Bluebonnet Learning
K–5 Reading Language Arts

ENGLISH

FLASH, BANG, BOOM!
EXPLORING LIGHT AND SOUND

GRADE 3 UNIT 5 | ACTIVITY BOOK

EDITION 1

Grade 3 | Unit 5

Flash, Bang, Boom!
Exploring Light and Sound

Activity Book

Acknowledgement:

Thank you to all the Texas educators and stakeholders who supported the review process and provided feedback. These materials are the result of the work of numerous individuals, and we are deeply grateful for their contributions.

Notice: These learning resources have been built for Texas students, aligned to the Texas Essential Knowledge and Skills, and are made available pursuant to Chapter 31, Subchapter B-1 of the Texas Education Code.

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Unit 5
Flash, Bang, Boom!
Exploring Light and Sound
Activity Book

This Activity Book contains activity pages that accompany the lessons from the Unit 5 Teacher Guide. The activity pages are organized and numbered according to the lesson number and the order in which they are used within the lesson. For example, if there are two activity pages for Lesson 4, the first will be numbered 4.1 and the second 4.2. The Activity Book is a student component, which means each student should have an Activity Book.

NAME: _____

DATE: _____

What Is Light?

1. **Before Reading:**
   Think-Draw-Share: Draw a picture in the space below that shows the answer to the question "What is light?" Share with a partner and explain why you drew the picture.

2. **After Reading:**

Responding to Text: Finish the sentence and list the page number where you found the answer.

Light is important because _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ .

page _____

NAME: _____

DATE: _____

Lab Notes

Light	
What is it?	
How do we get it? **What is the source?**	
How fast does it travel?	
How does it travel?	

NAME: _____

DATE: _____

Suffixes: *–er*, *–or*, *–ist*, and *–ian*

This chart lists words with some of the suffixes studied in Grade 3. Some of these words are new to you. Use the chart to fill out Activity Page 1.4.

	–er	***–or***	***–ist***	***–ian***
a		actor	artist	
c		counselor	cartoonist	comedian
d	dancer			
e		editor		electrician
f	farmer			
g		governor	guitarist	
h	hunter			historian
i		inspector		
l				librarian
m				mathematician
n			novelist	
o			organist	
p	player			pediatrician
r	reporter			
s	singer	sailor		
t	teacher		tourist	
v		visitor	violinist	vegetarian
z			zoologist	

NAME: _____

DATE: _____

Suffixes: *–er*, *–or*, *–ist*, and *–ian*

Answer the following questions using the words on Activity Page 1.3.

1. Which word on the chart names a doctor who specializes in taking care of babies and children? _____

2. Which word on the chart names someone who can help you find good books to read at the library? _____

3. You might be one of these if you like to play on sports teams.

   _____

4. If you don't eat any meat, you are a _____.

5. If you like to tell jokes and make people laugh, you are a _____.

6. If you have done extensive research on ancient Rome, you are probably a _____.

7. If your job is to study animals and their habitats, you are probably a _____.

8. List the words that name people who play musical instruments.

   _____ _____ _____

9. If you like to draw, you could be either one of these. _____ _____

10. If you want to be a person who makes or writes fictional books, you want to be a _____.

11. If you go to a new city to explore for a few days, you may be either one of these. _____ _____

12. If you understand how to put wires for electricity in a new house, you might be an _____.

Take-Home Letter

Dear Family Members,

Please help your student succeed in spelling by taking a few minutes each evening to review the words together. Helpful activities for your student to do include: spelling the words orally, writing sentences using the words, or simply copying the words.

Spelling Words

This week, we are reviewing all eight spelling patterns for the sound /ee/ that we have already learned. Your student will be tested on these words.

Students have been assigned two Challenge Words, *almost* and *really*. Challenge Words are words used very often. While *almost* does not follow the spelling pattern of /ee/, *really* does as the 'ea' and the 'y' in *really* are both pronounced /ee/.

The Content Word for this week is *electricity*. This word is directly related to the material that we are reading in *Adventures in Light and Sound*. The Content Word is an optional spelling word for your student. If your student would like to try it but gets it incorrect, it will not count against them on the test. We encourage everyone to stretch themselves a bit and try to spell this word.

The spelling words, including the Challenge Words and the Content Word, are listed below:

1. succeeded	12. stadium
2. money	13. chariot
3. enemy	14. degree
4. centipede	15. athlete
5. experience	16. chief
6. believe	17. grease
7. secret	18. scenic
8. increase	**Challenge Word**: *almost*
9. chimney	**Challenge Word**: *really*
10. tedious	**Content Word**: *electricity*
11. fancy	

Student Reader

The chapters your student will read this week in *Adventures in Light and Sound* include information about what light is, how shadows are made, and mirrors and reflections. Be sure to ask your student each evening about what they are learning.

Students will take home text copies of the chapters in the Reader throughout the unit. Encouraging students to read a text directly related to this domain-based unit will provide content and vocabulary reinforcement. Your student will also bring home a copy of the glossary for use in reading the text copies to family members. The bolded words on the text copies are the words found in the glossary.

NAME: _____

DATE: _____

2.1 ACTIVITY PAGE

What Is Light?

Answer each question below. Write in complete sentences with correct capitalization and punctuation. List the page number where you found the answer.

1. What determines whether or not you see light waves?

_____

_____

_____

_____

page _____

2. Describe white light.

_____

_____

_____

_____

page _____

3. What is the central idea of this chapter?

NAME: _____

DATE: _____

Read-Aloud: Excerpts from "What Is Light?"

Samuel lifted himself out of his garden chair and stood beneath the giant oak. As he stood, he gazed out into his beautiful garden that was bursting with color and scent and began to speak.

"Our main source of light and heat is the sun, a hot star of 'glowing gas.'" Samuel smiled as he went on. "Light illuminates objects and makes them visible. Light spreads out in all directions. Because of light, our eyes and our brains are able to form pictures of the world we live in. I have spent my life painting those pictures. Light gives us every sunrise and every sunset. Without light, there is only darkness."

Jack stared up into the sky. "I've always wondered how exactly light reaches us here on Earth. The sun is more than 92,000,000 miles away!"

"Light travels in the form of tiny waves called light waves," explained Samuel. "These light waves travel in straight paths called rays. Rays of light waves travel at the fastest speed possible in a vacuum, a place that has no tiny particles or bits of matter. Because most of outer space has very few particles, it is a vacuum, and light travels there at the remarkable speed of approximately 186,000 miles a second!"

"Light from the sun reaches Earth because it can pass so quickly through outer space. There is almost nothing to block its path. Once light reaches Earth's atmosphere, it slows down a little bit."

"The atmosphere is like a blanket of air full of gases and moisture that covers the Earth. This blanket of air slows the light down."

"Then," Samuel continued, "the speed of light slows down even more because objects start getting in the way of the light rays." Samuel pointed to the lemonade. "For example, rays of light waves move more slowly when traveling through liquids, such as this lemonade." Then Samuel pointed to the oak tree. "Light waves cannot pass through other objects, such as this beautiful oak tree. Because rays of light waves travel in a straight line, they cannot bend around the tree, either; instead, they leave a shadow, or shade, on the other side of it."

"Another important thing to remember is light is fuel for our planet," announced Samuel. "Light is energy! Energy from the sun supports all forms of life on this planet. Without light and heat from the sun, the farmer would not have food to harvest. In fact, we could not exist on Earth!"

"Isn't it amazing that stars make their own light, but the moon does not? Sunlight bounces off the moon to make it look like it's shining brightly in the night sky," mused Samuel. "Of course, I could sit here all night and talk about why light is so important, not only for myself as a painter, but also for our very existence," he said contemplatively.

NAME: _____

DATE: _____

2.3 ACTIVITY PAGE

Comparing and Contrasting Organizer

Text 1: What Is Light? (Reader)	Text 2: What Is Light? (Excerpts)

Differences:

NAME: _____

DATE: _____

2.3A ACTIVITY PAGE

Contrasting Organizer

Text 1: What Is Light? (Reader)	Text 2: What Is Light? (Excerpts)

Differences:

The main difference between Text 1 and Text 2 is that Text 1 is

_____ text and Text 2 is _____ text.

Text 1 has _____.

Text 2 has _____.

NAME: _____

DATE: _____

2.4 ACTIVITY PAGE

Making Adverbs with the Suffix –*ly*

- *Draw a wiggly line under the verb.*
- *Then, change the adjective under the blank to an adverb by adding* –ly *to complete the sentence.*
- *Draw a triangle around the adverb and an arrow from the adverb to the verb. Then, answer the question after the sentence.*

1. We waited _____ for our turn to look through the telescope.
   (patient)

   How did we wait? _____

2. People were riding in the car _____ because they weren't wearing their seatbelts.
   (illegal)

   How were the people riding? _____

3. Our teacher drew lines _____ on the paper so we would know where to write each separate part.
   (vertical)

   How did our teacher draw lines? _____

4. I _____ arranged my books on the shelves when I cleaned my room.
   (neat)

   How did I arrange my books? _____

5. A woman at a table near us in the restaurant _____ (polite) asked the waiter for more water.

   How did the woman ask? _____

6. The new medicine the doctor gave me went down _____ (smooth) when I swallowed it compared to what I took last year when I was sick.

   How did the medicine go down? _____

Write a sentence using each adverb. Remember, the adverb should describe the verb.

1. *slowly*

   _____

   _____

   _____

   _____

2. *loudly*

   _____

   _____

   _____

   _____

NAME: _____

DATE: _____

2.5 TAKE-HOME

What Is Light?

Did you know that the sun is the greatest **source** of light for our planet, Earth? But what is light? Why is it so important?

Hot gases of the sun give off both light and heat **energy**. Light carries **energy**, with the long **wavelengths** carrying the least and the short **wavelengths** carrying the most. When you think of something with lots of **energy**, what comes to mind?

Do you think of something fast like a race car? Do you think of something with great force like a very strong wind knocking down a tree?

Believe it or not, light can be many times more energetic than a car or the wind.

Light travels at 186,000 miles every second in a **vacuum**. At that **speed**, light can go around Earth more than seven times every second! No human-made machine can go that fast—not even a jet plane or rocket!

One way that light travels, including light from the sun, is in the form of **waves**. Scientists can measure how long light **waves** are. **Waves** can be different sizes—some are long and some are short. Some light **waves** are visible and some are invisible. Whether you can see light or not depends on the length of the **wave**. The longest **wavelength** of visible light is seen as red and the shortest **wavelength** is violet. Short **wavelengths** carry the most **energy**.

The sun gives off what is called **white light**. Perhaps you think of the light from the sun as having no color at all. Maybe you think the light from the sun is more yellow in color. It may surprise you to know that the sun's light, **white light**, is made up of all the colors of the rainbow. **White light** includes light of different **wavelengths**, including all the colors we can see.

Of all the **wavelengths** in the sun's light, there is just a little more of the yellow **wavelengths** than the other colors. This is why the sun looks yellow when we see it against the blue sky. Still, the light from the sun includes all of the other colors and **wavelengths**. You will learn more about **white light**, visible light, and colors in a later chapter in this Reader.

Although the sun is the greatest **source** of visible light, there are also other **sources** of light. What else in the sky provides light? The other stars in the night sky provide light, though it is not as bright as the light from the sun during the day. The moon is not a star and does not give off its own light.

Can you think of other **sources** of light? Is there light in your classroom right now? Perhaps it is from the sun shining through the windows. Chances are good, though, that some of the light in the room may be coming from light bulbs. Like the sun, most light bulbs give off **white light**. **Electric** lights are such a part of our everyday life, we don't even think about them—unless the **electricity** goes off! This doesn't happen often, but sometimes it does during a bad storm. When the electricity goes off and we do not have light from light bulbs, people sometimes use other **sources** of light, like flashlights or candles.

Light is important for many reasons. Light and heat **energy** from the sun warms Earth. Without the light and heat **energy** from the sun, Earth would be freezing cold. You also learned back in kindergarten that the sun's light is needed for plants to grow. Also, without light, there would be no colors. Can you think of another reason that light is important?

Try to imagine a world in which there is no light—no sun, no stars, no candles, and no light bulbs. What would be different? If you just said that it would be dark, you are only partly right. What else would change? Without light, you would not be able to see anything! A world without light is almost impossible to imagine.

NAME: _____

DATE: _____

2.6 TAKE-HOME

Make Adverbs with the Suffix –*ly*

- *Draw a wiggly line under the verb.*
- *Then, change the adjective under the blank to an adverb by adding* –ly *to complete the sentence.*
- *Draw a triangle around the adverb and an arrow from the adverb to the verb. Then, answer the question after the sentence.*

Example:

Tom answered _____ that he did not know how the vase got broken.
(honest)

honestly

Tom answered how? _____ honestly

1. The man on the subway _____ offered his seat to the older woman.
(kind)

   How did the man offer his seat? _____

2. The little boy walked _____ down the stairs.
(quick)

   How did the little boy walk? _____

3. The mayor _____ announced that he would retire.
(official)

   How did the mayor announce he would retire? _____

4. Our teacher _____ explained what we were to do for homework.
(clear)

   How did our teacher explain the homework? _____

5. My sister _____ dropped her jacket on the floor.
(careless)

   How did my sister drop her jacket? _____

Write a sentence using each adverb. Remember, the adverb should describe the verb.

1. *softly*

_____

_____

_____

_____

2. *tightly*

_____

_____

_____

_____

NAME: _____

DATE: _____

Light Experiment Procedure

Follow the directions below to conduct your experiment with your group. Make sure all group members have a chance to participate in the experiment.

Your group's materials:

- one flashlight
- one square of clear plastic wrap
- one square of wax paper
- one square of cardboard
- one square of aluminum foil

1. Make sure your group has all the materials, including Activity Page 3.2.
2. Use Activity Page 3.2 to write down your predictions and record the results.
3. Before conducting the experiment, write down your prediction for what will happen when the light from the flashlight shines on each object.
4. Have one person hold up the clear plastic wrap close to a wall. Another group member will shine the beam from the flashlight on the plastic wrap. What happens? What do you notice? Discuss with your group. Record the results on Activity Page 3.2.
5. Have a different person hold up the square of wax paper and someone else shine the flashlight. What happens? Record the results.
6. Continue with the rest of the materials.
7. When the experiment is done, complete the reflection activity on your own.

NAME: _____

DATE: _____

3.2 ACTIVITY PAGE

Lab Notes

Object	What do I think will happen?	What happened?
Clear plastic wrap		
Wax paper		
Cardboard		
Aluminum foil		

Light Experiment Reflection

Based on your experiment, what predictions can you make about what happens to light when it hits a parked car? Think about all the surfaces that you see on a car.

NAME: _____

DATE: _____

Lab Notes

Cause and Effect: When Light Hits Different Types of Objects		
Transparent Examples: Evidence on page_____	**What does it mean?**	**What happens?**
		Draw a picture.
Opaque Examples: Evidence on page_____	**What does it mean?**	**What happens?**
		Draw a picture.

NAME: _____

DATE: _____

Use Adjectives and Adverbs Correctly

Fill in the blank with an adjective or an adverb, depending on whether a noun or verb is described. Some sentences can have more than one answer and some words may be used more than once.

loud	careful	tight	slow	glad	silent
loudly	carefully	tightly	slowly	gladly	silently

1. The turtle walked _____ across the sidewalk toward the pond.
2. The _____ belt pinched my waist.
3. The _____ sound hurt my ears.
4. Our teacher asked us to read _____ instead of with a partner.
5. The father _____ buckled his seat belt.
6. She _____ put the baby down in his crib so she would not wake him up.
7. My brother _____ fastened his shoelaces so he would not trip.
8. People cheered _____ as the soccer team scored a goal to break the tie.

Bonus: *Mark the adjectives with a box and the adverbs with a triangle, and then draw an arrow to the word they describe.*

NAME: _____

DATE: _____

3.5 ACTIVITY PAGE

Blank Busters

succeeded	money	enemy	centipede
experience	believe	secret	increase
chimney	tedious	fancy	degree
athlete	chief	grease	scenic
chariot	stadium		

Challenge Word: *almost*
Challenge Word: *really*
Content Word: *electricity*

Fill in the blanks in the sentences below with one of the spelling words in the chart. Only if needed, add a suffix to the end of a word in order for the sentence to make sense: –s, –ed, –ing, *or* –ly.

1. The hiker trudged along _____ up the mountain.

2. She enjoyed watching the sprinters and other talented _____ race around the enormous _____.

3. It seemed that the _____ on the rooftop was _____ as tall as a skyscraper.

4. The _____ overlook on the mountain road was breathtaking!

5. Can you _____ that the amount of homework will be _____ in January?

6. It was a _____ that the many-legged _____ in the story had pockets full of _____.

7. The _____ of police has a _____ office with a beautiful view of the city.

8. The fire on the stove was caused by _____ that spilled from the pan.

9. You have _____ in making me laugh for hours!

10. Do you understand how _____ works to make an oven heat up?

Write three sentences using spelling words of your choice that were not used in the first ten sentences. Make sure to use correct capitalization and punctuation. You may use the Challenge Words or the Content Word in your sentences.

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

_____

NAME: _____

DATE: _____

How Are Shadows Made?

Do you remember any interesting facts about how light travels? In the last chapter, you learned that it travels in waves that can be measured as wavelengths. You also learned that it travels at a very high rate of speed. Here's another interesting fact—light waves travel from a source in straight lines that spread out in all directions, like rays.

Have you ever wondered what happens when a line or path of light bumps into something in its way? Different things may happen depending on what exactly is in the light's path.

If a path of light hits something that is **transparent**, most of the light will pass right through. Air, water, and glass are all **transparent**. When light hits these **transparent** objects, it passes through to the other side. It is almost as if the object isn't there.

Most buildings have glass windows so that natural sunlight can travel from the outdoors inside. Have you ever been in a building that has a glass roof or **skylight**? Sometimes you can even see blue sky and clouds through the **skylight**!

Light cannot travel through all materials. If a path of light hits something that is **opaque**, the light is **absorbed** and blocked by the object. It cannot continue in a straight line through the object. Wood, cardboard, and even a person's body are all **opaque** objects. Light cannot pass through to the other side. Instead, a **shadow** is created because the light is **absorbed**.

Look around your classroom. Do you see **transparent** objects through which light is passing? Can you also find **opaque** objects? You will probably find that your classroom has many more **opaque** objects than **transparent** objects. Do you see any **shadows**?

The **shadow** created by blocked light takes on the shape of the object.

NAME: _____

DATE: _____

3.7 TAKE-HOME

How Are Shadows Made?

Read the examples below carefully. If the light source causes a shadow, write "shadow" on the blank. If the light source does not cause a shadow, write "no shadow" on the blank.

1. The sunlight is streaming through a window hitting a rocking chair.

   _____

2. It is a rainy, cloudy day and you are standing outside under an umbrella.

   _____

3. It is midnight and there are no lights on anywhere. _____

4. It is a bright, sunny day at the beach and you are sitting under a beach umbrella. _____

5. You are swinging outside on a sunny, but cold day. _____

6. What is the central idea of this chapter?

   _____

   _____

   _____

NAME: _____

DATE: _____

Lab Notes

Compare and Contrast

Directions: First, look at the convex side of the spoon and draw a picture of your reflection in the first oval. Then, look at the concave side of the spoon and draw a picture of your reflection in the second oval.

Convex

Concave

1. What is similar about the two reflections?

_____

_____

_____

2. What is different about the two reflections?

_____

_____

_____

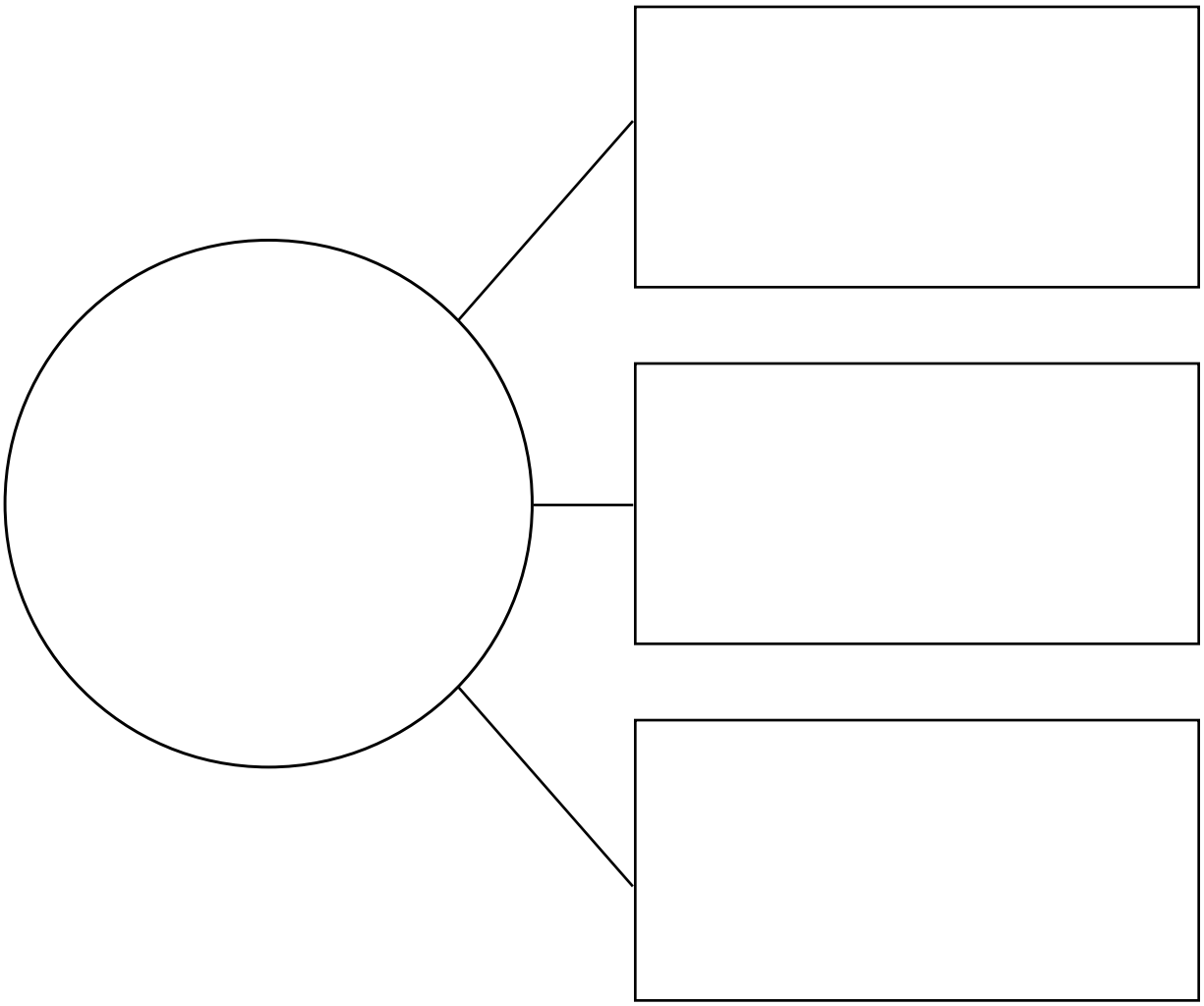
NAME: _____

DATE: _____

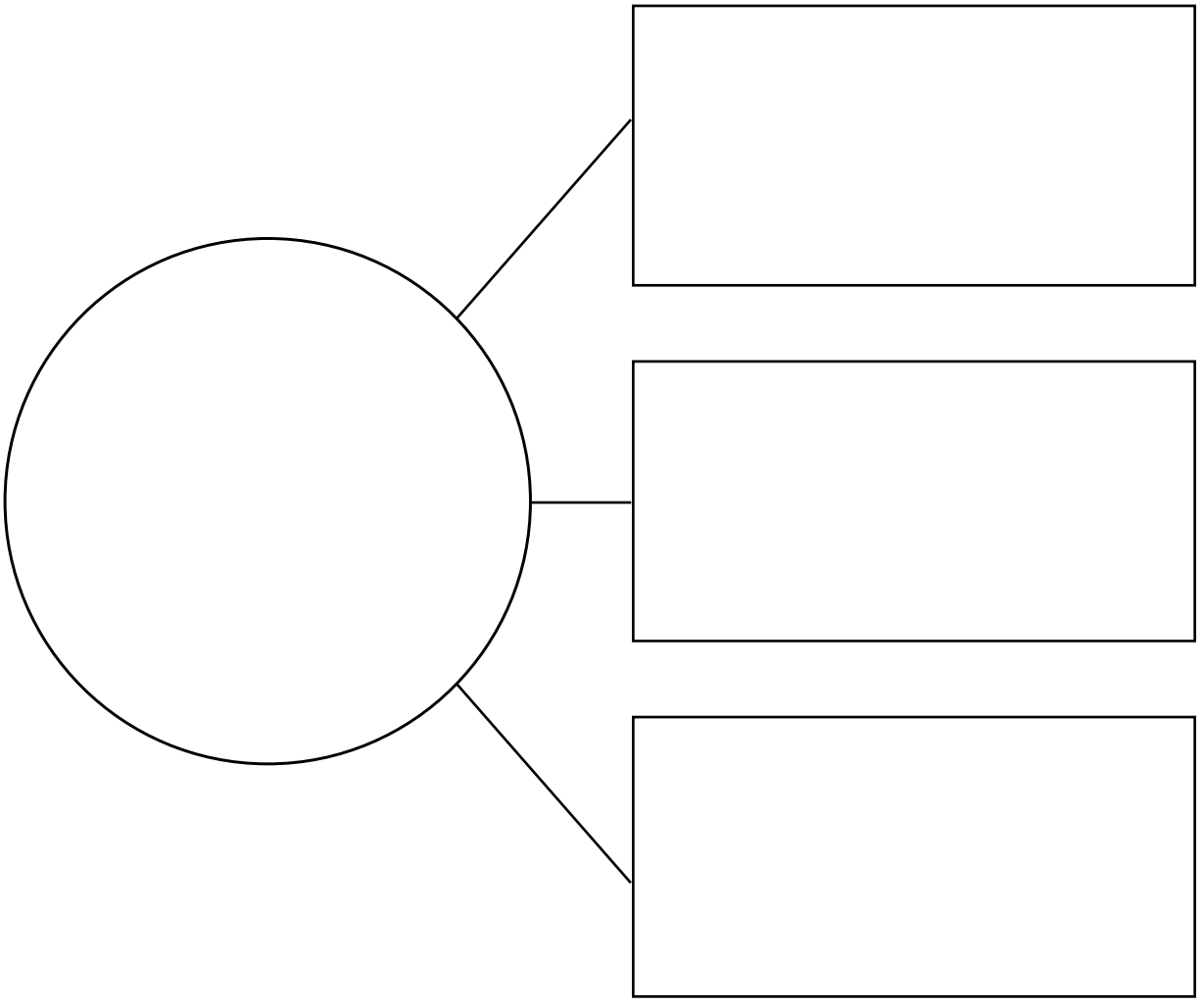
Lab Notes

Central Idea and Details

Pages 30–31 Central Idea Details



Pages 34–35 Central Idea Details



The central idea of both texts is _____.

NAME: _____

DATE: _____

Adverbs that Tell *how*, *when*, and *where*

There is one adverb in each sentence. Draw a triangle around each adverb and a wiggly line under the verb it describes. Then, draw an arrow from the adverb to the verb. On the blank line after the sentence, write whether the adverb tells how, when, *or* where.

1. I am going to a birthday party tomorrow. _____
2. The dog slept outside. _____
3. I always ride the bus to school. _____
4. John has never taken the train. _____
5. Mary left her coat here. _____
6. Dad clapped loudly. _____
7. It snowed everywhere. _____
8. He picked up the baby carefully. _____
9. I ate my peas last because I don't like them. _____
10. The squirrel quickly gathered some acorns. _____
11. Please stack the books there. _____
12. I read my book silently. _____

NAME: _____

DATE: _____

4.4 ACTIVITY PAGE

Word Sort

Identify the headers. Read the words in the box and circle the vowels that have the /ee/ sound. Write the words under each header that match the header's spelling pattern.

'y' > /ee/	**'e' > /ee/**	**'i' > /ee/**	**'ea' > /ee/**
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

'ee' > /ee/	**'ie' > /ee/**	**'ey' > /ee/**	**'e_e' > /ee/**
_____	_____	_____	_____
_____	_____	_____	_____

skied	debate	greeting	piano	recess
early	handy	wheat	honey	sweat
funny	element	sweet	seaside	recipe
cope	valley	head	Chinese	yellow
great	fly	bedding	fried	radiant

NAME: _____

DATE: _____

4.5 TAKE-HOME

Adverbs that Tell *how*, *when*, and *where*

There is one adverb in each sentence. Draw a triangle around each adverb and a wiggly line under the verb it describes and draw an arrow from the adverb to the verb. On the blank line after the sentence, write whether the adverb tells how, when, *or* where.

Example: The nurse gently cleaned my cut finger. how

1. I carried the newspaper inside. _____
2. I will wash the dishes later. _____
3. The people folded the laundry there. _____
4. Sam ripped his pants today. _____
5. The boys whispered quietly. _____
6. Beth has never met her aunt. _____
7. The boy pounded his fists madly. _____
8. My dog always wags his tail. _____
9. Sometimes I walk home from school. _____

NAME: _____

DATE: _____

Mirrors and Reflections

Have you been to the dentist recently? Do you remember if they used a tool with a **mirror** to look at your teeth? Think for a minute about how useful that **mirror** is. Why does the dentist use it? This simple tool allows them to see the back of your teeth. They can also see teeth way in the back of your mouth. Without it, they couldn't do their job nearly as well! Ask to see this tool the next time you're at the dentist.

So what is a **mirror**? A **mirror** has a smooth, shiny **surface** that **reflects** light. Light that is **reflected** bounces off of something in its path. You have already learned that light travels in a straight line, unless it runs into something in its way. If light hits a transparent object, it passes right through the object. If it hits an opaque object, the light is absorbed and blocked so a shadow is made. If light hits a smooth, shiny surface like a **mirror**, it is **reflected**.

When a **mirror** is made, glass is coated with hot, **silvery** metals and then cooled. This coating makes the **mirror** shiny so it **reflects** back all the light that hits it.

Did you know that there are different types of **mirrors**? You probably use a **plane mirror** every morning when you get ready for school. A **plane mirror** has a more or less flat **surface**. The **reflection** of something in a **plane mirror** is almost the same size as the real object.

Plane mirrors are used in many tools. Cameras, telescopes, and microscopes sometimes use **plane mirrors**. Some toys even use **plane mirrors**. Have you ever looked through a toy called a **kaleidoscope**? A **kaleidoscope** is a tube with **plane mirrors** inside. There are also tiny bits of colored glass and beads sealed up inside the **kaleidoscope**. You look

through a small hole at one end of the **kaleidoscope** and point it toward the light. As you rotate the tube, you will see beautiful, colored patterns.

There are two other types of mirrors that are different from **plane mirrors**. **Plane mirrors** have flat surfaces, but **concave** and **convex mirrors** have **curved** surfaces. The smooth, shiny side of a **concave mirror curves** inward like a spoon. The smooth, shiny side of a **convex mirror curves** outward.

Here's another way that **concave** and **convex mirrors** are different from **plane mirrors**. Remember that in a **plane mirror,** the **reflection** of an object is about the same size as the object. In **concave** and **convex mirrors**, the **reflection** can look larger or smaller than the real object.

Concave and **convex mirrors** are also useful. **Concave mirrors** can be used to provide heat using the light from the sun. Remember that sunlight is a form of light and heat energy.

What about **convex mirrors**? The next time you get on a bus, take a look at the mirrors on the sides of the bus. Most buses and large trucks have a small, extra **convex mirror** on the side-view **plane mirror**. The **convex mirror** makes objects look smaller but shows a wider area so you can see more. It helps drivers avoid hitting something they might not see in the regular **plane mirror**.

So now you see how useful **mirrors** are in our everyday lives. **Mirrors** can also be a lot of fun. A circus or carnival sometimes has a place called the "Funhouse," or "House of **Mirrors**." If you go in, there are lots of **concave** and **convex mirrors**. When you look in these **mirrors**, you might not recognize yourself! Your **reflection** is **distorted**. What makes that happen? Now you know it's **concave** and **convex mirrors**.

NAME: _____

DATE: _____

Spelling Assessment

As your teacher calls out the words, write them under the correct header.

‘y’ > /ee/	‘ey’ > /ee/
_____	_____
_____	_____
_____	_____
_____	_____

‘ee’ > /ee/	‘i’ > /ee/
_____	_____
_____	_____
_____	_____
_____	_____

‘ea’ > /ee/

_____

_____

_____

_____

‘ie’ > /ee/

_____

_____

_____

_____

‘e’ > /ee/

_____

_____

_____

_____

‘e_e’ > /ee/

_____

_____

_____

_____

Challenge Word: _____

Challenge Word: _____

Content Word: _____

Dictated Sentences:

1. _____

_____

2. _____

_____

NAME: _____

DATE: _____

5.2 ACTIVITY PAGE

Lab Notes

Refraction

Directions: Look at the image below. What is causing the straw to look like this? Fill in the boxes for both the cause and the effect.

Cause: Why does it happen?	Effect: What happens?

NAME: _____

DATE: _____

Lab Notes

Refraction and Lenses

Central Idea and Details	
What is the central idea?	
List three key facts or details.	
List three new words you learned and what they mean.	

What is the most interesting thing you learned?	
Write three questions you still have.	

NAME: _____

DATE: _____

Words with Suffixes –*y* and –*al*

Add the correct suffix to the root word provided. Write the new word in a sentence.

1. Root word: *mess*

   Add –*y* or –*al* to make: _____

   _____

   _____

   _____

2. Root word: *magic*

   Add –*y* or –*al* to make: _____

   _____

   _____

   _____

3. Root word: *culture*

   Add –*y* or –*al* to make: _____

   _____

   _____

   _____

4. Root word: *dirt*

   Add –*y* or –*al* to make: _____

   _____

   _____

   _____

5. Root word: *rust*

   Add –*y* or –*al* to make: _____

   _____

   _____

   _____

Circle the word that matches the meaning.

1. Meaning: related to sounds made by voices or instruments and arranged in a way that is pleasing to hear

   Word: music musical

2. Meaning: the unplanned occurrence of good events

   Word: luck lucky

3. Meaning: related to stories about things that are not real

   Word: fictional fiction

4. Meaning: full of a natural white substance used to flavor and preserve food

   Word: salt salty

5. Meaning: the process of eating the right kind of food so you can be healthy and grow properly

   Word: nutritional nutrition

6. Meaning: full of spirals or winding shapes

   Word: curly curl

NAME: _____

DATE: _____

Dictionary Skills

Use the following portion of a dictionary page to answer the questions below.

chest **chisel**

chief 1. *noun* A leader of a group. **2.** *adjective* Most important or main.

chimney *noun* A pipe that carries smoke out of a building, usually through the roof.

1. What are the two guide words on the page?

   _____ _____

2. What are the two entry words on the page?

   _____ _____

3. How many definitions are there for *chief?* _____

4. Would the word *choir* be on this page? _____

5. Circle the word(s) that would come before **chest** from the following list: choke, cherry, chestnut

NAME: _____

DATE: _____

Letter to My Partner

Dear _____:

Today I learned about _____

_____

Three facts I learned were:

1. _____

_____

2. _____

_____

3. _____

_____

One thing I'm having trouble understanding is: _____

_____

_____

_____.

I have a question for you about the chapter: _____

_____

_____

_____.

Can you help me with this question?

Your partner,

_____

Partner Response:

From _____

The answer to your question is _____

_____

_____

_____.

Take-Home Letter

Dear Family Members,

Please help your student succeed in spelling by taking a few minutes each evening to review the words together. Helpful activities for your student to do include: spelling the words orally, writing sentences using the words, or simply copying the words.

Spelling Words

This week, we are reviewing three of the seven spelling patterns for /ae/. Your student learned to spell words with the /ae/ sound in second grade, so this should be a review. Your student will be tested on these words.

Students have been assigned two Challenge Words, *family* and *young*. Challenge Words are words used very often. Neither Challenge Word follows the spelling pattern of /ae/.

The Content Word for this week is *straight*. This word is directly related to the material that we are reading in *Adventures in Light and Sound*. The Content Word is an optional spelling word for your student. If your student would like to try it but gets it incorrect, it will not count against them on the assessment. We encourage everyone to stretch themselves a bit and try to spell this word.

The spelling words, including the Challenge Words and the Content Word, are listed below:

1. subway	12. beefsteak
2. daydreams	13. explain
3. payment	14. dainty
4. daisies	15. mermaid
5. awaited	16. trainees
6. obtain	17. great
7. ballplayers	18. giveaway
8. breaker	**Challenge Word**: *family*
9. yesterday	**Challenge Word:** *young*
10. betrayer	**Content Word**: *straight*
11. crayons	

Student Reader

The chapters your student will read this week in *Adventures in Light and Sound* include information about refraction and lenses, color and light, what sound is, and the characteristics of sound. Be sure to ask your student each evening about what they are learning.

Students will take home text copies of the chapters in the Reader throughout the unit. Encouraging students to read a text directly related to this domain-based unit will provide content and vocabulary reinforcement. Please remind your student that the glossary can be used for finding the meaning of the bolded words.

NAME: _____

DATE: _____

Lab Notes

White Light Experiment Research

Key ideas from the text	
Pages 56–57	
Pages 58–59	
Pages 60–61	
Pages 62–63	
Pages 64–65	
Pages 66–67	

NAME: _____

DATE: _____

Lab Notes

White Light Experiment Research

Experiment #1	Experiment #2
Prediction:	**Prediction:**
Observations:	**Observations:**
Draw a picture.	**Draw a picture.**

NAME: _____

DATE: _____

Lab Notes

White Light Research Summary

Use the information you found in "Color and Light" and the observations you made from the two experiments to complete the following sentences below. Make sure you use academic vocabulary words and write in complete sentences with correct capitalization and punctuation.

1. White light is _____

_____

_____ .

2. Chapter 5 explains how a prism works. It says _____

_____

_____

_____ .

3. The colors in the light spectrum are _____

_____

_____

_____ .

4. I saw this myself in the two experiments! What I saw was _____

_____

_____

_____ .

5. If I were to tell someone else to try one of the experiments, I would tell them to gather the following materials: _____

_____

_____

_____ .

6. The type of light I did not see in the experiments was invisible light. Three types of invisible light are _____

_____

_____

_____ .

NAME: _____

DATE: _____

Lab Notes

White Light Research Summary

Use the information you found in "Color and Light" and the observations you made from the two experiments to complete the sentences below. Make sure you use academic vocabulary words and write in complete sentences with correct capitalization and punctuation.

1. White light is _____

   _____

   _____

2. Where does the text explain what a prism is? page number _____

3. Draw a diagram of a prism. Draw arrows to show where the light enters and then draw lines to show what happens when it refracts.

4. What does the white light do when it leaves the prism?

_____

_____

_____

5. List the colors in the light spectrum in order:

_____

_____

_____

6. The first experiment showed _____

_____ .

7. The second experiment showed _____

_____ .

8. List three types of invisible light. List the page numbers where you found the answer.

_____

_____

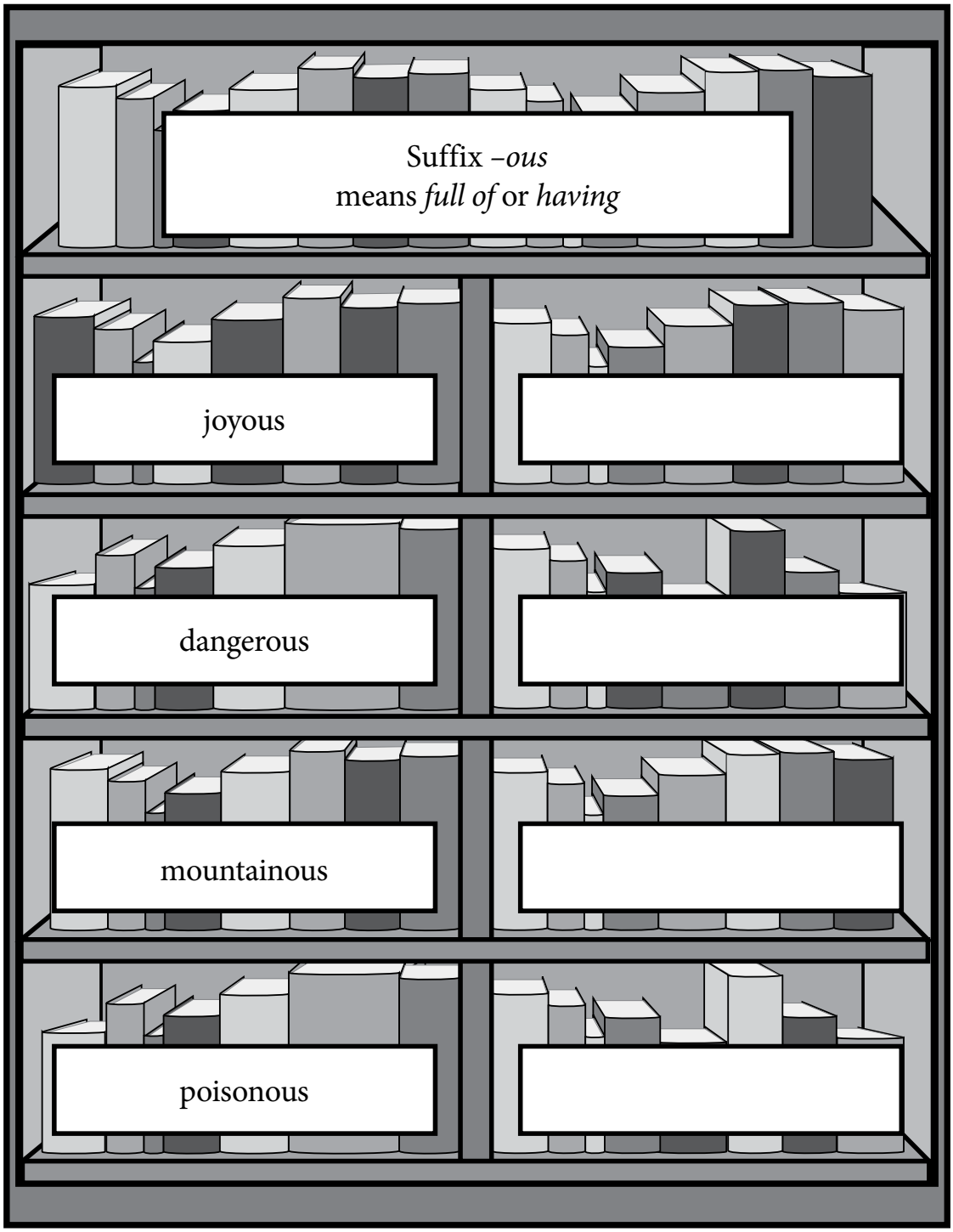
_____ .

NAME: _____

DATE: _____

Word Shelf

The left-hand side of the table contains words that use the suffix you have been studying. Use the blanks on the right side to record additional words that use the same suffix. Then write those words and their definitions on the table on the following page.



NAME: _____

DATE: _____

–*ous*: Suffix Meaning "full of"

joyous—(adjective) full of a feeling of great happiness	
dangerous—(adjective) full of the chance that something bad will happen	
mountainous—(adjective) full of land that rises very high above its surroundings	
poisonous—(adjective) full of a substance that can hurt or kill people or animals if touched, swallowed, or inhaled	

Write the correct word to complete each sentence.

famous	poisonous	mysterious	furious	dangerous	humorous

1. The _____ ending to the movie had everyone in the theater laughing.

2. When I got to school, there was a _____ smell in our classroom, and I couldn't figure out what it was coming from.

3. My _____ brother could not believe our little sister had scribbled all over his history paper with crayons.

4. A _____ basketball player is said to be coming to our community fair next week but nobody knows who it is.

5. Some _____ chemicals are used to keep bugs out of our houses and restaurants.

Write your own sentence using the one word left in the box.

6. _____

_____

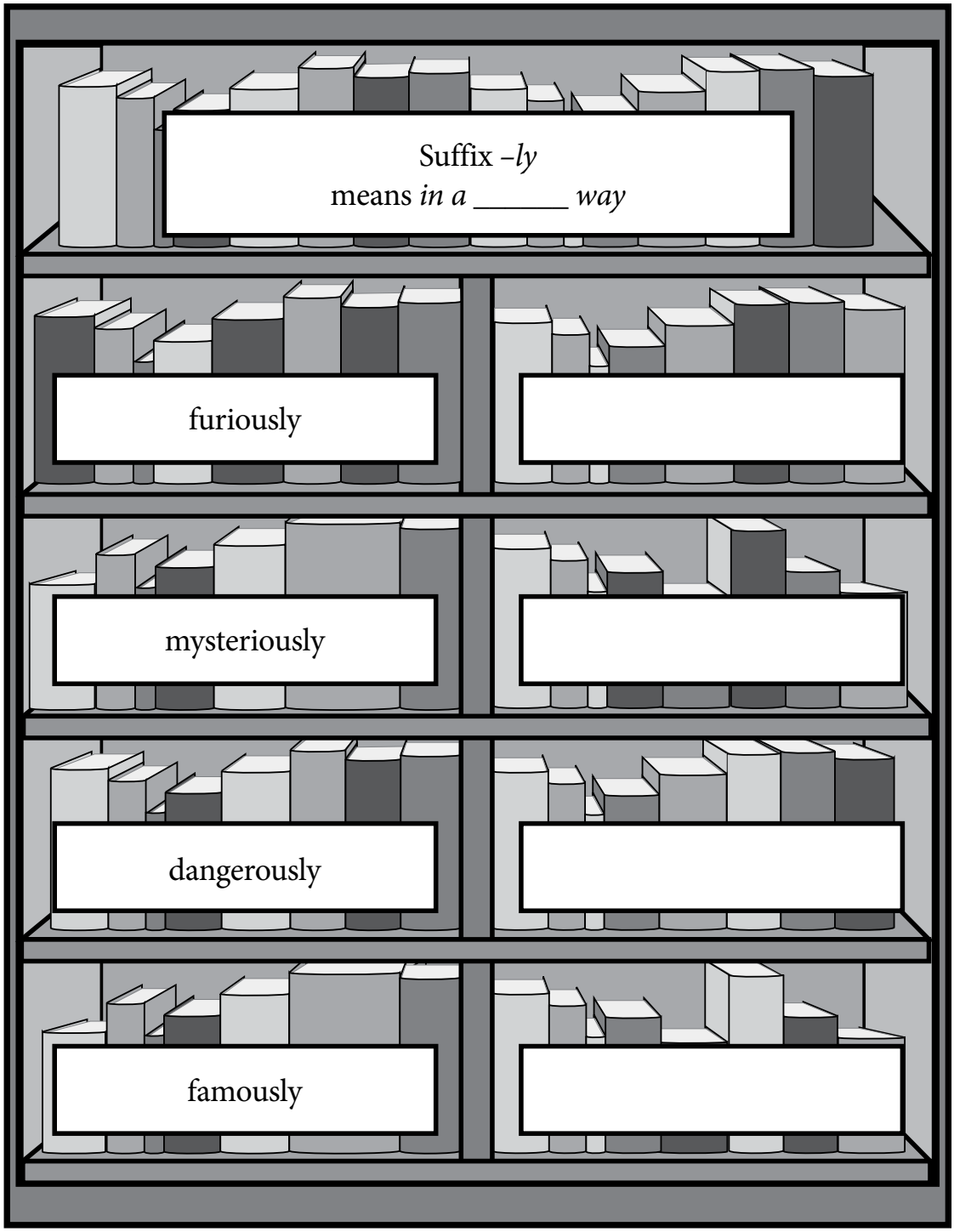
_____ .

NAME: _____

DATE: _____

Word Shelf

The left-hand side of the table contains words that use the suffix you have been studying. Use the blanks on the right side to record additional words that use the same suffix. Then write those words and their definitions on the table on the following page.



NAME: _____

DATE: _____

–*ly*: Suffix Meaning "in a ___ way"

furiously—(adverb) in a furious way	
mysteriously—(adverb) in a mysterious way	
dangerously—(adverb) in a dangerous way	
famously—(adverb) in a famous way	

Write the correct word to complete each sentence.

dangerously	furiously	mysteriously	famously	humorously

1. My cell phone _____ turned itself off when I put it down on the table.

2. My uncle _____ asked his girlfriend to marry him at the family reunion in a way that nobody will forget.

3. My sister_____ wore a small hat for a baby as part of her costume for the party.

4. A little boy in the subway station walked _____ near the edge of the passenger platform above the tracks.

Write your own sentence using the one word left in the box.

5. _____

_____

_____ .

NAME: _____

DATE: _____

Blank Busters

subway	payment	awaited	ballplayers
yesterday	great	crayons	explain
mermaid	obtain	breaker	daydreams
daisies	dainty	trainees	betrayer
beefsteak	giveaway		

Challenge Word: *family*
Challenge Word: *young*
Content Word: *straight*

Fill in the blanks in the sentences below with one of the spelling words in the chart. Only if needed, add a suffix to the end of a word in order for the sentence to make sense: –s, –ed, –ing, *or* –ier.

1. At the end of their meal, the waitress _____ change from the cashier for her customers.

2. The ice cream shop offered free popscicles as a _____, to the first 50 customers.

3. The talented artist puts her _____ aside and uses oil paint on these portraits.

4. Our beautiful, yellow _____ finally bloomed _____.

5. The smallest _____ was the only one who could wear the _____ seashell necklace.

6. The ride on the _____ car was very scary because the lights went out.

7. Our _____ is made up of two adults and five _____ children.

8. The _____ were lost in their _____ and didn't pay attention to the game, so they lost.

9. My teacher is _____ multiplication, so I better pay attention!

10. Our long _____ Spring Break is approaching!

Write three sentences using spelling words of your choice that were not used in the first ten sentences. Make sure to use correct capitalization and punctuation. You may use the Challenge Words or Content Word in your sentences.

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

_____

NAME: _____

DATE: _____

Build Sentences

Read each simple sentence. Then, brainstorm adjectives, adverbs, and synonyms that you might add to the sentence, and write these words in the boxes provided. You do not need to write words in every box, but try your best. Write a new, more interesting sentence in the blank space provided, using some of the adjectives and adverbs.

Starter Sentence: The lion made a loud noise.			
Adjectives to describe **the lion**	Adverbs to describe **how** the lion made a loud noise	Adverbs to describe **when** the lion made a loud noise	Adverbs to describe **where** the lion made a loud noise
Synonyms for **made a loud noise**			

New sentence: _____

_____

_____

Starter Sentence: The gladiator walked.			
Adjectives to describe **the gladiator**	Adverbs to describe **how** he walked	Adverbs to describe **where** he walked	Adverbs to describe **when** he walked
Synonyms for **walked**			

New sentence: _____

_____

_____

Starter Sentence: The children played.			
Adjectives to describe **the children**	Adverbs to describe **how** they played	Adverbs to describe **where** they played	Adverbs to describe **when** they played
Synonyms for **played**			

New sentence: _____

_____

_____

NAME: _____

DATE: _____

Color and Light

Do you remember what color sunlight is? I hope you didn't say, "No color!" You learned that sunlight is white light. You also learned that instead of being "no color," white light is made up of all the colors of the rainbow. Remember, the sun looks yellow because it gives off more yellow light than it does the other colors.

You can prove that white light is really many colors if you have a wedge-shaped piece of transparent glass called a **prism**. If you hold a **prism** near a sunny window, light will shine through and make a rainbow-like band of colors. This shows that white light is really made up of all colors.

Do you remember what you learned about refraction? What happens to light when it passes through something transparent like glass? The light slows down and changes its path. A **prism** has a special shape that refracts white light into all of the colors of the rainbow.

Have you ever seen a rainbow in the sky when the sun comes out after it rains? Raindrops in the sky refract the light, just like a **prism**. This is what creates the rainbow.

When white light is refracted, it often separates into a combination of colors called the **spectrum**. The colors in the **spectrum** always appear in the same order: red, orange, yellow, green, blue, **indigo**, and violet. These colors are part of the visible light **spectrum**. They are the light waves that humans can see. The colors of visible light are a result of differences in wavelength. Red light has long wavelengths and violet light has short wavelengths.

You can remember the names of the colors in the visible light **spectrum** in the right order if you can remember this funny name: "Roy G. Biv." Each

letter in that name stands for a color in the rainbow. Say it out loud. Try to remember it!

Did you know that the color of any object depends on what light wavelengths it reflects? Different objects absorb light wavelengths of some colors, but reflect others. This is what creates color.

Blue jeans appear blue because something in the **material** reflects blue light and absorbs all of the other light colors. Do you see anyone in your class today wearing a red sweater? The sweater appears red because something in the **material** reflects red light and absorbs all of the other light.

What about things that appear to be white? They look white because the object reflects all of the white light wavelengths and doesn't absorb any light. Can you guess why something looks black? Things that appear black do not reflect any light. They absorb all of the light wavelengths.

Remember that the colors we see are from light of specific wavelengths. But, there is much more to light than just the wavelengths we can see. In fact, visible light is only a small part of the energy waves that come from sunlight.

For example, on the shorter wavelength end of the light **spectrum**, there are invisible **ultraviolet** light waves that cause sunburn. X-rays are even shorter wavelengths of light. We can't see these light x-rays but they can travel through the human body. You learned in *How Does Your Body Work?* that x-rays are used to create black and white photos of what's inside the body. Do you know of any other ways that x-rays are used?

Another type of invisible light is **infrared** waves. The wavelengths of **infrared** light are longer than those of red light. These are the type of light waves that you use when you click on the **remote control** to change television channels!

NAME: _____

DATE: _____

8.1 ACTIVITY PAGE

Triangle Connections

Using your Lab Notes and the glossary in your Student Reader, select three words we've studied in the unit so far and arrange them in a triangle shape. Then, connect the first word to the second word with a line and write on the line how the two words are connected. Next, draw a line from the second word to the third word and write on the line how those two words are connected. Finally, draw a line from the third word to the first word and write the connection.

First word: _____

Second word: _____

Third word: _____

NAME: _____

DATE: _____

8.2

ACTIVITY PAGE

Write a paragraph that describes how sound is created and how it travels. Be sure to use sequencing words and use correct spelling, capitalization, and punctuation.

NAME: _____

DATE: _____

8.2A

ACTIVITY PAGE

Write each of the steps for how sound is created and travels below in the correct sequence. Choose an appropriate sequence word for each of the steps.

Sequence Word Bank	
First	Then
Second	After
Third	Finally
Next	Lastly

1. _____

_____

_____

Sequence word _____

2. _____

_____

_____

Sequence word _____

3. _____

_____

_____

Sequence word _____

4. _____

_____

_____

Sequence word _____

5. _____

_____

_____

Sequence word _____

NAME: _____

DATE: _____

Exit Ticket

Visualizing Vibrations

Do you think you can hear a tuning fork under water? Why or why not? State your opinion and list the reasons why. Draw a picture to illustrate your claim.

I think that _____

_____

_____ .

One reason I think that this is true is _____

_____

_____ .

Here is an illustration that shows what I think will happen:

NAME: _____

DATE: _____

Practice Using Suffixes –*ous* and –*ly*

Choose the correct word to complete each sentence. Write the word and its part of speech below the sentence.

1. We attended the _____ party to celebrate Michael's graduation.
   (joyous, joyously)

   Word: _____ Part of Speech: _____

2. My new pen _____ appeared on my desk after dinner even though it was not there before we ate.
   (mysteriously, mysterious)

   Word: _____ Part of Speech: _____

3. For a history project, we had to write a biography of a _____ person from the American Revolution.
   (famously, famous)

   Word: _____ Part of Speech: _____

4. The _____ troll shouted at the Billy Goats Gruff.
   (furiously, furious)

   Word: _____ Part of Speech: _____

5. The crane at the construction site sways _____ when there is a thunderstorm with lots of wind.
   (dangerous, dangerously)

   Word: _____ Part of Speech: _____

6. The actor in the play _____ sang while dressed in a ridiculous costume.
   (humorous, humorously)

   Word: _____ Part of Speech: _____

7. Our neighbor _____ announced that his son was admitted to the college he likes the most.
(joyous, joyously)

   Word: _____ Part of Speech: _____

8. The governor had a _____ response to a serious question during the interview.
(humorously, humorous)

   Word: _____ Part of Speech: _____

Bonus: *Circle the correct answer and write the part of speech.*

1. Which of the following words means "full of care to avoid danger or mistakes"?

   cautious cautiously

   Part of Speech: _____

2. Which of the following words means "in a curious way"?

   curiously curious

   Part of Speech: _____

3. Which of the following words means "full of something wonderful"?

   fabulously fabulous

   Part of Speech: _____

NAME: _____

DATE: _____

8.5 ACTIVITY PAGE

Word Sort

Identify the headers. Read the words in the box and circle the vowels that have the /ae/ sound. Write the words under each header that match the header's spelling pattern.

'ay' > /ae/	**'ai' > /ae/**	**'ea' > /ae/**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

paid	breakneck	headers	maybe	sailing
monkey	waylay	read	prairie	mailman
maids	aisle	bricklaying	waiter	always
bluejay	raisins	greatest	despair	prepaid

Take-Home Letter

Dear Family Members,

During the next several days, your student will be learning about the properties of sound; how it travels in waves, like light; and how it can be manipulated and used in certain devices. Your student will be introduced to how sound is produced, how sounds change, the similarities and differences between light and sound, and the parts of the human body that allow us to speak. They will also learn about the work of Alexander Graham Bell, the inventor of the telephone. Below are some suggestions for activities that you may do at home to reinforce what your student is learning about in class.

1. Sayings and Phrases: His Bark Is Worse Than His Bite/Actions Speak Louder Than Words

Your student will be learning the sayings "his bark is worse than his bite," and "actions speak louder than words." Ask your student to explain what they have learned about these phrases. Discuss with your student that the literal meaning of the phrase "his bark is worse than his bite" is in reference to how a dog is more likely to bark loudly and viciously than it is likely to injure someone. The phrase can be used in reference to a person who may speak loudly or harshly, but who is actually quite harmless. Talk with your student about a time when you have used this phrase in reference to an animal or person. Discuss with your student the meaning of "actions speak louder than words." Explain that actions are personified in this phrase, because actions cannot physically speak. Discuss how the things we do can make more of a statement than the things we say. Talk with your student about a time when this phrase has been applicable to a situation you experienced. Find opportunities to use these sayings.

2. Sound Waves

For this experiment, stretch some plastic wrap over the top of an empty bowl. Sprinkle some dry rice grains or salt over the plastic wrap. Next, have

your student clap their hands or take two nonbreakable objects and bang them together over the bowl. The rice or salt should bounce every time the objects bang together. Explain to your student that this experiment shows how sound moves in waves. Discuss with your student how every time hands are clapped or the objects are banged together, the sound waves move through the air causing the plastic wrap to vibrate and the rice or salt to bounce on the plastic wrap. You may wish to have your student write a brief summary explaining what happened in the experiment and why.

3. Bottle Music

Use five identical glass or plastic bottles. Glass cola bottles would probably work best for this experiment, but plastic will also be fine. Fill the bottles with different amounts of water. Then, place the bottles in order from most filled to least filled. After that, have your student blow across the top of a bottle to create a sound. Have your student blow across a different bottle and discuss the differences in pitch. Discuss with your student that this is how certain musical instruments work, like an organ or flute. Discuss with your student how the amount of air in the bottle affects the quality of sound that is produced. These differences create a change in pitch. When there is more air and less water in the bottle, the pitch is lower. A smaller amount of air in the bottle, and more water, produces a higher pitch. The difference in pitch creates variations in sound. You may wish to have your student write a brief summary explaining what happened in the experiment and why.

4. Words to Use

Below is a list of some of the words that your student will be learning about and using. Try to use these words as they come up in everyday speech with your student.

- *cacophony*—The car alarm created a cacophony because it was very loud and harsh sounding, causing the dogs in the area to bark.
- *frequency*—If you are near a jet engine, you need to wear equipment to protect your ears because of the very high frequency of the sound waves.
- *medium*—Sound waves travel more easily through a solid medium like a brick wall than through a liquid medium like water.
- *pitch*—When we went to the opera, the singer on stage sang in a very high pitch.
- *receiver*—A satellite dish is an example of a receiver because it receives signals from satellites so that we can get different channels on our television set.
- *transmitter*—The transmitter in my telephone broke, which made it impossible for a person on the other end of the phone line to hear anything that was said.
- *variations*—While singing or playing a musical instrument, one can create smooth variations between sounds, or produce different musical notes.

5. Read Aloud Each Day

It is very important that you read with your student every day. Set aside time to read to your student and to listen to your student read to you.

Be sure to praise your student whenever they share what has been learned at school.

NAME: _____

DATE: _____

Lab Notes

What Is Sound?

What is it?				
How do we get it?				
How does it travel?				
The speed of sound vs. the speed of light				

NAME: _____

DATE: _____

Lab Notes

Compare and Contrast: Light and Sound

Light and sound are similar because _____

_____ .

Light and sound are different because _____

_____

_____

_____ .

NAME: _____

DATE: _____

Question Wall

Rewrite the questions you chose below. Then, write an answer for each question. Make sure that you use content vocabulary words to explain your answer.

1. _____

_____

_____

_____

_____

2. _____

_____

_____

_____

_____

3. _____

_____

_____

_____

_____

NAME: _____

DATE: _____

Building Sentences

Read each simple sentence. Then, brainstorm adjectives, adverbs, and synonyms that you might add to the sentence, and write these words in the boxes provided. You do not need to write words in every box, but try your best. Write a new, more interesting sentence in the blank space provided, using some of the adjectives and adverbs.

Starter Sentence: The baby slept.			
Adjectives to describe **the baby**	Adverbs to describe **how** the baby slept	Adverbs to describe **when** the baby slept	Adverbs to describe **where** the baby slept
Synonyms for **slept**			

New sentence: _____

_____

_____

Starter Sentence: The general rode his horse.			
Adjectives to describe **the general**	Adverbs to describe **how** he rode his horse	Adverbs to describe **where** he rode his horse	Adverbs to describe **when** he rode his horse
Synonyms for **rode**			

New sentence: _____

_____

_____

Starter Sentence: The boys laughed.			
Adjectives to describe **the boys**	Adverbs to describe **how** they laughed	Adverbs to describe **where** they laughed	Adverbs to describe **when** they laughed
Synonyms for **laughed**			

New sentence: _____

_____

_____

NAME: _____

DATE: _____

Dictionary Skills

Use the following portion of a dictionary page to answer the questions below.

part **pickle**

pay 1. *verb* To give money to buy something. 2. *verb* To be worthwhile. 3. *noun* Money earned from working at a job.

peck 1. *verb* To pick up something with a beak. 2. *verb* To eat something in small bites with no enjoyment. 3. *noun* A light kiss.

1. What are the two guide words on the page?

   _____ _____

2. What are the two entry words on the page?

   _____ _____

3. Would the word *pill* be on this page? _____

4. Circle the word(s) that would come before *part* in the following list: pattern, peace, pack

5. Which definition of *pay* matches the use of the word in the sentence:

   It *pays* to be an honest person. _____

   What part of speech is *pay* in this sentence? _____

6. Which definition of *pay* matches the use of the word in the sentence:

   My mother receives her *pay* on Fridays. _____

   What part of speech is *pay* in this sentence? _____

7. Write a sentence using the definition of *pay* not already used in the sentences above.

   _____

   _____

   _____

8. Which definition of *peck* matches the use of the word in the sentence:

   The child *pecked* at her food without eating much. _____

   What part of speech is *peck* in this sentence? _____

9. Which definition of *peck* matches the use of the word in the sentence:

   My grandmother gives me a *peck* on my cheek each time I see her. _____

   What part of speech is *peck* in this sentence? _____

10. Write a sentence using the definition of *peck* not already used in the sentences above.

   _____

   _____

   _____

NAME: _____

DATE: _____

What Is Sound?

An alarm clock rings, a dog barks, a voice calls, "Time to get up!" Every day is full of familiar sounds but what exactly is sound?

Sound is caused by a back-and-forth movement called vibration. Try this. Close your lips and hum. While you are humming, feel your throat under your chin. Do you feel something buzzing or vibrating? What you feel is caused by something moving back and forth very fast. When you hum, the **vocal cords** in your throat vibrate back and forth. This makes the air around them vibrate, which then creates the sound you hear.

Sound, like light, is a form of energy. Also like light, sound moves in waves. **Sound waves** move out from a vibrating object, making the air move back and forth in a way that we can't see.

Two things must happen to create a sound. First, something needs to vibrate and create **sound waves**. Then, something like air or another **medium** needs to carry the **sound waves**. You hear sounds more clearly if you are close to whatever is vibrating and making the **sound waves**. The farther away that the **sound waves** spread out, the weaker they get. That is why you can hear a friend standing right next to you better than if they are calling to you from across the street

Sound travels not only through air, which is a gas, but through other **mediums**. In fact, sound can travel through solids, liquids, and gases.

Think about sound traveling through solids, like a window or even a closed door. If you are close enough, you can still hear sounds on the other side of a window or door.

How about liquids? Have you ever been underwater in a swimming pool when you have heard someone's voice or another sound? It probably sounded

different than it would if you were not underwater, but you were still able to hear it. This is an example of sound traveling through a liquid—the water in the pool.

One place that sound cannot travel is in outer space. Sound cannot travel through the emptiness, or vacuum, of space. There is no sound in outer space because there is no **medium** to carry it.

You might wonder about the speed at which sound travels. **Sound waves** travel much slower than light waves. **Sound waves** travel at about 750 miles per hour. That's fast, but not close to the 186,000 miles per second that light can travel. It would take a sound 33 hours to travel around Earth once. Remember that light can go seven times around Earth every second!

Here's an example to prove that light travels faster than sound. Think about the last time you were around a storm with thunder and lightning. Did you notice that you saw each flash of lightning before you heard the clap of thunder? That's because light travels faster than sound!

The **medium** through which sound travels affects its rate of speed. Interestingly, **sound waves** travel fastest through solids. In old western movies, you may have seen a cowboy put his ear down to the steel railroad tracks to hear if a train is coming. That is because the sound travels faster through the steel than through the air.

Try this. Listen while you drum your fingers on your desk. Now, rest your ear right on the surface of the desk and drum your fingers again. Which way sounded louder?

The sound was louder when you put your head on the desk. This is because the sound traveling through the solid wood of your desk traveled faster than if it had first traveled through the air. Every time sound changes **mediums**, it loses some of its loudness.

NAME: _____

DATE: _____

10.1 ACTIVITY PAGE

Spelling Assessment

As your teacher calls out the words, write them under the correct header.

'ay' > /ae/	'ai' > /ae/	'ea' > /ae/
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Challenge Word: _____ **Challenge Word**: _____

Content Word: _____

Dictated Sentences:

1. _____

_____

_____ .

2. _____

_____

_____ .

NAME: _____

DATE: _____

Lab Notes

Characteristics of Sound

1. What is pitch?
   A. Pitch is how loud or soft a sound is.
   B. Pitch is how high or low a sound is.
   C. Pitch is how fast sound travels through a medium.
   D. Pitch is the intensity of a sound.

2. What is volume?
   A. Volume is how high or low a sound is.
   B. Volume is the intensity of a sound.
   C. Volume is how long or short a sound wave is.
   D. Volume is how fast sound travels through a medium.

3. Describe how the length of sound waves affects pitch.

_____

_____

4. List three sources of a low-pitched sound.

_____

_____

_____

5. Which of these books would be the best to find out more facts about the characteristics of sound?
   A. *Adventures in Light*
   B. *Can You Hear Me Now?*
   C. *All About Animals*
   D. *Experiments with Food*

6. Read this sentence from the selection: *Very loud sounds can damage your hearing.* Based on the sentence, which phrase best describes what loud sounds can do?
   A. They can make you hear well.
   B. They can hurt your hearing.
   C. They can make you able to hear from great distances.
   D. They can make you able to hear a whisper better.

7. How would the world be different if all sounds were the same pitch and volume?

_____

_____

_____

_____

NAME: _____

DATE: _____

3-2-1 Reflection

Write a sentence for each of the categories below:

Write three things you learned from reading the chapter, "Characteristics of Sound."

1.

2.

3.

Write two things you learned from the Read-Aloud "Qualities of Sound."

1.

2.

Write one question you have about sound.

1.

NAME: _____

DATE: _____

Characteristics of Sound

Let's review what you have learned so far about sound by comparing it to light. How is sound different from light? Sound must have a medium to travel through—a solid, liquid, or gas. Light does not need a medium. Remember, light can travel through the emptiness, or vacuum, of outer space. Sound cannot.

The speed at which light and sound travel is also different. Light travels much faster than sound.

There are important ways that light and sound are similar. They are both forms of energy that travel in waves. There are also other similarities.

When you learned about light, you learned that light waves can be different lengths. Some are long and some are short. It is the length of a light wave that makes it appear to be a particular color.

Perhaps you are wondering whether sound waves differ from one another. Imagine these two sounds—a baby crying for its mother and an adult yelling. Both of these are sounds. The sound waves of each travel through the same medium, air, so they are alike in that way. But a baby crying surely sounds different than an adult yelling! The baby makes a high-**pitched**, "screeching" sound. When an adult yells, it is a low-**pitched**, deep tone. Could this difference in **pitch**, or how high or how low a sound is, come from different kinds of sound waves?

The answer is yes and it has to do with the length of the sound waves! It helps if we first understand how vibrations affect sound waves. Faster vibrations produce shorter sound waves, which make sounds with a higher

pitch. The baby's screeching sound vibrates very rapidly, making shorter, but more, sound waves. Can you think of some other sounds that have a high **pitch**?

Slower vibrations produce longer waves, which make sounds with a lower **pitch**. A yelling voice makes longer, fewer waves so you hear a lower **pitch**. **Pitch** describes the highness or lowness of a sound. Can you think of some sounds that have a low **pitch**?

Try changing your voice **pitch**. Can you speak in a high, squeaky voice? Can you speak in a low, rumbling voice?

Sound also varies in loudness. If you're listening to the radio and a favorite song comes on, you might say, "Turn it up!" and reach for the knob marked **VOLUME**.

When you turn up the **volume**, you are making the sound louder. A scientist might say that you are increasing the sound's **intensity**. More **intense** sound waves carry more energy and make louder sounds.

How far away you can hear a sound depends on its **intensity**. A quiet sound, like a whisper, doesn't travel very far. A really loud sound can travel for hundreds of miles. When fireworks are set off, the sound can be heard miles away.

Very loud sounds can **damage** your hearing. People who work around loud sounds all day long often wear ear coverings or plugs to protect their hearing. You should be careful, too, not to turn the **volume** too loud if you like to listen to music.

NAME: _____

DATE: _____

11.1 ACTIVITY PAGE

Can You Guess My Sound?

Take-Home Letter

Dear Family Members,

Please help your student succeed in spelling by taking a few minutes each evening to review the words together. Helpful activities for your student to do include: spelling the words orally, writing sentences using the words, or simply copying the words.

Spelling Words

This week, we are reviewing two of the seven spelling patterns for /ae/. Your student learned to spell words with the /ae/ sound in second grade, so this should be a review. Your student will be assessed on these words.

Students have been assigned two Challenge Words, *another* and *finally*. Challenge Words are words used very often. Neither Challenge Word follows the spelling pattern of /ae/.

The Content Word for this week is *concave*. This word is directly related to the material that we are reading in *Adventures in Light and Sound*. The Content Word is an optional spelling word for your student. If your student would like to try it but gets it incorrect, it will not count against them on the test. We encourage everyone to stretch themselves a bit and try to spell this word.

The spelling words, including the Challenge Words and the Content Word, are listed below:

1. translate	12. spacious
2. major	13. inhale
3. nation	14. changes
4. famous	15. basic
5. pancake	16. elevator
6. danger	17. hurricane
7. cascade	18. fragrant
8. escape	**Challenge Word**: *another*
9. refrigerate	**Challenge Word**: *finally*
10. invade	**Content Word**: *concave*
11. earthquake	

NAME: _____

DATE: _____

The Human Voice

Have you ever noticed how well you know your mother or grandmother's voice? You have heard it so often that you can tell right away who it is. Each person has a distinct voice. It's a voice that can make many sounds with different pitch and intensity. It can make high- and low-pitched sounds, loud and soft sounds.

So how does your body make all of those different sounds? You already know that something needs to vibrate to create sound waves. You also know that sound needs a medium, like air, to travel through. Here's how it works in the human body.

Air passes in and out of your body all of the time when you breathe. Inside your chest, your **lungs** expand to take in air and then contract to let it out.

Leading out of your **lungs** is a long tube called the **trachea**, or "windpipe." At the top of your trachea is another part of your body called the **larynx**, or "voice box."

Inside the **larynx** are two bundles of muscle that are known as vocal cords. When you breathe in, the vocal cords relax so that air can move past them and into your **lungs**. When you speak, you force the air out of your **lungs** and over the vocal cords in your **larynx**. The vocal cords vibrate to make waves in the air that continue up your throat and out of your mouth.

When you were a baby, you did not need to learn how to breathe. Your **lungs** worked **automatically**, bringing air into and out of your body. You also did not need to learn how to use your vocal cords to make sounds. When you were a baby, you made lots of funny noises and grunts. Ask your parents!

You did, however, need to learn how to change those grunts and noises into words so you could talk. You did this by listening to the people who talked to you when you were a baby. You practiced saying the same sounds and words. You learned to speak whatever **language** all of those people were speaking to you. If your family spoke only English to you, you learned to speak English. If your family spoke only Spanish to you, you learned to speak Spanish. People can learn to speak more than one **language**. Maybe you or some of your classmates speak more than one **language**.

Your vocal cords grow as you grow. When you have shorter vocal cords, you tend to speak at a higher pitch. This is why small children have higher-pitched voices than adults. The pitch of your voice depends on the size of your vocal cords and **larynx**.

The volume of your voice, or how loudly you speak, depends on how much air is produced by your **lungs** and comes out of your mouth. When more air is pushed out of your mouth, your voice will be louder.

NAME: _____

DATE: _____

What Inspires You?

The root word for inspiration *is* inspire. *To inspire means to influence or produce a feeling or thought.*

In the space below, write about something that inspires you.

NAME: _____

DATE: _____

Comprehension Questions

Answer the questions below. Write the page number where you found the answer.

1. What is a telegraph?

_____

_____

_____

page _____

2. Why was the Massachusetts Institute of Technology so important to Aleck Bell?

_____

_____

_____

page _____

3. Aleck Bell said that electric current could be used to carry sound. Why do you think people thought he was crazy?

_____

_____

_____

page _____

4. Describe how an accident led to the invention of the first telephone.

_____

_____

_____

page _____

5. Alexander Graham Bell felt that "self-education is a lifelong affair." What does that mean to you as a student who is learning new things every day?

_____

_____

_____

_____

_____

_____

_____

NAME: _____

DATE: _____

New Words Graphic Organizer

My word:	**My definition:**
Part of speech:	**My symbol:**
My sentence:	

My word:	**My definition:**
Part of speech:	**My symbol:**
My sentence:	

My word:	**My definition:**
Part of speech:	**My symbol:**
My sentence:	

NAME: _____

DATE: _____

12.4 ACTIVITY PAGE

Conjunction *and*

Write the letter 'S' over the subjects and the letter 'P' over the predicates in each simple sentence. Draw a line to separate the subject and predicate in each simple sentence. Then, join the two simple sentences together using the conjunction and *to make a compound sentence. Draw two lines under the word* and *to show that it is a conjunction.*

Example: The beautiful fish swim in the bowl. They watch me carefully!

S P S P

The beautiful fish | swim in the bowl, <u>and</u> they | watch me carefully!

1. Sally went to the circus to see the clowns. Her friends joined her there.

_____

_____

_____

2. The sports car roared down the street. The police car with a siren was right behind it.

_____

_____

_____

3. The goldfish swims around in its bowl. The children love to watch it swim in circles.

_____

_____

NAME: _____

DATE: _____

12.5 TAKE-HOME

Practice the Conjunction *and*

Write the letter 'S' over the subjects and the letter 'P' over the predicates in each simple sentence. Draw a line to separate the subject and predicate in each simple sentence. Then, join the two simple sentences together using the conjunction and *to make a compound sentence. Draw two lines under the word* and *to show that it is a conjunction.*

S P S P

Example: Alan | entertained all of us. Eli | served snacks.

Alan entertained all of us, <u>and</u> Eli served snacks.

1. Alan sings wacky songs. Eli juggles apples.

_____

_____

_____

2. Alan throws lots of parties. The neighbors always come.

_____

_____

_____

3. Eli makes brownies. The neighbors enjoy them.

_____

_____

_____

4. Alan likes to entertain. Eli likes to cook.

_____

_____

_____

Challenge: Mark subject(s) and predicate(s) and underline the conjunction and *with two lines in the following sentences. Write 'Yes' on the line if the sentence is a compound sentence with two independent clauses and 'No' if it is not a compound sentence.*

S P

Example: Steve | wore a coat and gloves. _____No_____

1. Allen and John rode their bikes to the park. _____

2. Derek read a book and watched TV last night. _____

3. My mother cooked dinner, and my sister made dessert. _____

NAME: _____

DATE: _____

13.1 ACTIVITY PAGE

Planning a Research Article and Notes

What?

Who?

When?

Where?

Why is it important?

How does it work?

More interesting facts about the inventor:

List of resources:

NAME: _____

DATE: _____

Newspaper Article

Research and Writing Rubric

	4	3	2	1
Research	There are accurate facts for each of the 5Ws and 1H.	Facts and details for five of the 5Ws and 1H.	Facts and details for only three to four of the 5Ws and 1H. May have some inaccuracies.	Facts and details for less than two of the 5Ws and 1H. Some inaccuracy.
Organization	Writing is organized logically, with a strong lead sentence, several details, and a conclusion. Headlines and text features enhance the article.	Writing is organized logically, with a lead sentence, some details, and a conclusion. Headlines and text features match the article.	Writing is organized logically, but may be missing a lead sentence, some details, or a conclusion. Headline or other text features do not enhance the article.	Writing is not organized logically, and may be missing a lead sentence, details, and a conclusion. Headlines and text features match the article.
Writing	Article is clear and interesting to read, with many descriptive words and details. There are at least three paragraphs with appropriate linking words.	Article is clear and easy to read, with some descriptive words and details. There are at least two paragraphs with some linking words.	Article is written unclearly or without supporting details. Paragraphs are incomplete or unclear. Few linking words to tie ideas together.	Article is difficult to read because of missing words or sentences, or incomplete ideas, and contains no paragraphs. Lack of linking words.
Conventions	Correct sentence structure, grammar, punctuation, and capitalization.	Mostly correct sentence structure, grammar, punctuation, and capitalization with one to two errors.	Mostly correct sentence structure, grammar, punctuation, and capitalization with three to four errors.	Sentence structure, grammar, punctuation, and/or capitalization are incorrect with more than five errors.
Spelling	There are fewer than two spelling errors.	There are three to four spelling errors.	There are four to five spelling errors.	There are more than six spelling errors.

Unit Assessment

Tuning Forks

A tuning fork is not the kind of fork you use at the dinner table. It is a fork you might use if you play a musical instrument.

If you strike a tuning fork on a hard surface, the two prongs of the fork will begin to vibrate. That means they are moving back and forth very rapidly. As the prongs vibrate, they give off a sound.

Every tuning fork is designed to vibrate at a certain speed, or frequency. It's the frequency that determines the pitch of the sound the fork makes. A fork that vibrates fast makes a high-pitched sound. A fork that vibrates more slowly makes a sound with a lower pitch.

Tuning forks make a very pure kind of sound. Most other things do not. If you bang on a kitchen pot, it will make several sounds all at once. You will hear the sound of the thick metal on the bottom of the pot vibrating. You will also hear the sound of the thinner metal on the sides vibrating. You may even hear the sound of the handle vibrating. Each of these parts of the pan will give off a different pitch. The sound you will hear will not be a pure sound. It will be a mix of several different pitches. Tuning forks are not like that. They do not give off a mix of sounds. They emit, or send out, a single, pure sound.

Musicians use tuning forks to tune their instruments. A guitar player can play a note on her guitar. Then, she can compare that note with the note made by a tuning fork. If the note from the guitar sounds too high, she can loosen the string. If the note sounds too low, she can tighten the string. Then, she can try playing the note again.

Every tuning fork makes a specific pitch. For example, a tuning fork might vibrate at 440 hertz. That means the vibrating prongs go through a cycle of back-and-forth motion 440 times a second. Those vibrations make a note that musicians call "A."

This kind of tuning fork is widely used. It makes the same pitch as one of the strings on a violin. It is used by musicians in orchestras to help them tune their instruments before they play.

Suppose you wanted a higher pitch. You would need to get a tuning fork with shorter prongs. The shorter the prongs, the higher the note.

Tuning forks also have other uses. Some ear doctors use them to check hearing. Here is how it works. The doctor asks her patient to listen for sounds. She then strikes a tuning fork where the patient can see her. She waits to see if the patient hears the tone. If the patient cannot hear the sound, that may mean there is a problem with the patient's hearing.

Tuning forks are very useful tools.

Directions: Read the questions carefully before answering.

1. What is the selection mainly about?
   A. Doctors use tuning forks to test hearing.
   B. Playing a guitar is difficult.
   C. Tuning forks are useful tools.
   D. Musical instruments have different pitches.

2. What does the word *pure* mean in the following sentence from the selection?

   "Tuning forks make a very pure kind of sound."
   A. mixed with other sounds
   B. not mixed with other sounds
   C. beautiful sounds
   D. not beautiful sounds

3. What determines the pitch of the sound a tuning fork makes?
   A. the speed of vibration
   B. the frequency of vibration
   C. the length of the prongs
   D. all of the above

4. Write *true* or *false* on the line following the sentence.

   The shorter the prongs on a tuning fork, the higher the pitch. _____

5. What is the central idea of this paragraph?

"Musicians use tuning forks to tune their instruments. A guitar player can play a note on her guitar. Then, she can compare that note with the note made by a tuning fork. If the note from the guitar sounds too high, she can loosen the string. If the note sounds too low, she can tighten the string. Then, she can try it again."

_____

_____

_____

_____

_____

Go on to the selection on the next page.

Read the next selection and answer the questions.

The Bell of Atri

The town of Atri, in Italy, was famous for its bell. The bell hung in the town square, where it had been placed many years before by an ancient king.

"If any man has been wronged," the king proclaimed, "let him ring this bell and a judge will appear."

The people of Atri made use of the bell. Whenever a man felt he had been wronged, he would ring the bell. Then, the judge would put on his robes and make his way to the town square to investigate.

A braided rope hung from the bell. After a while, this rope began to wear out. The braid broke apart into cords, and the cords themselves began to fray.

A farmer saw that the rope was about to give way. He cut grapevines from his vineyard and wrapped the vines around the fraying rope.

While the farmer was mending the rope, an old knight was limping out to his stable. In his youth, this knight had been an avid hunter. He had spent many days on his favorite horse, sounding the horn and chasing wild boars.

These, however, were the pleasures of the knight's youth. As he grew older, he lost interest in hunting. He turned into a bitter, old miser. The old knight was so stingy that he barely fed the horse who had served him so well for many years. The poor animal stood all day in his stall, neglected.

At last, the old knight decided to get rid of the horse.

“Why should I keep that old nag?” he said to himself. “He costs a fortune to feed, and I don’t even need a horse anymore.”

The old knight limped out to his stable. He threw open the stable door and drove the horse away.

“Get out!” he shouted. “Go and fend for yourself. I have no need for you anymore.”

The old horse limped into town. The dogs barked at him and nipped at his heels as he went. At last, he came to the town square, where the Bell of Atri hung. The horse sniffed the rope. He smelled the grape leaves wrapped around the old rope and began to nibble on the vines. The bell began to swing from side to side.

Ding, dong! Ding, dong! Ding, dong!

The judge heard the bell. He put on his robes and walked to the town square. When he arrived, he found a horse standing beneath the bell and an angry crowd gathered around.

“What is the meaning of this?” the judge asked.

“That’s the old knight’s horse,” said a man in the crowd.

“Just look at him!” said another. “It looks like the poor beast hasn’t been fed in weeks.”

“The old miser never feeds him!” called another. “But look! The horse has rung the bell! He is calling for justice!”

“Justice for the horse!” shouted the crowd. “Justice! Justice!”

The judge sent for the old knight.

The knight did not pretend he was sorry for his actions.

"It's my horse," he said, with a sneer. "I can do what I want with him. It doesn't matter what the rest of you think."

The knight turned to go, but the judge stopped him.

"Sir Knight," said the judge, "Shame on you! Where is your sense of honor? Have you forgotten the code of chivalry? This horse served you loyally for many years. How can you neglect him in his old age? You have done him wrong and I order you in the king's name to right that wrong. Take care of this animal. Give him food and shelter. Let him live out his last days in peace!"

The old knight scowled but he did as he was told. The crowd cheered as he led the horse away.

When the king heard what had happened, he was pleased.

"Other bells call men to church," he said. "But the Bell of Atri calls men to justice. We should be proud of this bell of ours, for it pleads the victim's case—be he man or beast!"

Directions: Read the questions carefully before answering.

6. What does the word *loyally* mean in the following sentence from the selection?

   "This horse served you loyally for many years."

   A. with respect
   B. faithfully
   C. correctly
   D. with speed

7. What happened when someone rang the bell in Atri's town square?

   _____

   _____

   _____

8. What might have happened if the farmer had not fixed the rope that hung from the bell?

   _____

   _____

   _____

9. Why wasn't the old knight sorry for his actions toward his horse?
   A. He felt he owned the horse and could treat it as he wished.
   B. He didn't like the judge who ruled that he should take the horse home and care for him.
   C. He thought justice for a horse was silly.
   D. He was deaf and could not hear the bell.

10. What happened in the selection to show that the whole town approved of the judge's ruling in favor of the old knight's horse?

_____

_____

_____

Continue to Grammar and Morphology Section.

Grammar and Morphology

11. The selection, "Tuning Forks," mentions that a guitar player can use a tuning fork. What is another name for a person who plays the guitar that includes the suffix –*ist*? _____

12. Draw a triangle around the adverb and a wiggly line under the verb. Write whether the adverb tells how, when, or where on the line following the sentence.

    Dad set the hammer on the table there. _____

13. Draw a triangle around the adverb and a wiggly line under the verb. Write whether the adverb tells how, when, or where on the line following the sentence.

    Sometimes I ride my bike to school. _____

14. Draw a triangle around the adverb and a wiggly line under the verb. Write whether the adverb tells how, when, or where on the line following the sentence.

    The girl screamed loudly. _____

15. Which of the following words would be on a dictionary page with the following guide words?

ballroom	bingo

A. bell

B. brush

C. bunch

D. baby

16. Write adjectives, adverbs, and synonyms in the appropriate boxes. Then write a new, more interesting sentence in the space provided using some of the words from the boxes.

Starter Sentence: The child spoke.			
Adjectives to describe **the child**	Adverbs to describe **how** the child spoke	Adverbs to describe **when** the child spoke	Adverbs to describe **where** the child spoke
Synonyms for **spoke**			

New sentence: _____

_____

_____

17. Circle the two words in the following sentences from the selection that have the suffix –*er*. Write their meanings on the lines.

"While the farmer was mending the rope, an old knight was limping out of his stable. In his youth, this knight had been an avid hunter."

Word: _____

Meaning: _____

Word: _____

Meaning: _____

18. Write adjectives, adverbs, and synonyms in the appropriate boxes. Then write a new, more interesting sentence in the space provided using some of the words from the boxes.

Starter Sentence: The puppy slept.			
Adjectives to describe **the puppy**	Adverbs to describe **how** the puppy slept	Adverbs to describe **when** the puppy slept	Adverbs to describe **where** the puppy slept
Synonyms for **slept**			

New sentence: _____

_____

_____

NAME: _____

DATE: _____

14.2 ACTIVITY PAGE

Newspaper Article Draft

Lead Paragraph: What?

_____

_____

_____

_____

_____

_____

Paragraph 2: Who? When? Where?

_____

_____

_____

_____

_____

_____

Paragraph 3: How does it work?

Paragraph 4: Why is it important?

NAME: _____

DATE: _____

14.2 CONTINUED

ACTIVITY PAGE

Conclusion:

_____

_____

_____

_____

_____

Additional interesting facts about the inventor:

_____

_____

_____

_____

_____

_____

_____

_____

_____

THE INVENTION GAZETTE

Fluency Assessment

Pupils

"Class," said Mr. Brown, "today we are going to learn some 11
more about how our eyes work. James, would you please turn out 23
the lights?" 25

James walked to the door and switched off the lights. Mr. 36
Brown closed the blinds. It got darker in the classroom. It was not 49
completely black. Some light came through the blinds, but not very 60
much. The children giggled in the dimly lit room. 69

"Now," said Mr. Brown. "I'd like all twenty-two of you to turn and 83
look at the person who sits next to you. Sally, you look at Mick. Jen, 98
you look at Stan. That's it! Lean close and look your partner right in 112
the eyes. Can you see your partner's pupils? Remember: the pupil is 124
the black part in the center of the eye. It's the part that lets in light 140
from the outside world." 144

Mr. Brown walked over to the door. "Can you all see your 156
partner's pupils?" 158

"Yes!" said the students. 162

"Keep looking at your partner's pupils!" said Mr. Brown. 171
Then, he turned on the lights. In an instant, the room went from 184
dim to bright. 187

Sally was staring at Mick's pupils. She watched them shrink. 197

"Cool!" she called out. "Mick's pupils got smaller when you 207
turned on the lights!" 211

"Sally's did, too!" said Mick. 216

All around the room, students noticed the same thing. When the 227
lights came on, their partner's pupils got smaller. 235

Mr. Brown explained: "The pupil's job is to let light into the eye 248
and to keep it out. If it's dark, your pupil opens wide to let in a lot 265
of light. If it's bright, your pupil shrinks to let in less light. This is a 281
reflex. You don't have to think, I believe I shall open my pupil a bit 296
wider. Your pupils work all by themselves, without you even thinking 307
about it. The pupil is like the gatekeeper of the eye. It decides what 321
gets in and what has to stay out." 329

"Do it again!" shouted Mick. "Shut off the lights!" 338

"Okay," said Mr. Brown. "Keep your eyes on your partner's pupils." 349

He threw the switch. Forty-four pupils grew larger in the dimness. 361

Mr. Brown waited a few seconds. Then, he turned the lights back 373
on. Forty-four pupils shrank in the bright light. 382

"So," said Mr. Brown. "Do we understand what the pupils do?" 393

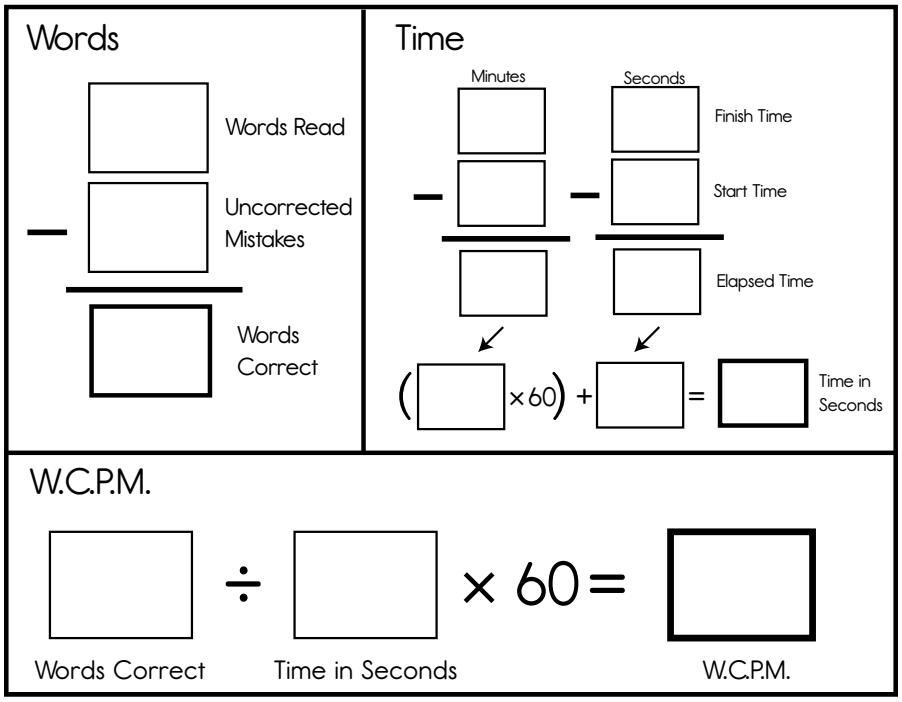
The students nodded their heads in agreement. 400

W.C.P.M. Calculation Worksheet

Student: _____ Date: _____

Story: *Pupils*

Total words: 400



Compare the student's W.C.P.M. scores to national norms for Winter of Grade 3 (Hasbrouck and Tindal, 2006):	
W.C.P.M.	**National Percentiles for Winter, Grade 3:**
146	90th
120	75th
92	50th
62	25th
36	10th

Comprehension Total _____/ 6	
Answers Correct	**Level**
6	Independent comprehension level
4-5	Instructional comprehension level
2-3	Frustration comprehension level
0-1	Intensive remediation warranted for this student

NAME: _____

DATE: _____

Spelling Assessment

As your teacher calls out the words, write them under the correct header.

‘a’ > /ae/	‘a_e’ > /ae/
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Challenge Word: _____ **Challenge Word**: _____

Content Word: _____

Dictated Sentences:

1. _____

_____

_____ .

2. _____

_____

_____ .

NAME: _____

DATE: _____

Revision Checklist

Newspaper Article

Ask yourself these questions as you revise your paragraphs.

1.	Do I have a good lead paragraph that grabs the reader's attention?	
2.	Do I have a good concluding paragraph?	
3.	Did I include accurate facts, details, and other information?	
4.	Did I include linking words and phrases?	
5.	Do my sentences flow well in this order?	
6.	Are there any parts that do not make sense?	
7.	Do I have a good variety of sentence structures?	
8.	Do I have a good variety of descriptive words?	
9.	Is this my best work?	

NAME: _____

DATE: _____

15.3 ACTIVITY PAGE

Sharing and Feedback

Three things I liked about your article
1.
2.
3.

Two things I think you can improve
1.
2.

NAME: _____

DATE: _____

Newspaper Article

Second Draft

Lead Paragraph: What?

_____

_____

_____

_____

_____

_____

Paragraph 2: Who? When? Where?

_____

_____

_____

_____

_____

_____

Paragraph 3: How does it work?

Paragraph 4: Why is it important?

NAME: _____

DATE: _____

Conclusion:

_____

_____

_____

_____

_____

Additional interesting facts about the inventor:

_____

_____

_____

_____

_____

_____

_____

_____

_____

NAME: _____

DATE: _____

16.1 ACTIVITY PAGE

List of References

1.

2.

3.

4.

5.

NAME: _____

DATE: _____

Editing Checklist

Newspaper Article

Ask yourself these questions as you edit your paragraphs.

1.	Do all of my sentences start with capital letters?	
2.	Do all of my sentences end with the correct punctuation?	
3.	Have I spelled all of my words correctly?	
4.	Have I used grammar correctly?	
5.	Does each sentence and paragraph provide a complete thought?	
6.	Are the words and sentences I used appropriate for the writing task?	

NAME: _____

DATE: _____

16.3 ACTIVITY PAGE

THE INVENTION GAZETTE

NAME: _____

DATE: _____

16.3 CONTINUED

ACTIVITY PAGE

NAME: _____

DATE: _____

Light and Photography

1. What does the word *photography* mean?

   _____

   _____

   page _____

2. Describe a pinhole camera.

   _____

   _____

3. Louis Daguerre developed daguerreotypes that used _____ to make an image on a glass plate.

   page _____

4. George Eastman invented _____ that replaced the glass plates used in earlier cameras.

   page _____

5. The invention of _____ led to the creation of the box camera.

   page _____

6. Describe how you would get your photos using a box camera.

_____

_____

_____

_____

page _____

7. Why were instant film cameras so popular?

_____

_____

_____

_____

page _____

8. Today's digital cameras don't use film but rather a

_____.

page _____

9. Write the central idea of this chapter.

_____

_____

_____

NAME: _____

DATE: _____

Adverbs that Tell *how*

Write an adverb to describe the verb in the sentence. Do not use the same adverb more than once.

We ran quickly to the car when the storm started.

Adverb: quickly **Verb described by adverb**: ran

1. The referee blew his whistle _____ after the play.

   Adverb: _____ **Verb described by adverb**: _____

2. Our dog _____ sits in the doorway at night.

   Adverb: _____ **Verb described by adverb**: _____

3. He searched _____ for his math homework.

   Adverb: _____ **Verb described by adverb**: _____

4. We walked _____ into the kitchen for dinner.

   Adverb: _____ **Verb described by adverb**: _____

5. The posters on the wall were placed _____.

   Adverb: _____ **Verb described by adverb**: _____

Change the adjective under the blank to an adverb by adding –ly *to complete the sentence. Answer the question after the sentence.*

1. The storm _____ damaged the car.
   (bad)

   How was the car damaged? _____

2. The big baseball uniform hung _____ on Devon.
   (loose)

   How did the baseball uniform hang? _____

3. Dad _____ clapped when I scored a goal.
   (proud)

   How did Dad clap? _____

4. The music played _____ through the speakers.
   (loud)

   How did the music play? _____

5. She _____ walked into her new classroom.
   (shy)

   How did she walk? _____

NAME: _____

DATE: _____

PP.3 ACTIVITY PAGE

Adverbs that Tell *when* and *where*

Choose the adverb that best fits in each blank and write it in.

weekly	always	last	after	sometimes

We visit my grandfather _____. We _____ go on Sunday afternoon. I like to bring books _____ and read them to him. When I do bring books, he asks me to read my favorite book _____. He knows I will be excited about it and read it well at the end. _____ I read my books to him, we have dinner.

Write a sentence using each adverb.

1. *recently*

_____

_____

2. *tomorrow*

_____

_____

Choose the adverb that best fits in each blank and write it in.

here	already	home	outside

My brother and I ran _____ to look for our friends. We did not see anyone so we walked _____. When we got _____ we saw a note on the door. It was from David and said "Meet at my house, and we'll go to the park together!" We got to David's house and another note said he had _____ gone to the park. We found him at the park and played until it got dark!

Write a sentence using each adverb.

1. *never*

_____

_____

2. *inside*

_____

_____

NAME: _____

DATE: _____

Conjunction *and*

Begin with the simple sentence and first add another subject to it to make a compound subject. Write the letter A next to that sentence.

Next, begin again with the same simple sentence and add another predicate (remember another verb as well) to make a different compound predicate. Write the letter B next to that sentence.

Example: Connie sings a song.

A. Connie and Carla sing a song. (compound subject)

B. Connie sings a song and dances a jig. (compound predicate)

1. Matthew loves basketball.

_____

_____

_____

2. The rusty bucket leaks on my foot.

_____

_____

_____

3. The famous musician plays the piano.

_____

_____

_____

4. Our class made shadows on the wall.

_____

_____

_____

NAME: _____

DATE: _____

PP.4 CONTINUED

ACTIVITY PAGE

Write the letter 'S' over the subject and the letter 'P' over the predicate in each simple sentence. Draw a line to separate subject and predicate in each simple sentence. Then join the two simple sentences together using the conjunction and *to make a compound sentence. Draw two lines under the word* and *to show that it is a conjunction.*

Example: The silly kitten paws at the string. He plays joyfully!

S P S P

The silly kitten | paws at the string, and he | plays joyfully.

1. The dentist uses a mirror to check my teeth. She is very gentle with me.

_____

_____

2. The "House of Mirrors" was so much fun to see. I hope I can go back to see it again.

_____

_____

3. The straw in the glass of water looks broken. I think that's very strange!

_____

_____

NAME: _____

DATE: _____

Practice Conjunction *and*

Draw two lines under the conjunction and. *Write the letter 'S' over the subject(s) and the letter 'P' over the predicate(s), and draw a line between the subjects and predicates. Then, circle whether the sentence has a compound subject or a compound predicate or is a compound sentence made up of two simple sentences. Answer the question that follows each sentence showing that the conjunction joined two subjects, two predicates, or two simple sentences.*

S p P

Example: The playful beavers | splash one another with their flat tails and look so joyous.

compound subject compound predicate compound sentence

What does the conjunction join in this sentence? two predicates

1. The playful beavers and their babies splash around in the lake.

compound subject compound predicate compound sentence

What does the conjunction join in this sentence? _____

2. The baby beavers splashed each other in the lake, and we secretly took pictures with our cameras.

compound subject compound predicate compound sentence

What does the conjunction join in this sentence? _____

3. The puffy, white clouds float across the sky, and they make me feel good.

compound subject compound predicate compound sentence

What does the conjunction join in this sentence? _____

4. The white clouds and the dark clouds float by in the sky.

compound subject compound predicate compound sentence

What does the conjunction join in this sentence? _____

5. Clouds are beautiful, and the whole class loves to watch them.

compound subject compound predicate compound sentence

What does the conjunction join in this sentence? _____

NAME: _____

DATE: _____

Conjunction *but*

Create compound sentences by connecting the two simple sentences with the conjunction but *and inserting a comma. Draw two lines under the conjunction, and label the subjects with the letter 'S' and the predicates with the letter 'P'.*

1. Marshmallows are fun to melt. They can make a mess.

_____

_____

2. The day is sunny and beautiful. The sky is getting dark off in the distance.

_____

_____

3. My new kitten is very naughty. I laugh at her so often.

_____

_____

4. This grammar homework seems very easy tonight. I'm going to do my best and not hurry.

_____

_____

5. The salesman knocked on our door. We were out of town.

_____

_____

Create the second part of a compound sentence using the conjunction but.

1. David likes peanut butter and jelly sandwiches, but

_____

_____

(Hint: Think about a family member who likes a different kind of sandwich.)

2. Lulu loved the book she just read, but

_____

_____

(Hint: Think about a friend who read the same book but who had a different idea about it.)

NAME: _____

DATE: _____

Suffix Review: *–er*, *–or*, *–ist*, and *–ian*

This chart lists words with some of the suffixes studied in Grade 3. Some of these words are new to you. Use the chart to fill out Worksheet PP8.

	–er	*–or*	*–ist*	*–ian*
a		actor	artist	
b	builder			
c	climber	counselor	cellist	cosmetician
d	designer	dictator		
e		editor		electrician
f	farmer			
g		governor	guitarist	guardian
h	hunter			historian
i		inspector		
l	leader		lyricist	librarian
m				musician
n		navigator	novelist	
o			organist	optician
p	player		pianist	pediatrician
r	reporter			
s	speaker	sailor	stylist	
t	teacher			
v		visitor	vocalist	

NAME: _____

DATE: _____

PP.8

ACTIVITY PAGE

Use the chart on Worksheet PP7 to fill in the blanks.

1. Which words on the chart are people who play musical instruments?

   _____ _____ _____

   _____ _____

2. Which word on the chart is what Julius Caesar had himself appointed for life?

   _____

3. Which word on the chart names someone who can help you pick out books at the library?

   _____

4. Which words on the chart name people that might work together while they are on a boat?

   _____ _____

5. Which word on the chart names someone who writes lyrics, or words to songs, for a vocalist to sing?

   _____

6. Which words on the chart name people who might work together to build a house?

   _____ _____ _____

   _____

7. Which word on the chart names someone that every team needs as someone to guide, or lead them?

_____

8. Which words on the chart name people who might work at a school?

_____ _____ _____

9. Which words on the chart name people who do things outside?

_____ _____ _____

_____ _____ _____

_____

10. Which words on the chart name people who might work together to help someone look their best?

_____ _____ _____

BONUS:

11. Alphabetize the words that begin with 'c'.

_____

_____

_____

_____

12. Count the number of words on the chart for each suffix and write the number here. Circle the suffix that has the most words.

–er: _____ *–or:* _____ *–ist:* _____ *–ian:* _____

NAME: _____

DATE: _____

Words with Suffixes –*y* and –*al*

Add the correct suffix to the root word provided. Write the new word in a sentence.

1. Root word: *nutrition*
   Add –*y* or –*al* to make: _____

   _____

2. Root word: *leak*
   Add –*y* or –*al* to make: _____

   _____

3. Root word: *curl*
   Add –*y* or –*al* to make: _____

   _____

4. Root word: *tradition*
   Add –*y* or –*al* to make: _____

   _____

5. Root word: *music*
   Add –*y* or –*al* to make: _____

   _____

Circle the word that matches the meaning.

1. Meaning: full of soil

   Word: dirty dirt

2. Meaning: the traditions, beliefs, and arts of a group of people

   Word: culture cultural

3. Meaning: something that is untidy and dirty

   Word: mess messy

4. Meaning: a power that allows people to do impossible things by saying special words or performing special actions

   Word: magical magic

5. Meaning: full of a reddish brown substance that forms on certain metals when they are exposed to moisture

   Word: rusty rust

6. Meaning: related to the land near the sea or ocean

   Word: coast coastal

NAME: _____

DATE: _____

Practice Using Suffixes –*ous* and –*ly*

Choose the correct word to complete each sentence. Write the word and its part of speech below the sentence.

1. The mayor _____ denied he did anything wrong, but an investigation proved otherwise.
   (famous, famously)

   Word: _____ Part of Speech: _____

2. Marcus drew a _____ representation of the animal he wrote about for his report.
   (humorous, humorously)

   Word: _____ Part of Speech: _____

3. The road curved _____ when you got near the top of the mountain.
   (dangerous, dangerously)

   Word: _____ Part of Speech: _____

4. I heard a _____ sound coming from somewhere by the window, but I couldn't figure out what it was.
   (mysteriously, mysterious)

   Word: _____ Part of Speech: _____

5. The crew who worked to clean up hazardous materials kept the _____ items in a special container when they collected them.
   (poisonous, mountainous)

   Word: _____ Part of Speech: _____

6. The passenger _____ ran through the terminal, upset that the security line had been so long and worried he would miss his flight.
   (furious, furiously)

   Word: _____ Part of Speech: _____

7. The class responded _____ when they found out they had won the attendance prize for the month.
(joyous, joyously)

   Word: _____ Part of Speech: _____

8. If you are outside and have no shelter when a thunderstorm hits, you are in a _____ situation.
(dangerous, humorous)

   Word: _____ Part of Speech: _____

Bonus: Circle the correct answer and write the part of speech

1. Which of the following words means "full of danger and excitement"?

   adventurously adventurous

   Part of Speech: _____

2. Which of the following words means "in a courteous way"?

   courteously courteous

   Part of Speech: _____

3. Which of the following words means "full of the feeling of wanting what someone else has"?

   envious enviously

   Part of Speech: _____

NAME: _____ **PP.11** ACTIVITY PAGE

DATE: _____

Practice Dictionary Skills

Use the following portion of a dictionary page to answer the questions below.

preschool **prod**

present 1. *verb* **To give a gift. 2.** *verb* **To introduce a person.**
3. *adjective* **To be in a place.**

private 1. *noun* **A soldier of a low rank. 2.** *adjective* **Not for sharing.**
3. *adjective* **Belonging to one person and no one else.**

1. What are the two guide words on the page?

   _____ _____

2. What are the two entry words on the page?

   _____ _____

3. Would the word *presentation* be on this page? _____

4. Circle the word(s) that would come before the word *preschool* in the following list: presently, prescribe, prepare

5. Which definition of *present* matches the use of the word in the sentence:
   May I *present* the governor of our state? _____
   What part of speech is *present* in this sentence? _____

6. Which definition of *present* matches the use of the word in the sentence:
   Every student is *present* today. _____
   What part of speech is *present* in this sentence? _____

7. Write a sentence using the definition of *present* not already used in the sentences above. _____

   _____

8. Which definition of *private* matches the use of the word in the sentence:
   My diary is *private* property and should not be read by anyone else.

   _____

   What part of speech is *private* in this sentence? _____

9. Which definition of *private* matches the use of the word in the sentence:
   The *private* saluted the general when he walked by. _____
   What part of speech is *private* in this sentence? _____

10. Write a sentence using the definition of *private* not already used in the sentences above.

    _____

    _____

NAME: _____

DATE: _____

Conjunction *and*

Write the letter 'S' over the subjects and the letter 'P' over the predicates in each simple sentence. Draw a line to separate the subject and predicate in each simple sentence. Then, join the two simple sentences together using a comma and the conjunction and *to make a compound sentence. Draw two lines under the word* and *to show that it is a conjunction.*

S P S P

Example: Carla | sings a song. Connie | dances a jig.

Carla sings a song, and Connie dances a jig.

1. Matthew loves basketball. Tina enjoys tennis.

_____

_____

_____

2. The bucket is rusty. It leaks on my foot.

_____

_____

_____

3. The silly kitten paws at the string. He plays joyfully!

_____

_____

_____

4. The dentist uses a mirror to check my teeth. She is very gentle with me.

_____

_____

_____

Challenge: Mark subject(s) and predicate(s) and underline the conjunction and *with two lines in the following sentences. Write 'Yes' on the line if the sentence is a compound sentence with two independent clauses and 'No' if it is not a compound sentence.*

S P

Example: Tom | fixed breakfast and dinner for his family. _____No_____

1. Lindsay and Tony walked to the library. _____

2. Linda jumped rope and played soccer yesterday. _____

3. Tina chose the movie, and Jeff picked out the candy. _____

NAME: _____

DATE: _____

Conjunction *and*

Write the letter 'S' over the subjects and the letter 'P' over the predicates in each simple sentence. Draw a line to separate the subject and predicate in each simple sentence. Then, join the two simple sentences together using a comma and the conjunction and *to make a compound sentence. Draw two lines under the word* and *to show that it is a conjunction.*

S P S P

Example: The straw | is broken. I | can't drink out of it.

The straw is broken, <u>and</u> I can't drink out of it.

1. The beavers are playful. Their babies splash around in the lake.

_____

_____

_____

2. We watched the beavers. We took pictures of them.

_____

_____

_____

3. The white clouds float across the sky. They make me feel good.

_____

_____

_____

4. Clouds are beautiful. The whole class loves to watch them.

_____

_____

_____

Challenge: Mark subject(s) and predicate(s) and underline the conjunction and *with two lines in the following sentences. Write 'Yes' on the line if the sentence is a compound sentence with two independent clauses and 'No' if it is not a compound sentence.*

S P

Example: Steve | wore a coat and gloves. _____No_____

1. Emma and Ryan visited the zoo. _____

2. Amy painted a picture and read a book on Saturday. _____

3. Kate washed the dishes, and Sam cleaned the sink. _____

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Printed in the USA

Bluebonnet Learning
K–5 Reading Language Arts

ENGLISH

FLASH, BANG, BOOM!
EXPLORING LIGHT AND SOUND
GRADE 3 UNIT 5 | ACTIVITY BOOK

EDITION 1

9 79889 72944 6