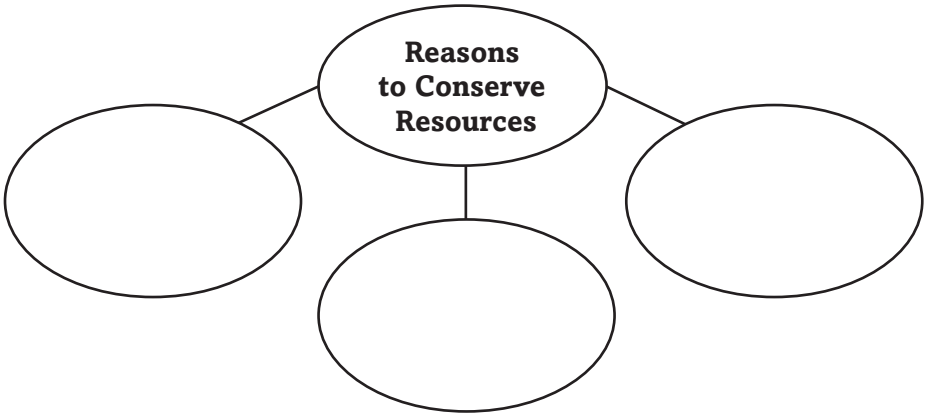
_____

_____

_____

Name _____ **Date** _____

Section 3 The Three Rs of Conservation (continued)

Main Idea	Details
Conservation *I found this information on page _____.*	**Identify** *reasons for conserving resources by completing the graphic organizer below.* 
Reduce *I found this information on page _____.*	**Summarize** *four ways to reduce your own use of natural resources.* **1.** _____ **2.** _____ **3.** _____ **4.** _____
Reuse *I found this information on page _____.*	**Define** reusing an item. *Then identify at least two examples of ways to reuse items.* **Definition:** _____ _____ **Examples:** _____ _____ _____ _____ _____

Name _____ **Date** _____

Section 3 The Three Rs of Conservation (continued)

Main Idea

Recycle

I found this information on page _____.

Details

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.

_____

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Conservation

Brainstorm ways to increase the level of conservation practiced in your school. Set a conservation, reuse, or recycling goal. Write a plan to change the school's behavior to meet your goal. If new resources would be needed to implement your plan, hypothesize how you could raise money for what you need.

- Decide which method of conservation you are most concerned about.
- Describe the benefits of practicing that method of conservation in your school.
- Identify practical ways that students can practice conservation.

Name _____ **Date** _____

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.

_____

_____

_____

_____

Name _____ Date _____

Properties and Changes of Matter

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	Properties and Changes of Matter
	• Melting and freezing are physical properties.
	• Color, density, and solubility change depending on the amount of material.
	• Exploding fireworks are examples of a chemical change.
	• When a substance undergoes a physical change, its identity remains the same.

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

Science Journal

Think about what happens when you crack a glow stick. What types of changes are you observing?

Name _____ Date _____

Properties and Changes of Matter

Section 1 Physical and Chemical Properties

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 matter.

Write three facts you discovered about physical and chemical properties of matter as you scanned this section.

1. _____

2. _____

3. _____

Review Vocabulary

Define matter *to show its scientific meaning and then use the term in an original sentence.*

matter _____

New Vocabulary

Use your book to define the following terms.

physical property _____

chemical property _____

Academic Vocabulary

Use a dictionary to define differentiate *to show its scientific meaning.*

differentiate _____

Name _____ Date _____

Section 1 Physical and Chemical Properties (continued)

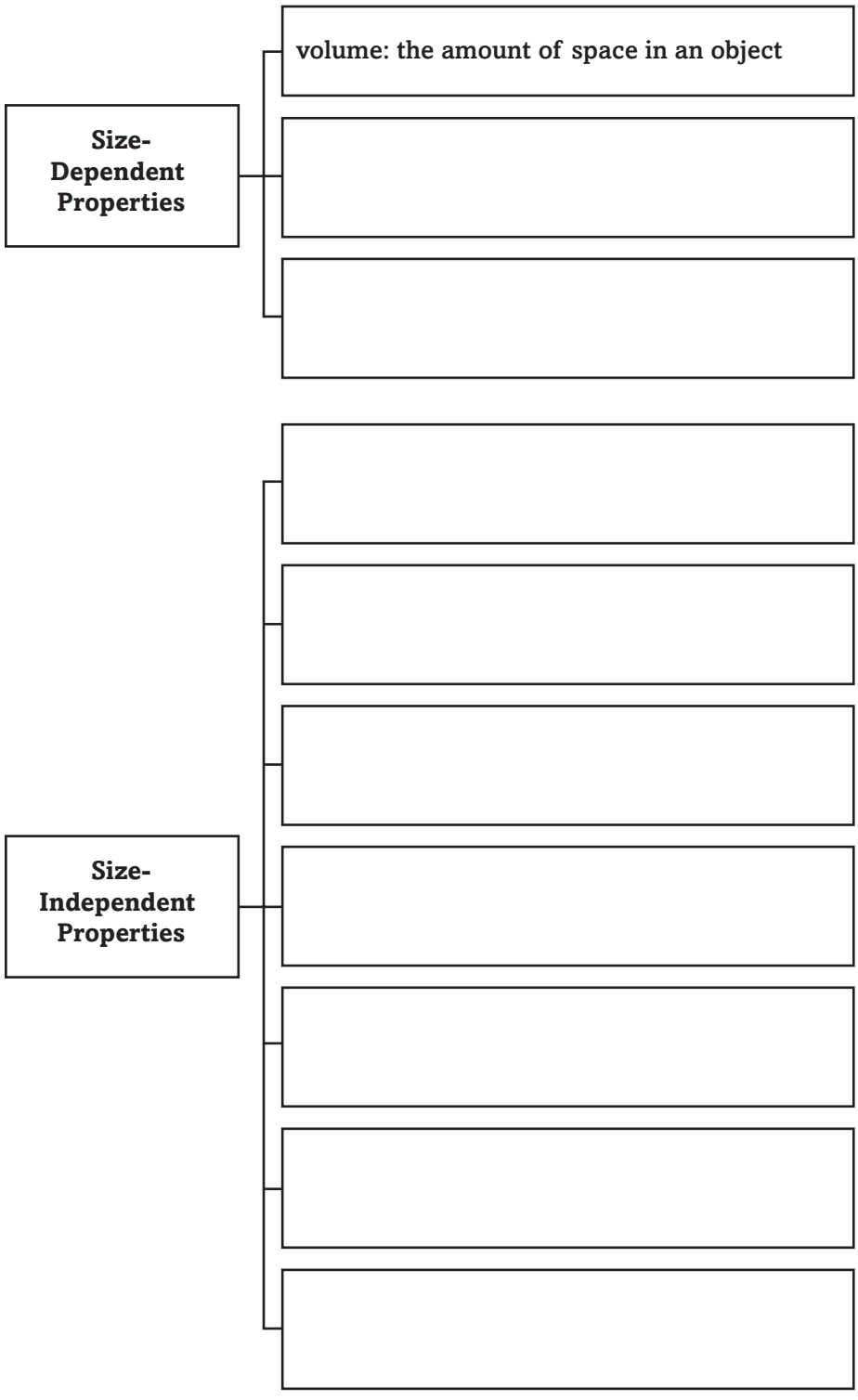
Main Idea

Physical Properties

I found this information on page _____.

Details

Organize *information about* physical properties of matter *in the graphic organizer. Identify and describe each property.*



Name _____ **Date** _____

Section 1 Physical and Chemical Properties (continued)

Main Idea | **Details**

Physical Properties

I found this information on page _____.

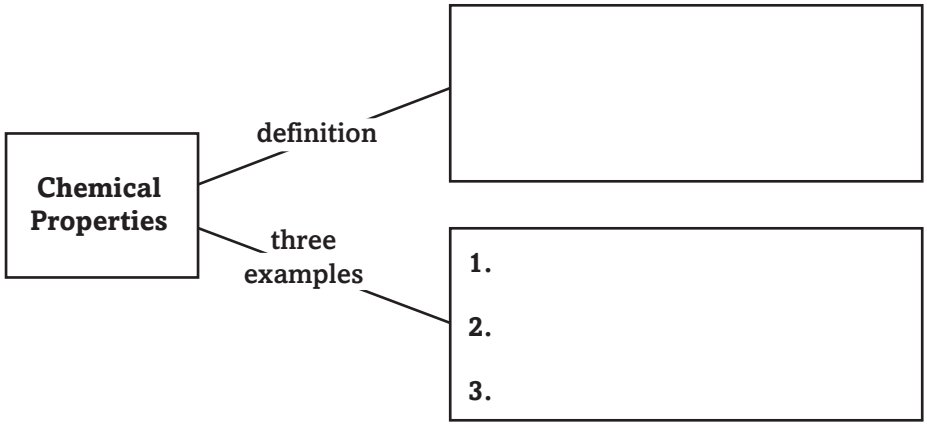
Distinguish *substances by their* physical properties. *Use the chart in your book to identify each substance below.*

Substance	State	Density (g/cm3)	Melting Point (°C)	Boiling Point (°C)
	liquid	3.12	−7.0	59.0
	solid	4.93	113.5	184.0
	solid	2.044	360	1,322.0
	liquid	1.0	0	100.0

Chemical Properties

I found this information on page _____.

Summarize chemical properties *by completing the concept map.*



CONNECT IT

Suppose that you were given a sample of an unknown liquid substance. Which physical properties would be easiest to identify? Which would be most difficult? Support your reasoning with specific examples.

_____

_____

_____

_____

_____

Name _____ Date _____

Properties and Changes of Matter

Section 2 Physical and Chemical Changes

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 solubility *to show its scientific meaning.*

solubility _____

New Vocabulary

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

vaporization _____

sublimation _____

deposition _____

Academic Vocabulary

Use a dictionary to define undergo. *Then use the term in a sentence to show its scientific meaning.*

undergo _____

Name _____ **Date** _____

Section 2 Physical and Chemical Changes (continued)

Main Idea **Details**

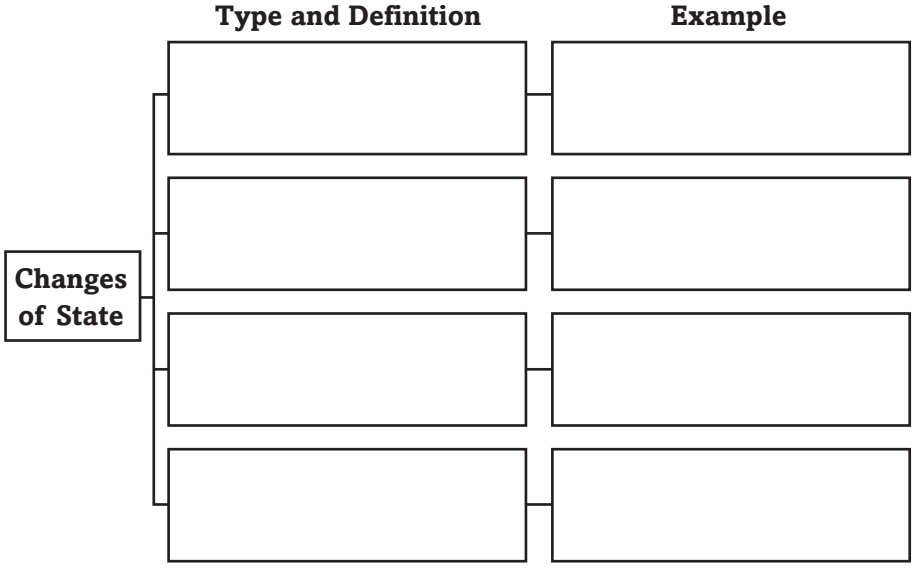
Physical Changes

I found this information on page _____.

Complete *the table about two physical changes.*

Physical Change	What Happens	Example
Changing shape		
Dissolving		

Distinguish *four types of* changes of state. *Define each type of change, and give an example.*



Chemical Changes

I found this information on page _____.

Summarize *how a chemical change is different from a physical change. Complete the paragraph.*

In a physical change, _____ changes, but _____ does not. In a chemical change, _____. Rusting is one example of a _____ in which _____ react with _____ to form _____.

Name _____ Date _____

Section 2 Physical and Chemical Changes (continued)

Main Idea	Details
Signs of Chemical Changes *I found this information on page _____.*	**Identify** *five signs of chemical change.* **1.** _____ **2.** _____ **3.** _____ **4.** _____ **5.** _____
Chemical Versus Physical Change *I found this information on page _____.*	**Classify** *each of the following events as a physical change or a chemical change.* _____ **1.** A tree is cut into lumber. _____ **2.** Copper is bent. _____ **3.** Marble dissolves in acid rain. _____ **4.** Wood is burned.
Conservation of Mass *I found this information on page _____.*	**Analyze** *how* conservation of mass *applies to a burning candle.* _____ _____ _____ _____

Evaluate It

A glass of water is placed on a very sensitive scale and several antacid tablets are dropped into the water. The weight of the glass and its contents is less after the tablets dissolve than before the tablets dissolved. Explain how matter is conserved in this example.

_____

_____

_____

_____

Name _____ Date _____

Properties and Changes of Matter

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 to these.

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

Properties and Changes of Matter	After You Read
• Melting and freezing are physical properties.	
• Color, density, and solubility change depending on the amount of material.	
• Exploding fireworks are examples of a chemical change.	
• When a substance undergoes a physical change, its identity remains the same.	

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 you have learned about properties and changes of matter.**

_____

_____

_____

_____

Name _____ Date _____

Substances, Mixtures, and Solubility

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	Substances, Mixtures, and Solubility
	• Burning a substance changes it into other substances.
	• All mixtures are solutions.
	• Stirring can speed up the rate at which a substance dissolves.
	• Acidic foods are sour.

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

Science Journal

Find and name four items around you that are mixtures.

Name _____ **Date** _____

Substances, Mixtures, and Solubility

Section 1 What is a solution?

Read *the* What You'll Learn *statements for Section 1. Write four questions you have after reading the statements.*

1. _____
2. _____
3. _____
4. _____

Review Vocabulary

Define proton *to show its scientific meaning.*

proton _____

_____

New Vocabulary

Write the correct vocabulary word in the left column next to each definition.

_____ solid that comes out of its solution due to a chemical reaction

_____ matter with the same composition and properties throughout

_____ substance that dissolves a solute

_____ mixture in which substances are not evenly mixed

_____ mixture with two or more substances that are evenly mixed

_____ substance that dissolves and seems to disappear into another substance

_____ another name for a homogeneous mixture

Academic Vocabulary

Use a dictionary to define **proportion** *to show its scientific meaning.*

proportion _____

_____

Name _____ Date _____

Section 1 What is a solution? (continued)

Main Idea | **Details**

Substances

I found this information on page _____.

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

Substance	Definition
Element	
Compound	

I found this information on page _____.

Contrast physical *and* chemical processes. *Complete the sentences.*

Physical processes _____ change substances.

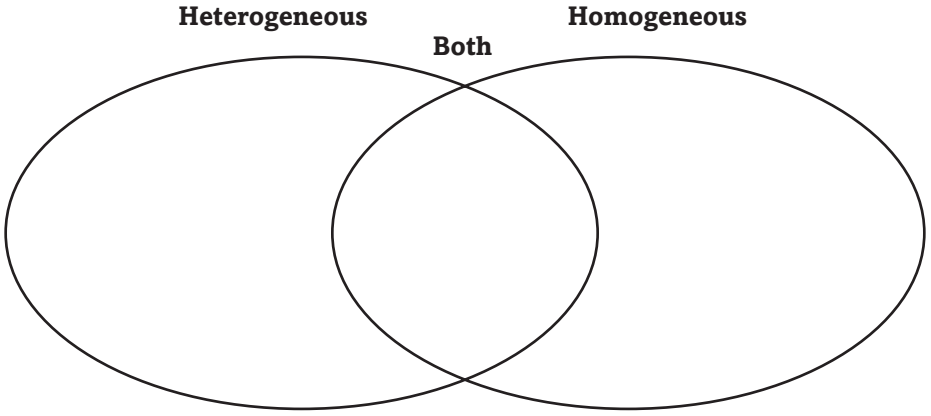
Chemical processes _____ change substances.

Mixtures

I found this information on page _____.

Distinguish heterogeneous *and* homogeneous mixtures. *Place the phrases in the Venn diagram.*

- not bonded chemically
- not evenly mixed
- evenly mixed
- can be physically separated
- also known as solutions



How Solutions Form

I found this information on page _____.

Summarize *how* solutions *form. Define* solute *and* solvent *in your answer.*

_____

_____

_____

_____

Name _____ **Date** _____

Section 1 What is a solution? (continued)

Main Idea

I found this information on page _____.

Details

Contrast crystallization *and* precipitate formation.

Crystallization: _____

_____

Precipitate formation: _____

_____

Liquid Solutions

I found this information on page _____.

Organize *examples of each type of solution.*

Liquid solvent:	+	Liquid solute:	→	Solution:
Liquid solvent:	+	Gas solute:	→	Solution:
Liquid solvent:	+	Solid solute:	→	Solution:

Gaseous Solutions

I found this information on page _____.

Identify *the solvent and solute(s) for each solution.*

The air you breathe: _____

_____

Brass: _____

CONNECT IT

A jar of ocean water sits on a shelf uncovered for some time. Once the water is gone, a white, salty substance is left in the jar. Hypothesize what kind of change occurred. What does this tell you about the water?

_____

_____

_____

Name _____ Date _____

Substances, Mixtures, and Solubility

Section 2 Solubility

Scan *the headings, bold words, and illustrations in Section 2. Write two facts you learned as you scanned the section.*

1. _____

2. _____

Review Vocabulary

Define polar bond.

polar bond _____

New Vocabulary

Write a scientific definition for each vocabulary term.

aqueous _____

solubility _____

saturated _____

concentration _____

Academic Vocabulary

Use a dictionary to define chemical *as an adjective.*

chemical _____

Name _____ **Date** _____

Section 2 Solubility (continued)

Main Idea

Details

Water—The Universal Solvent

I found this information on page _____.

Model and label ***a*** **water molecule,** ***including:***

- the shared electrons in the bonds
- the partial positive and partial negative charge areas
- the hydrogen and oxygen atoms

I found this information on page _____.

Contrast ***the ways in which*** **ionic** ***and*** **polar molecular compounds** ***dissolve in water. Complete the chart.***

Type of Compound	How It Dissolves in Water
Ionic	
Polar molecular	

What will dissolve?

I found this information on page _____.

Analyze ***the phrase "like dissolves like." Summarize what this phrase means in your own words.***

_____

_____

_____

Name _____ **Date** _____

Section 2 Solubility (continued)

Main Idea	Details
How much will dissolve? *I found this information on page _____.*	**Summarize** *how temperature affects* **solubility.** As temperature increases, the solubility of liquid-solid solutions usually _____ and the solubility of liquid-gas solutions usually _____. **Describe** *a* **saturated solution** *and tell how a solution can become* **supersaturated.**
Rate of Dissolving *I found this information on page _____.*	**Identify** *three ways the rate of dissolving can be increased.* **1.** _____ **2.** _____ **3.** _____
Concentration *I found this information on page _____.*	**Summarize** *how adding solute changes the properties of a solvent.*

SUMMARIZE IT

A chef slowly stirs sugar into a pot of water. Describe what happens to the solution as the water heats. What can you conclude about how long it will take the solution to boil?

Name _____ **Date** _____

Substances, Mixtures, and Solubility

Section 3 Acidic and Basic Solutions

Predict *three topics you expect to be discussed in Section 3. Read the headings and bold words to help make your prediction.*

1. _____
2. _____
3. _____

Review Vocabulary

Define physical property *using your book or a dictionary.*

physical property _____

New Vocabulary

Write an original sentence using each vocabulary term.

neutralization _____

pH _____

hydronium ion _____

base _____

indicator _____

acid _____

Academic Vocabulary

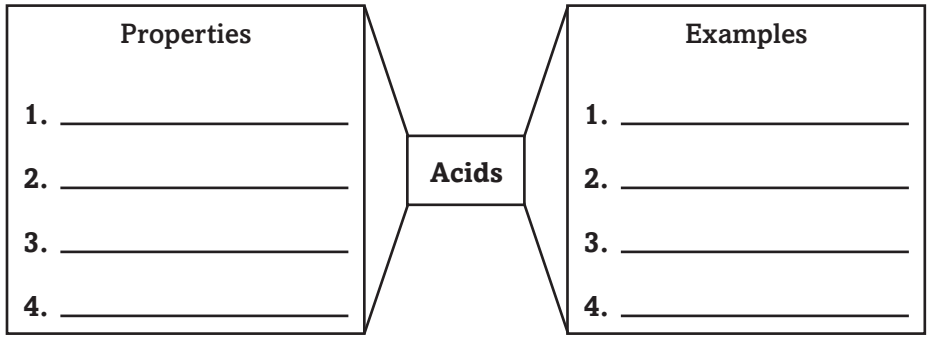
Use a dictionary to define conduct *as a verb in its scientific sense.*

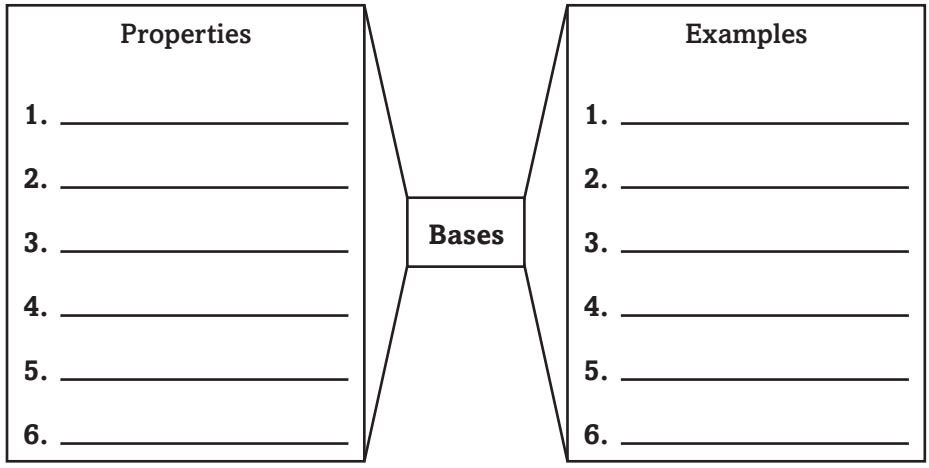
conduct _____

Name _____ **Date** _____

Section 3 Acidic and Basic Solutions (continued)

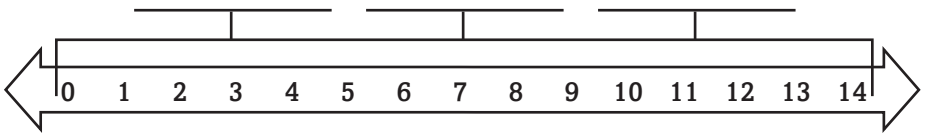
Main Idea	Details
Acids *I found this information on page _____.*	**Model and label** *the formation of a* hydronium ion *from a hydrogen ion in water.* *Write a sentence explaining how hydronium forms from an* acid.
I found this information on page _____.	**Organize** *information about the properties of acids and some examples of acids. Complete the diagram.*
Bases *I found this information on page _____.*	**Organize** *properties and examples of* bases. *Complete the diagram.*





Name _____ **Date** _____

Section 3 Acidic and Basic Solutions (continued)

Main Idea	Details
What is pH? *I found this information on page _____.*	**Label** *the diagram of the* pH scale. *Label the areas of the scale for* acids, bases, *and* neutral *solutions. Draw arrows showing how the strength of acids and bases increases.* 
Indicators *I found this information on page _____.*	**Summarize** *what determines the strength of acidic and basic solutions.* _____ _____ _____
Neutralization *I found this information on page _____.*	**Describe** *the response of the* indicator litmus paper *in each case.* When placed in acid, litmus paper _____. When placed in base, litmus paper _____. **Complete** *the cause-and-effect chart about* neutralization. [ ] → The pH of the solution becomes more neutral.

CONNECT IT

Heartburn is caused by excess acid in the digestive system. Antacid tablets treat heartburn by neutralizing the acid. Explain what you can conclude about the tablets, and why.

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Can You Guess?

Write clues that a classmate could use to guess three substances or mixtures from everyday life. Include information about the properties and uses of the substance or mixture.

For example, if you chose vinegar, you might write:

"This is a liquid-liquid solution. It is a weak acid. It is used on salads and in other foods."

Trade clues with a classmate and try to guess each other's items.

1. _____

2. _____

3. _____

Name _____ Date _____

Substances, Mixtures, and Solubility

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.

Substances, Mixtures, and Solubility	After You Read
• Burning a substance changes it into other substances.	
• All mixtures are solutions.	
• Stirring can speed up the rate at which a substance dissolves.	
• Acidic foods are sour.	

Review

Use this checklist to help you study.

- ☐ Review the information you included in your Foldable.
- ☐ Study your *Science Notebook* on this chapter.
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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 that surprised you.**

_____

_____

_____

_____

Name _____ Date _____

States of Matter

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	States of Matter
	• There are four states of matter.
	• Solids take the shape of their containers.
	• Substances cannot change directly from a solid to a gas.
	• The air around you is putting pressure on your body.

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

Science Journal

Write about what you predict is a source of the warm water in a hot natural spring in a cold, snowy climate.

Name _____ Date _____

States of Matter

Section 1 Matter

Skim *through Section 1 of your text. Write three questions that come to mind when reading the headings and looking at the illustrations.*

1. _____

2. _____

3. _____

Review Vocabulary

Define *the word* atom *in a scientific sentence.*

atom _____

New Vocabulary

Write the correct vocabulary term next to each definition.

_____ matter that does not have a definite shape or volume

_____ anything that takes up space and has mass

_____ matter with a definite shape and volume

_____ liquid's resistance to flow

_____ uneven forces acting on the particles on the surface of a liquid

_____ matter with a definite volume but no definite shape

Academic Vocabulary

Use a dictionary to define **definite.**

definite _____

Name _____ **Date** _____

Section 1 Matter (continued)

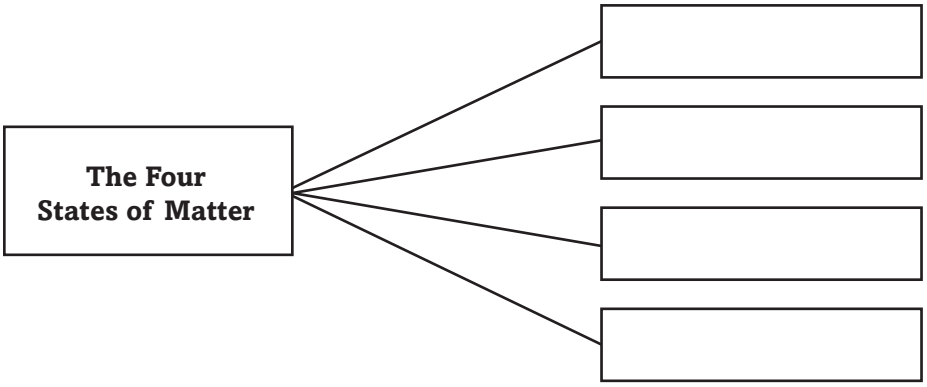
Main Idea	Details

What is matter?

I found this information on page _____.

Define matter, *and identify the four states of matter.*

Matter: _____



Solids

I found this information on page _____.

Complete *the statements about properties of* solids.

Do solids have definite shape? _____

Do solids have definite volume? _____

Do solids take the shape of its container? _____

How do particles in solids move? _____

How are particles in crystalline solids arranged? _____

_____

How are particles in amorphous solids arranged? _____

_____

Liquids

I found this information on page _____.

Contrast liquids *with* solids.

1. _____

_____

2. _____

_____

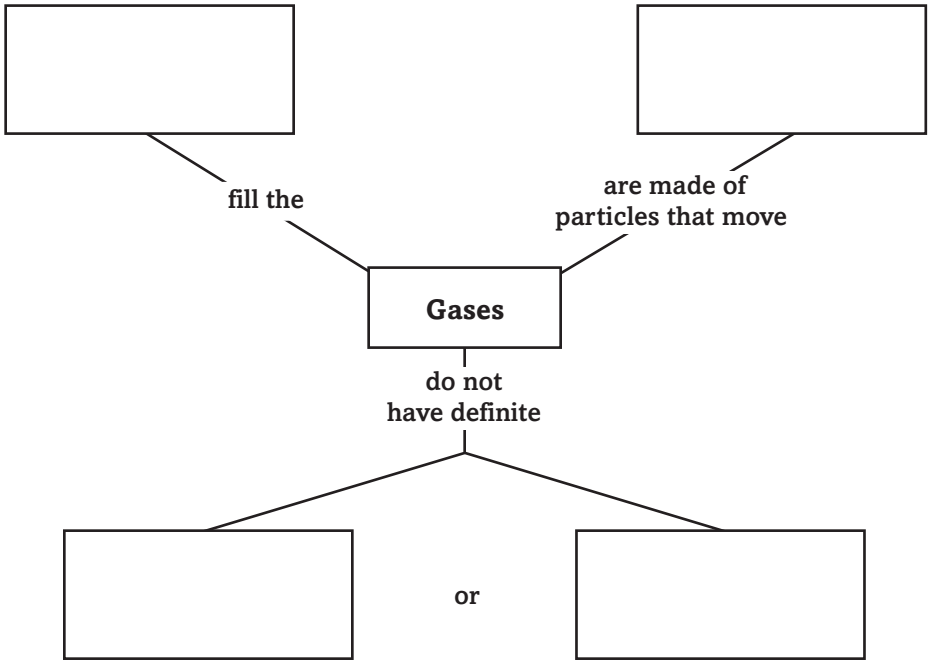
3. _____

_____

Name _____ **Date** _____

Section 1 Matter (continued)

Main Idea	Details
Liquids *I found this information on page _____.*	**Distinguish** *between* viscosity *and* surface tension.
Gases *I found this information on page _____.*	**Organize** *information about* gases.



SUMMARIZE IT

Compare and contrast the motion of particles in a solid with those in a gas.

Name _____ Date _____

States of Matter

Section 2 Matter Changes of State

Predict *three things that might be discussed in this section after reading the title and headings.*

1. _____
2. _____
3. _____

Review Vocabulary

energy

Define *the word* **energy** *using a dictionary or your book.*

_____

_____

New Vocabulary

Write the correct vocabulary term next to each definition.

_____ average kinetic energy of the particles in a substance

_____ the change from a gas state to a liquid state

_____ the change from a solid state to a liquid state

_____ total kinetic energy of the particles in a material

_____ the change from a liquid state to a gas state

_____ the change from a liquid state to a solid state

_____ movement of thermal energy from a substance at a higher temperature to one at a lower temperature

Academic Vocabulary

item

Use a dictionary to define **item.**

_____

_____

Name _____ **Date** _____

Section 2 Matter Changes of State (continued)

Main Idea

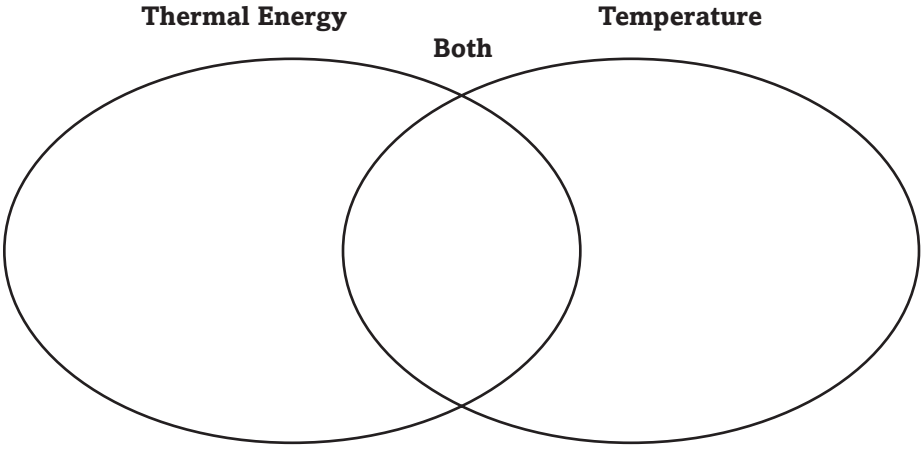
Details

Thermal Energy and Heat

I found this information on page _____.

Classify *each phrase to show whether it describes* **thermal energy, temperature,** *or* **both.**

- depends on the number of particles
- average energy of particles
- involves kinetic energy of particles
- total energy of particles



I found this information on page _____.

Create *a drawing to show a glass of lemonade with ice cubes in it. Use arrows to show the movement of thermal energy.*

Specific Heat

I found this information on page _____.

Complete *the chart below on* **specific heat.**

	Cool	Heat	Example
Substances with high specific heats	slowly		
Substances with low specific heats		quickly	

Name _____ **Date** _____

Section 2 Matter Changes of State (continued)

Main Idea	Details

Changes Between the Solid and Liquid States

I found this information on page _____.

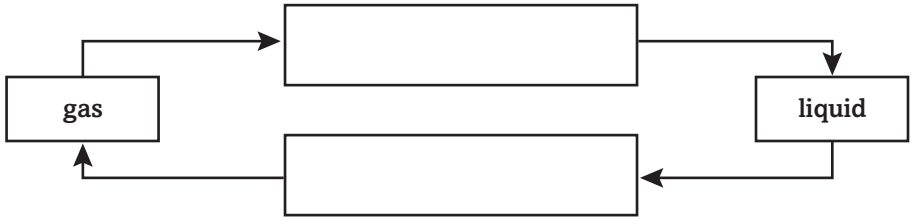
Compare *the changes between the* solid *and* liquid states *by completing the chart.*

	Melting	Freezing
What is it?		
Thermal energy released or absorbed?		

Changes Between the Liquid and Gas States

I found this information on page _____.

Distinguish *the changes between* gas *and* liquid states *by filling in the graphic organizer.*



Changes Between the Solid and Gas States

I found this information on page _____.

Summarize *information about* sublimation.

_____

_____

_____

_____

_____

SYNTHESIZE IT

Explain the relationship between heat and temperature.

_____

_____

_____

_____

_____

Name _____ **Date** _____

States of Matter

Section 3 Behavior of Fluids

Scan *Section 3 of your book. Write three facts you discovered about fluids as you scanned the section.*

1. _____
2. _____
3. _____

Review Vocabulary

Define *the word* force *in a sentence to show its scientific meaning.*

force _____

New Vocabulary

Use a dictionary or your book to define the key terms.

pressure _____

buoyant force _____

Archimedes' principle _____

density _____

Pascal's principle _____

Academic Vocabulary

Use a dictionary to define expand *to show its scientific meaning.*

expand _____

Name _____ **Date** _____

Section 3 Behavior of Fluids (continued)

Main Idea | **Details**

Pressure

I found this information on page _____.

Complete *the formula for* pressure. *Then analyze how pressure changes with a change in force or area.*

$$\text{Pressure} = \frac{\square}{\square}$$

If force	and area	then pressure
increases	stays the same	
decreases	stays the same	
stays the same	increases	
stays the same	decreases	

I found this information on page _____.

Define atmospheric pressure *and describe why you do not feel it.*

_____

_____

_____

_____

_____

I found this information on page _____.

Analyze *how the size of a weather balloon would change as it rises into the atmosphere. Create and label a drawing or write sentences to explain why the balloon changes size.*

Name _____ **Date** _____

Section 3 Behavior of Fluids (continued)

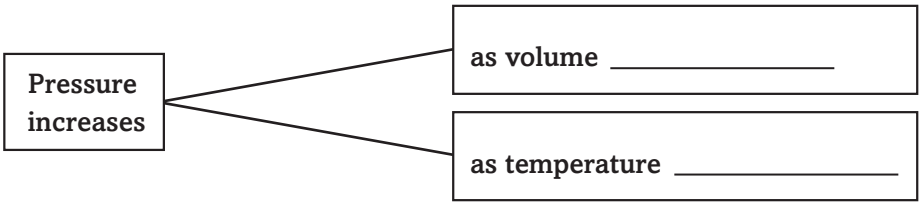
Main Idea

Details

Changes in Gas Pressure

I found this information on page _____.

Complete *the graphic organizer to show how changes in volume and temperature can increase pressure.*



Float or sink?

I found this information on page _____.

Compare *the* buoyancy *of an object that is more dense than water with an object that is less dense than water. Draw and label arrows to show the buoyant force and weight of each.*

More Dense	Less Dense

Pascal's Principle

I found this information on page _____.

Summarize Pascal's principle, *and give an example that illustrates the principle.*

_____

_____

_____

_____

SYNTHESIZE IT

An ice cube (solid water) floats in liquid water. Explain this in terms of density and buoyant force.

_____

_____

_____

Name _____ **Date** _____

Tie It Together

Synthesize It

Describe a situation from daily life in which you have experienced each change of state identified below. Explain how thermal energy was involved in the change of state.

Condensation

Melting

Freezing

Evaporation

Name _____ **Date** _____

States of Matter 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.

States of Matter	After You Read
• There are four states of matter.	
• Solids take the shape of their containers.	
• Substances cannot change directly from a solid to a gas.	
• The air around you is putting pressure on your body.	

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 states of matter.

_____

_____

_____

_____

Name _____ Date _____

Newton's Laws of Motion

Before You Read

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

K What I know	W What I want to find out

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

Science Journal

List three questions that you would ask an astronaut about space flight.

Name _____ **Date** _____

Newton's Laws of Motion

Section 1 Motion

Scan *Section 1 of your book.*

- ☐ 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 motion.

Write two facts that you discovered about motion as you scanned the section.

1. _____

_____

2. _____

_____

Review Vocabulary

meter

Define meter *in a sentence to show its scientific meaning.*

_____

_____

New Vocabulary

Match the vocabulary term to the correct definition.

_____ distance and direction between starting and ending positions

_____ displacement divided by time

_____ distance divided by time

_____ change in velocity divided by the amount of time required for the change to occur

Academic Vocabulary

initial

Use a dictionary to define **initial.**

_____

_____

Name _____ **Date** _____

Section 1 Motion (continued)

Main Idea	Details
What is motion? *I found this information on page* _____.	**Create** *an original drawing that shows the difference between* distance *and* displacement. *Then explain the difference between these terms in the spaces provided.*
Speed *I found this information on page* _____.	**Complete** *the mathematical equation to show how speed is calculated.* speed (in meters/second) = _____ (in meters) / _____ (in seconds) OR s = _____
I found this information on page _____.	**Distinguish** *between* speed, constant speed, *and* instantaneous speed. Speed: _____ Constant speed: _____ Instantaneous speed: _____

Name _____ **Date** _____

Section 1 Motion (continued)

Main Idea

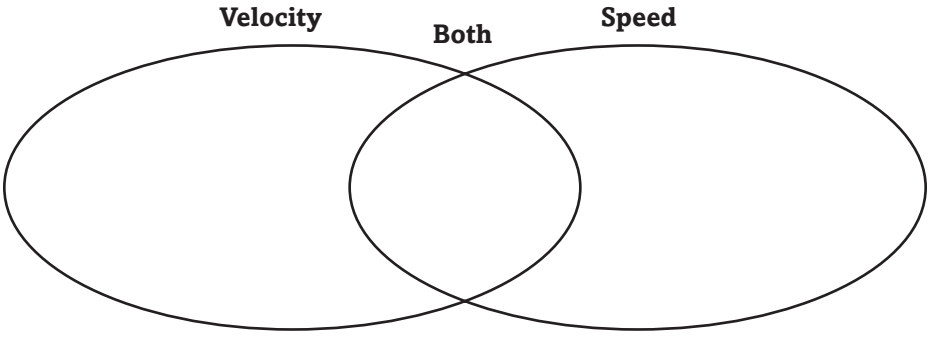
Details

Velocity

I found this information on page _____.

Organize *information by placing each phrase in the Venn diagram.*

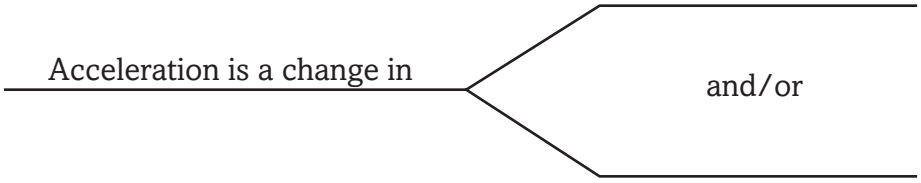
- how fast displacement changes
- rate of change
- how fast distance changes



Acceleration

I found this information on page _____.

Complete *the graphic organizer by listing the 2 factors that affect* **acceleration.**



I found this information on page _____.

Complete *the equation to show how acceleration is calculated.*

$$\text{acceleration (in m/s}^2\text{)} = \frac{\text{\_\_\_\_\_ (in m/s)} - \text{\_\_\_\_\_ (in m/s)}}{\text{\_\_\_\_\_ (in s)}}$$

OR

$$a = \frac{\quad}{\quad}$$

Connect It

Identify examples of when you may have used information about speed, distance, or displacement in your everyday life.

_____

_____

_____

Name _____ **Date** _____

Newton's Laws of Motion

Section 2 Newton's First Law

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

1. _____
2. _____
3. _____

Review Vocabulary

Define mass *to show its scientific meaning.*

mass _____

New Vocabulary

Use your book to define the key terms.

force _____

first law of motion _____

balanced forces _____

unbalanced forces _____

Academic Vocabulary

Use a dictionary to define individual *to show its scientific meaning.*

individual _____

Name _____ **Date** _____

Section 2 Newton's First Law (continued)

Main Idea

Details

Laws of Motion

I found this information on page _____.

Summarize forces *by completing the list below.*

1. A force is _____.

2. Every force has _____.

3. Every force has _____.

I found this information on page _____.

Analyze *information about forces to complete the notes below.*

Forces

I. A contact force is _____

_____.

Examples: _____

_____

II. A long-range force is _____

_____.

Examples: _____

_____.

III. The SI unit of force is the _____.

Newton's First Law of Motion

I found this information on page _____.

Summarize *Newton's* **first law of motion.**

_____

_____

_____

_____

_____

_____

Name _____ **Date** _____

Section 2 Newton's First Law (continued)

Main Idea

Adding Forces

I found this information on page _____.

Details

Create ***one drawing in each box to show how objects are affected when acted on by*** **balanced forces** ***and*** **unbalanced forces.**

- Use arrows and labels to show the direction of the forces acting on the object and any motion that results.

Balanced Forces

Unbalanced Forces

Summarize It

A bowling ball and a tennis ball are rolling down a hill at the same speed. Infer which ball requires more force to stop its motion. Explain your reasoning.

Name _____ **Date** _____

Newton's Laws of Motion

Section 3 Newton's Second Law

Analyze *the objectives listed under* What You'll Learn *for this section. Change the statements into questions.*

1. _____

2. _____

3. _____

Review Vocabulary

Define solar system *in a sentence to show its scientific meaning.*

solar system _____

New Vocabulary

Define the key terms using a dictionary or your book.

second law of motion _____

gravitational force _____

friction _____

Academic Vocabulary

Use a dictionary to define principle *to show its scientific meaning.*

principle _____

Name _____ **Date** _____

Section 3 Newton's Second Law (continued)

Main Idea	Details

The Second Law of Motion

I found this information on page _____.

Summarize *Newton's* **second law of motion.**

_____

_____

_____

I found this information on page _____.

Complete ***the equation to show Newton's second law of motion.***

$$\text{acceleration (in m/s}^2\text{)} = \frac{\text{\_\_\_\_\_ (in N)}}{\text{\_\_\_\_\_ (in kg)}}$$

OR

$$a = \text{\_\_\_\_\_}$$

Using the Second Law

I found this information on page _____.

Analyze ***ways of using Newton's second law by completing the chart.***

If you know an object's	Calculate its	By
Mass and acceleration	force	multiplying its mass by its acceleration
Mass and force		
Force and acceleration		

I found this information on page _____.

Complete ***the graphic organizer by listing the 2 factors that affect*** **gravitational force.**

Gravitational force depends on

and

Name _____ **Date** _____

Section 3 Newton's Second Law (continued)

Main Idea

I found this information on page _____.

Details

Distinguish ***between*** **mass** ***and*** **weight** ***as you complete the paragraph.***

Mass is a measure of the _____ in an object. Weight is a measure of the _____ acting on an object. Unlike an object's _____, an object's _____ changes when the force of _____ changes.

Friction

I found this information on page _____.

Classify ***the four types of friction by completing the chart.***

Type of Friction	Description	Example
Static friction	keeps an object at rest from moving on a surface when a force is applied to the object	friction between a book and a sloping desktop on which the book is lying
Sliding friction		
Rolling friction		
Air resistance		

Synthesize It

Distinguish between different types of friction as you give a personal example of each type.

_____

_____

_____

_____

Name _____ **Date** _____

Newton's Laws of Motion

Section 4 Newton's Third Law

Scan *the section, and then write three facts that you discovered about Newton's third law of motion.*

1. _____

2. _____

3. _____

Review Vocabulary

Define contact force, *and then use it in a sentence to show its scientific meaning.*

contact force _____

New Vocabulary

Use your book to define the key term, and then use it in a sentence to show its scientific meaning.

third law of motion _____

Academic Vocabulary

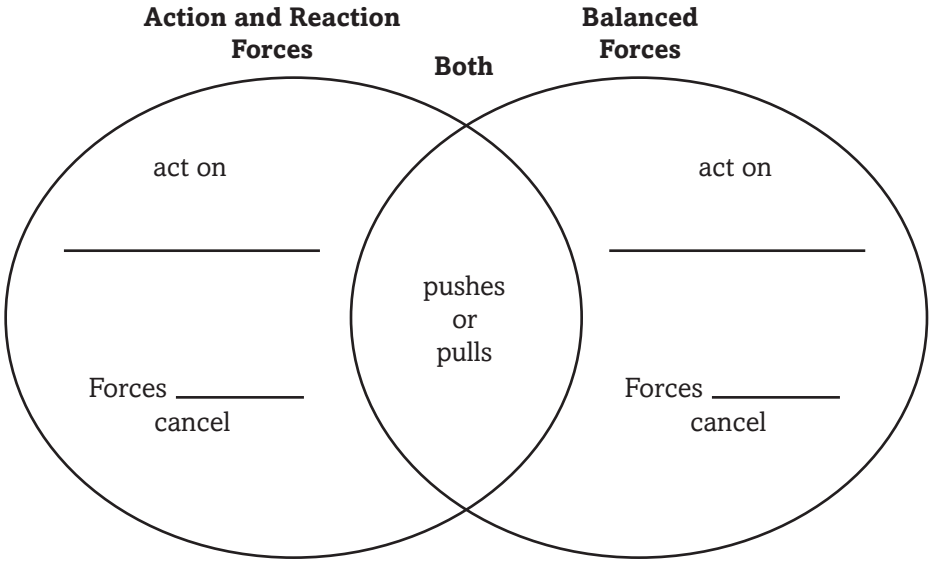
Use a dictionary to define flexible *to show its scientific meaning.*

flexible _____

Name _____ **Date** _____

Section 4 Newton's Third Law (continued)

Main Idea	Details
The Third Law of Motion *I found this information on page _____.*	**Summarize** *Newton's* third law of motion. _____ _____ _____
I found this information on page _____.	**Model** action *and* reaction forces. • Use arrows to show action and reaction forces. • Label the action force and the reaction force in your model.
Applying the Third Law *I found this information on page _____.*	***Compare** action and reaction forces with balanced forces by completing the Venn diagram below.*



Name _____ **Date** _____

Section 4 Newton's Third Law (continued)

Main Idea

Combining the Laws

I found this information on page _____.

Details

Create *a drawing that shows a situation described by all three laws of motion.*

- Use arrows to show the size and direction of the forces involved.
- Label your drawing to explain how each law of motion is demonstrated.

CONNECT IT

Provide an example from your everyday life of a situation described by Newton's third law of motion. Identify the action and reaction forces in your example.

Name _____ **Date** _____

Newton's Laws of Motion

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. Compare your previous answers with these.

K What I know	W What I want to find out	L What I learned

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 motion.**

_____

_____

_____

_____

Name _____ Date _____

Energy and Energy Resources

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.

K What I know	W What I want to find out

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

Science Journal

Choose three devices that use electricity and identify the function of each device.

_____

_____

_____

_____

Name _____ Date _____

Energy and Energy Resources

Section 1 What is energy?

Analyze *the objectives for Section 1. Write three questions you have. Look for responses to each question as you read the section.*

1. _____

2. _____

3. _____

Review Vocabulary

Define mass *to show its scientific meaning.*

mass _____

New Vocabulary

Read each definition below. Write the correct vocabulary term on the blank in the left column.

_____ energy in the nucleus of an atom

_____ ability to cause change

_____ energy stored in chemical bonds

_____ energy that an object has as a result of its motion

_____ current that comes out of batteries and wall sockets

_____ energy that increases with temperature

_____ energy that is stored because of an object's position

_____ energy carried by light

Academic Vocabulary

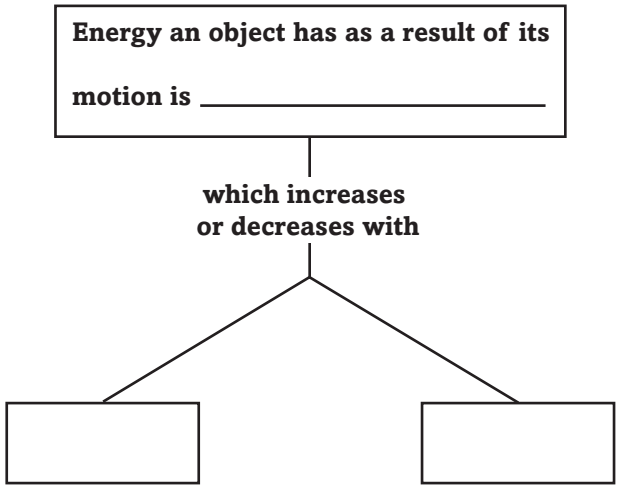
Use a dictionary to define **enormous**.

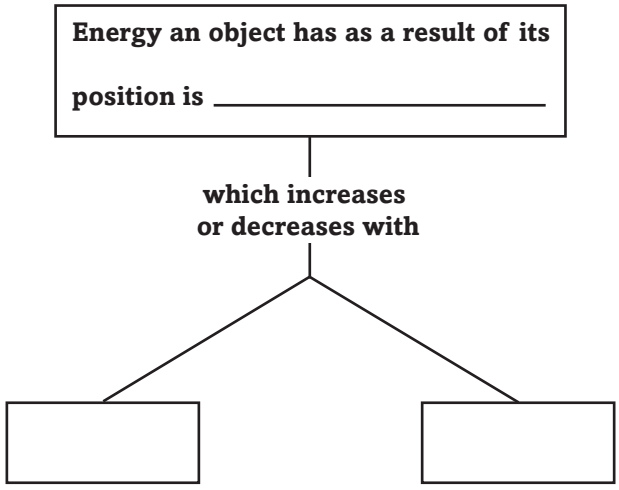
enormous _____

Name _____ Date _____

Section 1 What is energy? (continued)

Main Idea	Details
The Nature of Energy *I found this information on page _____.*	**Create** *a list of three examples of how* energy *causes changes that you observe in your classroom.* **1.** _____ **2.** _____ **3.** _____
Energy of Motion *I found this information on page _____.*	**Complete** *the graphic organizer by using information from your book to describe* energy of motion.
Energy of Position *I found this information on page _____.*	**Complete** *the graphic organizer by using information from your book to describe* energy of position.





Name _____ **Date** _____

Section 1 What is energy? (continued)

Main Idea

Forms of Energy

I found this information on page _____.

Details

Synthesize *your knowledge of each form of energy by providing examples of them.*

Form of Energy	Example
Thermal	
Chemical	
Radiant	
Electrical	
Nuclear	

CONNECT IT

Choose any three forms of energy discussed in this lesson. Explain how each form of energy is important in your daily life.

Name _____ **Date** _____

Energy and Energy Resources

Section 2 Energy Transformations

Preview *Section 2 of your book using the checklist.*

- ☐ Read all section headings.
- ☐ Read all bold words.
- ☐ Look at all of the pictures and read their labels.
- ☐ Think about what you already know about how energy changes form.

Write three facts you discovered about energy transformations as you scanned the section.

1. _____

2. _____

3. _____

Review Vocabulary

Define *the vocabulary terms using your book.*

transformation _____

_____

New Vocabulary

law of conservation of energy _____

_____

generator _____

_____

turbine _____

_____

Academic Vocabulary

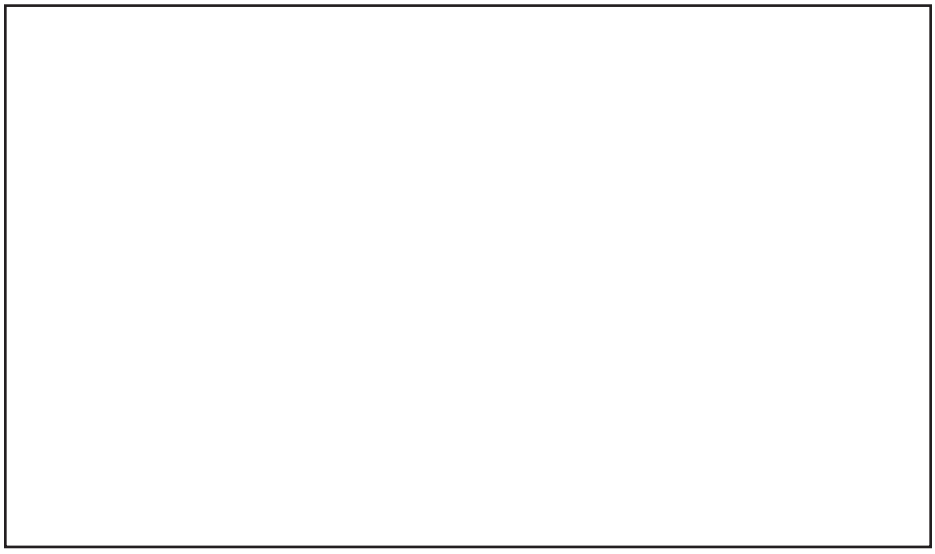
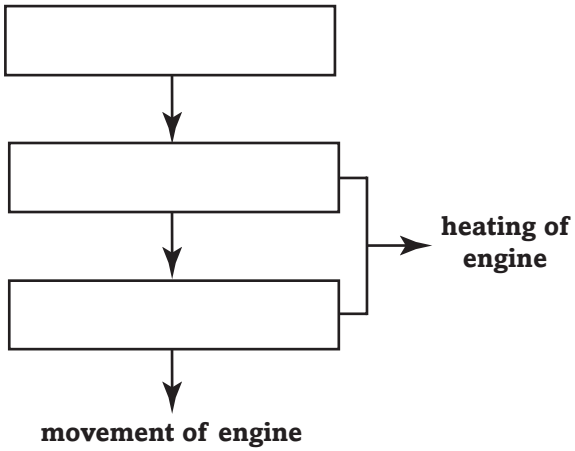
Use a dictionary to define **convert.**

convert _____

_____

Name _____ **Date** _____

Section 2 Energy Transformations (continued)

Main Idea	Details
The Law of Conservation of Energy *I found this information on page _____.*	**State** ***the*** **law of conservation of energy.** The law of conservation of energy states that _____ _____ _____
Changing Kinetic and Potential Energy *I found this information on page _____.*	**Model** ***the*** **potential** ***and*** **kinetic energy transformations** ***that take place as a person tosses a ball into the air and then catches it.*** • Label the points at which the ball has the greatest potential energy and the greatest kinetic energy. 
Energy Changes Form *I found this information on page _____.*	**Analyze** ***the energy flow in a gasoline-powered engine and complete the diagram below.*** 

Name _____ **Date** _____

Section 2 Energy Transformations (continued)

Main Idea

Generating Electrical Energy

I found this information on page _____.

Details

Compare and contrast *energy transformations that occur when electrical energy is generated in coal power plants with energy transformations that occur when energy is used to help you hear. Sequence steps in each process side-by-side.*

Coal Power Plants	Energy in Hearing

Contrast *a* turbine *with a* generator.

Turbine	
Generator	

Synthesize It

Identify some points in the energy flow through a power plant that might produce unwanted forms of energy and make the plant less efficient.

_____

_____

_____

_____

Name _____ **Date** _____

Energy and Energy Resources

Section 3 Sources of Energy

Predict *what you will learn in this section. Read the title. Then write two topics that might be discussed.*

1. _____

2. _____

Review Vocabulary

Write a sentence using the word resource *that shows its scientific meaning.*

resource _____

New Vocabulary

Define *the key terms using your book or a dictionary.*

nonrenewable resource _____

renewable resource _____

alternative resource _____

inexhaustible resource _____

photovoltaic _____

Academic Vocabulary

Use a dictionary to define percent.

percent _____

Name _____ **Date** _____

Section 3 Sources of Energy (continued)

Main Idea

Details

Energy Resources

I found this information on page _____.

Identify *two types of energy from the natural world that Earth's surface receives.*

1. _____

2. _____

Fossil Fuels, Nuclear Energy, and Hydroelectricity

I found this information on page _____.

Compare energy resources *by completing the table.*

Energy Resources			
	Fossil Fuels	**Nuclear**	**Hydroelectric**
Source of energy			
Renewable			
Advantages			
Disadvantages			

Name _____ **Date** _____

Section 3 Sources of Energy (continued)

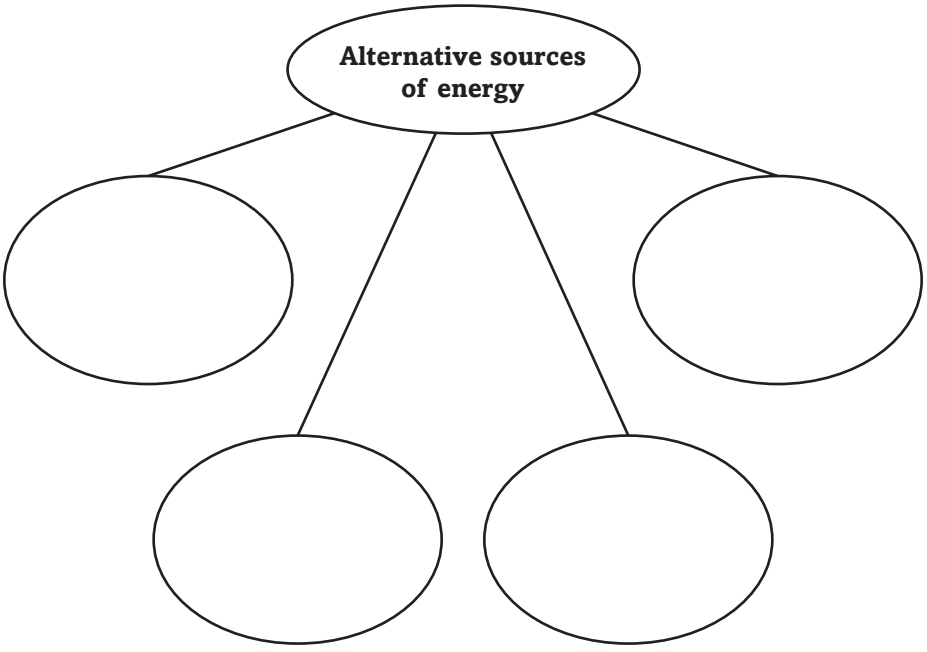
Main Idea

Details

Alternative Sources of Energy

I found this information on page _____.

Complete *the concept map by listing four* alternative sources of energy.



Conserving Energy

I found this information on page _____.

Identify *two reasons to conserve fossil fuels.*

1. _____

2. _____

CONNECT IT

List three specific things you can do to conserve fossil fuels.

_____

_____

_____

_____

_____

_____

Name _____ **Date** _____

Tie It All Together

Energy and Energy Resources

Make a concept map that includes all of the ways energy can be generated that are mentioned in this chapter.

Now imagine you are an energy expert on a planning council for a new town to be built on an island. Evaluate resources and/or methods you will suggest that the new town use. Justify your choices and provide possible challenges to the project.

Name _____ Date _____

Energy and Energy Resources

Chapter Wrap-Up

Review the ideas that 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.

K What I know	W What I want to find out	L What I learned

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 **Summarize three main points of the chapter in a paragraph or by using a concept map.**

Academic Vocabulary

accompany: to go together with; to happen at the same time as

accurate: careful and exact; without mistakes or errors

adapt: to change to fit new conditions

adjust: to arrange the parts of something to make it work correctly

affect: to make something happen; to have an effect on

annual: plant that completes its life cycle in one year

capable: able to do things; fit

category: a division in a classification system

chemical: having to do with or made by chemistry

chemical bond: the force holding atoms together in a molecule

clarify: to make easier to understand

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

conduct: to carry or transmit

consist: to be made up of; to contain

constant: going on all the time; continual; persistent; regular; stable

contract: to become smaller in size

convert: to change from one form or use to another

coordinate: to cause to work well together

create: to bring about

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

definite: clear, without a doubt

displace: to force to move from an original place

distribute: to divide among several or many

eliminate: to get rid of

enable: to make possible

enormous: very large

erode: to wear away

estimate: to determine the approximate value of something

expand: to get bigger

expert: person who is very skillful or highly trained and informed in some special field

facilitate: to make easy or easier

factor: a substance that functions in a body system

feature: a separate or special part or quality

flexible: able to bend without breaking

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

image: a picture produced by an optical or electronic device

individual: being or characteristic of a single thing

infer: to arrive at a conclusion or an opinion by reasoning

Academic Vocabulary

initial: placed at the beginning; first

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

interact: to act on, or influence, one another

intermediate: in the middle or being between

internal: of or on the inside

item: object or thing

label: printed material that is fastened to something to provide information about it

method: way of doing something; a process

minimum: the lowest value

modify: to undergo change

obtain: to get possession of, especially by some effort

obvious: easy to see or understand; clear

occupy: to take up time or space

occur: to happen or take place

participate: to take part

passive: induced by an outside agency

percent: in, to, or for every hundred

physical: having to do with the body

predict: to tell what one thinks will happen in the future

principle: basic generalization that is accepted as true and that can be used as a basis for reasoning

process: series of steps performed in doing something

project: (noun) a plan or activity to be done; (verb) to set forth or calculate, to cause to fall upon a surface, to throw, to present an idea

proportion: the relation of one part to another or to the whole

regulate: to control according to rules or a system

respond: to react

reverse: to go in the opposite direction

rigid: not bending or moving; stiff and hard

role: part played by a person or thing

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: that from which something comes into existence, develops, or derives

sphere: three-dimensional object whose surface is the same distance from its center at all points

substitute: thing that takes the place of another; use in place of another

trace: very small amount

transfer: to move or pass from one person, place, or thing to another

transform: to change the nature or condition of

undergo: to go through

vary: to change; to make different

voluntary: acting, done, or given of one's own free will; by choice