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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*Science Grade 7*
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<th>Table of Contents</th>
</tr>
</thead>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
<td>10-2 .......................................................... 99</td>
</tr>
<tr>
<td>Wrap-Up ..................................................... 102</td>
</tr>
<tr>
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</tr>
<tr>
<td>Chapter Preview ........................................ 103</td>
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</tr>
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<td>11-2 ........................................................ 107</td>
</tr>
<tr>
<td>11-3 ........................................................ 110</td>
</tr>
<tr>
<td>11-4 ........................................................ 113</td>
</tr>
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<td>Wrap-Up ..................................................... 116</td>
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<td><strong>Chapter 12 The Ear and Sound</strong></td>
</tr>
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<td>Chapter Preview ......................................... 117</td>
</tr>
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<td>12-1 ........................................................ 118</td>
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</tr>
<tr>
<td>13-2 ........................................................ 129</td>
</tr>
<tr>
<td>Wrap-Up ..................................................... 132</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Word or Phrase</th>
<th>Symbol or Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>for example</td>
<td>e.g.</td>
</tr>
<tr>
<td>such as</td>
<td>i.e.</td>
</tr>
<tr>
<td>with</td>
<td>w/</td>
</tr>
<tr>
<td>without</td>
<td>w/o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Word or Phrase</th>
<th>Symbol or Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>and</td>
<td>+</td>
</tr>
<tr>
<td>approximately</td>
<td>≈</td>
</tr>
<tr>
<td>therefore</td>
<td>.</td>
</tr>
<tr>
<td>versus</td>
<td>vs</td>
</tr>
</tbody>
</table>

- 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.

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

Science Journal
Write about what you know.

Summarize It
Each note-taking page ends with an activity that asks you to reflect on your notes and identify key concepts.

Vocabulary Development
Each lesson begins with vocabulary words that you will use as you study it. Academic Vocabulary helps you to score higher on standardized tests.

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Identify the criteria used to select a species as an index fossil and explain the reason for each of the criteria.

Identify units of geologic time in the diagram of the Phanerozoic Eon below. Define what the names of the three eras mean.

Paleozoic era: "ancient life" period

Development of the Geologic Time Scale

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>hard body parts</td>
<td>preserved easily in rock</td>
</tr>
</tbody>
</table>

Many-celled Organisms

Create a concept map with information about cell differentiation.

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.

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

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

<table>
<thead>
<tr>
<th>Before You Read</th>
<th>Cell Structure and Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• The cell is the smallest unit of life.</td>
</tr>
<tr>
<td></td>
<td>• Every cell has a covering called a cell membrane.</td>
</tr>
<tr>
<td></td>
<td>• Cells have cytoskeletons made of bone.</td>
</tr>
<tr>
<td></td>
<td>• Photosynthesis supplies Earth’s atmosphere with oxygen.</td>
</tr>
</tbody>
</table>

**Foldables Study Organizer**

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

**Science Journal**

Imagine you are a computer technician assigned to color this cell. What color would you choose for the nucleus? Why?
Scan the headings in Lesson 1 of this chapter. Identify two topics that will be discussed.

1. 
2. 

Define cell, using your book or a dictionary.

large molecule that does not dissolve in water

instrument that uses light and has one or more lenses that enlarge an image

large molecule made of folded chains of amino acids

states that all organisms are made up of one or more cells, the cell is the basic unit of life, and all cells come from other cells

long chain of molecules called nucleotides

keeping internal conditions within certain limits

molecule made of one or more sugar molecules

Use your book or a dictionary to define process as it is used in science.
Complete the sentence below to summarize early ideas about living things.

Before cells could be seen by using ________________, people believed that ____________________________.

Compare and contrast the light microscope and the electron microscope by completing the Venn diagram with at least seven facts.

Light Microscope

Both

Electron Microscope

**Summarize It** Summarize two main ideas from the above sections.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Lesson 1  Cells and Life (continued)

**Main Idea**

**The Cell Theory**

I found this information on page __________.

**Characteristics of Life**

I found this information on page __________.

**Details**

**Summarize** the 3 key statements of the cell theory.

<table>
<thead>
<tr>
<th>The Cell Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Organize** information about the characteristics of life.

![Characteristics of Life Diagram](Characteristics_of_Life_Diagram.png)

**Summarize It**

Summarize the main ideas of the above sections.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
Analyze the role of water in the body. List three main reasons that water is important to body functions.

1. 
2. 
3. 

Distinguish between the 4 basic types of substances found in cells. Describe each substance and its function.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proteins</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nucleic acids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lipids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrates</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summarize the main ideas of the above sections of this lesson with two bullet points.
Cell Structure and Function
Lesson 2 The Cell

Grade 7 Science Content Standards—1.a: Students know cells function similarly in all living organisms.
Also covers: 1.b, 1.c, 2.e, 7.d

Skim Lesson 2. Write three questions that come to mind. Look for answers as you read the lesson.

1. 
2. 
3. 

Define organism, using your book or a dictionary.

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

- protective outer covering of all cells that regulates the interaction between the cell and the environment
- thick fluid made mostly of water; contained within the cell membrane
- rigid structure that encloses, supports, and protects the cells of plants, fungi, and some bacteria
- structure within the cytoplasm of some cells that has a specific function
- organelle found inside many cells; contains genetic material used for making all the molecules of the cell
- organelle that transforms unusable energy in food molecules into a usable form
- small structure within the cell that builds proteins
- organelle that uses light energy to make sugar

Use a dictionary to define modify as it would be used in science.
Lesson 2  The Cell (continued)

Main Idea

**Cell Shape and Movement**

*Draw a cell, and label the following structures: cell membrane, cell wall, flagellum or cilia, cytoplasm, and cytoskeleton.*

<table>
<thead>
<tr>
<th>Function</th>
<th>Organelle</th>
<th>What It Does</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing, transporting and storing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summarize It

Rephrase the main ideas of the above sections.

---

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Lesson 2 The Cell (continued)

**Main Idea**

**Cell Types**

I found this information on page __________.

**Details**

**Compare and contrast** prokaryotic cells and eukaryotic cells by completing the Venn diagram with at least eight facts.

**Model** a typical prokaryotic cell and a typical eukaryotic cell in the spaces below. Use the following terms to label your diagrams:

- cell membrane
- cell wall
- organelles
- ribosomes
- mitochondria
- hereditary material
- flagella

<table>
<thead>
<tr>
<th>Prokaryotic Cell</th>
<th>Eukaryotic Cell</th>
</tr>
</thead>
</table>

**SUMMARIZE IT**

Summarize three main ideas from this section.

1. ____________________________
2. ____________________________
3. ____________________________
Predict two topics that will be discussed in this lesson after reading its title and headings.
1. ____________________________
2. ____________________________

Define energy using your book or a dictionary.

energy

New Vocabulary
Use your book or a dictionary to define the following terms.
cellular respiration

ATP

glycolysis

fermentation

photosynthesis

Academic Vocabulary
Use a dictionary to define evidence to show its scientific meaning.
evidence
Lesson 3 Cells and Energy (continued)

Main Idea

Cellular Respiration

I found this information on page _________.

Details

Create a flow chart to show the substances used and produced during cellular respiration.

- glucose molecule
- oxygen

I found this information on page _________.

Analyze what happens in lactic acid fermentation and alcoholic fermentation. Complete the outline.

I. Lactic acid fermentation
   A. does not need ________________
   B. produces ________________ and ________________
   C. produces ________________ ATP molecules than cellular respiration

II. Alcoholic fermentation
   A. releases ________________
   B. produces ________________ and ________________
   C. produces ________________ ATP molecules than cellular respiration

Summarize it

Summarize the main ideas of the above sections.

__________________________

__________________________

__________________________
**Main Idea**

**Photosynthesis**

I found this information on page ________.

**Details**

**Sequence** the steps in the process of photosynthesis. Complete the flowchart.

- ________________ and other pigments absorb ________________.
- ________________ powers ________________ that take place in ________________.
- ________________, ________________, and ________________ are used to make ________________.
- ________________ is released into the ________________.

**Organize** information about the importance of photosynthesis to humans by completing the graphic organizer.

**Summarize**

Summarize two main ideas from the above sections.

______________

______________

______________
# Cell Structure and Function

## 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.

<table>
<thead>
<tr>
<th>Cell Structure and Function</th>
<th>After You Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The cell is the smallest unit of life.</td>
<td></td>
</tr>
<tr>
<td>• Every cell has a covering called a cell membrane.</td>
<td></td>
</tr>
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<td>• Cells have cytoskeletons made of bone.</td>
<td></td>
</tr>
<tr>
<td>• Photosynthesis supplies Earth’s atmosphere with oxygen.</td>
<td></td>
</tr>
</tbody>
</table>

## 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 Standards Check at the end of each lesson.
- [ ] Look over the Standards Review at the end of the chapter.

## Summarize It

After studying the chapter, write one summary sentence for each lesson to illustrate the chapter’s main ideas.
Before You Read

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

<table>
<thead>
<tr>
<th>K</th>
<th>What I know</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>What I want to find out</td>
</tr>
</tbody>
</table>

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

Predict what other functions the root might have for the new plant.
Grade 7 Science Content Standards—1.e. Students know cells divide to increase their numbers through a process of mitosis, which results in two daughter cells with identical sets of chromosomes. Also covers: 1.c

**Scan** the What You’ll Learn statements for Lesson 1 of your book. *Predict three topics that will be discussed.*

1. 
2. 
3. 

**Define** eukaryotic cell **using your book or a dictionary.**

**eukaryotic cell**

**New Vocabulary**

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

- process by which a cell nucleus divides
- pair of similar chromosomes
- copy of a chromosome made during the cell cycle
- identical cells formed during cell division
- phase of the cell cycle during which the cell prepares to reproduce
- first phase of mitosis
- phase of mitosis during which chromosomes move to the middle of the cell
- final phase of mitosis
- phase of mitosis during which sister chromatids begin to separate

**Academic Vocabulary**

*Use a dictionary to define establish.*

**establish**
Lesson 1 The Cell Cycle and Cell Division (continued)

Main Idea

The Cell Cycle
I found this information on page ___________.

Details

Model the phases of the cell cycle as a circle graph. Label each section of your graph.

I found this information on page ___________.

Sequence and describe the stages of interphase.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>The cell grows and carries out its usual functions.</td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>G2</td>
<td></td>
</tr>
</tbody>
</table>

Mitosis and Cell Division
I found this information on page ___________.

Analyze the importance of mitosis and cell division. List four functions that mitosis and cell division perform.

1. ___________________________________  
2. ___________________________________  
3. ___________________________________  
4. ___________________________________

Summarize the main ideas of the above sections.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

From a Cell to an Organism  15
Lesson 1 The Cell Cycle and Cell Division (continued)

**Main Idea**

I found this information on page __________.

**Details**

**Complete the table about the phases of mitosis.**

<table>
<thead>
<tr>
<th>Phase</th>
<th>What Happens</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DNA of replicated chromosomes twists into coils; membrane around nucleus breaks apart.</td>
</tr>
<tr>
<td>Metaphase</td>
<td>Sister chromatids begin to separate and move to opposite ends of the cell.</td>
</tr>
<tr>
<td>Telophase</td>
<td></td>
</tr>
</tbody>
</table>

**Draw a cell during each phase of mitosis.**

<table>
<thead>
<tr>
<th>Prophase</th>
<th>Metaphase</th>
<th>Anaphase</th>
<th>Telophase</th>
</tr>
</thead>
</table>

**Contrast cytokinesis in cells with and without cell walls.**

I found this information on page __________.

**Summarize It**

Summarize two main ideas of the above section.

---

From a Cell to an Organism
From a Cell to an Organism
Lesson 2 Levels of Organization

Grade 7 Science Content Standards—5.a. Students know plants and animals have levels of organization for structure and function, including cells, tissues, organs, organ systems, and the whole organism. Also covers: 1.f

**Skim** Lesson 2 of your book. Write two questions that come to mind. Look for answers to your questions as you read the lesson.
1. 
2. 

**Review Vocabulary**

**Define** prokaryotic cell *using your book or a dictionary.*

*prokaryotic cell*

**New Vocabulary**

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

*cell differentiation*

*stem cell*

*tissue*

*organ*

*organ system*

**Academic Vocabulary**

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

*assign*

---

*From a Cell to an Organism* 17
Lesson 2 Levels of Organization (continued)

Main Idea

One-Celled Organisms

Outline information about one-celled organisms.
I. Prokaryotes
   A. 
   B. 
II. Eukaryotes
   A. 
   B. 

Many-celled Organisms

Create a concept map with information about cell differentiation.

Sequence the levels of organization from cells to organ systems. Give an example of each level below its box in the chart.

Summarize two main ideas of the above sections.
Lesson 2 Levels of Organization (continued)

Main Idea

I found this information on page __________.

Distinguish human body systems.

<table>
<thead>
<tr>
<th>System Name</th>
<th>Organs</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
<td>heart, blood vessels</td>
<td>transports blood carrying oxygen, nutrients, and wastes</td>
</tr>
<tr>
<td>Digestive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endocrine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integumentary</td>
<td>skin</td>
<td>protection and homeostasis</td>
</tr>
<tr>
<td>Lymphatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muscular</td>
<td>muscles</td>
<td>movement</td>
</tr>
<tr>
<td>Nervous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reproductive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skeletal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summarize a main idea from this section in your own words.
From a Cell to an Organism

Chapter Wrap-Up

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

<table>
<thead>
<tr>
<th>K What I know</th>
<th>W What I want to find out</th>
<th>L What I learned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 Standards Check at the end of each lesson.
☐ Look over the Standards Review at the end of the chapter.

Summarize It

After reading the chapter, write one sentence summarizing a main idea of each lesson.

After reading the chapter, write one sentence summarizing a main idea of each lesson.
Reproduction of Organisms

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.

<table>
<thead>
<tr>
<th>Before You Read</th>
<th>Reproduction of Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity can help a species survive.</td>
<td></td>
</tr>
<tr>
<td>A seed provides a plant with nourishment.</td>
<td></td>
</tr>
<tr>
<td>Animal fertilization occurs only internally.</td>
<td></td>
</tr>
<tr>
<td>Some organisms have only one parent.</td>
<td></td>
</tr>
</tbody>
</table>

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

Science Journal

List four plants that grow from seeds. List other ways you know of that plants can be grown.

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________
Reproduction of Organisms
Lesson 1 Sexual Reproduction and Meiosis

Grade 7 Science Content Standards—2.b: Students know sexual reproduction produces offspring that inherit half their genes from each parent. Also covers: 7.d

Scan Lesson 1 of your book. Write two facts you discovered about sexual reproduction and meiosis while scanning the lesson.

1. ____________________________________________
   ____________________________________________

2. ____________________________________________
   ____________________________________________

Define eukaryote using your book or a dictionary.

eukaryote
   ____________________________________________
   ____________________________________________

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

sexual reproduction
   ____________________________________________
   ____________________________________________

zygote
   ____________________________________________
   ____________________________________________

meiosis
   ____________________________________________
   ____________________________________________

Use your book or a dictionary to define vary. Find a sentence in the lesson in which the word is used, and write the sentence below.

vary
   ____________________________________________
   ____________________________________________

   Sentence: ____________________________________
   ____________________________________________
Lesson 1 Sexual Reproduction and Meiosis (continued)

**Main Idea**

**What is sexual reproduction?**
- I found this information on page ________.

**Why is meiosis important?**
- I found this information on page ________.

**Details**

**Summarize** what occurs during fertilization.

During fertilization, an ____________ cell and a ____________ cell ____________ to produce a ____________.

**Identify** the advantages and disadvantages of sexual reproduction. *List at least one item in each column.*

<table>
<thead>
<tr>
<th>Sexual Reproduction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Compare and contrast** diploid and haploid cells. *Complete the Venn diagram with at least four facts.*

![Venn Diagram]

**Summarize It**

Summarize one main idea from the above sections.

__________________________

__________________________
Main Idea

What are the phases of meiosis?
I found this information on page __________.

Details

Model the stages of meiosis I and meiosis II in the spaces below.
Draw or explain each stage.

<table>
<thead>
<tr>
<th>Meiosis I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prophase I</td>
</tr>
<tr>
<td>Metaphase I</td>
</tr>
<tr>
<td>Anaphase I</td>
</tr>
<tr>
<td>Telophase I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meiosis II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prophase II</td>
</tr>
<tr>
<td>Metaphase II</td>
</tr>
<tr>
<td>Anaphase II</td>
</tr>
<tr>
<td>Telophase II</td>
</tr>
</tbody>
</table>

Contrast meiosis and mitosis.

Mitosis: __________________________
Meiosis: __________________________

Summarize one main idea from each section.

______________________________________________________________________________

______________________________________________________________________________

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Reproduction of Organisms
Lesson 2 Plant Reproduction

Grade 7 Science Content Standards—2.a: Students know the difference between the life cycles and reproduction methods of sexual and asexual organisms. Also covers: 2.b, 5.f, 7.d

Predict what you will learn in this lesson by scanning the headings. Write three topics you predict will be covered.
1. ________________________________
2. ________________________________
3. ________________________________

Define fertilization. Use a dictionary or your book for help.

New Vocabulary
Write the correct term on the blank to the left of each definition.

daughter cell produced by haploid structures in a plant
nutrient-carrying structure formed from tissue in a male reproductive structure of a seed plant
location in which haploid eggs develop in seed plants
plant structure including an embryo, a food supply, and a protective covering
male reproductive organ of a flower
female reproductive organ of a flower
location of one or more ovules
mature plant ovary containing seeds

Use a dictionary to define the term specific.
Lesson 2 Plant Reproduction (continued)

Main Idea

What is alternation of generations?
I found this information on page _______.

How do seedless plants reproduce?
I found this information on page _______.

How do seed plants reproduce?
I found this information on page _______.

Details

Summarize alternation of generations in plants.

Create a diagram showing the life cycle of a moss.

Sequence the steps in the development of a plant embryo.
Complete the flow chart.

Sperm cells form inside _______, and egg cells form inside _______.

A _______ develops, containing _______.

Summarize one main idea for each section above.
Lesson 2 Plant Reproduction (continued)

**Main Idea**

**How do flowerless seed plants reproduce?**

* I found this information on page __________.

**How do flowering seed plants reproduce?**

* I found this information on page __________.

**What is an angiosperm’s life cycle?**

* I found this information on page __________.

**Details**

**Summarize** the reproductive structures found in gymnosperms. *Identify each structure and its function.*

Male reproductive structures: ______________________________________________________

Female reproductive structures: ____________________________________________________

**Draw** a diagram of a flower showing its reproductive structures. *Show and label the structures below.*

- anther
- ovary
- stamen
- style
- filament
- pistil
- stigma

**Sequence** the life cycle of an angiosperm.

1. Pollen grains travel from the anther to the stigma.

2. _____________________________________________________________

3. _____________________________________________________________

4. _____________________________________________________________

5. _____________________________________________________________

6. _____________________________________________________________

7. _____________________________________________________________

8. Seeds grow into new plants and produce flowers.

**SUMMARIZE IT**

State the main ideas of the above sections.

__________________________________________

__________________________________________

__________________________________________

__________________________________________

Reproduction of Organisms 27
Reproduction of Organisms
Lesson 3 Animal Reproduction

Grade 7 Science Content Standards—2.a: Students know the difference between the life cycles and reproduction methods of sexual and asexual organisms. Also covers: 2.b, 7.c

**Skim** Lesson 3. Write three questions that come to mind as you skim. Look for the answers as you read the lesson.

1. __________________________
2. __________________________
3. __________________________

**Review Vocabulary**

Define organ using its scientific meaning.

organ

**New Vocabulary**

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

gonads

testes

ovaries

metamorphosis

**Academic Vocabulary**

Use your book or a dictionary to define network. Then use the term in a scientific sentence.

network

28 reproduction of organisms
Lesson 3 Animal Reproduction (continued)

Main Idea

What are animal reproductive organs called?

I found this information on page __________.

How does animal fertilization occur?

I found this information on page __________.

Details

Contrast male and female reproductive systems of animals by identifying the gonads and their functions.

<table>
<thead>
<tr>
<th>Reproductive Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonads</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
</tbody>
</table>

Compare and contrast internal and external fertilization. Sequence the steps in each.

<table>
<thead>
<tr>
<th>Internal Fertilization</th>
<th>External Fertilization</th>
</tr>
</thead>
</table>

Analyze how animals that use internal and external reproduction make sure that they reproduce successfully.

Internal fertilization: __________________________________________________________

External fertilization: __________________________________________________________

Summarize It

Write two sentences to summarize the main ideas of the above sections.

______________________________________________________________________________

______________________________________________________________________________
Lesson 3 Animal Reproduction (continued)

**Main Idea**

How do animal embryos develop?

**Details**

Complete the graphic organizer to summarize how eggs that are laid outside a mother protect the embryo inside.

- An egg’s covering

Sequence the phases of metamorphosis for a ladybug beetle and a frog.

<table>
<thead>
<tr>
<th>Ladybug Beetle</th>
<th>Frog</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
</tr>
</tbody>
</table>

Define gestation. Then summarize the general relationship between gestation and the size of the animal

**Summarize It**

Summarize three main ideas of the above section.

---

30 Reproduction of Organisms
Reproduction of Organisms
Lesson 4 Asexual Reproduction

Grade 7 Science Content Standards—2.a: Students know the difference between the life cycles and reproduction methods of sexual and asexual organisms.

Scan Lesson 4 of your book using the checklist below.
- Read all of the lesson titles.
- Read all of the boldface words.
- Look at all of the pictures.
- Think about what you already know about asexual reproduction.

Write two facts that you discovered about asexual reproduction as you scanned the lesson.
1. 
2. 

Define prokaryote using your book or a dictionary.

Write the correct term in the blank to the left of each definition.

production of offspring by one parent without a sperm and an egg joining

form of asexual reproduction that produces two cells with identical DNA; used by bacteria

form of asexual reproduction in which a new organism forms on the parent organism

form of asexual reproduction that produces new animals from pieces of an animal's body

method of asexual reproduction developed by scientists and performed in laboratories

Use your book or a dictionary to define differentiate.
Lesson 4 Asexual Reproduction (continued)

Main Idea

What is asexual reproduction?
I found this information on page __________.

What are the types of asexual reproduction?
I found this information on page __________.

Details

Analyze the advantages and disadvantages of asexual reproduction. Summarize three advantages and two disadvantages.

<table>
<thead>
<tr>
<th>Advantages of Asexual Reproduction</th>
<th>Disadvantages of Asexual Reproduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Create a graphic organizer to identify the types of asexual reproduction.

Contrast fission and mitotic cell division.

Summarize It

Write a sentence to summarize each of the above sections.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Lesson 4 Asexual Reproduction (continued)

Main Idea

What are the types of asexual reproduction?
I found this information on page ____________.

What is cloning?
I found this information on page ____________.

Details

Sequence the steps that occur in the budding of yeast.

A new organism forms by ____________________ → The offspring forms on ____________________ → The offspring eventually ____________________.

Identify two examples of plant propagation.
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Summarize the processes that have been developed for plant and animal cloning.

Plant Cloning: ____________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Animal Cloning: ____________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Summarize the main ideas of the above sections.
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Reproduction of Organisms 33
Reproduction of Organisms
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.

<table>
<thead>
<tr>
<th>Reproduction of Organisms</th>
<th>After You Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Diversity can help a species survive.</td>
<td></td>
</tr>
<tr>
<td>• A seed provides a plant with nourishment.</td>
<td></td>
</tr>
<tr>
<td>• Animal fertilization occurs only internally.</td>
<td></td>
</tr>
<tr>
<td>• Many organisms have only one parent.</td>
<td></td>
</tr>
</tbody>
</table>

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 Standards Check at the end of each lesson.
☐ Look over the Standards Review at the end of the chapter.

SUMMARIZE IT

After reading this chapter, write one summary sentence for each lesson to illustrate the chapter’s main ideas.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
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.

<table>
<thead>
<tr>
<th>Before You Read</th>
<th>Genetics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• An individual inherits factors for each trait from both parents.</td>
</tr>
<tr>
<td></td>
<td>• An inherited trait might not be observed in one generation yet reappear in the next.</td>
</tr>
<tr>
<td></td>
<td>• A single gene might affect more than one trait in an organism.</td>
</tr>
<tr>
<td></td>
<td>• One type of DNA is inherited only from the male parent.</td>
</tr>
</tbody>
</table>

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

List the differences and similarities that you observe among this dog and her puppies.
Scan Lesson 1 of the chapter. Read the lesson titles and bold words and look at the pictures. Write three facts that you discovered about the topic as you scanned the lesson.

1. __________________________________________________________________________
2. __________________________________________________________________________
3. __________________________________________________________________________

Review Vocabulary

Define chromosome using your book or a dictionary.

chromosome ______________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

New Vocabulary

Write a paragraph describing heredity. Use as many vocabulary terms in your paragraph as you can.

heredity _________________________________________________________________________
genetics _________________________________________________________________________
dominant _________________________________________________________________________
recessive _________________________________________________________________________
gene ____________________________________________________________________________

law of segregation __________________________________________________________________

law of independent assortment __________________________________________________________________

allele __________________________________________________________________________

phenotype _________________________________________________________________________
genotype _________________________________________________________________________
homozygous ______________________________________________________________________
heterozygous ______________________________________________________________________

Academic Vocabulary

Use a dictionary to define method.

method _________________________________________________________________________
Early Ideas About Heredity
I found this information on page _________.

Analyze why blending inheritance is NOT the method by which traits are passed to offspring. Give at least two facts that support this conclusion.

1. ______________________________________

2. ______________________________________

Summarize three things that made Mendel’s experimental methods of breeding plants unique.

Gregor Mendel and His Experiments
I found this information on page _________.

Mendel’s experimental method

Organize information about Mendel’s laws of heredity. Include an explanation of each.

Mendel’s Laws of Heredity

<table>
<thead>
<tr>
<th>Law of</th>
<th>Law of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summarize the main idea from the above sections.

________________________________________
Lesson 1 Foundations of Genetics (continued)

Main Idea

Modern Definitions of Mendel’s Ideas

I found this information on page ________.

Importance of Mendel’s Genetic Studies

I found this information on page ________.

Details

Analyze the relationships among genes, alleles, chromosomes, and DNA. Complete the sentences.

1. A chromosome is made up of ________________.

2. A section of ____________ that has information about a specific trait is called a ____________.

3. A ____________ contains two ____________.

Compare homozygous and heterozygous genotypes.

<table>
<thead>
<tr>
<th>Genotype</th>
<th>Information contained on allele</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>same</td>
<td>Yy</td>
</tr>
</tbody>
</table>

Organize information that Mendel discovered about alleles.

SUMMARIZE IT

Summarize the main ideas of the above sections in two bullet points.

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
Genetics
Lesson 2 Understanding Inheritance

Grade 7 Science Content Standards—2.b: Students know sexual reproduction produces offspring that inherit half their genes from each parent. Also covers: 2.c, 2.d

Skim Lesson 2 and predict three topics that you will study.
1. ________________________________
2. ________________________________
3. ________________________________

Review Vocabulary

Soil

Use the word soil in a sentence.

New Vocabulary

Punnett Square

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

Pedigree

Incomplete dominance

Codominance

Multiple alleles

Polygenic inheritance

Genetic disorder

Academic Vocabulary

Use a dictionary to define the word complex.

Complex
Lesson 2 Understanding Inheritance (continued)

**Main Idea**

Modeling Inheritance

I found this information on page  

**Details**

Analyze the possible offspring of two true-breeding plants, one with two dominant alleles for yellow seeds (Y) and one with two recessive alleles for green seeds (y). Predict the percentage of offspring that will have each possible genotype and phenotype.

### Genotypes:
- YY ______ %
- Yy ______ %
- yy ______ %

### Phenotypes:
- Green seeds ______ %
- Yellow seeds ______ %

**Complete** a Punnett square to show the possible offspring of two heterozygous plants, each with genotype Yy. Then predict the percentage of offspring that will have each genotype and phenotype.

### Genotypes:
- YY ______ %
- Yy ______ %
- yy ______ %

### Phenotypes:
- Green seeds ______ %
- Yellow seeds ______ %

**Summarize It**

Rephrase the main ideas of the above section.
Label the generations shown in the pedigree below. Circle the parents in each generation.

Compare and contrast incomplete dominance and codominance. Complete the Venn diagram with definitions and examples of each.

Summarize the main ideas of the above sections in two bullet points.
### Main Idea

**Complex Patterns of Inheritance**

I found this information on page __________.

---

**Details**

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

<table>
<thead>
<tr>
<th>Alleles</th>
<th>Genotypes</th>
<th>Phenotypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>In blood types, there are ______ alleles: ________</td>
<td>These can produce ______ possible genotypes: ______ ______ ______</td>
<td>Since O is ______, these genotypes result in ______ phenotypes: ______ ______ ______</td>
</tr>
</tbody>
</table>

**Compare** sex-linked inheritance and maternal inheritance by completing the Venn diagram with at least four facts.

---

### Summarize It

Summarize the main ideas of the above section in three bullet points.

1. 
2. 
3. 

---

Lesson 2 Understanding Inheritance (continued)

Complex Patterns of Inheritance

I found this information on page __________.
Classify five genetic disorders humans can inherit. Specify what type of inheritance causes each disorder.

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Type of Inheritance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huntington’s disease</td>
<td></td>
</tr>
<tr>
<td>Sickle-cell disease</td>
<td></td>
</tr>
<tr>
<td>Cystic fibrosis</td>
<td></td>
</tr>
<tr>
<td>Hemophilia</td>
<td></td>
</tr>
<tr>
<td>Down syndrome</td>
<td></td>
</tr>
</tbody>
</table>

Model how two heterozygous parents who do not have a genetic disorder can produce a child who does. Draw a pedigree of two generations using C for a dominant allele and c for a recessive allele that carries a disorder.

Genes and the Environment

Analyze how environment can affect an organism’s phenotype by using heart disease as an example.

Summarize the main ideas of the above sections.
Genetics 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.

<table>
<thead>
<tr>
<th>Genetics</th>
<th>After You Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>• An individual inherits factors for each trait from both parents.</td>
<td></td>
</tr>
<tr>
<td>• An inherited trait might not be observed in one generation yet reappear in the next.</td>
<td></td>
</tr>
<tr>
<td>• A single gene might affect more than one trait in an organism.</td>
<td></td>
</tr>
<tr>
<td>• One type of DNA is inherited only from the male parent.</td>
<td></td>
</tr>
</tbody>
</table>

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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 Standards Check at the end of each lesson.
☐ Look over the Standards Review at the end of the chapter.

Summarize It

After reading this chapter, write a summary sentence for each lesson to illustrate the chapter’s main ideas:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
The Process of Evolution

Before You Read

Before you read the chapter, think about what you know about the topic. List three things that you already know about the process of evolution in the first column. Then list three things that you would like to learn about the topic in the second column.

<table>
<thead>
<tr>
<th>K What I know</th>
<th>W What I want to find out</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Imagine you are the geologist who discovered the Archaeopteryx fossil. Write a paragraph about how you feel when you first realize what you have found.

Science Journal
The Process of Evolution
Lesson 1 Natural Selection

Scan Lesson 1 of your book. Write two facts you discovered about Charles Darwin and natural selection while scanning the lesson.

1. ____________________________

2. ____________________________

Define population using your book or a dictionary. The use it in a sentence to show its scientific meaning.

population ___________________________

_____________________________

_____________________________

Write the correct term on the blank to the left of each definition.

person who studies the natural world ___________________________

_____________________________

inherited trait that increases an organism’s chance of surviving and reproducing in a particular environment ___________________________

_____________________________

process in which traits that give animals a better chance for survival increase in a population over time ___________________________

_____________________________

genetic change in a population over time ___________________________

_____________________________

Use a dictionary to define the term diverse, and then use it in a sentence.

diverse ___________________________

_____________________________
Main Idea

**Charles Darwin**

I found this information on page __________.

Details

**Summarize** the key observation that Darwin made about animals he found on his journey, and the conclusion that he drew.

Observation

When Darwin compared animals he found on the Galápagos with ______________________

_________________________, he saw that many of them were ______________________.

Conclusion

Darwin reasoned that perhaps some of the animals and plants on the Galápagos __________

_________________________ and over time ____________.

**Organize** information about variations that Darwin noticed among similar animals in different habitats.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Variations</th>
<th>Suitable for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tortoises</td>
<td>longer neck, saddle-shaped shell</td>
<td></td>
</tr>
<tr>
<td></td>
<td>shorter neck, dome-shaped shell</td>
<td></td>
</tr>
<tr>
<td>Finches</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Define selective breeding.

Selective breeding is ______________________.

**Summarize It**

Highlight the main idea of this section below.

Charles Darwin thought about why there are so many species of organisms on Earth and explored some of life’s most remarkable diversity around the world. Through his observation, Darwin uncovered an important process that accounts for such variation.
Summarize the three strands of thought that Darwin tied together in his idea of natural selection.

<table>
<thead>
<tr>
<th>Darwin’s Theory of Natural Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic Variation</td>
</tr>
<tr>
<td>Population Growth and the Struggle to Survive</td>
</tr>
<tr>
<td>Environmental Factors</td>
</tr>
</tbody>
</table>

Rephrase in your own words the four principles on which Darwin’s theory of natural selection is based. Complete the graphic organizer.

1. Overproduction:  2. Variation:
3. Inherited variation:  4. Natural selection:

**Summarize It**

Summarize the main idea of the above section of this lesson.
The Process of Evolution
Lesson 2  Adaptation and Extinction

Grade 7 Science Content Standards—3.a: Students know that both genetic variation and environmental factors are causes of evolution and diversity of organisms. Also covers: 3.b, 3.e, 7.a, 7.b, 7.c, 7.e

Scan Lesson 2 of your book using the checklist below.

☐ Read all of the lesson titles.
☐ Read all of the boldface words.
☐ Look at all of the pictures.
☐ Think about what you already know about adaptation and extinction.

Write three facts that you discovered about the topic as you scanned the lesson.

1. __________________________________________
2. __________________________________________
3. __________________________________________

Review Vocabulary

Define habitat using your book or a dictionary.

habitat

New Vocabulary

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

structural adaptation

 camouflage

 mimicry

 behavioral adaptation

Academic Vocabulary

Use the word interpret in a sentence to show its scientific meaning.

interpret
Lesson 2 Adaptation and Extinction (continued)

**Main Idea**

**Adaptations**

*I found this information on page __________.*

**Sequence** the steps in the process of adaptation, using desert rabbits as an example.

- Original population includes rabbits with ________________.
- Rabbits with __________ are more likely to ________________.
- Rabbits with __________ are more likely to ________________.
- The __________ are likely to have __________ too.
- After many generations, __________ of the population will have __________, and __________ will have __________.

**Types of Adaptation**

*I found this information on page __________.*

**Compare** two categories of adaptation.

- Behavioral Adaptations
- Structural Adaptations
- Both

**Details**

**Summarize It**

Summarize the main ideas of the above sections.

---

The Process of Evolution
Create a graphic organizer to identify the environmental factors associated with extinction.

Organize information about the causes of extinction by completing the matrix below.

<table>
<thead>
<tr>
<th>Cause of Extinction</th>
<th>Description of Process</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summarize the main ideas of the above section.

_Extinction_

I found this information on page _________.

I found this information on page _________.

**Main Idea**

- Extinction

**Details**

- Create
- Organize
The Process of Evolution

Chapter Wrap-Up

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

<table>
<thead>
<tr>
<th>K</th>
<th>What I know</th>
<th>W</th>
<th>What I want to find out</th>
<th>L</th>
<th>What I learned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Review

Use this checklist to help you study.

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☐ 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 Standards Check at the end of each lesson.
☐ Look over the Standards Review at the end of the chapter.

Summarize It

After reading this chapter, write one summary sentence for each lesson to illustrate the chapter’s main ideas.

__________________________________________

__________________________________________

__________________________________________

__________________________________________

__________________________________________

52 The Process of Evolution
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.

<table>
<thead>
<tr>
<th>Before You Read</th>
<th>Evolution—Evidence of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fossils are the remains of organisms that lived long ago.</td>
</tr>
<tr>
<td></td>
<td>Earth’s surface has not changed significantly throughout time.</td>
</tr>
<tr>
<td></td>
<td>Closely related species may appear to be very different.</td>
</tr>
<tr>
<td></td>
<td>The smallest category into which organisms are classified is the species.</td>
</tr>
</tbody>
</table>

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

Predict how this animal became a fossil. As you read this chapter, check whether the information presented supports your prediction.
Evolution—Evidence of Change

Lesson 1  Fossils and Evolution

Scan the headings in Lesson 1 of your book. Identify three topics that will be discussed.
1. __________________________________________
2. __________________________________________
3. __________________________________________

Review Vocabulary

Define gymnosperm using your book or a dictionary.
gymnosperm __________________________________________

New Vocabulary

Use your book to define the following terms.
fossil __________________________________________
paleontologist ______________________________________
permineralization ___________________________________
mold __________________________________________
cast __________________________________________
fossil record _____________________________________

Academic Vocabulary

Use a dictionary to define structure.
structure __________________________________________

Name ____________________________ Date ________________

Grade 7 Science Content Standards—4.e: Students know fossils provide evidence of how life and environmental conditions have changed. Also covers: 3.c

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Lesson 1 Fossils and Evolution (continued)

Main Idea

What are fossils?
I found this information on page ________.

When do fossils form?
I found this information on page ________.

How are fossils formed?
I found this information on page ________.

Details

Identify three examples of fossils.
1. ________ 2. ________ 3. ________

Organize information about factors which favor fossilization.

Factors which favor fossilization

- protection from destructive agents
- hard body parts
- acidic soils

Complete the table by describing methods of fossilization.

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permineralization</td>
<td></td>
</tr>
<tr>
<td>Replacement</td>
<td></td>
</tr>
<tr>
<td>Carbonization</td>
<td></td>
</tr>
<tr>
<td>Original material</td>
<td></td>
</tr>
</tbody>
</table>

Summarize the main idea of the above sections.
Lesson 1  Fossils and Evolution (continued)

Main Idea

How are fossils formed?
I found this information on page __________.

Create two drawings to show the difference in appearance between a mold and a cast. Add labels to your drawings as needed.

[Diagrams of Mold and Cast]

What do fossils tell us?
I found this information on page __________.

Summarize the kinds of information scientists learn by studying fossils.

Identify three explanations for why there are gaps in the fossil record.

1. [Explanation]
2. [Explanation]
3. [Explanation]

SUMMARIZE IT

Summarize the main ideas of the above sections with two bullet points.
Evolution—Evidence of Change
Lesson 2 Biological Evidence

Grade 7 Science Content Standards—3.c: Students know how independent lines of evidence from geology, fossils, and comparative anatomy provide the bases for the theory of evolution.

Scan Lesson 2 of your book. Read the headings and look at the illustrations. Predict three things that will be discussed.

1. 
2. 
3. 

Define adaptation, using your book or a dictionary.

adaptation

Write a paragraph using all of the vocabulary terms.

comparative anatomy
homologous structure
embryology

Use a dictionary to define analogous.

analogous
Model the anatomies of the true fly, the scorpionfly, and their common ancestor.

Compare and contrast homologous structures and analogous structures by completing the Venn diagram.

Summarize two main ideas of the above sections.
Define vestigial structure. *Then give an example of a vestigial structure.*

Example:

Contrast the development of pharyngeal pouches in fish and humans by completing the table.

<table>
<thead>
<tr>
<th>In vertebrate embryos they appear as:</th>
<th>In fish they develop into:</th>
<th>In humans they become:</th>
</tr>
</thead>
</table>

Organize information by listing three types of molecules scientists use to identify evolutionary relationships among organisms.

Molecular data used to identify evolutionary relationships is found in

Summarize two main ideas of the above sections.

---

Summarize It

Evolution—Evidence of Change 59
Evolution—Evidence of Change
Lesson 3 Evolution and Plate Tectonics

Grade 7 Science Content Standards—4.f: Students know how movements of Earth’s continental and oceanic plates through time, with associated changes in climate and geographic connections, have affected the past and present distribution of organisms. Also covers: 7.d

Scan the What You’ll Learn statements for Lesson 3 of your book. Identify three topics that will be discussed.

1. __________________________________________
2. __________________________________________
3. __________________________________________

Define lithospheric plate using your book or a dictionary.

lithospheric plate

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

geographic isolation

convergent evolution

Use a dictionary to define prohibit.

prohibit

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Create a drawing to show one piece of evidence that supports Alfred Wegener’s continental drift hypothesis. Write a caption that explains what your drawing shows.

Caption:

Summarize the main idea of the above section.
Lesson 3 Evolution and Plate Tectonics (continued)

Main Idea

Geographic Isolation

Model how the process of geologic isolation can occur. Create three drawings and write a caption for each drawing.

Details

Contrast the results of convergent evolution and geographic isolation by completing the table.

<table>
<thead>
<tr>
<th>Effect on Species</th>
<th>Appearance</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergent Evolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geographic Isolation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I found this information on page ___________.

Summarize the main ideas of the above sections.

_________________________________________________________________  
_________________________________________________________________  
_________________________________________________________________
Evolution—Evidence of Change
Lesson 4 Classifying Organisms

Scan Lesson 4 of your book. Use the checklist below.

☐ Read all of the headings.
☐ Read all of the boldface words
☐ Look at the charts, graphs, and pictures.
☐ Think about what you already know about classification.

Write three things that you learn about classification.

1. ____________________________________________

2. ____________________________________________

3. ____________________________________________

Define species using your book or a dictionary.

species

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

systematics

Evolution—Evidence of Change 63
Lesson 4 Classifying Organisms (continued)

Main Idea

Historic Classification Systems

Complete the graphic organizer to show the categories used in the classification system developed by Aristotle.

```
  All Things
   |     |     |
   |     |     |
 air  |     |
```

Identify the two parts that make up the scientific name of an organism.

California black oak: Quercus kelloggii

Sequence the seven levels of Linnaeus’s classification system.

```
largest       smallest
```

Summarize two main ideas of the above section.
Organize information by listing the six kingdoms used by scientists.

1. 
2. 
3. 
4. 
5. 
6.

Summarize how systemics classifies organisms.

Define domain. Then complete the graphic organizer to identify the three domains that scientists now use to classify organisms.

domain: 

The Three Domains

Summarize the main ideas of the above sections with three bullet points.

1. 
2. 
3. 
4. 
5. 
6.
Evolution—Evidence of Change

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.

<table>
<thead>
<tr>
<th>Evolution—Evidence of Change</th>
<th>After You Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fossils are the remains of organisms that lived long ago.</td>
<td></td>
</tr>
<tr>
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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 Standards Check at the end of each lesson.
- Look over the Standards Review at the end of the chapter.

SUMMARIZE IT

After studying the chapter, write one summary sentence for each lesson to illustrate the chapter’s main ideas.
The Age of Earth

Before You Read

Before you read the chapter, think about what you know about the topic. List three things that you already know about Earth’s history in the first column. Then list three things that you would like to learn about changes on Earth in the second column.

<table>
<thead>
<tr>
<th>What I know</th>
<th>What I want to find out</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Write two paragraphs explaining what a geologist might have to do to answer the question.

__________________________
__________________________
__________________________
__________________________
__________________________
__________________________

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Grade 7 Science Content Standards—4.a: Students know Earth processes today are similar to those that occurred in the past and slow geologic processes have large cumulative effects over long periods of time. Also covers: 4.b, 4.d, 4.g
The Age of Earth

Lesson 1 Relative Ages of Rocks

Grade 7 Science Content Standards—4.a: Students know Earth processes today are similar to those that occurred in the past and slow geologic processes have large cumulative effects over long periods of time. Also covers: 4.c, 4.d

Predict three topics that will be covered in Lesson 1. Use the section headings to help you.

1. 
2. 
3. 

Define fossil, using your book or a dictionary.

fossil

Write the vocabulary term that matches each definition below.

principle that states that the processes at work today are the same processes that have been at work in Earth’s past

series of processes that make and change rocks

individual sediment grain

changing of sediments into rock

layers of rocks

principle that states that in undisturbed layers of rock, the layers on the bottom were deposited before the layers on top

how old something is when compared with something else

Use your book or a dictionary to define parallel as used in science.

parallel

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
</table>
Identify the key realization of James Hutton. Complete the sentence.

James Hutton realized that one process ____________________ and another process ____________________.

Summarize how scientists use the principle of uniformitarianism. Complete the cause-and-effect diagram.

Scientists observe processes at work on Earth today.

Classify the three major types of rock. Include at least two facts about each type of rock.

Igneous:

__________________:

__________________:

Summarize two main ideas from these sections in your own words.
Lesson 1 Relative Ages of Rocks (continued)

Main Idea

The Rock Cycle

I found this information on page _________.

Details

Sequence the steps that form sedimentary rock.

Physical and chemical weathering break down rocks into sediments.

Outline Steno’s four principles. Complete the outline below.

I. Principle of Superposition
   A. ___________________________________________________________________
   B. ___________________________________________________________________

II. Principle of Original Horizontality
   A. ___________________________________________________________________
   B. ___________________________________________________________________

III. Principle of Original Lateral Continuity
   A. ___________________________________________________________________
   B. ___________________________________________________________________

IV. Principle of Crosscutting Relationships
   A. ___________________________________________________________________
   B. ___________________________________________________________________

Superposition and the Fossil Record

I found this information on page _________.

Summarize two main ideas from these sections.

________________________________________________________________________

________________________________________________________________________
The Age of Earth
Lesson 2 Absolute Ages of Rocks

Skim Lesson 2. Study the illustrations, and read the headings and boldface words. Write three facts you learned.

1. 
2. 
3. 

Define radiation, using your book or a dictionary.

radiation

Use your book or a dictionary to define each term.

isotopes

radioactive decay

half-life

Use your book or a dictionary to define confirm.

confirm

Grade 7 Science Content Standards—4.d: Students know that evidence from geologic layers and radioactive dating indicates Earth is approximately 4.6 billion years old and that life on this planet has existed for more than 3 billion years.
Lesson 2 Absolute Ages of Rocks (continued)

**Main Idea**

**What Is Earth’s Age?**

Distinguish *two ways that scientists tried to measure Earth’s age in the past.*

1. ____________________________

2. ____________________________

**Atoms and Isotopes**

Identify *the number of protons and neutrons in each isotope of carbon. Also note whether each isotope is stable or unstable.*

<table>
<thead>
<tr>
<th>Isotope</th>
<th>Protons</th>
<th>Neutrons</th>
<th>Stable or Unstable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon-14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Details**

Sequence *the steps that occur during radioactive decay.*

A parent isotope is unstable.

Sequence:

1. ____________________________

2. ____________________________

Create *a graph showing how the amount of a parent isotope changes after one, two, three, and four half-lives have passed.*

**Summarize It**

Summarize one main idea from each section above.

__________________________________________

__________________________________________
Summarize information about the suitability of radiometric dating for different types of rock.

Radiometric dating is often used on ____________ rocks because they usually contain only _____________.

It is more difficult to use to date _________________ because the _________________ when rocks melt. It is rarely used to date _________________.

Sequence materials that geologists have dated by using radiometric dating. Complete the table.

- rocks from Greenland
- zircon grains from Canada
- zircon grains from Australia
- meteorites from Antarctica
- moon rocks
- estimated age of Earth

<table>
<thead>
<tr>
<th>Item</th>
<th>Age (billions of years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oldest</td>
<td>4.6</td>
</tr>
<tr>
<td>zircon grains from Australia</td>
<td></td>
</tr>
<tr>
<td>Youngest</td>
<td>3.62–3.65</td>
</tr>
</tbody>
</table>

Summarize two main ideas from the above sections.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
The Age of Earth  Chapter Wrap-Up

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

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>What I know</td>
<td>What I want to find out</td>
<td>What I learned</td>
</tr>
</tbody>
</table>

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- Review the Standards Check at the end of each lesson.
- Look over the Standards Review at the end of the chapter.

Summarize It

After reading the chapter, write one or two sentences for each lesson to summarize the main ideas of the lesson.
The History of Life on Earth

Before You Read

Before you read the chapter, think about what you know about the topic. List some things that you already know about the history of life on Earth in the first column. Then list some things that you would like to learn about the topic in the second column.

<table>
<thead>
<tr>
<th>K</th>
<th>What I know</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>What I want to find out</td>
</tr>
</tbody>
</table>

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

Write a description of the dinosaur that might have left these tracks. What did it look like? Where was it going? What happened to it?

| Science Journal |

Name __________________________________________ Date ____________________
The History of Life on Earth
Lesson 1 Geologic Time and Mass Extinctions

Grade 7 Science Content Standards—4.b: Students know the history of life on Earth has been disrupted by major catastrophic events, such as major volcanic eruptions or the impacts of asteroids. Also covers: 4.e, 4.g

Scan Lesson 1 of the chapter. Write two facts you discovered about geologic time and mass extinctions while scanning the lesson.
1. __________________________________________
2. __________________________________________

Review Vocabulary

Define volcano. Then write a sentence using the term.
volcano

New Vocabulary

Use your book or a dictionary to define the following terms.
index fossil
mass extinction
catastrophic event

Academic Vocabulary

Use a dictionary to find the scientific definition of the term global. Find a sentence in the lesson in which the word is used, and write the sentence below.
global

Sentence: __________________________________________
Identify the criteria used to select a species as an index fossil and explain the reason for each of the criteria.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>hard body parts</td>
<td>preserved easily in rock</td>
</tr>
</tbody>
</table>

Identify units of geologic time in the diagram of the Phanerozoic Eon below. Define what the names of the three eras mean.

Paleozoic era: “ancient life”

Paleogene period

Paleocene epoch

Summarize two main ideas of the above section of this lesson.
Lesson 1  Geologic Time and Mass Extinctions (continued)

**Main Idea**

What are mass extinctions?

_I found this information on page ___________._

**Details**

Summarize how paleontologists identify evidence of a mass extinction.

Possible Causes of Mass Extinction

_I found this information on page ___________._

Organize information about the types of catastrophic events that are capable of causing mass extinctions.

---

**Summarize It**

Summarize the main ideas of the above sections of this lesson with two bullet points.

---
The History of Life on Earth
Lesson 2  Early Earth History

Grade 7 Science Content Standards—4.g: Students know how to explain significant developments and extinctions of plant and animal life on the geologic time scale.

Skim  Section 2. Predict three things that you will learn.
1. 
2. 
3. 

Review Vocabulary

Use extinct in a scientific sentence. Use a dictionary or your book for help.

extinct

New Vocabulary

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

- cyanobacteria
- vertebrate
- amniote

Academic Vocabulary

Use a dictionary to define the term variety.

variety
Life on Earth Changes and Precambrian Time

Analyze why Precambrian rocks are difficult for scientists to study, and complete the diagram below.

Precambrian rocks are difficult to study because

Sequence Precambrian atmospheric changes.

During the Archean Eon, there was very little _____________ and no protective _____________.

Cyanobacteria used ____________ to take in ____________ and release _____________.

The level of ____________ and ____________ increased. The ____________ helped shield organisms from _____________.

The early organisms that could not tolerate _____________.

__________ favored organisms that _____________.

Summarize the main ideas of the above sections.
Lesson 2  Early Earth History (continued)

Main Idea

Life on Earth Changes and Precambrian Time

I found this information on page ______________.

The Paleozoic Era

I found this information on page ______________.

Details

Contrast the 2 theories about what happened to the Edicarian fauna.

What became of the Edicarian fauna?

or

Organize key developments in the evolution of organisms during the Paleozoic Era by labeling the timeline.

Later

Mesozoic era

Permian

occur.

evolve.

and evolve.

Devonian

evolve.

Ordovician

spread onto land.

Cambrian

occur.

Proterozoic eon

Fossils of organisms with appear.

Earlier

Paleozoic era

Summarize It

Summarize the main idea of this section in a single sentence.

__________________________
The History of Life on Earth

Lesson 3 Middle and Recent Earth History

Review Vocabulary

Define angiosperm.

angiosperm

New Vocabulary

Write the correct term on the line to the left of each definition.

plant that produces seeds but no flowers

flying reptile

animal with opposable thumbs

generate internal body heat to maintain a constant body temperature

animals that rely on their surroundings and behavior to help them regulate their body temperatures

Academic Vocabulary

Use the word induce in a scientific sentence.

induce
The Mesozoic Era

I found this information on page ___________.

Summarize the major changes to Earth’s landscape that marked the Mesozoic era.

Organize information about the evolution of organisms during the Mesozoic era by filling in the table.

<table>
<thead>
<tr>
<th>Periods of Mesozoic era</th>
<th>Evolution of Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triassic</td>
<td></td>
</tr>
<tr>
<td>Jurassic</td>
<td></td>
</tr>
<tr>
<td>Cretaceous</td>
<td></td>
</tr>
</tbody>
</table>

SUMMARIZE IT

Underline the main idea in the passage below.

You might think that mammals did not appear until the dinosaurs became extinct, but that is not true. Mammals existed alongside the dinosaurs throughout the Mesozoic. It is thought that most were small, shrewlike animals.
Lesson 3  Middle and Recent Earth History (continued)

**Main Idea**

**The Cenozoic Era**

I found this information on page ___________.

**Details**

**Compare** changes in organisms that occurred during the Cenozoic Era that helped shape the populations living on Earth today.

- Marine life
- Animals on land
- Plants

**Conclude** how extinction events of the Cenozoic era differ from the extinction events of earlier eras.

**Summarize It**

Summarize the main ideas of this lesson with two bullet points.

1. ___________
2. ___________

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Tie It Together

Make a Geologic Time Scale

In a small group, create your own version of the geologic time scale. On your geologic time scale, indicate when important events occurred—including important evolutionary steps that have shaped today’s populations as well as events that have resulted in mass extinctions. You might want to investigate and add present-day extinctions of specific species.
The History of Life on Earth

Chapter Wrap-Up

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

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
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</tr>
</thead>
<tbody>
<tr>
<td>What I know</td>
<td>What I want to find out</td>
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</tr>
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Review

*Use this checklist to help you study.*

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☐ 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 Standards Check at the end of each lesson.

☐ Look over the Standards Review at the end of the chapter.

**Summarize It**

After reading this chapter, write one summary sentence for each lesson to illustrate the chapter’s main ideas.
The Musculoskeletal System and Levers

Before You Read

Before you read the chapter, think about what you know about the topic. List three things that you already know about the musculoskeletal system and levers in the first column. Then list three things that you would like to learn about the topic in the second column.

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What I know</strong></td>
<td><strong>What I want to find out</strong></td>
</tr>
</tbody>
</table>

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

Write a paragraph about the activities you perform that require your muscles and bones to work together.

---

Science Journal

Write a paragraph about the activities you perform that require your muscles and bones to work together.
The Musculoskeletal System and Levers

Lesson 1 The Musculoskeletal System

Scan Lesson 1 of your book. Write three facts you discovered while scanning the lesson.

1. 
2. 
3. 

Define mitochondrion using your book or a dictionary.

Read the definitions below. Then write the correct term on the blank to the left of each definition.

shortening of muscle or muscle fiber
hard tissue made of cells, collagen, and calcium
lengthening of inactive muscle filaments
connection between bones
elastic tissue that reduces friction and increases flexibility
tissue that connects bones to muscles

Use a dictionary to define contract. Write a sentence using the word in its correct context for this lesson.
Identify five functions of the skeletal system.

1. ____________________________

2. ____________________________

3. ____________________________

4. ____________________________

5. ____________________________

Classify the 6 types of joints. Describe and give an example of each.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinge</td>
<td>Bones can move back and forth like the hinge of a door.</td>
<td>fingers</td>
</tr>
</tbody>
</table>

What holds up the walls and the roof of a building and protects it from the outside elements? There are beams, braces, and insulation that you cannot see. These supports are similar to the bones of your skeletal system. The skeletal system supports and protects the body.
Lesson 1  The Musculoskeletal System (continued)

Main Idea

The Muscular System
I found this information on page ____________.

I found this information on page ____________.

Interactions of the Musculoskeletal System
I found this information on page ____________.

Sequence the steps in the process that makes muscles contract.

Classify the types of muscles and muscle tissue. Then write a sentence contrasting voluntary and involuntary muscles.

Label the diagrams as examples of flexion or extension. Then describe how muscles in the arm work in opposition.

When you bend your arm, the ______________ contracts and the ______________ relaxes. When you straighten your arm, the ______________ relaxes and the ______________ contracts.

Summarize two main ideas of the above section.
Skim Lesson 2, and predict three topics that you will study in this lesson.

1. 

2. 

3. 

Define work as it is used in science. Use a dictionary or your book for help.

Work

Write the correct term on the blank to the left of each definition.

fixed point that a lever pivots around

ability of a machine to increase the amount of force put into the machine

lever in which the resistance force is between the fulcrum and the effort force

simple machine made of anything rigid that pivots around a fixed point

lever in which the effort force is between the fulcrum and the resistance force

lever in which the resistance force and the effort force are on opposite sides of the fulcrum

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

The noble gases are stable elements.

Stable
Lesson 2 The Body and Levers (continued)

Main Idea

What is a lever?
I found this information on page ____________.

The Three Classes of Levers
I found this information on page ____________.

I found this information on page ____________.

Details

Identify the 3 ways that levers can make work easier.

A lever allows you to complete a task

Contrast the following terms by defining them side by side.

<table>
<thead>
<tr>
<th>Force:</th>
<th>Effort force:</th>
<th>Resistance force:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Distinguish between the effects of distance from a lever’s fulcrum on effort force and resistance force by writing “more” or “less.”

Distance from Fulcrum

Closer  Farther

<table>
<thead>
<tr>
<th>Effort force required</th>
<th>Resistance force applied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Identify the lever function of each part of the musculoskeletal system.

<table>
<thead>
<tr>
<th>Part of body</th>
<th>Functions as</th>
</tr>
</thead>
<tbody>
<tr>
<td>bone</td>
<td>lever</td>
</tr>
<tr>
<td>joint</td>
<td></td>
</tr>
<tr>
<td>muscle</td>
<td></td>
</tr>
</tbody>
</table>

Summarize IT

Summarize the main ideas of the above sections.

Name ____________________  Date ________________

The Musculoskeletal System and Levers
Main Idea

The Three Classes of Levers

I found this information on page _______.

Why use levers?

I found this information on page _______.

Details

Label the fulcrum, resistance force, and effort force on each of the diagrams below. Then identify and sketch an example of each found in the body. Label the forces and fulcrum in each of your sketches.

<table>
<thead>
<tr>
<th>Class of Lever</th>
<th>Example Found in Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-class</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="null" alt="First-class Lever" /></td>
</tr>
<tr>
<td></td>
<td>fulcrum</td>
</tr>
<tr>
<td>Second-class</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="null" alt="Second-class Lever" /></td>
</tr>
<tr>
<td>Third-class</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="null" alt="Third-class Lever" /></td>
</tr>
</tbody>
</table>

Complete the equation used to measure mechanical advantage.

Mechanical advantage (MA) = ________________

Summarize two main ideas of the above sections.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
The Musculoskeletal System and Levers Chapter Wrap-Up

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

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>What I know</td>
<td>What I want to find out</td>
<td>What I learned</td>
</tr>
</tbody>
</table>

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 Standards Check at the end of each lesson.
- Look over the Standards Review at the end of the chapter.

SUMMARIZE IT

After reading this chapter, write one or two summary sentences for each lesson to illustrate the chapter’s main ideas.
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.

<table>
<thead>
<tr>
<th>Before You Read</th>
<th>The Cardiopulmonary System and Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• The rate and intensity of breathing changes with physical activity.</td>
</tr>
<tr>
<td></td>
<td>• Gases such as carbon monoxide can cause suffocation.</td>
</tr>
<tr>
<td></td>
<td>• Air moves from areas of low pressure to areas of high pressure.</td>
</tr>
<tr>
<td></td>
<td>• Blood pressure that is too low can be life-threatening.</td>
</tr>
</tbody>
</table>

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

Write a paragraph that explains how you think blood flows through your body.

The Cardiopulmonary System and Pressure 95
The Cardiopulmonary System and Pressure
Lesson 1 The Pulmonary-Circulatory System

Grade 7 Science Content Standards—5.b. Students know organ systems function because of the contributions of individual organs, tissues, and cells. The failure of any part can affect the entire system.

Scan Lesson 1 of your book. Write two facts you discovered.
1. ____________________________________________________
2. ____________________________________________________

Define respiration using your book or a dictionary.
respiration ____________________________________________________
______________________________________________________________

Match the correct vocabulary term with each definition.
organ in which the exchange of oxygen and carbon dioxide takes place
infection of the lungs
condition that occurs when the lungs and body do not receive enough oxygen
lower chamber of the heart that pumps blood out of the heart
vessel that carries blood away from the heart
vessel that carries blood toward the heart
condition that occurs if the coronary arteries cannot supply enough blood to the heart
death of brain tissue

Use your book or a dictionary to define concentration.
concentration ____________________________________________________
______________________________________________________________
Lesson 1 The Pulmonary-Circulatory System (continued)

**Main Idea**

The Pulmonary System

I found this information on page __________.

Sequence *the pathway of air through the pulmonary system.*

Air enters through your nose or mouth.

---

Organize *information about pulmonary problems in the chart.*

<table>
<thead>
<tr>
<th>Problem</th>
<th>Description</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suffocation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

The Circulatory System

I found this information on page __________.

Distinguish *between four main components of blood.*

---

**Summarize It**

Summarize the main ideas of the above sections in your own words.

---

*The Cardiopulmonary System and Pressure 97*
Lesson 1 The Pulmonary-Circulatory System (continued)

**Main Idea**

**The Circulatory System**

I found this information on page __________.

**Details**

Create a diagram showing how blood moves through the circulatory system. Include the heart, arteries, veins, and capillaries in your diagram.

---

Exchanges Between the Pulmonary and Circulatory Systems

I found this information on page __________.

---

Preventing Problems in the Pulmonary and Circulatory Systems

I found this information on page __________.

---

**Summarize It**

Write three–five sentences to summarize the main ideas of these sections.

---

Summarize how the pulmonary and circulatory systems work together to perform gas exchange.

1. __________
2. __________
3. __________

Identify three behaviors that can help reduce the risk of stroke and heart attack.

1. __________
2. __________
3. __________
The Cardiopulmonary System and Pressure
Lesson 2 Pressure and the Body

Grade 7 Science Content Standards—6.j. Students know that contractions of the heart generate blood pressure and that heart valves prevent backflow of blood in the circulatory system. Also covers: 5.b

<table>
<thead>
<tr>
<th>Predict three topics that will be discussed in Lesson 2 by scanning the headings.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Define atmosphere using your book or a dictionary.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>atmosphere</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use your book or a dictionary to define the following terms. Then write a scientific sentence using each term.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pressure</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>hypertension</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>shock</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use a dictionary to define the term period as it is used in the following sentence.</th>
</tr>
</thead>
<tbody>
<tr>
<td>She was able to finish her chores in a short period of time.</td>
</tr>
<tr>
<td><strong>period</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Lesson 2  Pressure and the Body (continued)

**Main Idea**

**What is pressure?**

* I found this information on page __________.

**Details**

**Model** how pressure changes as force and area change. *Draw arrows to show how pressure changes.*

<table>
<thead>
<tr>
<th>less force</th>
<th>more force</th>
</tr>
</thead>
<tbody>
<tr>
<td>less pressure</td>
<td>more pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>less area</th>
<th>more area</th>
</tr>
</thead>
<tbody>
<tr>
<td>more pressure</td>
<td>less pressure</td>
</tr>
</tbody>
</table>

**Pressure in the Pulmonary System**

* I found this information on page __________.

**Sequence** the events involved in inhalation.

The diaphragm and rib muscles contract at the same time.

Choose one main idea from each section above and rephrase it in your own words.

---

100  *The Cardiopulmonary System and Pressure*
Model how blood travels through the circulatory system.

Right atrium receives blood. Left ventricle ________, ________ valve ________, and ________ valve ________. Blood is pumped to the body.

Right ventricle ________ and ________ valve ________, allowing blood to enter.

Right ventricle ________ and ________ valve ________, pumping out blood.

Blood is pumped through ________ to the ________. The ________ valve ________.

Gas exchange occurs in the ________. Blood returns to heart.

Summarize one of the main ideas of the above sections.
The Cardiopulmonary System and Pressure 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.

<table>
<thead>
<tr>
<th>The Cardiopulmonary System and Pressure</th>
<th>After You Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>The rate and intensity of breathing changes with physical activity.</td>
<td></td>
</tr>
<tr>
<td>Gases such as carbon monoxide can cause suffocation.</td>
<td></td>
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<td>Air moves from areas of low pressure to areas of high pressure.</td>
<td></td>
</tr>
<tr>
<td>Blood pressure that is too low can be life-threatening.</td>
<td></td>
</tr>
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</table>

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☐ Review the Standards Check at the end of each lesson.
☐ Look over the Standards Review at the end of the chapter.

Summarize It

After reading this chapter, write 3 sentences summarizing main ideas from this chapter.

__________________________

__________________________

__________________________
The Eye and Light

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.

<table>
<thead>
<tr>
<th>Before You Read</th>
<th>The Eye and Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Light is a form of energy that travels in waves.</td>
<td></td>
</tr>
<tr>
<td>• Transparent materials reflect most of the light that hits them.</td>
<td></td>
</tr>
<tr>
<td>• All telescopes use mirrors.</td>
<td></td>
</tr>
<tr>
<td>• Light enters the eye through the retina.</td>
<td></td>
</tr>
</tbody>
</table>

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

List five things that emit light.
The Eye and Light
Lesson 1  What is light?

Grade 7 Science Content Standards—6.a: Students know visible light is a small band within a very broad electromagnetic spectrum. Also covers: 6.e

**Skim** Lesson 1 of your book. Write three questions that come to mind. Look for answers to your questions as you read the lesson.

1. 
2. 
3. 

**Review Vocabulary**

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

emit

**New Vocabulary**

**Define** each vocabulary term, using your book or a dictionary.

- wavelength
- frequency
- medium
- electromagnetic spectrum

**Academic Vocabulary**

**Define** range using a dictionary. Then use it in a sentence to show its scientific meaning.

range
Lesson 1 What is light? (continued)

**Main Idea**

Light Transfers Energy

I found this information on page ________.

**Details**

Label the parts of the wave.

crest  trough  wavelength  amplitude

Create drawings of two waves to show how frequency affects wavelength. Draw one wave that has twice the frequency of the other.

Wave 1

Wave 2

**Summarize It**

Summarize two main ideas of the above sections with bullet points.

____________________________________

____________________________________

____________________________________

____________________________________

The Eye and Light 105
Lesson 1 What is light? (continued)

**Main Idea**

I found this information on page __________.

**Details**

**Compare and contrast** light waves with water waves.

Sequence **the waves that make up the electromagnetic spectrum. Complete the diagram.**

- Increasing Wavelength
  - gamma rays
  - visible light
  - [ ]
  - [ ]

- Increasing Frequency

**The Electromagnetic Spectrum**

I found this information on page __________.

**Summarize It**

Summarize two main ideas from the above sections.
Scan the headings in Lesson 2 of your book. Identify four topics that will be discussed.

1. 
2. 
3. 
4. 

Define energy, using your book or a dictionary.

energy

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

process in which a material absorbs light and reemits it in different directions

states that the angle of incidence equals the angle of reflection

process in which light rays are transferred through a material in a series of absorptions and reemissions

bending of light rays

process of converting light energy into thermal energy when light rays strike an atom

Use a dictionary to define primary to reflect its scientific meaning.

primary
Lesson 2 Light and Matter (continued)

Main Idea

The Interaction of Light and Matter

Model the absorption, transmission, and scattering of light by an object. Use arrows to show light rays.

Absorption  Transmission  Scattering

Distinguish how light interacts with opaque, transparent, and translucent materials.

Refraction

Create a drawing to show refraction of light rays as they pass between two different media, such as air and water. Show the light rays as arrows.

Summarize three main ideas of the above sections.
Lesson 2 Light and Matter (continued)

Main Idea

**Refraction**

I found this information on page ___________.

**Reflection**

I found this information on page ___________.

Details

**Sequence** what happens as white light passes through a prism.

- White light is made up of ________________
- The prism ________________ each ________________ by a different amount.

**Create** a drawing to illustrate the law of reflection.

- Label the angle of incidence, angle of reflection, and normal.
- Use solid arrows to show striking light rays and dashed arrows to show reflected light rays.

**Analyze** the relationship between reflection, absorption, and color.


Summarize three main ideas of the above sections.

- ________________________________
- ________________________________
- ________________________________
Grade 7 Science Content Standards—6.d: Students know how simple lenses are used in a magnifying glass, the eye, a camera, a telescope, and a microscope.

Scan Lesson 3 of your book. Read the headings and bold words and look at the pictures. Write three things that you learned about lenses.

1. 
2. 
3. 

Define optical using your book or a dictionary.

optical

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

lens

convex lens

focal point

focal length

Use a dictionary to define expose. Then use the term in a sentence.

expose
Lesson 3 Using Lenses (continued)

Main Idea

What is a convex lens?
I found this information on page __________.

Details

Create a drawing to show the refraction of light passing through a convex lens. Show and label the focal point, and focal length.

Summarize how distance affects the appearance of an image formed by a convex lens. Draw each situation.

<table>
<thead>
<tr>
<th>Object less than 1 focal length from lens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object between 1 and 2 focal lengths from lens</td>
</tr>
<tr>
<td>Object more than 2 focal lengths from lens</td>
</tr>
</tbody>
</table>

Summarize It

Rephrase the main ideas of the above sections in your own words.

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

The Eye and Light 111
Lesson 3 Using Lenses (continued)

Main Idea

**Optical Instruments**

I found this information on page ________.

**I found this information on page ________**.

**I found this information on page ________**.

**Sequence the steps that occur in a microscope to enlarge an image.**

The objective lens _______

Details

**Analyze the role of the lenses and diaphragm in a camera.**

**Compare and contrast refracting telescopes and reflecting telescopes. Complete the Venn diagram with the terms below.**

- has objective lens
- has primary mirror
- collects light
- eyepiece lens enlarges image
- allows faint objects to be seen
- used in most large telescopes

**Refracting Telescope**

<table>
<thead>
<tr>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reflecting Telescope</strong></td>
</tr>
</tbody>
</table>

**Summarize the main ideas of the above sections.**

______

______

______
The Eye and Light
Lesson 4 The Eye and Vision

Grade 7 Science Content Standards—5.g: Students know how to relate the structures of the eye and ear to their functions. Also covers: 6.b, 6.d, 6.e

Skim Lesson 4 of your book. Write three questions that come to mind. Look for answers to your questions as you read the lesson.

1. 
2. 
3. 

Define organ as it is used in science, using your book or a dictionary.
organ 

Define each vocabulary term using your book or a dictionary.
cornea 

pupil

iris

retina 

pigment

Define flexible as it is used in this lesson using your book or a dictionary.
flexible
Lesson 4 The Eye and Vision (continued)

**Main Idea**

**How the Eye Forms an Image**

I found this information on page _________.

**Details**

Model the path light takes through the human eye. Draw the eye and the path followed by the light. Label the cornea, pupil, iris, lens, and retina. Show where an image is formed.

Identify the function of each part of the eye.

<table>
<thead>
<tr>
<th>Part</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornea</td>
<td></td>
</tr>
<tr>
<td>Lens</td>
<td></td>
</tr>
<tr>
<td>Retina</td>
<td></td>
</tr>
</tbody>
</table>

Analyze the role of rod cells and why you cannot see color well at night.

---

**SUMMARIZE IT**

Summarize the main ideas of the above sections.

---

The Eye and Light
Main Idea

Seeing Color
I found this information on page ___________.

Distinguish three types of cone cells. Identify which color of light each type is most sensitive to.

Types of Cone Cells

Summarize what happens when light hits pigment. Then name the 3 primary colors of pigment.

Analyze color deficiency and its causes.

Contrast nearsightedness and farsightedness. Complete the table.

<table>
<thead>
<tr>
<th></th>
<th>Nearsightedness</th>
<th>Farsightedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of image</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected by</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Common Vision Problems
I found this information on page ___________.

I found this information on page ___________.

I found this information on page ___________.

Summarize it
Rephrase the main ideas of the above sections.

Name ________________________________ Date ________________
The Eye and Light  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.

<table>
<thead>
<tr>
<th>The Eye and Light</th>
<th>After You Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Light is a form of energy that travels in waves.</td>
<td></td>
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<tr>
<td>• Transparent materials reflect most of the light that hits them.</td>
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<tr>
<td>• All telescopes use mirrors.</td>
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<tr>
<td>• Light enters the eye through the retina.</td>
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</tr>
</tbody>
</table>

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☐ Review the Standards Check at the end of each lesson.
☐ Look over the Standards Review at the end of the chapter.

SUMMARIZE IT

After studying the chapter, write one summary sentence for each lesson to explain the chapter’s main ideas.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

116  The Eye and Light
The Ear and Sound

Before You Read

*Before you read the chapter, think about what you know about the topic. List three things that you already know about the ear and sound in the first column. Then list three things that you would like to learn about the topics in the second column.*

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What I know</strong></td>
<td><strong>What I want to find out</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**Science Journal**

*List three questions you have about sound and how you perceive it.*

__________________________________________

__________________________________________

__________________________________________

__________________________________________

__________________________________________
The Ear and Sound
Lesson 1 Sound

Grade 7 Science Content Standards—5.g: Students know how to relate the structures of the eye and ear to their functions.

Scan Lesson 1 of your book. Write two facts that you discovered about sound while scanning the lesson.

1. ______________________________________________________
2. ______________________________________________________

Review Vocabulary

Define wavelength using your book or a dictionary.

wavelength
____________________________________________________

New Vocabulary

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

compression wave
____________________________________________________

amplitude
____________________________________________________

decibel scale
____________________________________________________

pitch
____________________________________________________

Academic Vocabulary

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

complex

Sentence: ________________________________________________

The Ear and Sound
Lesson 1 Sound (continued)

Main Idea

What is sound?
I found this information on page ___________.

Sequence the steps that produce sound when you speak.

Vocal cords vibrate.

Summarize the relationship between wavelength and frequency.

Model a compression wave by sketching it. Use the terms compression and rarefaction to label your drawing.

How loud is it?
I found this information on page ___________.

Contrast amplitude and loudness.

Summarize three main ideas of the above sections.

Summarize it
Main Idea

How loud is it?
I found this information on page _________.

Label the decibel scale with the items below. Place each item on the scale to show its loudness.

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>car horn</td>
</tr>
<tr>
<td>lawn mower</td>
</tr>
</tbody>
</table>

details

40 dB 60 dB 80 dB 100 dB

Analyse how pitch relates to frequency.

Complete the table to show the range of frequencies that animals can hear. Place checkmarks in the last two columns if the animal can hear frequencies higher or lower than those humans can hear.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Frequency Range (Hz)</th>
<th>Higher than Humans</th>
<th>Lower than Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Mouse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beluga whale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elephant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porpoise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree frog</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summarize It

Rephrase two main ideas of the above sections in your own words.

__________________________

__________________________

__________________________

The Ear and Sound
The Ear and Sound
Lesson 2 The Ear

Skim Lesson 2 and predict three topics that you will study in this lesson.
1. ________________________________
2. ________________________________
3. ________________________________

Define cartilage, using your book or a dictionary.

Write the correct term on the blank to the left of each definition.

__________________________________ tiny bone in the middle ear, commonly called the hammer
__________________________________ folds of cartilage and skin that adjust sound waves that enter the ear
__________________________________ snail-shaped structure in the inner ear, lined with sensory cells
__________________________________ part of the ear that collects sound waves
__________________________________ tiny bone in the middle ear, commonly called the anvil
__________________________________ reflected sound wave
__________________________________ tiny bone in the middle ear, commonly called the stirrup
__________________________________ first part of the middle ear, commonly called the eardrum

Use your book or a dictionary to define external.

__________________________________
Lesson 2  The Ear (continued)

Main Idea

**Structures of the Ear**

I found this information on page __________.

**Details**

**Model** the structures of the ear. Draw the ear and label its parts.

- outer ear
- middle ear
- inner ear
- external ear
- auditory canal
- tympanic membrane
- malleus
- incus
- stapes
- oval window
- cochlea
- eustachian tube

Sequence the path of sound through the ear.

The external ear and auditory canal collect sound waves and pass them to the middle ear.

Summarize It

Write a sentence to summarize the above section.

---

The Ear and Sound
Lesson 2 The Ear (continued)

**Main Idea**

**Sensing Sound**
I found this information on page __________.

**Details**
Summarize how the sensory cells in the cochlea function.

**Hearing Damage**
I found this information on page __________.

Contrast conductive and sensorineural hearing damage.

<table>
<thead>
<tr>
<th>Type of Hearing Loss</th>
<th>Causes</th>
<th>Structures Affected</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensorineural</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hearing in Other Mammals**
I found this information on page __________.

Organize information about specialized ways that mammals hear by creating an outline or a graphic organizer.

**Summarize It**
Summarize the main ideas of the above sections of this lesson.
The Ear and Sound Chapter Wrap-Up

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

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>What I know</td>
<td>What I want to find out</td>
<td>What I learned</td>
</tr>
</tbody>
</table>

After reading this chapter, write one summary sentence for each lesson to illustrate the chapter’s main ideas.

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 Standards Check at the end of each lesson.
☐ Look over the Standards Review at the end of the chapter.

Summarize It

After reading this chapter, write one summary sentence for each lesson to illustrate the chapter’s main ideas.
The Human Reproductive System

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.

<table>
<thead>
<tr>
<th>Before You Read</th>
<th>The Human Reproductive System</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A male begins to produce sperm when he reaches puberty.</td>
<td></td>
</tr>
<tr>
<td>• A female begins producing eggs before she is born.</td>
<td></td>
</tr>
<tr>
<td>• A fetus does not receive nutrients from its mother during development.</td>
<td></td>
</tr>
<tr>
<td>• Using illegal drugs or alcohol during pregnancy can harm the fetus.</td>
<td></td>
</tr>
</tbody>
</table>

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

Science Journal

Imagine that you are a sperm cell entering an egg cell. Describe your journey to the egg cell’s nucleus.

| Imagine that you are a sperm cell entering an egg cell. Describe your journey to the egg cell’s nucleus. |
|---------------------------------------------------------------
|                                                               |
|                                                               |
|                                                               |
|                                                               |
|                                                               |
|                                                               |
|                                                               |
|                                                               |
|                                                               |
|                                                               |
The Human Reproductive System
Lesson 1 Human Reproductive Systems

Scan the headings in Lesson 1 of your book. Identify two topics that will be discussed.

1. ________________________________________________________________
2. ________________________________________________________________

New Vocabulary

- scrotum
- seminiferous tubule
- epididymis
- penis
- urethra
- vagina
- uterus
- fallopian tube
- follicle
- ovulation
- menstrual cycle

Write short paragraphs about the male and female reproductive systems. Use as many vocabulary words as you can.

- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________
- ________________________________________________________________

Academic Vocabulary

- cycle

Use your book or a dictionary to define cycle.

- ________________________________________________________________
Lesson 1 Human Reproductive Systems (continued)

Main Idea

Male Reproductive System

I found this information on page _________.

Details

Sequence events that occur in the male reproductive system. Describe what happens at each stage and where it happens.

What happens: sperm production

Where it happens: ____________________________

What happens: ____________________________

Where it happens: epididymis

What happens: ____________________________

Where it happens: ____________________________

Model the parts of sperm. Draw and label a diagram showing the head, midpiece, and tail.

Identify the 2 glands that produce components of semen and the liquids they produce.

Glands: ____________________________

Liquid: ____________________________

Summarize the main ideas of the above sections.
Lesson 1 Human Reproductive Systems (continued)

Main Idea

Female Reproductive System

Outline information about the female reproductive system.

I. Vagina
   A. 
   B. 

II. Uterus
   A. 
   B. 

III. Ovaries
   A. 
   B. 

IV. Fallopian tubes
   A. 
   B. 

Summarize what happens to the endometrium after ovulation.

| if egg is fertilized: | if egg is not fertilized: |

Fertilization

Identify where and how fertilization occurs.

Where: 

How: 

Summarize three main ideas from above.
The Human Reproductive System
Lesson 2 Development Before Birth

Grade 7 Science Content Standards—5.e: Students know the function of the umbilicus and placenta during pregnancy.

**Skim** Lesson 2 of this chapter. Write three questions that come to mind. Look for answers to your questions as you read the lesson.

1. __________________________________________________________________________
2. __________________________________________________________________________
3. __________________________________________________________________________

**Review Vocabulary**

Define embryo using your book or a dictionary.

**New Vocabulary**

Write the correct vocabulary term next to its definition.

________________________________________________________

embryo during the second and third trimesters of pregnancy

________________________________________________________

health care designed to protect the health of a pregnant woman and prevent problems in the developing fetus

________________________________________________________

organ that exchanges materials between a pregnant woman and a fetus

________________________________________________________

structure that carries substances to and from the body of a fetus

________________________________________________________

one of the three periods into which the nine months of pregnancy are divided

________________________________________________________

development of a baby within a female’s uterus

**Academic Vocabulary**

Use a dictionary to define supplement.

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________
Lesson 2 Development Before Birth (continued)

**Main Idea**

**Fetal Development**

*I found this information on page __________.*

**Details**

*Organize information about fetal development. Complete the graphic organizer to summarize what occurs during each trimester.*

<table>
<thead>
<tr>
<th>First Trimester</th>
<th>Second Trimester</th>
<th>Third Trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*I found this information on page __________.*

*Analyze the role of the placenta and umbilical cord during pregnancy.*

I found this information on page __________.

**SUMMARIZE IT**

Summarize the main ideas of the above sections of this lesson with two bullet points.

I found this information on page __________.

---

130 The Human Reproductive System
**Main Idea**

**Fetal Health**

I found this information on page _________.

**Details**

Organize information about factors that affect fetal health.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Importance</th>
<th>How to Help Keep Fetus Healthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal care</td>
<td></td>
<td>receive care from a certified health-care provider during pregnancy</td>
</tr>
<tr>
<td>Nutrition</td>
<td>A fetus needs vitamins, minerals, proteins, carbohydrates, and fats to be able to develop.</td>
<td></td>
</tr>
<tr>
<td>Environmental factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viruses</td>
<td></td>
<td>see physician early, get good medical care</td>
</tr>
<tr>
<td>Drugs and alcohol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summarize It**

Summarize the main idea of the above section.

________________________________________

________________________________________

________________________________________

________________________________________
The Human Reproductive System

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.

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<tr>
<th>The Human Reproductive System</th>
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</tr>
</thead>
<tbody>
<tr>
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SUMMARIZE IT

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