Learning Packet
Practicing together while we're at home

MARCH - APRIL 2020
6th Grade
## Elementary Grade 6
### Calendar of Work Activities

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELA</strong></td>
<td><strong>Day 1</strong></td>
<td><strong>Day 2</strong></td>
<td><strong>Day 3</strong></td>
<td><strong>Day 4</strong></td>
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<tr>
<td>Daily Reading</td>
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<td>Reading Response</td>
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<td>Writing Process Project</td>
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<td>Reteach 1-3</td>
<td>Reteach 1-4</td>
<td>Reteach 1-5</td>
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<tr>
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<td>Vocabulary 1-4</td>
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<td>Big Science pg120-122</td>
<td>Big Science pg 123-125</td>
<td>Big Science pg125-126</td>
<td>Big Science pg127-129</td>
<td>Big Science pg130-134</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Day 6</th>
<th>Day 7</th>
<th>Day 8</th>
<th>Day 9</th>
<th>Day 10</th>
</tr>
</thead>
<tbody>
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<td><strong>Day 7</strong></td>
<td><strong>Day 8</strong></td>
<td><strong>Day 9</strong></td>
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<td>Reteach 1-6</td>
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<td>Reteach 2-1</td>
<td>Reteach 2-2</td>
<td>Reteach 1-3</td>
</tr>
<tr>
<td>Vocabulary 1-6</td>
<td>Vocabulary 1-7</td>
<td>Vocabulary 2-1</td>
<td>Vocabulary 2-2</td>
<td>Reteach 1-4</td>
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<tr>
<td>Big Science pg178-181</td>
<td>Big Science pg181-185</td>
<td>Big Science pg181-185</td>
<td>Big Science pg186-190</td>
<td>Big Science pg186-190</td>
</tr>
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**Parent Initial:**

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# Day One

## English-Language Arts

- Daily Reading: *The Birmingham Children's Crusade*
- Reading Response: Sequence Events
- Book Project Menu
  - Select a short story or a book that you recently read and complete one activity from the menu to work on throughout the week.
  - [https://teachingelawithjoy.com/10-favorite-short-stories-for-middle-school-found-online/](https://teachingelawithjoy.com/10-favorite-short-stories-for-middle-school-found-online/)

## Math

- Complete Reteach 1-1
- Complete Vocabulary 1-1

## Science

- Structures and Functions of Organisms  pg120-122
Optional Additional Learning Activity

**Directions:** Supervise your child as s/he completes an activity and marks off the box. You must also initial the box each time your child finishes a task. Have fun!

<table>
<thead>
<tr>
<th>B</th>
<th>I</th>
<th>N</th>
<th>G</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Read a non-fiction text</strong></td>
<td><strong>Read 3 picture books</strong></td>
<td><strong>Read in a tent or fort</strong></td>
<td><strong>Find three state capitals on a map</strong></td>
<td><strong>Read 15 road signs to an adult</strong></td>
</tr>
<tr>
<td><strong>Read an article on Newsela.com</strong></td>
<td><strong>Read for 60 minutes</strong></td>
<td><strong>Read something published in 2013</strong></td>
<td><strong>Read 10 short stories</strong></td>
<td><strong>Write a letter to a friend</strong></td>
</tr>
<tr>
<td><strong>Make something from a recipe</strong></td>
<td><strong>Read a book or article about your hobby</strong></td>
<td><strong>Find Europe on a map</strong></td>
<td><strong>Read two comics from a newspaper</strong></td>
<td><strong>Read a book by your favorite author</strong></td>
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<tr>
<td><strong>Read about someone famous</strong></td>
<td><strong>Read outside for an hour</strong></td>
<td><strong>Read a book with a one word title</strong></td>
<td><strong>Read a Newberry Award winning book</strong></td>
<td><strong>Visit the Library</strong></td>
</tr>
<tr>
<td><strong>Draw a picture of a scene from a chapter book you read</strong></td>
<td><strong>Read a non-fiction book</strong></td>
<td><strong>Find space</strong></td>
<td><strong>Read a book with more than 250 pages</strong></td>
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</tbody>
</table>
The Birmingham Children's Crusade

A Reading A–Z Level Z Leveled Book
Word Count: 1,750

Connections

Writing
Why did organizers have students take the leading role in The Birmingham Children's Crusade? Write an essay exploring how the outcome may have been different if adults had been the ones leading the protests.

Social Studies
Research Martin Luther King Jr.'s "Letter from Birmingham Jail." Read and discuss as a class the important points Dr. King made in his letter.

Written by Sean McCollum

www.readinga-z.com
A Next Generation for Civil Rights

The civil rights movement marched ahead, riding the momentum of the Children’s March. In hindsight, the events in Birmingham proved to be an important turning point.

A month after the protests, President Kennedy made a television address to the nation. In it, he mentioned Birmingham in challenging the country to end segregation once and for all. He promised new federal civil rights laws to protect African Americans. Many black people were moved to tears bearing the president of the United States finally supporting their cause.

Many goals of the civil rights movement became law in the years that followed. The next year, the United States Congress passed the Civil Rights Act of 1964. It outlawed segregation and discrimination based on race, color, religion, gender, or national origin. In 1965, the Voting Rights Act struck down state policies that blocked African Americans from voting.

Racial prejudice and discrimination did not end with these new actions. However, the movement’s fight for fair and equal treatment had opened new opportunities for African Americans and begun a new chapter in the history of the United States.
On May 8, 1963, Dr. King and other leaders agreed to suspend the protests while the two sides negotiated. The talks were tense. On May 10, a cautious agreement was reached. The city agreed to desegregate public restrooms and drinking fountains within ninety days. Downtown businesses promised to desegregate lunch counters and clothing changing rooms. Arrangements were made for the release of the young protesters still in jail. Job discrimination and other issues would be discussed at future meetings.

The campaign had succeeded in desegregating one of the most segregated cities in the nation, inspired by a new generation of young activists.

Table of Contents

An Important Day in Birmingham ........................................ 4
The Movement .................................................................... 5
Youth Take the Lead ................................................................ 8
Facing “Bull” Connor ................................................................. 11
The Power of Pressure ............................................................... 13
A Next Generation for Civil Rights ............................................ 15
Glossary ............................................................................... 16

The Birmingham Children’s Crusade • Level 2
A growing number of African Americans, though, were no longer willing to accept how badly they were treated. Many had served proudly in the U.S. military. They worked and paid taxes. Each school morning, black students stood and recited the Pledge of Allegiance. For generations, African Americans had seen their calls for equal rights rejected. In the 1950s, their organizing had taken on a new urgency. The civil rights movement gained support, momentum, and media attention.

Dr. Martin Luther King Jr. emerged as the best-known leader of the movement. Dr. King, a Baptist minister, served as head of the Southern Christian Leadership Conference (SCLC). He and others developed a strategy of nonviolent direct action. This strategy involved organizing large demonstrations to challenge unjust laws. The goal was to disrupt segregated communities and overwhelm police with mass arrests. Protectors were trained to stay peaceful no matter what, even when attacked. The belief was that as more Americans saw the cruelty and injustice African Americans endured, more of them would support the cause.

Facing "Bull" Connor

Eugene "Bull" Connor had been elected Birmingham's commissioner of public safety seven times. He was an extreme segregationist with a strong mean streak. He was also in charge of the police and fire departments. Police officers and firefighters were on the front lines, instructed to block the young black protesters from marching the several blocks to downtown, where they intended to go.

By 3:00 p.m. on May 2, more than six hundred young people had been locked up. Behind bars, the marchers prayed and sang to keep up their spirits. The Children's March was having the desired effect, and the nation's attention was drawn to the drama.

The next day, Friday, May 3, black students again skipped school to try to march downtown. Connor was ready to use force to stop them. Reporters and cameramen were waiting to witness what came next.

The Birmingham Children's Crusade • Level 2
African American students began spreading the word about something called "D-Day"—short for "Demonstration Day" or "Ditch Day." DJs at the local black radio station dropped hints on the air. The event, whatever it might be, was scheduled for 11:00 a.m. on May 2, 1963. Black children and teens, from grade schoolers to college students, were advised to bring their toothbrushes. The suggestion was clear: They might not be sleeping in their own beds that night.

The day and hour came. Outside one Birmingham high school, some youth held up a sign that read "It's Time." Within minutes, hundreds of young people were headed to the exits, some climbing out classroom windows.

The young people gathered at the 16th Street Baptist Church. Then, they marched into history.

The Letter From Birmingham Jail
On April 12, 1963, Birmingham police arrested Dr. Martin Luther King Jr. for "parading without a permit." He was jailed for eight days. While locked up, he wrote a letter responding to a group of Birmingham's white clergy. They had urged him to be more patient and less disruptive. In his response, Dr. King stated that centuries of patience had won black people nothing. He urged white religious leaders to stop making excuses for discrimination and to support the cause of civil rights for African Americans. His "Letter from Birmingham Jail" remains one of the most powerful arguments for racial justice ever written.

By 1963, though, the civil rights movement had lost some of its momentum. Fewer protesters were showing up at demonstrations. Newspapers and TV networks were less likely to send reporters and cameras to cover protests. White officials were learning to dial down violent attacks on protesters to avoid bad news coverage.

SCLC leaders believed the movement needed a high-profile success. They decided to organize a new campaign of protests. They set their sights on what many considered the most segregated city in the United States—Birmingham, Alabama.

Sundown Towns
The history of segregation and the civil rights movement often focuses on the South. In northern and western states, though, African Americans and other minority groups also faced widespread discrimination. For example, unofficial "sundown laws" set curfews for nonwhites within city limits. Not only could they not live in these places, but they also faced dangerous consequences if they were caught there after dark. Thousands of "sundown towns" existed across the country, from Durian, Connecticut, to La Crosse, Wisconsin, to Glendale, California.
Instructions: Number the events of the Birmingham Children's Crusade in the correct order.

☐ The Voting Rights Act was passed.

☐ On May 2, 1963, more than a thousand black children marched in a nonviolent protest.

☐ More than six hundred black students were locked up in jail.

☐ An agreement between President Kennedy and other leaders was reached.

☐ The Civil Rights Act was passed.

☐ On the second day of the protest, more African American students protested in the streets of Birmingham.

☐ Two thousand more young people were arrested.

☐ African American students began spreading the word about "Demonstration Day."

☐ President John F. Kennedy urged the Children's Crusade to call a truce.

☐ Fred Shuttlesworth invited Dr. King to Birmingham.
# Book Project Menu

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Game Time!</th>
<th>Lights, Camera, Action!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a newspaper for your book. Summarize the plot in one article. Cover the &quot;weather&quot; of the book in another article, and do a feature story on one of the more interesting characters in another. Also include a comic strip of a main scene in the book. Include a collection of advertisements that would relate to the story.</td>
<td>Make a game for your book. It can be a card game, board game, or other game of your choice. Be sure to incorporate the characters and their traits into the game. You should also use the problems from the story as part of the game's challenges.</td>
<td>Pretend that suddenly, your book became a best seller! Write a letter to a movie producer trying to get that person interested in making your book into a movie. Explain why the story, characters, conflicts, etc. would make a good film. Suggest a filming location and actors to play the various roles. You may only use books which have not already been made into a movie!</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Time Capsule</th>
<th>ABC Book</th>
<th>Plain Jane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put together a time capsule for the novel. It will be opened 200 years from the future, so it must contain items and descriptions that truly highlight the major components of the novel. What artifacts would be preserved? What letters would the main characters write? Where would the capsule be buried? Be creative! You may list items and give descriptions, or you may actually create a time capsule!</td>
<td>Create an ABC book based on the events and the characters in your story. You will need something for each letter of the alphabet. Describe various elements of the story—traits of the characters, descriptions of the setting, main parts of the plot, etc. Be creative!</td>
<td>If you do not wish to take the creative route, write out a simple book report/review. It must be typed. Include well-organized paragraphs which highlight the following: an introduction to the book, the setting (time and place), main characters and how they change throughout the story, the overall plot, the main problem and its solution, and your overall opinion of the book.</td>
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</table>
You **annex** one or more zeros in the following addition or subtraction problems.

\[
\begin{align*}
&1.450 &+3.589 &+ 0.6000 \\
&27,779.700 &-18,998.925 &+ 4.1111
\end{align*}
\]

**Place value** is important when multiplying decimals.

\[
4.76 \times 2.6 = \frac{476}{100} \cdot \frac{26}{10} = \frac{12,376}{1,000} = 12.376
\]

Number of decimal places: 2

\[
4.76 \times 2.6 = \frac{2856}{1000} + 9520 = 12.376
\]

Number of decimal places: 2 + 1 = 3

1. It rained 1.8 inches on Tuesday and 0.24 inch on Wednesday.
   How many inches did it rain altogether?

\[
\begin{align*}
&1.80 &+ 0.24 \\
&1.80 \quad \text{Annex a zero in the hundredths place in 1.8.} \\
&\quad + 0.24 \quad \text{Add and regroup as necessary.} \\
\end{align*}
\]

It rained _______ inches altogether.

2. The chef at a restaurant made enough sauce for 20.5 servings.
   The sauce is served in small cups that hold 3.275 ounces each.
   How many ounces of sauce did the chef make?

Multiply the decimals as if they were whole numbers.

How many decimal places are in the product?

How many ounces of sauce did the chef make?

**On the Back!**

3. Place the decimal point in the difference and in the product.

\[
15.25 - 7.14 = 8.11 \\
3.4 \times 2.1 = 7.14
\]
Use the vocabulary terms from the list to complete the sentences.

| re| gr| ou| p  | su| m  | es| t| i| m| e |t| e| s| i| m| e  | f| a| c| t| o| r| s  |
| r| o| u| n| d| i| n| g | d| i| g| t | p| r| o| d| u| c| t| i| v| e | e| d| d| s| s |s| u| m| s| s| e |r| o| s | e| r| s| u| m |s| e |r| o| s |e| r| s| u| m |
| d| e| c| i| m| a| l| s |d| e| c| i| m| a| l| s |d| e| c| i| m| a| l| s |d| e| c| i| m| a| l| s |d| e| c| i| m| a| l| s |d| e| c| i|
| d| i| f| f| e| n| c| c| e| n| c| e| n| c| e| n| c| e| n| c| e| n| c| c| e| n| c| e| n| c| e| n| c| e| n|

1. Before adding or subtracting decimals, the answer by the decimals to numbers that are easier to mentally add or subtract.

2. When adding two decimals, line up the at the decimal point to find the correct.

3. When lining up decimals to add or subtract, it may be necessary to annex one or more as placeholders so that each place has a.

4. When subtracting two decimals, it may be necessary to find the correct.

5. When multiplying two decimals, treat the as.

6. To place the decimal point in a, use the sum of the decimal places in the.
The Big Science Book

In preparation for the Science Semester Exam and MAP Spring 2020

If you find this packet, please return it to:
Student Name: ____________________________
Student Phone Number: _____________________
Teacher: ________________________________
### Standards & Topics Mastery Tracking Sheet

<table>
<thead>
<tr>
<th>Topic(s)</th>
<th>Page in Review Packet</th>
<th>Review Questions Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Date</td>
</tr>
<tr>
<td>Structures and Functions of Organisms</td>
<td>120-122</td>
<td></td>
</tr>
<tr>
<td>Organ Systems</td>
<td>123-125</td>
<td></td>
</tr>
<tr>
<td>Comparing Plants and Animals</td>
<td>125-126</td>
<td></td>
</tr>
<tr>
<td>Homeostasis</td>
<td>127-129</td>
<td></td>
</tr>
<tr>
<td>Explore yourself/what does it mean?</td>
<td>130-134</td>
<td></td>
</tr>
<tr>
<td>Plate Tectonic</td>
<td>178-181</td>
<td></td>
</tr>
<tr>
<td>Types of Boundaries</td>
<td>181-185</td>
<td></td>
</tr>
<tr>
<td>Explore yourself/what does it mean?</td>
<td>186-190</td>
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</tr>
</tbody>
</table>

### How to use this review guide...

This review guide is designed to help you prepare for middle school science and help to support you when taking the 8th grade MAP exam. The Missouri Department of Education has created a list of things you need to learn in Chemistry called Missouri Learning Standards (MLS for short). The MLS are the materials that you will be responsible for know on your unit test and semester exams, as well as topics that will be covered on college entrance exams.

This review guide goes through important MLS. For each MLS, the key **Vocabulary** terms are listed and defined. Then, a brief **Overview** of topic is given. Often drawings or diagrams are included to help you visualize the concept. The MLS is then summarized in the **Must Know** section that helps you focus in on what you absolutely must remember. Finally, **Review Questions** are given so that you can quiz yourself and find out how well you know that MLS. Answers to the review questions are available from your teacher. When you have completed all of the review questions for a MLS, your parent/Guardian will sign off that MLS in the **Review Questions Completed** section on the table on the previous page.
Review 9

Structure and Function of Organisms

In 1665, Robert Hooke peered through his microscope at a very thin slice of bark from a cork tree. He saw tiny little chambers arranged next to each other. These reminded him of the small cells in which monks lived, so he called them cells. The image at right is the first drawing showing the cells in a biological specimen, drawn by Hooke.

A cell is the basic unit of life. Every cell is enclosed by a cell membrane, which makes it separate from other cells. As our technology has improved, we've learned that cells are highly structured chemical factories. We've also begun to understand how cells organize themselves into tissues and organs. One of the most fascinating discoveries is how similar life is across an astonishing array of diversity. All living organisms ingest food and water, respond to stimuli, excrete, and die. Different creatures may use different chemicals for these processes—plants, for instance, "breathe" out oxygen, where we breathe out carbon dioxide.

This review looks at how the cell, these little machines of life, organize themselves to form the complex systems of living things.

Words to Know

cell
cell membrane
cell wall
cellular respiration
chemical digestion
chloroplast
circulatory system
cytoplasm
digestive system
dermatine system
endoplasmic reticulum
excretory system
homeostasis
hormone
infectious disease
mechanical digestion
mitochondrion
multicellular
muscular system
nervous system
noninfectious disease
nuclear membrane
nucleus
organ
organ system
organelle
pathogen
phloem
respiration system
ribosome
skeletal system
tissue
tumor
unicellular
vacuole
xylem
Cells
Multicellular organisms, such as plants and animals, are made of many cells. These cells, in turn, contain many tiny structures called organelles. The basic parts of a plant cell are shown in the following diagram.

The following list briefly explains the function of each labeled component.

**Endoplasmic reticulum:** transports materials within the cell

**Nuclear membrane:** encloses and protects the nucleus

**Nucleus:** control center for all cell activity; contains chromosomes, which carry the genes that help the organism reproduce

**Cytoplasm:** clear, thick fluid that holds all the components of a cell

**Cell wall:** the outer, nonliving cellulose structure that helps the plant cell keep its shape

**Mitochondria:** organelles that release energy to support all cell activity (singular is mitochondrion)

**Chloroplasts:** organelles that contain chlorophyll used by plants to make food from carbon dioxide, sunlight and water

**Vacuoles:** cavities inside the cytoplasm that contain fluid and pigment (coloring)

**Cell membrane:** semipermeable membrane that controls movement of molecules in and out of the cell

**Ribosomes:** organelles that contain the enzymes that help produce proteins
Animal cells have a lot in common with plant cells. Use the list of plant cell components to label the following animal cell. (Two components of plant cells are not found in animal cells.)

Animal and plant cells have some important differences. The most visible difference is that animal cells do not have cell walls. For structure, animals rely on skeletons, not cell walls. The most important difference for cell function is that plant cells make their own food. Chloroplasts are the structures plants use to make their own food from sunlight, water, and carbon dioxide. Animal cells, which do not usually make their own food, do not usually have chloroplasts. (Some single-celled organisms have chloroplasts.)

Unicellular and Multicellular Organisms

Unicellular organisms have just one cell. For example, bacteria, yeast, and amoebas are unicellular. The single cell in a unicellular organism must perform all of life's functions. Most of the organisms on the planet are single-celled organisms. In particular, most are bacteria.

Humans are multicellular, which means we are made of many cells. Animals, plants, birds, insects, and many other creatures are multicellular. Cells in multicellular organisms are specialized to do different jobs, and work together in staying alive. Brain cells and liver cells, for example, have very different jobs. These small, specialized cells can organize themselves by the trillions into organisms. They clump together, form useful shapes, and communicate with each other. This has allowed multicellular life to grow large and complex.
Organ Systems

In **multicellular organisms**, cells that do the same job work together to form body **tissues**. Each body tissue is made of a specific type of cell that has a particular function. For example, muscles are made of muscle cells that have the ability to contract and relax. Groups of tissues form **organs** with specific functions. Organs, in turn, work together in **organ systems**. Each function that humans and most other plants and animals must do to stay alive (breathing, eating, reacting to stimuli, and so on) is made possible by groups of specialized cells arranged into tissues, organs, and organ systems.

Let's look at the organ systems within the human body. As you study organ systems, you'll notice that you can't think about one system without thinking about at least one other system, too. The systems are closely related, and the body depends on them all working well together. In the **muscular system**, for example, individual muscle cells in muscle tissues contract and expand to perform a function. But the muscular system is helpless without the skeletal system. The **skeletal system** houses and protects important muscles. It also gives the muscular system a framework with which it can move the body. The **nervous system** controls the actions of the muscular and skeletal systems, allowing us to direct our movements. The nervous system also controls the flow of information in the body, processing all of the stimuli that come in from the senses.
The digestive system begins with the jaws, teeth, and tongue. Mechanical digestion is the physical breaking up of the food, and it begins when the jaws and teeth grind up the food. Chemical digestion is the breaking of the food into molecules that the body can use. Chemical digestion begins in the mouth, when saliva starts to break down the food. The esophagus takes the food to the stomach, where chemical digestion continues when acid breaks the food down into liquid. This liquid moves to the small intestine, which extracts from the liquid as many nutrients as it can. The liver also plays a role in the digestive process, producing a chemical that breaks down fats.

The heart, the blood, and the blood vessels make up the circulatory system. The circulatory system works closely with the respiratory system, which consists of the windpipe and the lungs. What is the relationship between the two systems? To get energy from food nutrients, all cells need a constant supply of oxygen. The process that releases this energy also makes carbon dioxide, a toxic substance that our body must get rid of. The circulatory and respiratory systems work together to supply oxygen to and remove carbon dioxide from the blood.

Aurelie claims that the heart belongs to the circulatory, respiratory, and muscular systems. Is she correct? Why?

Wastes from the digestive and circulatory systems are gathered by the excretory system and discharged from the body. The main organs involved in excretion are the kidneys. The kidneys bring in and filter waste substances from the blood. The filtered blood is released back into the body, and the unwanted substances are turned into a liquid called urine. The ureters carry urine from the kidneys to the bladder, where it is stored until it can be released.

How are the digestive system and excretory system related?
Give another example of related body systems and explain how they are related.

The endocrine system is controlled by the hypothalamus, a part of the brain that controls the glands that produce hormones. Hormones are chemicals that travel in the bloodstream to different parts of the body. Hormones have many functions: They stimulate growth, regulate body temperature, help with digestion, and so on. The hypothalamus controls the pituitary gland, as well as many other glands. The pituitary gland is sometimes called the "master gland" of the human body because it produces so many different kinds of hormones. One important task of the endocrine system is to regulate the reproductive system. In humans, the reproductive system typically becomes mature (physically capable of producing offspring) between the ages of 12 and 16.

Comparing Plants and Animals
Both plants and animals must take in water, breathe, allow nutrients to circulate, use oxygen to get energy from food, respond to stimuli, reproduce, and carry out other functions of life. They solve these problems differently. Some of the differences are obvious; animals take water in through their mouths, for instance, while plants use root surfaces to absorb water. Some differences are not so obvious.

Animals use oxygen for cellular respiration, or chemically breaking down food molecules in order to get energy. Plants also use oxygen for cellular respiration. Plants produce oxygen as they are making food, but the plants do not release all of the oxygen they make. They use a small amount of it in each cell, as part of the chemical reaction that breaks down sugars for energy.

There are many other differences between plants and animals. A plant's living cells are all fairly close to the surface. A tree trunk, for instance, is mostly dead wood; it's the bark's cells that are alive. This means that simple pores on the plant's surface can get enough oxygen to each living plant cell. Most animal cells are far away from the surface. The respiratory and circulatory systems in animals take care of getting oxygen to the cells and carrying carbon dioxide away from the cells.
Food and Water Circulation Through Plants

Some simple plants, such as mosses and algae, get their nutrients by simply absorbing them from the environment. Larger plants cannot rely on this method to survive. Trees, bushes, and flowering plants are called vascular plants, because they have specialized tissues for transporting food and water.

All vascular plants have roots, leaves, and a stem. The roots anchor the plants in the ground and absorb water and nutrients from the soil. Vascular plants have two types of tissue for transporting materials. The xylem transports water and dissolved minerals from the roots to the other parts of the plant. The phloem transports sugar from the leaves to the roots.

As water evaporates through the leaves, more water is pulled up the very thin tubes of the xylem, and more water moves into the roots from the soil. The xylem cells are so thin that the water attaches to the inside of the cell and "crawls" up it, the same way water will crawl up a straw in your drink. The nutrient-laden water flows through the plant cells, which are connected by small holes.

Water goes all the way through xylem “straws,” to the leaves, but water will not go all the way up the straw in your glass. Why?

How does the sugar move down the plant? Gravity is partly responsible, but most of the force moving the sugar is actually water pressure. The leaves of the plant make sugar, and the sugar collects in phloem cells at the top of the plant. The sugar draws water into the phloem cells from the xylem. This causes the water pressure inside the phloem cells to increase. The water pressure forces the sugary water from phloem cell to phloem cell, down through the little holes between them. Sugar and water leave the phloem as they travel down the plant, and the pressure drops. The water is returned to the xylem, and travels up the plant again.
Homeostasis

When you think of an organism interacting with its environment, you might first think of the external environment—the air, water, and/or land in which the organism lives. But an organism must also respond to changes inside itself, called its internal environment. In general, organisms must keep their internal environments fairly stable. Take the human body as an example. The human body works best when its temperature is around 37°C. If a human body gets too warm, it releases some of that heat by sweating. If a human body gets too cold, it produces more heat for itself by shivering. The ability to maintain a constant internal environment is called homeostasis. (Homeo- means “steady” and stasis means “state.”)

Name two other internal conditions to which your body responds.

---

Homeostasis is an example of a closed-loop system. In a closed-loop system, information from the outside (It’s cold out here!) causes your body to take some action (Start shivering!). This action then alters the state being monitored, which is then sensed by the system. The system then stops the action, because it is no longer needed (OK, I’m warm enough now. I can stop shivering). Your hypothalamus and skin receptors constantly monitor the temperature both inside and outside of your body. If your temperature goes too far above or below 37°C, the hypothalamus tells your body to take certain actions (shivering, sweating, and so on) to either lower or raise your temperature. This action then corrects the condition being monitored. The following diagram represents thermal homeostasis as a closed-loop system.

**Temperature Homeostasis as a Closed-Loop System**

<table>
<thead>
<tr>
<th>Input</th>
<th>Monitor</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human body works best when internal temperature is around 37°C.</td>
<td>Hypothalamus and skin receptors compare ideal to actual temperature.</td>
<td>Hypothalamus either orders body to adjust temperature or to stay constant.</td>
</tr>
</tbody>
</table>

Output/Feedback

- Body temperature either returns to ideal range or becomes too warm or too cool.

Process

- Body either performs processes (sweating, shivering) to adjust temperature or does nothing.

According to the diagram above, how does the “monitor” step differ from the “control” step?
Disease

Disease is a disruption of homeostasis. Diseased body systems fail to work properly or at all. Some diseases cause hearts or kidneys to stop working; others may cause serious tissue swelling or muscle weakness, or severe confusion. Many things can cause disease, but public health professionals talk about two main kinds of disease: infectious and noninfectious.

**Infectious diseases** can be transmitted from one person to another. They are caused by pathogens, or agents that can reproduce inside a host's body and cause illness. Some common pathogens are bacteria, viruses, fungi, and protists. They find homes inside the host body and begin multiplying there, sickening their hosts. Sinus infections and strep throat, for instance, are usually caused by bacteria. The common cold, mumps, and warts are caused by viruses. Athlete's foot is a fungal infection.

Pathogens use their hosts' bodies for nutrition and reproduce, and are passed along through the air, in body fluids, and on surfaces. When our own immune systems cannot fight them off, we fight them with vaccines and antibiotics. Vaccines are weak preparations of a pathogen. When vaccines are injected, our immune systems learn to recognize the pathogen and kill it. If we catch the pathogen later, our immune system is primed to attack it. Antibiotics work by destroying bacteria's ability to carry out normal life processes. For instance, the drug may poke holes in the bacterium's cell membrane so that it leaks to death, or it may stop the bacterium from reproducing. Bacteria can mutate and evolve resistance to drugs. This means the drugs will no longer work against them.

Antibiotic resistance is a serious problem. Antibiotics that worked well for decades are no longer effective, and new antibiotics may breed resistant bacteria in only a few years. It's a problem because bacterial infection can kill quickly if left unchecked. A great deal of research goes into developing new and more effective antibiotics.

**Noninfectious diseases** cannot be passed from one person to another person, but they can still do great harm. Some noninfectious diseases are genetic; people are born with them. The disease called cystic fibrosis is a genetic disease. Other noninfectious diseases come from mutations inside the body. Cancer, for instance, is caused by mutations in cells. The mutations allow the cells to divide very fast and stop cooperating with the tissue they live in. Cancerous cells form large masses called **tumors**. Individual tumor cells, or clumps of cells, can break away and spread through the bloodstream to other parts of the body, and grow into new tumors there. People can inherit increased risk for some types of cancers.

**Why would the daughter of a woman with breast cancer want to have regular exams to check for cancer?**
Another kind of noninfectious diseases is called "lifestyle diseases." They come from maltreating the body. Smoking cigarettes is a prime example. Much of the cure for this and other lifestyle diseases involves changing personal habits—and changing societies so that healthy personal choices are easier to make.

What social changes might make it easier for people to avoid cigarette smoke?

Mistreatment of the body does not always come from lifestyle choices. Exposure to toxic chemicals, like lead and mercury, can seriously disrupt many life processes, and even kill. We continuously monitor the environment for these causes of disease.

Finally, there are diseases whose causes are still largely mysterious to us. We do not know, for instance, what causes asthma, a lung disease that makes breathing difficult. It may be caused by genetic factors, or it may be caused by infection. Perhaps it can be caused by both. Nor do we understand the causes of many mental illnesses. Medicine has made great strides in the last hundred years, and because of that we live twice as long as we used to. But there is still much work to do in understanding disease and health.

**Keys to Keep**
- All organisms carry out the same basic life functions.
- Cells are the building blocks of life.
- Multicellular organisms have levels of organization: cells, tissues, organs, and organ systems.
- Organ systems work together to perform life functions.
- Plants and animals have different structures for carrying out the same life functions.
- Through homeostasis, an organism keeps its internal environment within an acceptable range, even when conditions outside the organism change.
- Homeostasis is an example of a closed-loop system.
- Diseases can be infectious or noninfectious, and interfere with the proper function of the body's organs and systems.
Explore It Yourself

Water is a substance that can pass through cell membranes. In general, water moves from an area with a high concentration of water to an area with a low concentration of water. This is one way in which a cell responds to its environment. This activity models how a cell responds to different concentrations of water. Your teacher will give you three potatoes, a plastic knife, a gram balance, a metric ruler, about 750 mL of room-temperature water, three 250-mL beakers, a stirring rod, and salt.

Step 1: Put 200 mL of room-temperature water in each of the three beakers. Label the beakers A, B, and C. Do the following:
- In beaker A, place 20 g of salt. Stir for one minute.
- In beaker B, place 10 g of salt. Stir for one minute.
- Add no salt to beaker C.

Step 2: On the following line, list the beakers in order of lowest to greatest concentration of water. (Hint: The more salt in the water, the lower the concentration of water.)

Step 3: Slice three equal-size cubes of potato, each roughly 3 cm on a side. Decide which cube will go in beakers A, B, and C. Find the mass of each cube and record it in the table on page 131.

Step 4: Place one cube in each beaker. Assume that each cube initially contains about the same amount of water. Predict what will happen to each cube over 20 minutes.

Cube in beaker A: __________________________________________

Cube in beaker B: __________________________________________

Cube in beaker C: __________________________________________
Step 5: After 20 minutes, remove the cubes from the beakers. Do not confuse which cube came from which beaker. Blot the cubes dry with paper towels. Then, weigh the cubes again and record their final masses in the table.

Step 6: Calculate the change in mass to the three cubes as a percentage. Use the following formula:

\[
\% \text{ change in mass} = \frac{\text{initial mass} - \text{final mass}}{\text{initial mass}} \times 100
\]

Record your answer in the table below.

<table>
<thead>
<tr>
<th>Cube</th>
<th>Initial Mass (g)</th>
<th>Final Mass (g)</th>
<th>Percentage Change in Mass (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cube in Beaker A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cube in Beaker B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cube in Beaker C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What Does It Mean? 🤔

1. Did water seem to move into any of the cubes? If so, which one(s)?

2. Did water seem to move out of any of the cubes? If so, which one(s)?
3. Predict what would happen to the mass of a cube placed into a beaker with a water concentration equal to the water concentration inside the cube.

4. Infer: What happens to your cells when the concentration of water outside of your cells is lower than the concentration of water inside your cells?

People in Science

Chien-Shiung Wu was born in Shanghai, China. Her father, a school principal, wanted her to study science. So did her two brothers. In 1936, she came to the United States to attend the University of California at Berkeley. She became a United States citizen. Dr. Wu liked to wear traditional Chinese clothing. She wore these clothes even though her coworkers teased her about it. In the 1950s, she worked with two other scientists, Dr. Tsung-Dao Lee and Dr. Chen-Ning Yang, on a complicated and important problem in physics. She performed the experiments that proved the team's new theory and changed the way people thought about the universe. Wu won the Comstock Prize from the National Academy of Science. President Gerald Ford presented her with the U.S. National Medal of Science in 1976, and she was honored with other prizes in science. She used most of the prize money she won over the years to help Chinese children go to college.

Chien-Shiung Wu
(China 1912–1997)
1. Which two organ systems let you raise your arm in class?
   - nervous and digestive
   - endocrine and excretory
   - muscular and skeletal
   - circulatory and respiratory

2. The human body has levels of organization that scientists order from least complex to most complex. Which of the following is the most complex?
   - cell
   - organ
   - tissue
   - organ system

3. A student was looking at plant and animal cells under the microscope. Which cell component would the student see only in a plant cell?
   - nucleus
   - cell wall
   - mitochondrion
   - cell membrane

4. Which of the following is an example of homeostasis?
   - A bird starts breathing faster as it flies faster.
   - A dog gives birth to a litter of puppies.
   - A mammoth is frozen in ice for thousands of years.
   - A spider wraps a fly in a cocoon for later eating.

Go On
5. What is the purpose of the endocrine system in the human body?
   - to fight off disease
   - to expel wastes
   - to regulate hormones
   - to move bones

6. Which of the following correctly matches the cell component with its function in the cells of multicellular organisms?
   - cytoplasm—fluid that holds cell components
   - mitochondria—control center for all cell activity
   - nucleus—releases energy to power cell activity
   - vacuole—helps to produce cell proteins

7. A student is investigating how oxygen moves through the body. What two organ systems will she find working together to move oxygen to cells in the body?
   - reproductive and muscular
   - endocrine and excretory
   - respiratory and immune
   - circulatory and respiratory

8. Pathogens are responsible for
   - noninfectious diseases.
   - infectious diseases.
   - lifestyle diseases.
   - genetic diseases.
Plate Tectonics

In the 1950s, geologists had a mystery on their hands. On a few continents, they had found rocks nearly 4 billion years old. But wherever they looked on the ocean floor, the oldest rocks were only 200 million years old. Why was the ocean floor so young? The answer to that question would change the way that geologists understand the Earth and some of its most amazing geological events and landforms.

The Structure of the Earth

The Earth's interior has four distinct regions. The crust is the rocky outer layer, ranging between 7 km and 70 km thick. The mantle is a solid layer of hot rock that lies below the crust and is about 2,900 km thick. The outer core is a liquid layer of melted iron that is about 2,300 km thick. Finally, the inner core is a solid iron-nickel sphere with a radius of roughly 1,200 km.

Continental Drift

The story of Alfred Wegener and his theory of continental drift was mentioned in Review 2. As early as 1596, a Dutch mapmaker noted that the western coast of South America fits next to the eastern coast of Africa, like two pieces in a jigsaw puzzle. In the 1860s, scientists observed that some ancient fossils in Europe and North America were too similar to be explained by coincidence. About 1915, the German scientist Alfred Wegener proposed the theory of continental drift to explain these data. The theory states that all the Earth's landmasses were once part of a giant continent that broke apart. The fragments of this giant landmass drifted over the surface of the Earth to produce the configuration we know today.

Words to Know

- continental drift
- convection
- convergent plate boundary
- crust
- divergent plate boundary
- fault
- fold
- hot spot
- inner core
- lithosphere
- mantle
- outer core
- plate tectonics
- transform fault boundary
Wegener suggested that the continents break through the ocean's crust, much like boats breaking through an ice field. For this to be true, how would the density of continental crust have to compare with that of ocean crust?

Wegener continued to defend and develop his ideas until he died in 1930. In the 1950s, observations of the Earth's magnetic field indicated that today's landmasses had shifted position. In the 1960s, geologic observations of the ocean floor provided evidence that the ocean floor was spreading outward from a series of midocean ridges. Scientists said that this could cause the continents to drift apart. Wegener's theory of continental drift is widely accepted today.

**Plate Tectonics**

The Earth's crust includes both dry land and the seafloor bottom. The Earth's crust rides on top of giant slabs of solid rock called plates. Together, the crust and the plates make up the lithosphere, the solid surface of the Earth. The theory of plate tectonics claims that the Earth's plates are always in motion. The plates move slowly and at different rates. The North American plate moves about 1 cm to the southeast every year. The Pacific plate, in contrast, moves to the northwest at a rate of 10 cm per year. The map below shows the boundaries of some of these plates.

Examine the map above. Do the boundaries of the plates always match up with the edges of the continents? Give an example of what you see.
Why do you think the western coast of North America has so many earthquakes?

The crust rides on top of the plates. The plates, in turn, ride on top of the mantle, a hot zone of solid rock subjected to tremendous heat and pressure. The rock of the mantle is under so much heat and pressure, in fact, that it actually flows from place to place. Geologists use the term plastic to describe the consistency of rock that flows but is not in a liquid state.

Name at least one other substance that is solid but can flow.

Geologists believe that immense currents of plastic rock in the mantle provide the force that causes the plates to move. Here’s how it works. Hot rock in the mantle rises to the lithosphere, cools, and shrinks in volume. This rock becomes denser than the rock below it. As the denser rock starts sinking, the hotter and less dense rock rises up to replace it. As you learned in Review 7, the movement of matter due to differences in temperature is called convection. Geologists are not certain of the exact structure of the mantle’s convection currents. The following diagram shows one model of how plastic rock might flow through the mantle in convection currents.

Notice in the diagram that rising convection currents correspond to places where the Earth’s plates are pulling apart. Notice also that falling convection currents correspond to places where the Earth’s plates are descending into the mantle. It is this combination of pushing (from the rising currents) and pulling (from the descending plates) that causes the Earth’s plates to move.
Review 13: Plate Tectonics

Explain how differences in the temperatures and densities of rock in the mantle produce convection currents.

How do convection currents in the mantle result in the movement of the plates at the Earth's surface?

Types of Plate Boundaries

The movements of the Earth's plates are responsible for most major geologic events and landforms. Volcanic activity, mountain formation, and earthquakes all occur at plate boundaries, which are zones where the edges of plates interact. Geologists classify plate boundaries by how they move relative to each other. The three types of plate boundaries are divergent plate boundaries, convergent plate boundaries, and transform plate boundaries.

At a divergent plate boundary, two oceanic plates pull away from each other. Magma from the mantle wells up at the zone where the plates pull apart. This process is called seafloor spreading, because the seafloor spreads apart where the plates pull away. The magma that reaches the surface becomes lava, cools and solidifies, and makes new ocean crust. The new crust forms a midocean ridge that can rise as much as 2 to 3 km above the seafloor. The ridge sometimes even breaks the surface: Iceland, for example, is part of the Mid-Atlantic Ridge. As the plates pull away, they each carry one side of the ridge. More magma escapes from the mantle and a new ridge forms, a process that goes on and on. The oceans hide a vast network of midocean ridges—a chain that is nearly 80,000 km long and covers about a fifth of the Earth's surface.
Divergent plate boundaries make new crust. The Earth's total surface area, however, stays the same. Explain how this is possible.

Divergent plate boundaries make ocean crust. **Convergent plate boundaries** destroy crust. Convergent plates also create some of Earth's most striking features: deep ocean trenches, continental mountain chains, and volcanic island chains. We will look at the three major types of convergent plate boundaries: oceanic-continental, continental-continental, and oceanic-oceanic.

When oceanic and continental plates converge, the denser oceanic plate is forced below the less dense continental plate. At the boundary where the oceanic plate descends into the mantle, a deep ocean trench forms. The oceanic plate melts as it enters the mantle. Magma and gas then force their way up to the surface of the continent. The melted rock pushes up the crust and escapes as lava. The result is a long chain of volcanic mountains on the continent that runs parallel to the deep ocean trench. This is the way the Andes Mountains, on the western coast of South America, were made. Off the coast, where the ocean plate descends, is the Peru-Chile deep ocean trench.
Convergence of Oceanic and Continental Plates

When two continental plates converge, two things happen. First, the oceanic plate that is between the continents prior to their collision is forced below one of the continents. Second, when the continents actually collide, the continental crust of both plates stays at the surface and buckles, thickens, and rises up. The Himalayan Mountains, the tallest mountain range in the world, were formed in this way when the Indian subcontinent rammed into the Asian mainland. The Appalachian Mountains were formed in a similar way, when Africa and North America collided about 250 million years ago.

Convergence of Two Continental Plates
When two oceanic plates converge, one plate is forced down into the mantle, forming a deep ocean trench. The sinking plate melts, and magma and gas rise and push through the ocean floor. A chain of volcanoes that runs parallel to the trench grows beneath the sea. If the volcanoes become large enough, they will rise above sea level and make a volcanic island arc. In the Western Pacific, for example, the convergence of two oceanic plates produced the Mariana Trench and the Mariana Island Arc. The Mariana Trench is the deepest point on the Earth's surface, at 11 km below sea level. If you put Mount Everest at the bottom of the trench, its summit would be more than 2 km below sea level.

The processes at divergent and convergent plate boundaries solve the puzzle about the age of the ocean's crust. At divergent plate boundaries, molten rock rises to the surface, cools, moves sideways, and creates a new ocean crust. At convergent plate boundaries, the ocean's crust sinks into the ocean trenches and returns to the mantle. The ocean floor is atop an endless conveyor belt that creates, moves, and destroys the oceanic lithosphere. Continental crust rides this conveyor belt but does not get pulled down into it, so it can reach a much older age.

The youngest seafloor is found at midocean ridges. Where would you most likely find the oldest seafloor?

At a transform fault boundary, two plates grind past each other without creating or destroying the lithosphere. Most transform fault boundaries are associated with movements at the midocean ridges, but some actually cut through continental lithosphere. The San Andreas Fault in southern California is a transform fault boundary. On the western side of the fault, the Pacific Plate is slowly moving to the northwest. Because of the plate's motion, western California may break off from the mainland, become an island, and someday be as far north as Alaska.
Earthquakes and Hot Spots
An earthquake happens when tension builds up in the lithosphere and releases abruptly. Earthquakes most often happen along plate boundaries. Friction along the boundary causes the plates to catch on each other. This builds up tension in the rock. Eventually, the rock breaks, or tectonic forces overcome the force of friction. In either case, the plates move suddenly, sometimes as swiftly as 5 km/s. This swift motion releases energy that ripples through the planet as waves.

A hot spot is a place in the mantle where hot rock continually rises and melts through a plate. Lava emerges, not at a boundary between plates, but inside a single plate. Magma rises, breaks through the crust as lava, and makes new rock. If the hot spot is below the ocean floor, it may create a volcanic island. Because the plate moves, the volcano eventually drifts away from the hot spot and goes dormant. The hot spot, however, keeps making new islands. Hot spots can make long island chains, such as the Hawaiian Islands in the Pacific Ocean.

Types of Crustal Deformation
Forces in the Earth's crust can break, bend, and move the rocks of the lithosphere. A fault is a break in the crust along which the crust moves. A fold looks like a solid wave in rock, and forms when rock layers bend without breaking.

Keys to Keep
🔺 The Earth has four layers: the crust, the mantle, the outer core, and the inner core.
🔺 Fossils and continental shapes provided early evidence about continental drift.
🔺 The theory of plate tectonics states that Earth's lithosphere consists of plates that are in constant motion.
🔺 Convection currents in the mantle move the Earth's plates.
🔺 The Earth's crust is produced or destroyed at plate boundaries.
🔺 Forces at the plate boundaries produce earthquakes, volcanoes, and mountain ranges.
🔺 Forces in the Earth's crust produce faults and folds.
Geologists use the islands formed by hot spots to study how tectonic plates move. In this activity, you will use the Hawaiian Island Chain to estimate the direction and speed of the Pacific Plate's motion.

Step 1: On the map, use the scale to find the distances between the Kilauea Volcano and the centers of the other named islands. In the table, record the distance of each island from the Kilauea Volcano.

**Average Ages of Islands in Hawaiian Chain**

<table>
<thead>
<tr>
<th>Island</th>
<th>Age (Millions of Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Necker</td>
<td>10.3</td>
</tr>
<tr>
<td>Nihoa</td>
<td>7.8</td>
</tr>
<tr>
<td>Kauai</td>
<td>4.7</td>
</tr>
<tr>
<td>Molokai</td>
<td>1.6</td>
</tr>
<tr>
<td>Oahu</td>
<td>2.5</td>
</tr>
<tr>
<td>Maui</td>
<td>1.1</td>
</tr>
<tr>
<td>Hawaii (still forming)</td>
<td></td>
</tr>
<tr>
<td>Kilauea Volcano</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Ages of islands given in millions of years*
Step 2: On the graph, place and label points that represent the distance and age of each island. Then, draw a best-fit line between the points.
Unit 4 - The Earth and Space

What Does It Mean?

1. In which direction is the Pacific Plate moving? (Remember that the hot spot stays in the same place as the plate moves.)

2. In kilometers per year, what is the average rate at which the Pacific Plate moves? (The average rate of motion is the slope of the best-fit line in your graph.)

3. Convert your answer in Number 2 into centimeters per year.

People in Science

Charles Darwin studied plant and animal life. He is famous for coming up with the idea that all animals, including humans, developed from life-forms that lived millions of years ago. We call his idea the theory of evolution. Darwin spent five years on a boat at sea working on his ideas. He was very unhappy; he was seasick all the time. When his trip ended, Darwin decided he would never travel again. He married, had 10 children, and took only short vacations within Great Britain. He did all his scientific study at home, using the information and materials he had collected during his sea voyage. He built a big house with a large study and designed a special microscope. For the first eight years, he studied only barnacles. When his children were young, they thought all fathers worked at home and studied barnacles. Later in life, he decided to study earthworms. For a while, he even kept live worms on top of the piano. He liked to watch the worms’ activity when the piano was played. Darwin published many books about his research. His most famous book is On the Origin of Species, which explains his theory of evolution.

Charles Darwin
(1809–1882)
1. Which of the following layers of the Earth is *mostly* liquid?
   - ○ crust
   - ○ mantle
   - ○ outer core
   - ○ inner core

2. Which of the following will be produced when two continental plates collide?
   - ○ a canyon
   - ○ a mountain range
   - ○ a valley
   - ○ a lake

3. Which of the following interactions between two tectonic plates will produce a deep ocean trench?
   - ○ two ocean plates converging
   - ○ two continental plates moving laterally
   - ○ two continental plates diverging
   - ○ two ocean plates moving laterally

4. Which process provides *nearly* all of the force that drives the movements of the Earth's tectonic plates?
   - ○ the combined gravitational pulls of the Sun and the Moon
   - ○ the force from the Earth's rotation
   - ○ the combination of wind and wave action
   - ○ the convection currents in the Earth's mantle

*Go On*
The nearly continuous shell of rock around the Earth is called the

- lithosphere.
- hydrosphere.
- volcanosphere.
- magmasphere.

One early piece of evidence that the continents were once joined together in a single large continent came from

- the ring of volcanoes and earthquake activity around the Pacific Ocean.
- the coasts of some continents fitting together like puzzle pieces.
- faults and folds caused by forces in the Earth’s crust.
- changes in the speed and direction of earthquake waves through the Earth’s interior.

What geologic process led to the formation of the Hawaiian Islands?

- convergence of oceanic plates
- divergence of oceanic plates
- an ocean plate moving over a hot spot
- a hot spot moving below an ocean plate

Describe two differences between oceanic crust and continental crust.
# Day Two

## English-Language Arts

- Daily Reading: *The Birmingham Children’s Crusade*
- Reading Response: Pronouns
- Book Project Menu

## Math

- Complete Reteach 1-2
- Complete Vocabulary 1-2

## Science

- Organ Systems  pg123-125
Instructions: Read the pronouns in the word box. Then, read each sentence. Replace the underlined word or words in each sentence with a pronoun from the word box. Pronouns may be used more than once. Write the new sentence on the line.

he they him

1. Many black breadwinners worked for white people, and black breadwinners feared losing their jobs.

2. Dr. Martin Luther King Jr. emerged as the best-known leader of the movement, and Dr. King developed a strategy of nonviolent action.

3. African American boys and girls were told to bring their toothbrushes to the protest.

4. Protesters marched through the streets of Birmingham. Protesters were clapping, laughing, and singing.

5. “Come to Birmingham to help with Project C,” Fred Shuttlesworth said.

6. At first, Dr. King and other leaders said no. Dr. King and other leaders did not want to put children and teens in harm’s way.

7. President Kennedy saw what happened at the protest, and it sickened President Kennedy.
**Division** answers two types of questions:
- How many equal-sized groups will there be?
- How many items will be in each equal-sized group?

A **remainder** is the whole number that is left after dividing. To divide decimals, multiply the divisor by a power of 10 so that it is a whole number. Multiply the dividend by the same power of 10. Then divide as you would for whole numbers. The decimal point for the quotient goes directly above the decimal point for the dividend.

1. A charity takes donations to purchase livestock for struggling farms. The table shows the prices of some of the animals available. A sixth-grade class raised $2,758 for the charity.

   a. Write the missing numbers in the division using the standard algorithm at the right.

   b. The class can buy rabbits and have $ left over.  \[ \begin{array}{c}
   63 \div 2 \leftarrow \text{left over} \end{array} \]

2. Hyo spent $48.84 for a brisket that costs $3.70 per pound. How much did the brisket weigh?

   a. Write an expression to solve this problem.

   b. What is the lowest power of 10 by which you can multiply the divisor and the dividend to get a whole-number divisor? \[ \begin{array}{c}
   37 \div 4 \leftarrow \text{quotient} \end{array} \]

   c. Divide 488.4 by 37.

   d. So, Hyo bought a -pound brisket.

**On the Back!**

3. Find the quotient.  \[ 0.9 \div 4.68 \]
Choose the term or phrase from the list that best represents each number or numerical expression.

<table>
<thead>
<tr>
<th>Term</th>
<th>Term</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>decimal point</td>
<td>quotient</td>
<td>multiply by a power of 10</td>
</tr>
<tr>
<td>dividend</td>
<td>annex a zero</td>
<td>whole number</td>
</tr>
<tr>
<td>tenths place</td>
<td>divisor</td>
<td>reasonable estimate</td>
</tr>
<tr>
<td>decimal remainder</td>
<td>ones place</td>
<td>compatible numbers</td>
</tr>
</tbody>
</table>

1. \( \frac{23}{567} \)
   \[
   \text{quotient} = 216 \div 74 = 210 \div 70 = \]

2. \( \frac{23}{567} \)
   \[
   \text{multiply by a power of 10} = \]

3. \( 482.39 \)
   \[
   \text{whole number} = \]

4. \( 6,781 \)

5. \( \frac{23}{567} \)

6. \( 461.723 \)

7. \( \rightarrow 30.6 \)
   \[
   \text{reasonable estimate} = \]

8. \( 67.2 \div 5.3 = 14 \)

9. \( 9,305.08 \)

10. \( 1.2)45.90 \)

11. \( \frac{24\overline{25}}{128)3,104.00} \)

12. \( 12.8)310.4 = 128)3104 \)

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# Day Three

## English-Language Arts
- Daily Reading: *The Birmingham Children’s Crusade*
- Reading Response: Prefixes
- Book Project Menu

## Math
- Complete Reteach 1-3
- Complete Vocabulary 1-3

## Science
- Comparing Plants and Animals  pg125-126
Instructions: Use the prefix dis- to complete each sentence correctly.

**dis-** (apart, away, not, negative)

1. Many people __________________ with segregation.  
   (did not agree)

2. President Kennedy __________________ how he saw children being treated.  
   (did not like)

3. Most parents __________________, fearing for their children's safety.  
   (did not approve)

4. Dr. King wanted to __________________ many unfair practices.  
   (not continue)

5. The children __________________ the rules when they chose not to go to school.  
   (did not obey)
An **area model** and an equation can be used to find the product of two factors.

This area model shows the factors $\frac{1}{2}$ and $\frac{1}{5}$ because one row is $\frac{1}{2}$ of the model and one column is $\frac{1}{5}$ of the model.

The shading that overlaps shows the product, so $\frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$.

To multiply mixed numbers, convert each mixed number to an improper fraction. Then multiply the fractions.

$$\frac{5}{7} \times 11\frac{1}{5} = \frac{39}{17} \times \frac{56}{5} = \frac{312}{5} = 62\frac{2}{5}$$

1. Layla has $8\frac{3}{4}$ bags of packing peanuts. Each whole bag of packing peanuts weighs $7\frac{4}{5}$ pounds. What is the total weight of the packing peanuts?

   **a.** Use an area model to find the partial products.

   $$7 \times \frac{3}{4} = \frac{5}{4} = 5$$

   $$\frac{4}{5} \times 8 = \frac{32}{5} = 6$$

   **b.** Add the partial products.

   $$56 + 5\frac{4}{4} + \frac{2}{5} + \frac{3}{5} = 56 + 5 + \frac{5}{6} + 6 \frac{8}{12} + \frac{12}{20} = \frac{25}{4} = 68 \frac{20}{4}$$

   **c.** The packing peanuts weigh $68\frac{20}{4}$ pounds.

2. Ian has $\frac{5}{6}$ pound of pistachios. He needs $\frac{2}{7}$ of the pistachios to make trail mix. What fraction of a pound of pistachios will Ian use for the trail mix?

   Find the product. Is it reasonable?

   $$\frac{2}{7} \times \frac{5}{6} = $$ Yes/No, because — is less than/greater than 1.

**On the Back!**

3. Find the product of $8\frac{1}{7} \times 3\frac{2}{3}$.
Choose the term that best matches each description.

1. A number that is multiplied by another number
   - A) addend
   - B) whole number
   - C) product
   - D) factor

2. Total number of possible equal parts in a fraction
   - A) denominator
   - B) numerator
   - C) mixed number
   - D) divisor

3. Total number of actual equal parts in a fraction
   - A) denominator
   - B) numerator
   - C) mixed number
   - D) dividend

4. An area model can be used to find these
   - A) equal parts
   - B) factors
   - C) partial products
   - D) like terms

5. A number that combines a whole number and a fraction
   - A) addend
   - B) numerator
   - C) mixed number
   - D) denominator

6. The result of multiplication
   - A) product
   - B) factor
   - C) denominator
   - D) quotient
<table>
<thead>
<tr>
<th>Day Four</th>
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<tbody>
<tr>
<td><strong>English-Language Arts</strong></td>
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<tr>
<td>✅ Daily Reading: <em>The Birmingham Children’s Crusade</em></td>
</tr>
<tr>
<td>✅ Book Project Menu</td>
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<tr>
<td><strong>Math</strong></td>
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<tr>
<td>✅ Complete Reteach 1-4</td>
</tr>
<tr>
<td>✅ Complete Vocabulary 1-4</td>
</tr>
<tr>
<td><strong>Science</strong></td>
</tr>
<tr>
<td>✅ Homeostasis pg 127-129</td>
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</table>
In $6 \div \frac{2}{3}$, 6 is the dividend and $\frac{2}{3}$ is the divisor.

In $\frac{2}{3} \div 6$, $\frac{2}{3}$ is the dividend and 6 is the divisor.

Two numbers are **reciprocals** if their product is 1. The reciprocal of a number written as a fraction $\frac{a}{b}$ is the fraction $\frac{b}{a}$. The reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$. The reciprocal of 6 is $\frac{1}{6}$.

The quotient of $6 \div \frac{2}{3}$ can be found by multiplying 6 by the reciprocal of $\frac{2}{3}$.

$$6 \div \frac{2}{3} = 6 \times \frac{3}{2} = \frac{6}{1} \times \frac{3}{2} = \frac{18}{2} = 9$$

The quotient of $\frac{2}{3} \div 6$ can be found by multiplying $\frac{2}{3}$ by the reciprocal of 6.

$$\frac{2}{3} \div 6 = \frac{2}{3} \times \frac{1}{6} = \frac{2}{18} = \frac{1}{9}$$

1. To divide $\frac{2}{3} \div 5$, first shade the diagram to represent the dividend.

2. Divide the diagram into 5 equal parts.

3. Circle the shaded parts of one row to find the quotient. $\frac{2}{3} \div 5 = \ldots \ldots$

4. Write $13 \div \frac{4}{7}$ as a multiplication expression. $\ldots \times \ldots$

5. Multiply the numerators. Then multiply the denominators. $= \ldots$

6. Write the quotient as a mixed number. $= \ldots$

**On the Back!**

7. Write the division sentence that the model represents.
Circle the reciprocal of each number.

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<thead>
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<tbody>
<tr>
<td>1.</td>
<td>(\frac{3}{5})</td>
<td>(5\frac{1}{3})</td>
<td>(\frac{5}{3})</td>
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<tr>
<td>2.</td>
<td>(\frac{8}{3})</td>
<td>(\frac{3}{8})</td>
<td>8</td>
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<tr>
<td>3.</td>
<td>7</td>
<td>(\frac{7}{1})</td>
<td>(-7)</td>
</tr>
<tr>
<td>4.</td>
<td>(-\frac{1}{2})</td>
<td>2</td>
<td>(-2)</td>
</tr>
<tr>
<td>5.</td>
<td>(3\frac{1}{4})</td>
<td>(\frac{4}{13})</td>
<td>(3\frac{4}{1})</td>
</tr>
<tr>
<td>6.</td>
<td>(-10)</td>
<td>10</td>
<td>(-\frac{1}{10})</td>
</tr>
<tr>
<td>7.</td>
<td>(\frac{6}{18})</td>
<td>3</td>
<td>(\frac{16}{8})</td>
</tr>
<tr>
<td>8.</td>
<td>0.01</td>
<td>(\frac{1}{100})</td>
<td>10</td>
</tr>
</tbody>
</table>
Day Five

English-Language Arts

- Daily Reading: *The Birmingham Children’s Crusade*
- Comprehension Quiz
- Finish Book Project Menu
- Connections: Social Studies
  - Research Martin Luther King Jr.’s “Letter from Birmingham Jail. Read and discuss with your family the important points Dr. King made in his letter.

Math

- Complete Reteach 1-5
- Complete Vocabulary 1-5

Science

- Explore yourself/what does it mean? pg130-134
Optional Additional Learning Activity

**Directions:** Supervise your child as s/he completes an activity and marks off the box. You must also initial the box each time your child finishes a task. Have fun!

<table>
<thead>
<tr>
<th>B I N G O</th>
<th>Read a summary of an article</th>
<th>Read a biography</th>
<th>Read 5 picture books</th>
<th>Find three mountain ranges on a map</th>
<th>Read a book by your favorite author</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Read an article from online</strong></td>
<td>Write an alternate ending to a book you read</td>
<td>Read a book or article about your dream job</td>
<td>Read outside for an hour</td>
<td>Read a book aloud to a younger child</td>
<td></td>
</tr>
<tr>
<td><strong>Visit the Library</strong></td>
<td>Read 10 blog posts</td>
<td><strong>FREE SPACE</strong></td>
<td>Draw a picture of a scene from a chapter book you read</td>
<td>Read a newspaper article</td>
<td></td>
</tr>
<tr>
<td><strong>Read a science fiction or fantasy book</strong></td>
<td>Read a book with a one word title</td>
<td>Read two comics from a newspaper</td>
<td>Read 15 road signs to an adult</td>
<td>Read 6 short stories</td>
<td></td>
</tr>
<tr>
<td><strong>Write a poem</strong></td>
<td>Read a book about an athlete</td>
<td>Read for 45 minutes</td>
<td>Read a book in a series</td>
<td><strong>Read a poem</strong></td>
<td></td>
</tr>
</tbody>
</table>
1. Which of the following is an example of discrimination against African Americans mentioned in the text?
   A. They were not allowed to attend the same churches as white people.
   B. They could not use the same drinking fountains as white people.
   C. They were not allowed to be employed by white people.
   D. They could not serve in the military with white people.

2. Why did the civil rights movement lose some momentum by 1963?
   A. Too many protesters got hurt in violent demonstrations.
   B. Americans grew tired of seeing protests.
   C. Many African Americans decided to accept how badly they were treated.
   D. Protests were not having as much impact as before.

3. African American activists thought Birmingham would be a good place to organize protests in 1963 because ________.
   A. it was considered the most segregated city in the United States at the time
   B. its black population was eager to take part in civil rights demonstrations
   C. it was the most dangerous place in the nation for African Americans to live
   D. its black workers were enthusiastic about organizing a strike for better pay
4. Why was the idea of children leading a protest in Birmingham controversial?
   A. Some adults believed there were better ways for young people to speak out.
   B. Some adults worried that the protest could turn violent.
   C. Some adults feared that they might lose their jobs if their children protested.
   D. Some adults thought the demonstration would reflect badly on Birmingham.

5. Why did many young people want to participate in the Children’s March?
   A. They wanted to show their parents how to be strong community leaders.
   B. They wanted to protest the discrimination their parents were experiencing.
   C. They wanted to confront the police and go to jail.
   D. They wanted to show their pride in their city.

6. Which of the following events happened before the Children’s March?
   A. President Kennedy made a televised speech about segregation.
   B. The United States Congress voted to pass the Civil Rights Act.
   C. The Ku Klux Klan bombed a church during services and killed four girls.
   D. Dr. Martin Luther King Jr. was arrested while protesting for civil rights.

7. Which of the following was a direct effect of the Children’s March?
   A. Hundreds of children were put in jail, and the nation noticed.
   B. The city of Birmingham immediately changed its segregationist laws.
   C. It forced “Bull” Connor out of his job as public safety commissioner.
   D. It led to hundreds more children’s marches across the country.
8. How was the protest on May 3 different from the protest on May 2?
   A. On May 3, many young people were arrested and put in jail.
   B. On May 3, jailed protesters sang songs to keep up their spirits.
   C. On May 3, Birmingham business owners realized that racism hurt the city.
   D. On May 3, police and firefighters violently attacked the protesters.

9. Which of the following details supports the idea that the Children’s March was a high-profile success?
   A. Protests continued despite the violent actions of police and firefighters.
   B. The protesters were called heroes in national newspapers and on TV.
   C. President Kennedy sent negotiators to help desegregate Birmingham.
   D. Thousands of adults joined the march after seeing the young people’s courage.

10. According to the text, why was the Birmingham Children’s Crusade an important event in the civil rights movement?
    A. It led to other protests that caused the government to outlaw segregation.
    B. It was the first time that children successfully demonstrated for civil rights.
    C. It proved that civil rights were worth fighting for in the American South.
    D. It taught a generation of young people to become political activists.

11. **Extended Response:** Explain how the events in Birmingham became a turning point in the civil rights movement.

12. **Extended Response:** Discuss how “Bull” Connor’s terror tactics affected the young protesters in the Children’s March and their goal.
11. Answers will vary. Example: The events in Birmingham became a turning point because people around the country saw images of the violence against the young protesters. When President Kennedy saw these images, he took steps to help negotiate a settlement between the sides. Soon the city of Birmingham agreed to end segregation of restaurants, restrooms, and water fountains. After Kennedy gave a speech about the need to end segregation once and for all, the U.S. Congress passed laws to outlaw segregation and protect African Americans’ rights.

12. Answers will vary. Example: Birmingham’s commissioner of public safety, “Bull” Connor, ordered police and firefighters to use violence against the protesters on May 3, the second day of the march. The police hit people, arrested them, and put them in overcrowded jails. Firefighters blasted marchers with water hoses. Despite these tactics, the young people kept their spirits up, which inspired the adults in Birmingham to overcome their fears and join the protest. In the end, the terror tactics became less effective. People became less and less afraid of them and continued to protest for their rights.
To divide fractions, you multiply the dividend by the reciprocal of the divisor.
\[ \frac{2}{3} \div \frac{1}{4} = \frac{2}{3} \times \frac{4}{1} = \frac{8}{3} \]

A **quotient** is the result of a division problem. In the division problem \( \frac{2}{3} \div \frac{1}{4} = \frac{8}{3} \),
the quotient is \( \frac{8}{3} \). This quotient can be renamed as a mixed number, \( 2\frac{2}{3} \).

If the divisor is greater than 1, the quotient is less than the dividend.
If the divisor is between 0 and 1, the quotient is greater than the dividend.

1. Laurel has \( \frac{5}{6} \) cup of rice. She wants to separate the rice into \( \frac{1}{3} \)-cup servings. How many servings can Laurel make?

   Write a division expression that can be used to solve the problem.

2. The reciprocal of \( \frac{1}{3} \) is \( \_\_\_\_\_ \).

3. Write the division expression as a multiplication expression. \( \_\_\_\_\_ \times \_\_\_\_\_ \)

4. Multiply and rename the answer as a mixed number. \( \_\_\_\_\_ = \_\_\_\_\_ \)

5. Laurel can make \( \_\_\_\_\_ \) servings of rice.

6. Suppose Laurel wanted to make \( \frac{1}{4} \)-cup servings instead.
   How many servings of rice could she make?

**On the Back!**

7. Find the quotient.
   \( \frac{4}{9} \div \frac{6}{7} \)
Use the vocabulary terms from the list to complete the sentences that describe how to solve the problem. Terms may be used more than once or not at all.

<table>
<thead>
<tr>
<th>denominators</th>
<th>fraction</th>
<th>divide</th>
</tr>
</thead>
<tbody>
<tr>
<td>dividend</td>
<td>quotient</td>
<td>mixed number</td>
</tr>
<tr>
<td>numerators</td>
<td>1</td>
<td>divisor</td>
</tr>
<tr>
<td>reciprocal</td>
<td>simplify</td>
<td>product</td>
</tr>
</tbody>
</table>

How many \( \frac{1}{4} \)-inch pieces can be cut from a piece of metal \( \frac{5}{8} \) inch long?

1. The problem requires you to a fraction by a .

2. Set up the division problem with \( \frac{5}{8} \) as the and \( \frac{1}{4} \) as the .

3. Rewrite the problem using multiplication and replace the with its .

4. The of a fraction and its reciprocal is .

5. Calculate the product of the and the product of the .

6. Finally, the .

7. The answer will be a .
## Day Six

### English-Language Arts

- Daily Reading: *Alien Collective 1: Resistance*
- Reading Response: Draw Conclusions
- Book Project Menu
  - Select a second short story or a book that you recently read and complete one activity from the menu to work on throughout the week.
  - [link](https://teachingelawithjoy.com/10-favorite-short-stories-for-middle-school-found-online/)

### Math

- Complete Reteach 1-6
- Complete Vocabulary 1-6

### Science

- Plate Tectonic pg178-181
Alien Collective I: Resistance
A Reading A–Z Level Z Leveled Book
Word Count: 2,087

Connections

Writing and Art
Do you think the aliens have come to Earth to help or to take over? Why? Write an essay explaining your answer, using specific details from the text as support.

Science and Art
Research other planets in our solar system. Create a poster including a diagram of the planets and the facts you learned.

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Written by Rus Buyck • Illustrated by Tomo Fezio Gos

www.readinga-z.com
After the first explosion, the real attack began. Bullets and grenades struck the shields in dazzling blue light. The main force focused its fire on the south side of the tower. A small team of five from the backup force approached the north side. Though they all carried weapons, they didn't fire. Instead, they snuck up to the tower. Then, one by one, with a flash of blue light, they passed through the shield and onto the grounds.

"We can get in there!" Charlotte gasped. Before Sam could reply, she sprinted across the open area. She kept close to the ground, heading toward the point where the soldiers had passed through the shield.

She reached the shield at a full run, expecting to pass through it as they had. Instead, she felt a flash of pain and a tingling sensation all over her body. Everything went dark.
You’re making very good progress with the link. Artie smiled. The way his scaled lips turned up made his face look more scary than kind. No, we are not torturing you. The pain will end soon. Your brain is processing the Collective’s experience—or at least part of it. It’s an incredible amount of information.

“I understand what you’re trying to do, but your threats won’t get me to help you,” Charlotte snapped.

There is a threat, but not in the way you’re thinking. I assure you, we pose no danger to humans or Earth. In fact, the opposite is true. We’re trying to save you from yourselves.

“I don’t believe you. You’re just trying to brainwash me into betraying my species like all the others. It won’t work. I know what you really are—invaders, conquerors, colonizers.”

I see you’ve remembered some of the Resistance’s labels. Your recovery is going well. We should be able to perform the second procedure soon.

Charlotte tried to jump off the bed, but her bonds held. She struggled with all her strength, and when they didn’t give, she spit at her captor.

Artie simply nodded and left the room.

---


Images of another world, one with advanced civilizations living beneath violet seas. The ocean was their home, their livelihood, and ultimately, their power source. Huge factories grown from something like coral released clouds of seemingly harmless gases. The gases became the main food source for tiny organisms few had studied. By the time the inhabitants discovered that the food chain was turning the water toxic, it was too late.


How were the aliens doing this to her? The pain was horrible and didn’t seem to end.

To her, the aliens’ message was clear: submit and change—or die.
I'm sorry, Charlotte heard in her mind. It wasn't her voice, though, or one she recognized. She opened her eyes and blinked. Her head throbbed, as if her brain were trying to burst out of her skull.

She was on a bed in a stark, clean room. A glowing ball near the ceiling provided a bright but pleasant light.

I know you're in a great deal of pain, but the first procedure was a success. The voice came again, but this time she could somehow tell it was coming from her right. Turning her head was painful. You are now partially connected to the Collective Link.

The aliens provided free energy sources in the form of egg-shaped generators. Though only the size of a small car, each one could somehow power an entire city without any fuel.

In exchange, governments began building the Sterilization and Re-education Centers in cities around the world. All humans were expected to report and register at them. The governments also required people to do "Reconstruction Work"—planting trees, cleaning up landfills, and doing other tasks. The aliens said the work would "return the Earth to a balanced and healthy ecosystem."

Charlotte's dad started trying to convince people that the aliens were really preparing Earth for colonization. His materials claimed that there were sinister motives behind the aliens' actions. First, they made humanity dependent upon free energy. Then, they began using sterilization to reduce the human population to a more manageable size. Re-education was a way to make people accept the aliens' eventual rule.

According to Charlotte's dad, the aliens were "playing the long game." In time, they would be able to simply take over the planet without a fight. He said the human race needed to fight them while they still could.

The collective is resisting. You are now partially connected to the Collective Link.
Standing near the bed was some kind of lizard person who watched her with its head slightly tilted. It wore a long, bright-red robe with small gold baubles.

"Lizard person" is close enough, the voice said, or even "lizard man," since I am male. Given your experience, I can understand the comparison.

"What's happening?" Charlotte croaked. Her throat was painfully dry. "How are you talking in my head?"

The Collective Link has many uses, the creature said. Species from all over the galaxy are part of the Collective. It would be impossible for all of us to communicate with sound. The original races developed the link as a way to translate meaning.

The explanation was dumped into Charlotte’s mind all at once, and it took a moment to sort it out. Painfully, she realized that if she was talking with an alien, they must have captured her.

She tried to sit up, but her arms and legs were strapped to the bed somehow. She couldn’t lift them more than a few inches. The pain in her head was so bad when she did move that she quickly gave up. The alien ignored her struggle and kept talking in her head. The tone was almost like someone talking to a small child.
<table>
<thead>
<tr>
<th>Book Project Menu</th>
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<tbody>
<tr>
<td><strong>Plain Jane</strong></td>
</tr>
<tr>
<td>Made into a movie?</td>
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<td><strong>Game Time</strong></td>
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**Book Project Menu**

- **Plain Jane**
  - Made into a movie?
  - Books which have not already been

- **ABC Book**
  - Made into a movie?
  - Books which have not already been

- **Time Capsule**
  - Actually create a time capsule to
  - Give descriptions of any movie

**Newspaper**

- **Game Time**
  - Advertisements that would relate to
  - Book. Include a collection of

- **The Story**
  - Advertisements that would relate to
  - Book. Include a collection of

**Book Project Menu**

- **Plain Jane**
  - Made into a movie?
  - Books which have not already been

- **ABC Book**
  - Made into a movie?
  - Books which have not already been

- **Time Capsule**
  - Actually create a time capsule to
  - Give descriptions of any movie

**Newspaper**

- **Game Time**
  - Advertisements that would relate to
  - Book. Include a collection of

- **The Story**
  - Advertisements that would relate to
  - Book. Include a collection of
Skill: Make Inferences / Draw Conclusions

Inference = What I know + Story Clues

Instructions: Use clues from the book and what you already know to make inferences about the events or characters in the book.

Name
A **mixed number** consists of a whole number and a fraction.

You can write a mixed number as a fraction that has a numerator greater than its denominator. The denominator will not change. To find the numerator, multiply the whole number by the denominator and then add the numerator.

\[
5 \frac{7}{13} = \left(5 \times \frac{13}{13}\right) + \frac{7}{13} = \frac{72}{13} \quad \quad \quad 2 \frac{5}{8} = \left(2 \times \frac{8}{8}\right) + \frac{5}{8} = \frac{21}{8}
\]

To divide mixed numbers, write each mixed number as a fraction and then divide the fractions. Remember, dividing by a fraction means multiplying by its reciprocal.

\[
5 \frac{7}{13} \div 2 \frac{5}{8} = \frac{72}{13} \div \frac{21}{8} = \frac{72}{13} \times \frac{8}{21} = \frac{576}{273} = \frac{210}{91}
\]

1. Jesse has \(41\frac{1}{4}\) inches of ribbon for making bows. She uses \(3\frac{3}{4}\) inches of ribbon for each bow. How many bows can she make?

Write a division expression that can be used to answer this question.

2. Use compatible numbers to estimate the number of bows Jesse can make.

3. Rewrite the division expression from Exercise 1 using fractions greater than 1 in the place of mixed numbers. Then divide.

4. Jesse can make \(\text{bow} \) bows.

5. Use your estimate from Exercise 2 to decide whether your answer is reasonable. Explain.

**On the Back!**

6. Find the quotient.

\[
5 \frac{3}{8} \div 7 \frac{1}{4}
\]
Complete the vocabulary chart.

<table>
<thead>
<tr>
<th>Word or Phrase</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraction</td>
<td>A fraction is made up of a numerator and a denominator. The numerator is shown on top of a line and is the number of parts of the whole. The denominator is shown below the line and is the number of parts by which the whole has been divided.</td>
<td></td>
</tr>
<tr>
<td>Mixed number</td>
<td></td>
<td>$5\frac{1}{6}$</td>
</tr>
<tr>
<td>Quotient</td>
<td></td>
<td>The 5 in $45 \div 9 = 5$</td>
</tr>
<tr>
<td>Reciprocals</td>
<td>Two numbers whose product is 1 are called reciprocals.</td>
<td></td>
</tr>
<tr>
<td>Divisor</td>
<td>The divisor is the second number in a division problem; it is the number by which another number (the dividend) is divided.</td>
<td></td>
</tr>
<tr>
<td>Compatible numbers</td>
<td></td>
<td>$32\frac{2}{9} \div 7\frac{8}{9} \rightarrow 32 \div 8$</td>
</tr>
</tbody>
</table>
# Day Seven

## English-Language Arts

- Daily Reading: *Alien Collective I: Resistance*
- Reading Response: Past-Tense Verbs
- Book Project Menu

## Math

- Complete Reteach 1-7
- Complete Vocabulary 1-7

## Science

- None for today
**Instructions**: Fill in the missing present-tense or past-tense verb. Then, choose six past-tense verbs and use them to write sentences about the story *Alien Collective I: Resistance*.

<table>
<thead>
<tr>
<th>Present-Tense Regular Verbs</th>
<th>Past-Tense Regular Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>accept</td>
<td>reflected</td>
</tr>
<tr>
<td>sort</td>
<td>added</td>
</tr>
<tr>
<td>call</td>
<td>worked</td>
</tr>
<tr>
<td>stay</td>
<td>served</td>
</tr>
<tr>
<td>blink</td>
<td>pushed</td>
</tr>
</tbody>
</table>

**My Sentences:**
To solve a problem with rational numbers, first decide what steps to use to solve the problem. Then:
• choose the correct operations.
• identify the information you need from the problem.
• correctly use the information.
• calculate accurately.
• interpret solutions and check that the answer is reasonable.

1. To make papier-mâché, Emma uses \( \frac{3}{4} \) cup of white school glue for each batch. For a big project, she will make 11 batches of papier-mâché. Emma has half of a 1-gallon bottle of white school glue. Does Emma have enough glue?

   There are 16 cups in a gallon, so Emma has \( \_ \_ \_ \) cups of glue.

2. Which operation should be used to find out how much glue Emma needs?

3. Calculate the amount of glue Emma needs.

4. Does Emma have enough glue to make 11 batches of papier-mâché? Explain.

On the Back!

5. A pancake recipe calls for \( \frac{1}{8} \) cup of oil per cup of mix. Owen wants to use \( 3\frac{1}{2} \) cups of pancake mix. He has \( \frac{1}{2} \) cup of oil. Does Owen have enough oil to make the pancakes? Explain.
Each section of the graphic organizer contains a vocabulary term and two examples of the term. Use the list to complete the graphic organizer.

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Decimal</th>
<th>Mixed Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/8</td>
<td>0</td>
<td>4.8</td>
</tr>
<tr>
<td>Whole Numbers</td>
<td>14/12</td>
<td>1.4142…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>267</td>
</tr>
</tbody>
</table>

- **Real Numbers**
  - 3.1415…

- **Rational Numbers**
  - 1/3
  - 18
  - 5/16

- **Decimals**
  - 0.21

- **Improper Fractions**
  - 24/5
  - 9 1/6
Day Eight

**English-Language Arts**
- Daily Reading: *Alien Collective I: Resistance*
- Reading Response: Suffix-ly
- Book Project Menu

**Math**
- Complete Reteach 3-2
- Complete Vocabulary 3-2

**Science**
- Types of Boundaries pg181-185
Instructions: Add the suffix -ly to each word. Then, choose the correct word from the word bank to complete each sentence. At the bottom of the page, add the suffix -ly to each word and use it in a complete sentence.

painful ___ seeming ___ apparent ___ ultimate ___ partial ___

1. The ocean was their home, their livelihood, and __________________ their power source.

2. Huge factories grown from something like coral released clouds of __________________ harmless gases.

3. Her throat was __________________ dry.

4. You are now __________________ connected to the Collective Link.

5. She had __________________ sent the entire memory over the link.

 eventual: _______________________________________________________

 simple: _________________________________________________________
A prime number has factors of only itself and 1. A composite number can be written as a product of its prime factors, called its prime factorization. A factor tree is a diagram that shows the prime factorization of a composite number. The prime factorization for 8 is $2 \times 2 \times 2$.

The greatest number that is a factor of two or more numbers is the greatest common factor, or GCF.

Factors of 8: 1, 2, 4, 8  
Factors of 12: 1, 2, 3, 4, 6, 12

The greatest common factor or GCF of 8 and 12 is 4.

The least common multiple (LCM) is the common multiple with the least value.

Multiples of 2: 2, 4, 6, 8, 10, 12, 14, 16, 18,...  
Multiples of 6: 6, 12, 18,...

The least common multiple or LCM of 2 and 6 is 6.

1. Use a factor tree to write the prime factorization of 12.

   The prime factorization of 12 is $2 \times 2 \times 3$.

2. Find the greatest common factor (GCF) of 16 and 40.

   Circle the common factors.

   Factors of 16: 1, 2, 4, 8, 16
   Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40

   $\text{GCF} =$

3. Find the least common multiple (LCM) of 6 and 9.

   Circle the common multiples.

   Multiples of 6: 6, 12, 18, 24, 30, 36,...  
   Multiples of 9: 9, 18, 27, 36,...

   $\text{LCM} =$

On the Back!

4. Find the prime factorization of 18. If it is prime, write prime.
Choose the term or phrase from the list that best represents the item in each box.

<table>
<thead>
<tr>
<th>prime number</th>
<th>composite number</th>
<th>prime factorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributive Property</td>
<td>greatest common factor</td>
<td>multiples</td>
</tr>
<tr>
<td>factors</td>
<td>factor tree</td>
<td>least common multiple</td>
</tr>
</tbody>
</table>

1. for 48:
   1, 2, 3, 4, 6, 8, 12, 16, 24, 48

2. 81

3. for 3:
   3, 6, 9, 12, 15, 18, 21, 24, 27, 30

4. $32 = 2 \times 16$
   $= 2 \times 2 \times 8$
   $= 2 \times 2 \times 2 \times 4$
   $= 2 \times 2 \times 2 \times 2 \times 2$
   $= 2^5$

5. for 42 and 36:
   6

6. 11

7. for 5 and 8:
   40

8. 72
   \[
   \begin{array}{c}
   12 \\
   \hline
   6 \\
   \hline
   2 \\
   \hline
   \end{array}
   \]

9. $27 + 18 = 9(3 + 2)$
   $= 9(5)$
   $= 45$
# Day Nine

## English-Language Arts

- Daily Reading: *Alien Collective I: Resistance*
- Book Project Menu

## Math

- Complete Reteach 2-1
- Complete Vocabulary 2-1

## Science

- None for today
Two numbers that are located on opposite sides of 0 on a number line and are the same distance from 0 are **opposites**.

![Number line diagram]

On the number line above, \(-4\) and 4 are on opposite sides of 0. Each is 4 units from 0, so they are opposites.

The counting numbers, their opposites, and 0 are **integers**. 15 is an integer because it is a counting number. \(-15\) is an integer because it is the opposite of the counting number 15. 

\[-(-15) = 15\]

1. The numbers 4, \(-7\), and 0 are integers. The numbers 4.5 and \(\frac{3}{2}\) are not integers. Circle the integers.

\[-2.5 \quad 0 \quad -9 \quad \frac{3}{4} \quad 16 \quad -4.8\]

2. Which integer is neither positive nor negative?

What is the opposite of this integer?

3. Complete 3a–3d to find the opposite of 9.

   a. On a number line, the positive integers are located to the __________ of 0.

   The negative integers are located to the __________ of 0.

   b. Plot 9 on the number line to the right of 0.

   c. Plot the opposite of 9 to the left of 0 so that it is 9 units from 0.

   ![Number line diagram]

   d. The opposite of 9 is ________.

**On the Back!**

4. Draw a number line from \(-5\) to 5. Label \(-3\) as point \(P\).

Then write the opposite of \(-3\).
Choose the numbers from the list that best represent each term.

<table>
<thead>
<tr>
<th>-7</th>
<th>4</th>
<th>0</th>
<th>6.9</th>
<th>7</th>
<th>25</th>
<th>-5</th>
<th>7/7</th>
<th>-14</th>
<th>10,000</th>
</tr>
</thead>
</table>

1. Counting number

2. Integer

3. Rational number

4. Negative integer

5. Positive integer

6. Opposites
## Day Ten

### English-Language Arts

- Daily Reading: *Alien Collective I: Resistance*
- Comprehension Quiz
- Finish Book Project Menu
- Connections: Science and Art
  
  Research other planets in our solar system. Create a poster including a diagram of the planets and the facts you learned.

### Math

- Complete Reteach 2-2
- Complete Vocabulary 2-2

### Science

- Explore yourself/what does it mean?  Pg 186-190
1. When someone is **assisting or cooperating with enemy forces** they are __________.
   - A colonizing
   - B collaborating
   - C congealing
   - D categorizing

2. What conclusions can you draw about Charlotte’s character on the basis of her actions in the story?
   - A She is too frightened to do anything about the aliens.
   - B She is unsure if her dad is right about the aliens being a threat.
   - C She is passionate and committed to fighting the Collective.
   - D She is quiet and often looks to others for direction to fight the aliens.

3. Which event occurs last in the timeline of the story?
   - A Charlotte has a conversation with her dad about fighting for the Resistance.
   - B Charlotte is prepared by the aliens for the second procedure.
   - C Charlotte and Sam sneak out at night.
   - D Charlotte runs toward the shield and cannot get through.

4. What is the effect of Charlotte being connected to the link?
   - A She can communicate with Artie without speaking out loud.
   - B She can see into the future and see what the aliens plan to do.
   - C She can communicate with Sam and let him know where she is being held.
   - D She has gained super powers that she will use against the aliens.

*Quick Check continued on following page*
5. What happens right after Charlotte attempts to run through the shield?
   A. Her dad finds her and tries to rescue her before she is captured.
   B. The first attack from the Resistance is initiated.
   C. The aliens tell the humans that they are on Earth to help.
   D. She wakes up in a strange room tied to a bed.

6. What problem on Earth do the aliens at first claim they are attempting to solve?
   A. They want to help the humans communicate with other life forms.
   B. They want to clean up the environment.
   C. They want to stop the spread of deadly diseases.
   D. They want to stop all fighting and war on Earth.

7. Why does Charlotte want to fight in the Resistance?
   A. Her dad doesn’t think she is strong enough to fight and she wants to prove him wrong.
   B. She is bored with living in the compound and wants some more excitement in her life.
   C. Sam has convinced her that it is the only way to remove the aliens from Earth.
   D. She wants to inspire other people to join in the fight against the aliens.
8. What is the effect of the aliens’ presence on Earth?
   A. Governments throughout the world have set up Sterilization and Re-education Centers.
   B. People are under the control of the aliens and must do as they say.
   C. The aliens are bombing different places on Earth and trying to take control.
   D. People have been forced to learn the language of the aliens so that they might make a peace agreement.

9. Colonization means __________.
   A. being able to communicate without talking
   B. creating a plan of attack
   C. taking control over an area for one’s own use
   D. working together to find a peaceful resolution

10. What conclusion can you draw about Charlotte’s dad?
    A. He is willing to give the aliens a chance to prove that they will help the humans.
    B. He believes the aliens must be conquered before they become too strong.
    C. He trusts that governments throughout the world will protect their people.
    D. He does not trust everyone in the Resistance and often works alone.

11. Extended Response: What do you believe is the truth behind the alien’s presence on Earth? What clues from the text support your response?

12. Extended Response: Why do you think the author starts the story with images of different planets being destroyed?
Main Comprehension Skill: Make Inferences / Draw Conclusions

1. B Vocabulary
2. C Make Inferences / Draw Conclusions
3. B Sequence Events
4. A Cause and Effect
5. D Sequence Events
6. B Problem and Solution
7. D Main Idea and Details
8. A Cause and Effect
9. C Vocabulary
10. B Make Inferences / Draw Conclusions

11. Students may draw their own conclusions but should reference evidence in the text to support their responses.

12. Student responses will vary but should include the idea that the visions that Charlotte sees give a clue to the reader about what is happening in other parts of the galaxy and why the Collective was formed.
A **rational number** is a number that can be written as a quotient of two integers in which the divisor is not equal to 0. A rational number can be a whole number, a fraction, or a decimal. 6, \(-1\), \(\frac{4}{5}\), \(-\frac{3}{2}\), 0.5, and \(-1.75\) are rational numbers.

Remember that the > symbol means “**greater than**” and the < symbol means “**less than**.” The symbols <, >, and = can be used to compare numbers.

\[
5 > 2 \quad 4\frac{1}{2} = 4.5 \quad 3.25 < 3.5
\]

1. You can rename 3.5 as a mixed number.

   \[
   3.5 = \_
   \]

   Now rename the mixed number as a quotient of two integers.

2. Use the number line to complete the statement.

   \[
   \_
   \]

   \(-1\) \(-2\) because \(-1\) is to the \_

   of \(-2\) on the number line.

3. Use a number line to help order rational numbers.

   a. Plot and label points \(P\left(-\frac{5}{2}\right)\), \(Q\left(\frac{3}{4}\right)\), \(R(1.25)\), and \(S(-3.5)\) on the number line.

   \[
   \_
   \]

   b. Use the number line to order \(-\frac{5}{2}\), \(\frac{3}{4}\), 1.25, and \(-3.5\) from least to greatest.

**On the Back!**

4. Use <, >, or = to compare \(-8\) and \(-9\).
Use the words and numbers from the list below to complete the graphic organizer about the study of rational numbers.

<table>
<thead>
<tr>
<th>integers</th>
<th>b</th>
<th>4 (\frac{0}{1})</th>
<th>decimals</th>
<th>greatest</th>
</tr>
</thead>
<tbody>
<tr>
<td>−1.25</td>
<td>0</td>
<td>6.\overline{3}</td>
<td>−(\frac{3}{0})</td>
<td>4</td>
</tr>
<tr>
<td>(1\frac{7}{8})</td>
<td>fraction</td>
<td>least</td>
<td>−(\frac{2}{3})</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

**Definition**

A rational number can be expressed as a fraction in the form \(\frac{a}{b}\) or \(-\frac{a}{b}\), where \(a\) and \(b\) are integers and \(b\) is not 0.

**Facts**

- Rational numbers.
- When ordering rational numbers on a number line, the number farthest to the right is the greatest number. The number farthest to the left is the least number.