A Total Curriculum Guide to Teach Your Child at Home

From the Editors of American Education Publishing

GRADE 6

Learn at Home

Reading, Language Skills, Spelling, Math, Science & Social Studies

	Language Skills	**Spelling**	**Reading**
Monday	Have your child choose a topic, make a plan for writing and begin working on a rough draft.	Pretest your child on these spelling words: precaution premature prescribe precise premeditate preserve predict premium presume prefer prepare prevail prefix prepay prevent prehistoric preschool previous Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	**Comprehension** Introduce this week's reading selection. Suggestion: *Shiloh* by Phyllis Reynolds Naylor. *See* Reading, Week 19, numbers 1–8 for cross-curricular activity suggestions to accompany your study of the book.
Tuesday	**Sentences:** Review the four sentence types: *declarative, imperative, interrogative* and *exclamatory*. Discuss the appropriate final punctuation for each. Then, have your child write four sentences on a single subject. **Examples:** *Wolves hunt in packs.* *Watch out for the wolf!* *What do wolves eat?* *Wow! That wolf is beautiful!*	Review this week's spelling words. Have your child complete **Predictable Prefixes** (p. 196).	Discuss this week's reading in a conference. Focus on point of view. From what or whose point of view is the story written? Discuss why the author chose to tell the story from that perspective.
Wednesday	Choose a topic of interest to your child. Write 8–10 sentences on that topic on the chalkboard, omitting final punctuation. Have your child fill in periods, exclamation points and question marks as needed. Have your child identify each sentence by type. Then, have your child rewrite each sentence as a different type. **Example:** *That ant is amazing!* *Isn't that ant amazing?*	Have your child use each of this week's spelling words correctly in a sentence.	The Prestons did not always use correct grammar. Have your child scan the book to locate examples of poor grammar. Then, have your child rewrite each sentence using correct grammar.
Thursday	Review *simple* and *compound sentences*. *See* Language Skills, Week 19, numbers 1 and 2. Write a variety of sentences on the chalkboard. Ask your child to state whether each sentence is simple or compound. Have your child underline the subjects once and the verbs twice, adding commas where needed.	Have your child study this week's spelling words.	Review the use of similes. A *simile* compares two things using the words *like* or *as*. **Example:** He shot out of bed *like* a rocket. Discuss the meaning of similes from the book. Have your child complete **Shiloh** (p. 197).
Friday	Have your child write simple and compound sentences using given groups of subjects and verbs. *See* Language Skills, Week 19, number 3.	Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Hold a reading conference to discuss the ending of the book.

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Math	Science	Social Studies
Decimal Fractions Have your child use centimeter graph paper to draw models of decimal fractions. Let a 10 x 10 square box represent one whole. A row of ten squares represents 0.1. The decimal fraction 0.75 would be illustrated by shading 75 squares. Have your child draw the following decimal fractions: 0.3 0.42 0.90 1.05 0.65 0.4 0.08 2.31	**Light** Introduce the concept of light energy. *See* Science, Week 19. Display the following items: flashlight, candle, magnifying lens, camera, microscope, prism, light bulb and eyeglasses. Ask your child to explain how each of these objects is related to the study of light. *Why is light energy so important to life on Earth? Could we exist without it? See* Science, Week 19, numbers 1 and 2.	**World War II** Begin a discussion of World War II. *See* Social Studies, Week 19. Discuss what was happening in other parts of the world while America was dealing with the Great Depression. *See* Social Studies, Week 19, number 1. Have your child make a glossary of WWII vocabulary. *See* Social Studies, Week 19, number 2.

Review metric units of measure. *See* Math, Week 19.
Have your child calculate masses equivalent to the following:
     40 g   3,000 g   720 g
     82 g   350 g   4 g
Then, have your child calculate equivalent volumes and distances using liters and meters as base units.
	Ask your child to name some natural (fireflies, fish, lightning, the sun and stars, volcanic eruptions, Northern Lights) and some artificial (bulbs, burning fuels or candle, fireworks) sources of light. Using old magazines and newspapers, have your child make a poster of the forms of light energy. Provide scissors, glue and poster board. Have your child add pictures to the poster as you discuss other forms of light energy.	Obtain books and articles about WWII for your child to read. Since there is so much information available on this war, break your discussions into smaller units of study.
		Have your child read about the causes of the war. What was the position of the U.S. at the beginning of the war?

Review decimal fractions as covered so far this year in preparation for tomorrow's quiz. Encourage your child to ask questions.	When light hits an object, one of three things can happen: it can pass through, it can bounce off or it can be absorbed. Introduce the terms *opaque, translucent* and *transparent. See* Science, Week 19, number 3. Have your child make a chart to show how different objects respond to light. The chart should name the object and tell whether it is opaque, translucent or transparent.	Have your child read about the economic situation in Germany after World War I. Discuss Germany's inflation and unemployment and its role in World War II. *See* Social Studies, Week 19, number 3 for discussion topics.
Quiz your child on his/her understanding of decimal fractions. Have your child complete **Decimal Test** (p. 198).	Use reference materials to explain to your child how the human eye works. Have your child draw and label a diagram of the human eye.	Have your child read about and discuss the rise of Mussolini and fascism. *See* Social Studies, Week 19, number 4 for discussion topics.
Reteach any concepts missed on the test.	Have your child make a pinhole camera to model the behavior of the human eye. Have your child complete **Pinhole Camera** (p. 199).	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

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TEACHING SUGGESTIONS AND ACTIVITIES

LANGUAGE SKILLS (Sentences)

▶ 1. A simple sentence contains a subject and a predicate and expresses a single thought.
Example: John dropped the ball.

A simple sentence may contain a compound subject.
Example: John and Bill raced for the ball.

A simple sentence may contain a compound predicate.
Example: John fell on and recovered the ball.

A simple sentence may contain a compound subject and a compound predicate.
Example: John and Bill brought and used two baseballs.

▶ 2. A compound sentence contains two simple sentences joined by a conjunction, such as *and, but, or* or *nor.* A comma is used before the conjunction.
Examples: The rain poured from the clouds, and the porch got wet.
A strong wind knocked over our flower pots, but nothing was broken.

▶ 3. Write several groups of subjects and verbs on the chalkboard. After each group, write the word *simple* or *compound* in parentheses. Have your child use the group of words to write the type of sentence indicated.

squirrel, chipmunk, scampered (simple)
horse, trotted, elephant, lumbered (compound)
Margaret, rode, Janet, walked (compound)
yesterday, today, was, is (compound)

tigers, blue jays, played (simple)
mother, cooked, washed, she (compound)
hats, swirled, twisted (simple)
ducks, geese, swam (simple)

READING (Comprehension)

Have your child complete some or all of the following activities as he/she reads *Shiloh* this week. If you have chosen a different book to read this week, adapt the activities to the setting, characters and events in that book.

▶ 1. Have your child locate West Virginia on a map. Have him/her read about the state in an encyclopedia.
▶ 2. Have your child look up information on a hermit crab. Does a hermit crab make a good pet?
▶ 3. Have your child explain the difference between needs and wants to a family like the Prestons.
▶ 4. Think about what would you do and say if you discovered he/she were hiding a dog? Have your child role-play the situation with another person.
▶ 5. Have your child brainstorm a list of ways that children can earn money.
▶ 6. Have your child make a drawing of Judd's trailer and garden.
▶ 7. Have your child write a new ending: How would the story have been different if Judd had not shot the deer?
▶ 8. Have your child discuss the irony in the fact that hunting (something Marty hated) helped Marty win Shiloh.

MATH (Decimal Fractions)

The metric system is a base-ten system. The basic unit of mass is the gram. A gram weighs about the same as a small paper clip. To find the equivalent mass in milligrams, multiply by 1,000. A paper clip has a mass of 1,000 mg. To find the equivalent mass in kilograms, divide by 1,000. A paper clip has a mass of 0.001 kg. Reproduce the chart below for your child. Give your child measurements in grams to convert into other units. The pattern and prefixes are the same for meters and liters.

Larger units			Base	Smaller units		
kilo-	hecta-	deca-	gram	deci-	centi-	milli-
÷ 1,000	÷ 100	÷ 10	x 1	x 10	x 100	x 1,000

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SCIENCE (Light)

BACKGROUND

Light energy from natural and artificial sources provides many benefits to people. The study of light includes the human eye and its parts, mirrors, lenses, colors and optical instruments. Many professions in medicine, astronomy, biology, theater and art depend on light energy. Provide plenty of resources on light for your child's reference.

▶ 1. Visible light is just one of the forms of radiation associated with light energy. Other forms include x rays, ultraviolet rays and infrared rays. Have your child read about some of the early theories about light by Socrates, Pythagoras, Newton, Huygens and Einstein.

▶ 2. Add appropriate light vocabulary to the spelling lessons over the next few weeks.

light energy	refraction	primary colors	visible light
fluorescent	mirror	prism	translucent
incandescent	opaque	radiation	transparent
lens	pigments	reflection	electromagnetic spectrum

▶ 3. Gather objects made of paper, wood, metal, plastic and glass. Shine a flashlight on a piece of wood and ask your child to describe the result. Repeat with a mirror and clear glass. Discuss the terms *opaque, trancent* and *transparent*. Have your child aim the flashlight at the other materials and classify each one as opaque, translucent or transparent. Then, ask your child to name other objects or that fit each category.

SOCIAL STUDIES (World War II)

BACKGROUND

After the terrible cost of World War I, no one believed Germany would be willing to risk another war. However, the harsh conditions inflicted on Germany by the terms of the Treaty of Versailles created a fertile environment for radical politicians. Adolf Hitler soon rose to power and swiftly marshaled the resources of the entire nation for military conquest.

▶ 1. Other countries across the world were suffering economically at the same time America was. The people of Italy, Germany and Japan turned to dictators promising economic prosperity. The Germans turned to Adolf Hitler. The Italians followed Benito Mussolini. The Japanese formed a military dictatorship. Germany, Italy and Japan became aggressive in their goals for territorial expansion. Lenin led a revolution in Russia. Stalin became the country's dictator after Lenin's death, enforcing a new form of government called *communism*.

▶ 2. Have your child make a glossary of World War II vocabulary in his/her Social Studies Journal. The glossary should include the following words:
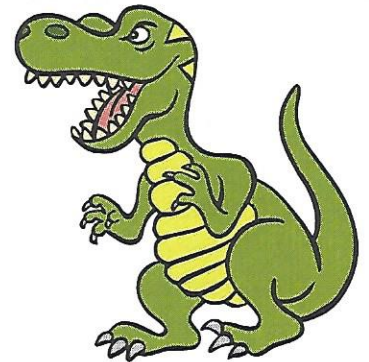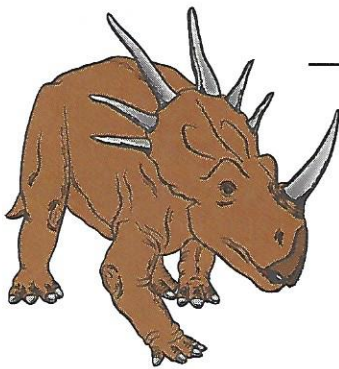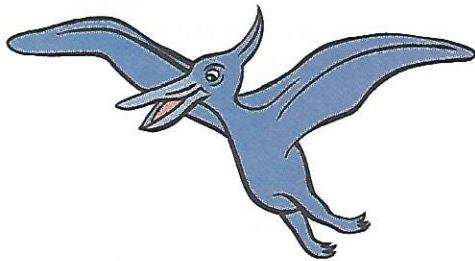
anti-Semitism	blitzkrieg	communism	Holocaust	nationalism
autarchy	D-Day	fascism	isolationism	Nazism
Axis powers	dictator	Gestapo	kamikaze	U-boats

▶ 3. Help your child research the economic situation in Germany prior to World War II. Discuss your child's findings.

What impact does inflation have on a national economy?

How did Germany's inflation affect imports and exports?

How does inflation affect savings accounts?

Why did Hitler blame the poor economy on a Jewish conspiracy?

Why is a nation's economy often better during wartime than peacetime?

▶ 4. Help your child research the rise of Mussolini and fascism. Discuss your child's findings.

What conditions led to the rise of Mussolini?

How does fascism differ from democracy?

Why did totalitarian states try to control the media and schools and to eliminate all forms of criticism?

Why do totalitarian states depend on secret police?

Complete the puzzle using the spelling words.
Use each word once.

precaution	prepare
precise	prepay
predict	preschool
prefer	prescribe
prefix	preserve
prehistoric	presume
premature	prevail
premeditate	prevent
premium	previous

```
P _ _ _ _ _ _ _
_ _ _ _ _ R _
_ _ _ E _ _ _
_ _ D _ _ _
_ _ _ I _ _
_ _ _ _ C _ _ _ _
_ _ _ _ _ T _
_ _ _ _ A _ _ _
_ _ _ _ _ B _
_ _ _ _ _ _ L
_ _ E _ _ _ _ _ _ _
P _ _ _ _ _ _ _ _ _
_ _ _ _ R _ _
_ _ _ _ _ E _
_ _ F _ _
_ _ _ I _ _
_ _ _ _ X _
_ _ _ _ _ _ E
```

PREDICTABLE PREFIXES

Change the meaning of two words from the list by adding a different prefix.

1. _____ 2. _____

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Shiloh

A **simile** is a comparison using the words **like** or **as**. **Underline** the similes in these sentences. **Write** another simile with the same or nearly the same meaning.

1. My dream leaks out like water in a paper bag.

   _____

2. I hold Shiloh as careful as I carry Becky when she's asleep.

   _____

3. I'm as happy as a flea on a dog.

   _____

4. Keeping Shiloh a secret is like having a bomb waiting to go off.

   _____

5. I'm as tense as a cricket at night.

   _____

6. Ma hums to Shiloh like he's a baby in a cradle.

   _____

Complete these sentences with a simile of your own.

7. Shiloh looked at Dara Lynn like _____.

8. Doc Murphy was as gentle as _____ with Shiloh.

9. Judd trying to be nice was like _____.

10. The Prestons were happy as _____ to have Shiloh.
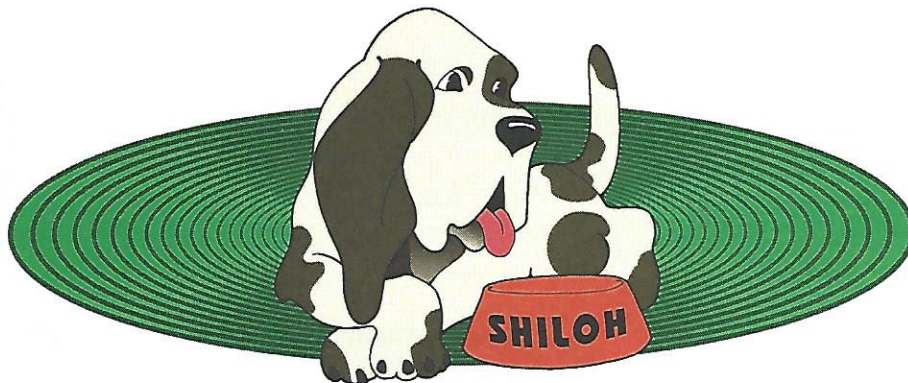
Decimal Test

1. 0.45 + 0.96 + 0.52 = _____

2. 26.3 − 4.8 = _____

3. Use > or < to compare each pair of numbers.

    5.01 ___5.003   6.15 ___6.015   3.05 ___5.03

4. Write sixty-one hundredths in numeral form. _____
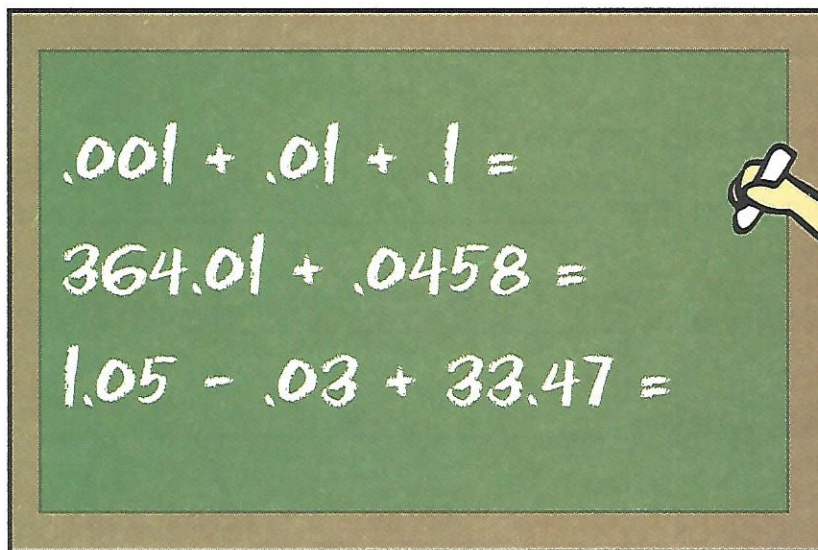
5. 35.1 + 475.11 + 0.54 + 0.3 + 15 = _____

6. 81 − 0.04 = _____

7. Round 27.553 to the nearest tenth. _____

8. Round 62.814 to the nearest hundredth. _____

9. Round 5.06921 to the nearest hundredth. _____

10. Write 0.07 in words. _____

.001 + .01 + .1 =

364.01 + .0458 =

1.05 − .03 + 33.47 =

11. 16 x 0.18 = _____   15. 25.6 x 0.11 = _____

12. 0.504 ÷ 12 = _____   16. 22.1 + 0.008 = _____

13. 63 x 0.5 = _____   17. 3.65 ÷ 20 = _____

14. 90 − 10.50 = _____   18. 2.64 ÷ 5 = _____

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Pinhole Camera
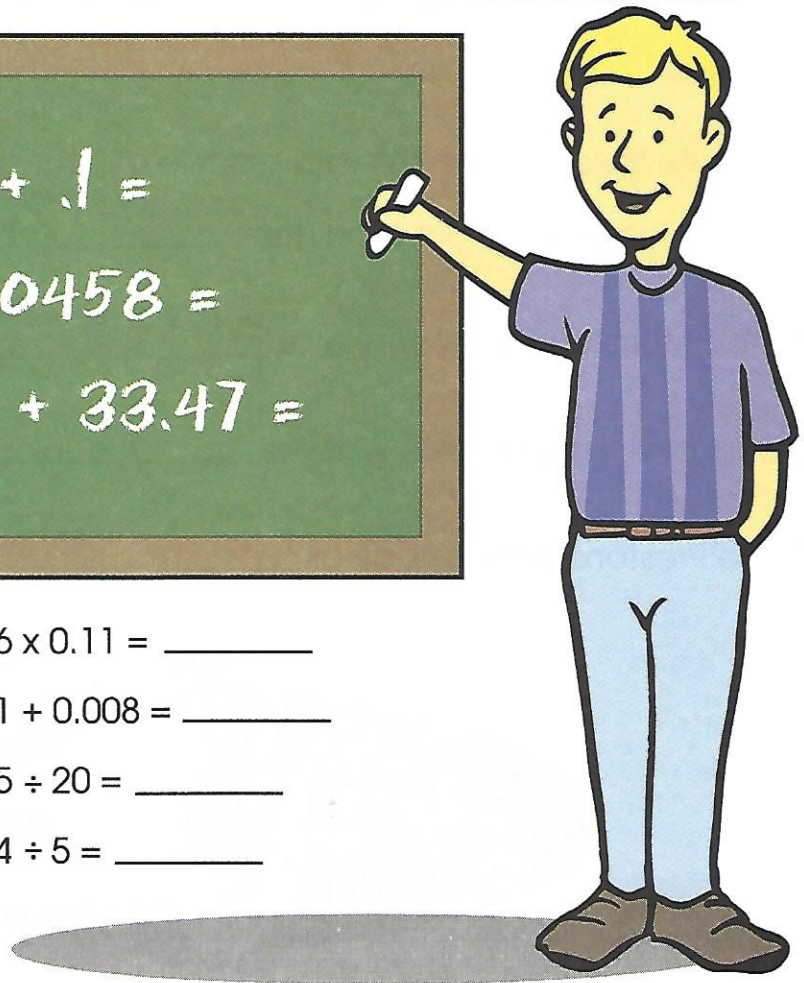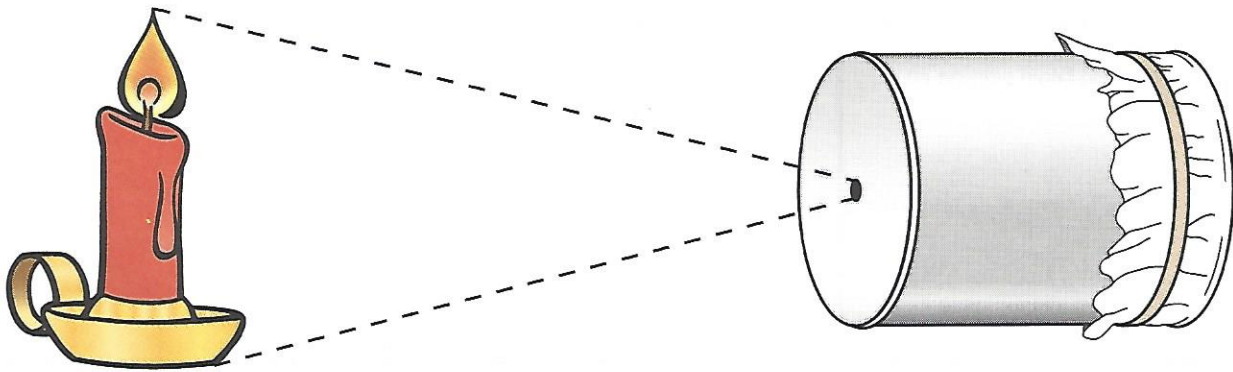
Use a large can that has a very small hole in the center of one end and that is open at the other end. Stretch one sheet of tissue paper over the open end and rubber band it in place. In a darkened room, hold the small opening about 6 inches (10 cm) away from a lighted candle. **As always, be careful when dealing with fire.** Line up the small opening with the candle flame. Hold the end covered with tissue towards you and look at the tissue. You should be able to see the back of an image projected onto the tissue showing through from the inside of the can. Move the can slightly forward and back to focus the image.

Observations

What do you see projected onto the tissue? _____

_____

Is there anything unusual about the image? _____

_____

Facts to Know

The pinhole camera you have just made models how an image is formed in the human eye. Light enters the eye through a small opening called the pupil and projects an image against the retina on the back of the eyeball. The image is upside down when it reaches the retina, but the brain automatically reverses it so we perceive the image as upright.

Draw lines connecting the parts of the pinhole camera with the corresponding parts of the eye.

retina   small opening

pupil   tissue

	Language Skills	Spelling	Reading
Monday	Have your child choose a topic, make a plan for writing and begin working on a rough draft.	Pretest your child on these spelling words: percent · perish · persevere percussion · permanent · persist perfume · permit · personality perhaps · peroxide · perspire peril · perpendicular · persuade period · perplex · perturb Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	Introduce the new reading selection or continue with the book from last week.
Tuesday	**Sentences:** Encourage your child to vary the types of sentences in order to make a paragraph more interesting. Write several pairs of simple sentences on the chalkboard. Have your child combine the sentences by adding key words. **Example:** The dog ran after the cat. The dog barked. *The dog barked as it ran after the cat.*	Review this week's spelling words. Have your child complete **Perplexing Personalities** (p. 206).	Discuss the current reading book in a conference. Focus on identifying the conflict in the story.
Wednesday	A complex sentence contains one independent clause and one or more dependent clauses. A dependent clause cannot stand on its own as a sentence. Have your child complete **Sentences: Simple, Compound and Complex** (p. 204).	Have your child use each of this week's spelling words correctly in a sentence.	Learning to use resources in the library takes practice. Make a list of ten questions for your child to answer using library resources. Have your child first identify the appropriate resource to use, then look to find the answer. Some sample questions: What is the definition of *sleuth*? Who was Sir Arthur Conan Doyle? Are there any private investigators in your hometown?
Thursday	Have your child complete **"Variety Is the Spice of Life"** (p. 205).	Have your child study this week's spelling words.	**Problem Solving:** Teach your child strategies for solving problems. Have your child read a scenario, then follow four problem-solving steps to generate a solution to the problem. *See* Reading, Week 20, numbers 1 and 2.
Friday	Teach your child to use interesting verbs in order to create a more vivid picture in his/her writing. **Example:** *Patty raced home after school to see Grandma.* This sentence creates a better mental picture than the following: *Patty ran home after school to see Grandma.* Have your child substitute verbs to create more descriptive sentences. *See* Language Skills, Week 20.	Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Hold a reading conference. Ask your child to evaluate the actions of the characters in the book.

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Math	Science	Social Studies
Fractions Review the concept of fractions. Ask your child to draw some simple models of fractions. Assess whether the concept needs reteaching. If so, use physical models and drawings to help your child understand the concept of parts of a whole. *See* Math, Week 20, number 1. Name several fractions for your child to draw or build using a model.	**Reflection** Introduce the terms *reflection* and *refraction*. Demonstrate examples of each. *See* Science, Week 20, number 1.	**World War II** Have your child read about the Japanese surprise attack on Pearl Harbor. Have your child read newspaper accounts from December 7, 1941. Have your child draw a map of Hawaii, indicating where the attack took place. Have him/her label the map with other relevant information.
Use a model to teach your child about equivalent fractions. *See* Math, Week 20, number 2. Have your child draw a picture model of the following fractions: $1/3$, $3/4$, $2/3$, $11/12$, $5/6$. Ask your child to draw a line to connect the equivalent fractions.	Encourage your child to explore *plane*, *convex* and *concave* mirrors. Gather the following objects: a flashlight, flat and curved shiny pot lids, flat mirrors, aluminum foil, a car hubcap, a shiny metal spoon and a metal can. *See* Science, Week 20, numbers 2–4. Have your child make a chart of the objects and classify them as plane, convex or concave mirrors.	Have your child read about some of the key battles of WWII. Discuss. Have your child draw and color a map showing the key battles of WWII. As your child reads about different battles and invasions, have him/her label the countries involved. Your child should make a color key for the map. For example, have your child color the Axis countries brown, the Allies blue and occupied countries yellow.
Teach your child how to find equivalent fractions using multiplication or division. To find equivalent fractions, multiply or divide the numerator and denominator by the same number. In effect, you are multiplying (or dividing) the fraction by one ($4/4 = 1$), which does not change the value. *See* Math, Week 20, number 3. Give your child ten fractions. Have him/her name three equivalent fractions for each.	Help your child conduct an experiment to explore reflection and diffraction. Your child will need a flashlight, a protractor, a mirror and a flat surface to work on. *See also* Science, Week 20, number 5. Have your child complete **Light Waves** (p. 208).	Have your child read about the battles of Iwo Jima and Okinawa. Discuss. Study a map of Japan with your child. Have him/her find the islands of Iwo Jima and Okinawa. Ask your child to answer the following questions in his/her Social Studies Journal: *What was the cost in American and Japanese lives? What is a kamikaze? Do you think the battles were necessary?*
Teach your child to simplify a fraction to its lowest terms. To simplify a fraction, divide the numerator and denominator by the same number. To simplify to lowest terms, find the GCF (*greatest common factor*) of the numerator and denominator. *See* Math, Week 20, number 4. Have your child complete **Tall Trivia** (p. 207).	Help your child explore the use of mirrors in a periscope. Have your child complete **Making a Periscope** (p. 209).	Have your child read about the use of the atom bomb on Hiroshima and Nagasaki. Discuss the key figures involved in the decision to use the bomb and the events leading up to the ultimate launch of the bombs. Have your child write about whether future wars will involve the use of nuclear weapons.
To convert a mixed number to an improper fraction, multiply the whole number by the denominator and add the numerator. Write this sum over the denominator. **Example:** $4\frac{3}{4} = \dfrac{4 \times 4 + 3}{4} = \dfrac{19}{4}$ or $\quad (4 = \frac{16}{4})$ $\frac{16}{4} + \frac{3}{4} = \frac{19}{4}$ Write mixed numbers and corresponding improper fractions on the chalkboard. Have your child match the equivalent numbers.	Have your child use a prism to refract light. The denser the material, the more light it will bend. Glass is more dense than air, so the light bends as it passes through the prism. Each of the colors in the spectrum bends a different amount so you can see the different colors.	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

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TEACHING SUGGESTIONS AND ACTIVITIES

LANGUAGE SKILLS (Sentences)

Copy the following sentences on the chalkboard. Have your child rewrite each sentence, replacing the verb with another, more descriptive verb.

The bee went past my ear.	Miss Jones said what to study for the test.
Thunder sounded in the distance.	The children went down the hill like a herd of elephants.
We made beaded jewelry.	Mother put butter on the bread.
Brooke loved chocolate candy.	The skaters skated around the rink.

READING (Problem Solving)

▶ 1. Copy the following scenario for your child to read.

> Four friends had been sailing for two hours before they spied a group of uninhabited mountain islands in the large sea. The small rig hit a boulder and sprung a leak about 500 feet from the shore of the smallest island. The island appeared to be about a half mile wide and a mile long and contained plenty of lush vegetation. The four friends swam ashore, leaving the boat behind with everything on it. One friend rescued a plastic bag of sandwiches wrapped in foil. Tired and frightened, the friends gathered to take stock of their situation. They looked upward toward the clear sky and bright sun and noticed birds circling overhead. One of the friends spied footprints in the sand.

▶ 2. Have your child follow these problem-solving steps to help the friends through this troublesome time.

    a. State some conclusions from the information provided in the paragraph.

    b. Ask some questions to obtain more information.

    c. What prior knowledge would be helpful in this situation?

    d. State some sensible things to do.

MATH (Fractions)

▶ 1. Find ways for your child to use fractions in everyday activities such as cooking, drawing, telling time or measuring with a ruler. Stress that a fraction is not a static size; its size depends on the size of the whole. For example, $1/2$ of a candy bar is not the same size as $1/2$ of a wedding cake.

▶ 2. Equivalent fractions name the same model in different ways. Shade $1/2$ of a rectangle. Draw a line in the rectangle so the shaded part looks like $2/4$. The shaded area hasn't changed in relation to the whole, so $1/2$ and $2/4$ are equivalent fractions. Draw two more lines in the figure so the fraction looks like $4/8$.

▶ 3. To find equivalent fractions, multiply or divide the numerator and denominator by the same number.

$$\frac{1}{2} \times \frac{4}{4} = \frac{4}{8} \qquad \frac{4}{8} \div \frac{2}{2} = \frac{2}{4}$$

To find an equivalent fraction with a given denominator, find out what number was multiplied or divided to get that denominator. Then, multiply or divide the numerator by the same number.

$$\frac{2}{3} \times \frac{?}{?} = \frac{}{9} \qquad \frac{2}{3} \times \frac{3}{3} = \frac{6}{9}$$

▶ 4. As an alternative to finding the GCF, use any number that is a common factor of the numerator and denominator. Divide and find a common factor for the resulting fraction. Repeat until the fraction is in simplest terms.

$$\frac{84}{96} \div \frac{2}{2} = \frac{42}{48} \div \frac{3}{3} = \frac{14}{16} \div \frac{2}{2} = \frac{7}{8}$$

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SCIENCE (Reflection)

▶ 1. *Reflection* occurs when light waves bounce off an object. Using a small flashlight, demonstrate the reflection of light from a mirror or shiny metal surface. *Refraction* occurs when light waves bend. Place a pencil upright in a glass half-full of water and have your child describe the effect. The pencil appears to be broken, because you are viewing part of the pencil out of the water and part of the pencil underwater. The speed of the light entering the denser water is slowed, and the image is refracted.

▶ 2. Have your child examine his/her reflection in the inside of the spoon and then the outside of the spoon. Have your child describe the images. Then, have your child view his/her image in a flat mirror and describe the image. A mirror can be any surface or material which reflects light. The flat mirror is also called a *plane* mirror. The inside of the spoon is called a *concave* mirror, and the outside of the spoon is called a *convex* mirror.

▶ 3. Have your child view his/her image in the hubcap, the inside and outside of flat and curved pot lids, a piece of aluminum foil and the outside of a shiny metal can. Ask your child to classify each object as a plane, concave or convex mirror.

▶ 4. Use the following questions to spark discussion or for your child to answer in his/her Science Log:

> *Have you ever seen a large convex mirror mounted in the ceiling or corner of a store?*
>
> *What is the purpose of the mirror?*
>
> *What types of mirrors are found on or in a car?*
>
> *What does a concave mirror do to a reflected image?*
>
> *What does a convex mirror do to a reflected image?*
>
> *What does a plane mirror do to a reflected image?*
>
> *What types of mirrors are used in reflecting telescopes?*

▶ 5. *Reflection* occurs when a wave strikes an object and bounces back. If a wave hits a smooth surface at an angle, the wave will be reflected in the opposite direction but at an equal angle. The angle of incidence (where the light wave strikes) is equal to the the angle of reflection (where the light wave bounces back).

Diffraction is the bending of waves around sharp edges. A light wave spreads slightly when it travels through a small opening. The edges of the index cards should appear slightly fuzzy.

Sentences

Simple, Compound and Complex

A simple sentence has a complete subject and predicate.
Example: The little brown rabbit hopped all around the yard.

A compound sentence has two or more simple sentences joined together.
Example: Patrick tried to pick the rabbit up, but it quickly hopped away.

A complex sentence contains one independent clause and one or more dependent clauses.
Example: After several tries, Patrick finally caught the frightened rabbit.
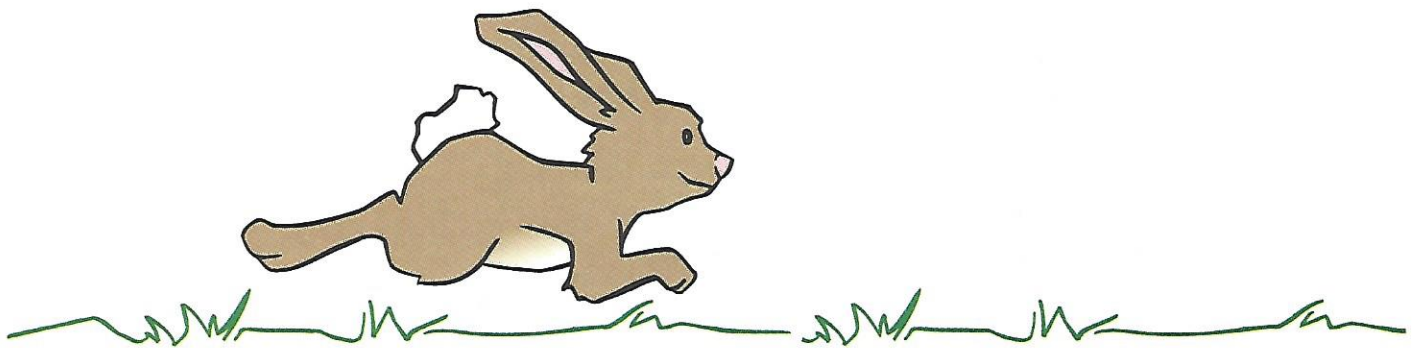
Label the sentences below as simple, compound or complex.
1. Jack and Sam were planning their summer vacation._____
2. Jack, who loved to hike and climb, wanted to go to the mountains._____
3. Sam called the travel agency, but no one answered the phone._____
4. They needed some advice about their travel plans._____
5. Since they had been to the mountains last year, Sam thought going to a lake would be better this time._____
6. They finally decided to fish the first week of their vacation and head for the mountains the second week._____

Write the sentences below according to the directions.

1. Write a simple sentence with a compound subject.

_____

2. Write a simple sentence with a compound verb.

_____

3. Write a compound sentence using and as the conjunction.

_____

4. Write a complex sentence using the subordinating conjunction after.

_____

Learn at Home, Grade 6

"Variety Is the Spice of Life"

Writing is more interesting when sentences are written in different ways. Sentences may be short or long, begin with phrases or clauses or change their order.

Rewrite the paragraphs below. Divide some sentences and combine others. Vary their beginnings.

My sister broke her leg playing soccer. She was playing center. She was in a tournament. She tripped over the ball when she tried to trap the ball and fell to the ground immediately. An ambulance came and an ambulance had on its siren and she went away in the ambulance.

_____

_____

_____

_____

_____

The school year was about to begin. I had to get ready for it. Mother took me to the store. I had to get a notebook. I had to get paper. I had to get pens with blue ink and pencils with erasers. I saw my friends at the store. They were getting ready for school too.

_____

_____

_____

_____
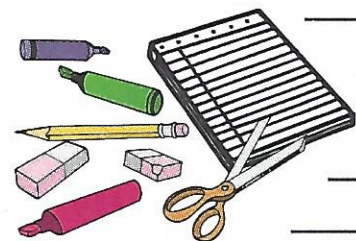
Jamie's mother got a new car. It was a good-looking one. The car was bright red and it had a sun roof and it had a stereo and it could go fast. It had four speeds. Jamie could not give anyone a lift there were only two seats. Jamie was not old enough to drive. He sat in the seat next to his mom.

_____

_____

_____

_____

Perplexing Personalities

Divide each spelling word into syllables and **underline** the syllable that is stressed. Refer to a dictionary if necessary.

percent	perhaps	perish	peroxide	persevere	perspire
percussion	peril	permanent	perpendicular	persist	persuade
perfume	period	permit	perplex	personality	perturb

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

Write a paragraph using as many spelling words as possible. Add your own words beginning with **per**.

PER CENT

_____

_____

_____

_____

Learn at Home, Grade 6

Tall Trivia
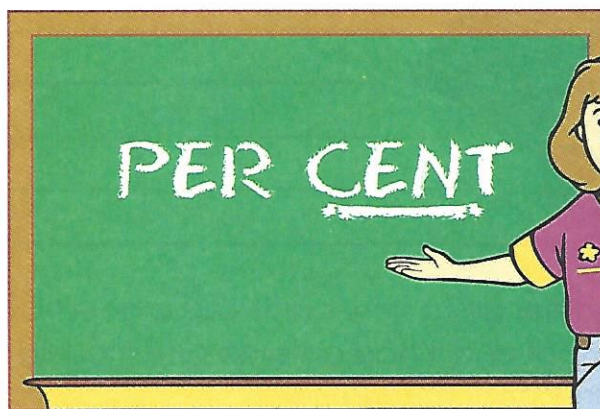
The Empire State Building, a famous building in New York City, has 102 floors. Find out how many stairs it has by shading in the boxes that contain correctly reduced fractions.

$\frac{10}{12}=\frac{5}{6}$	$\frac{12}{43}=\frac{2}{7}$	$\frac{20}{48}=\frac{5}{12}$	$\frac{2}{10}=\frac{1}{5}$	$\frac{9}{72}=\frac{1}{8}$	$\frac{40}{49}=\frac{6}{7}$	$\frac{5}{10}=\frac{1}{2}$	$\frac{45}{64}=\frac{7}{10}$	$\frac{3}{42}=\frac{5}{16}$	$\frac{29}{63}=\frac{3}{7}$	$\frac{6}{9}=\frac{2}{3}$	$\frac{9}{24}=\frac{3}{8}$	$\frac{3}{18}=\frac{1}{6}$
$\frac{5}{20}=\frac{1}{4}$	$\frac{4}{50}=\frac{1}{10}$	$\frac{21}{30}=\frac{7}{10}$	$\frac{4}{15}=\frac{2}{7}$	$\frac{24}{30}=\frac{4}{5}$	$\frac{5}{33}=\frac{2}{11}$	$\frac{14}{22}=\frac{7}{11}$	$\frac{19}{63}=\frac{4}{15}$	$\frac{16}{50}=\frac{9}{25}$	$\frac{18}{56}=\frac{2}{6}$	$\frac{4}{20}=\frac{1}{5}$	$\frac{5}{65}=\frac{1}{12}$	$\frac{20}{65}=\frac{4}{13}$
$\frac{8}{28}=\frac{2}{7}$	$\frac{40}{56}=\frac{5}{8}$	$\frac{8}{16}=\frac{1}{2}$	$\frac{3}{21}=\frac{1}{7}$	$\frac{6}{8}=\frac{3}{4}$	$\frac{26}{52}=\frac{6}{13}$	$\frac{5}{15}=\frac{1}{3}$	$\frac{40}{52}=\frac{5}{6}$	$\frac{27}{43}=\frac{5}{8}$	$\frac{31}{42}=\frac{3}{4}$	$\frac{10}{25}=\frac{2}{5}$	$\frac{3}{40}=\frac{1}{15}$	$\frac{14}{70}=\frac{1}{5}$
$\frac{15}{27}=\frac{5}{9}$	$\frac{18}{100}=\frac{3}{20}$	$\frac{14}{21}=\frac{2}{3}$	$\frac{6}{22}=\frac{3}{10}$	$\frac{18}{20}=\frac{9}{10}$	$\frac{29}{60}=\frac{9}{20}$	$\frac{25}{70}=\frac{5}{14}$	$\frac{5}{50}=\frac{1}{10}$	$\frac{10}{40}=\frac{1}{4}$	$\frac{38}{59}=\frac{2}{3}$	$\frac{35}{45}=\frac{7}{9}$	$\frac{7}{63}=\frac{2}{21}$	$\frac{6}{30}=\frac{1}{5}$
$\frac{7}{70}=\frac{1}{10}$	$\frac{12}{30}=\frac{4}{15}$	$\frac{42}{49}=\frac{6}{7}$	$\frac{16}{25}=\frac{4}{5}$	$\frac{12}{27}=\frac{4}{9}$	$\frac{27}{100}=\frac{13}{15}$	$\frac{16}{36}=\frac{4}{9}$	$\frac{5}{44}=\frac{1}{8}$	$\frac{14}{21}=\frac{2}{3}$	$\frac{28}{36}=\frac{4}{5}$	$\frac{7}{28}=\frac{1}{4}$	$\frac{18}{56}=\frac{1}{3}$	$\frac{6}{15}=\frac{2}{5}$
$\frac{6}{10}=\frac{3}{5}$	$\frac{25}{50}=\frac{5}{12}$	$\frac{25}{30}=\frac{5}{6}$	$\frac{24}{64}=\frac{3}{8}$	$\frac{6}{33}=\frac{2}{11}$	$\frac{19}{28}=\frac{3}{4}$	$\frac{36}{40}=\frac{9}{10}$	$\frac{14}{22}=\frac{7}{11}$	$\frac{3}{18}=\frac{1}{6}$	$\frac{45}{80}=\frac{3}{10}$	$\frac{9}{18}=\frac{1}{2}$	$\frac{18}{90}=\frac{1}{5}$	$\frac{26}{40}=\frac{13}{20}$

Every year, there is a race to the top of the Empire State Building. In 1993, the winner got to the top in 10 minutes, 18 seconds. How many stairs did the winner go up per second, rounded to the nearest whole number?

_____

00:10:18

Light Waves
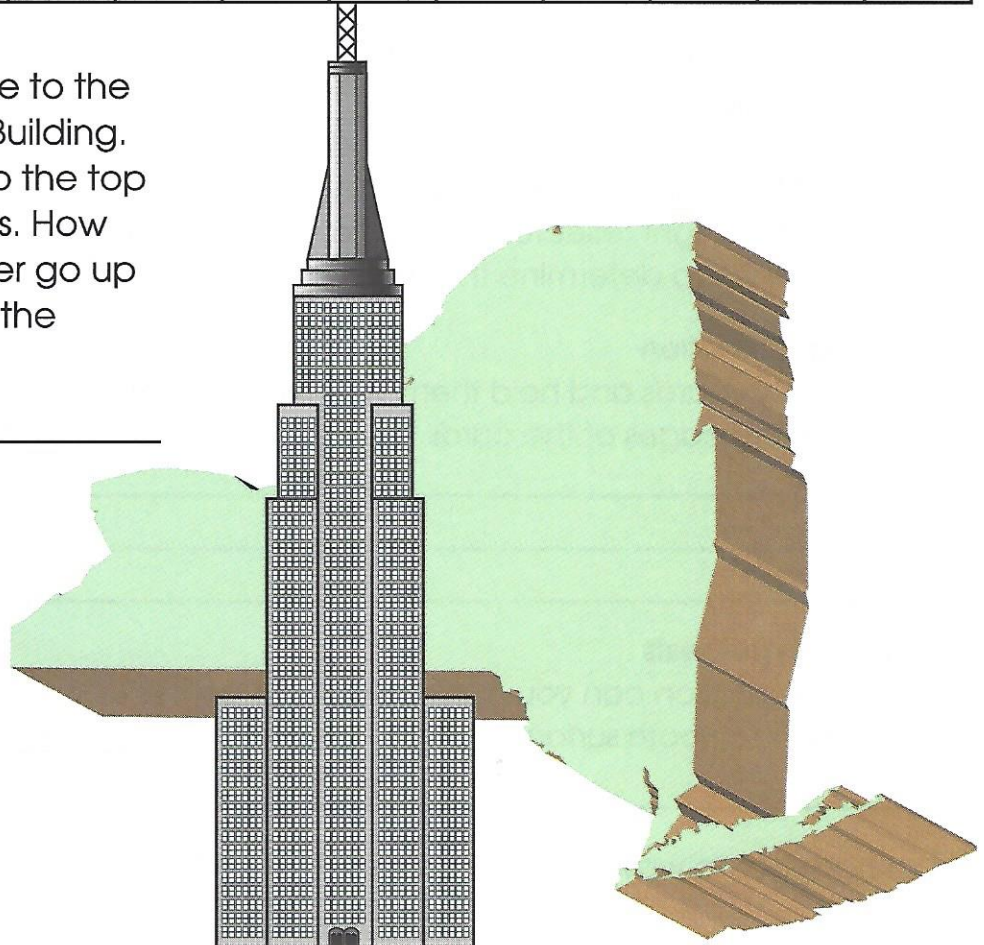
You will need: a flashlight, a protractor, a mirror, black construction paper and a sheet of white paper
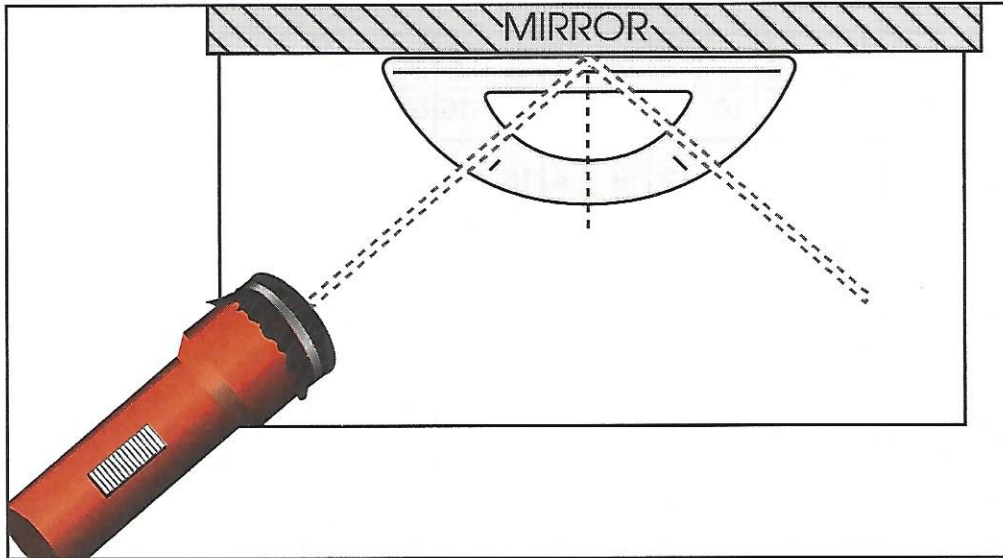
Angle of Incidence ($\angle i$)	Angle of Reflection ($\angle r$)
15°	
40°	
55°	

Observing Reflection

Set up your materials as shown above. Once the protractor is in place, mark two points on either side of the 90° mark and connect that line all the way to the base of the mirror. Replace the protractor so that the 90° mark sits on this line. This will make it easier to judge the angles of the light.

Cut a $\frac{1}{4}$ in. slit in the black paper and tape it over the front of the flashlight. Shine the flashlight in at the angles listed in the chart above and find the degree readings for the angle of the light reflected. (This is called the angle of incidence.) Subtract that number from 90° to determine the angle of reflection.

Observing Diffraction

Take two index cards and hold them very close together in front of a window. Look carefully at the edges of the cards that are close together. What do you notice about them? _____

_____

_____

Making a Hypothesis

What generalization can you make about the angles of incidence and reflection when a wave strikes a smooth surface? _____

_____

What happens to waves when they travel through narrow slits? _____

_____

Learn at Home, Grade 6

Making a Periscope

Light travels in a straight line. Mirrors reflect light in a straight line. The slanted mirrors in a periscope allow the user to see above a normal field of view.
You will need: a shoebox, poster board, tape, scissors, glue, 2 small mirrors

Making the Periscope
Stand your box vertically. Take the lid off and cut a 1-inch-square hole on one side near the top. Cut another hole on the other side near the bottom of the box. Fold a long narrow piece of poster board into thirds. Overlap and tape two of the folded sides to make a triangle. Trim the triangle so that it will fit into the bottom of the box opposite the top hole. Use tape or glue to attach both triangles. Attach one mirror onto the slanting side of the bottom triangle and the other mirror onto the top triangle. Make sure each mirror slants at the same angle and that both mirrors face into the box. Place the lid back on your box.

Using the Periscope
Kneel beside your desk or sit underneath it. Hold the tip of the periscope over the side of your desk. Look through the bottom hole at the mirror. What do you see?

_____

_____

_____

_____

Why do you think the periscope works?

_____

_____

What do the mirrors do?

_____

_____

_____
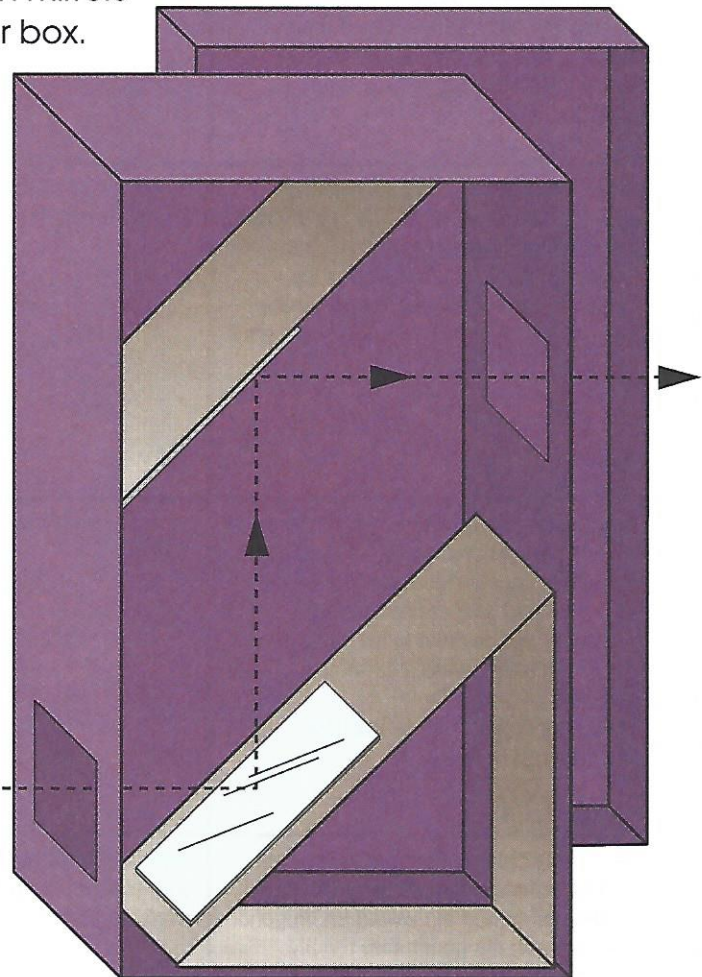
Modifying the Investigation
Change the angle of your triangles. Does this change what you see?

_____

	Language Skills	Spelling	Reading
Monday	Have your child choose a topic, make a plan for writing and begin working on a rough draft.	Pretest your child on these spelling words: interact interject intersect intercept intermission interstate interchange internal interval intercom interpret intervene interest interrogative interview interfere interrupt intertwine Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	Introduce this week's reading selection or continue with the book from last week.
Tuesday	**Diagramming Sentences:** With your child, discuss the purpose of diagramming sentences. *See* Language Skills, Week 21. Teach your child to diagram simple sentences on a single horizontal line, separating the subject and verb with a vertical line. Articles are placed on a diagonal line beneath the nouns they modify. *See* Language Skills, Week 21, numbers 1 and 2.	Review this week's spelling words. Have your child complete **Intercepting the Ball** (p. 216).	Discuss the current reading book in a conference. Focus today on the Reading Journal.
Wednesday	Teach your child to diagram sentences with compound subjects. The two subjects are written on parallel horizontal lines, joined by *and,* and connected to the horizontal line containing the predicate. *See* Language Skills, Week 21, numbers 3 and 4.	Have your child use each of this week's spelling words correctly in a sentence.	**Reading for Understanding:** Some information in a book may not be stated outright. In these cases, information must be *inferred.* Teach your child to read carefully, reflecting on the information presented, and recognize inferred meanings. Have your child complete **What Do You Think?** (p. 217).
Thursday	Teach your child to diagram sentences with compound predicates. The two verbs are written on parallel horizontal lines, joined by *and,* and connected to the horizontal line containing the subject. *See* Language Skills, Week 21, numbers 5 and 6. Have your child complete **Dizzying Diagrams** (p. 214).	Have your child study this week's spelling words.	Choose a passage or chapter from this week's book to discuss in detail. Ask your child to evaluate the reading in his/her Reading Journal. Evaluation may include criticizing or justifying an action, debating an issue or recommending a change.
Friday	Teach your child to diagram sentences with adjectives and adverbs. Just like articles, adjectives are written on diagonal lines beneath the nouns they modify. Adverbs are written on diagonal lines beneath the verbs they modify. Have your child complete **Adjective and Adverb Modifiers** (p. 215).	Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Respond to your child's journal entry by proposing a different view or bringing up contradictory information. Challenge your child to think more deeply about the topic. Have your child write an imaginary editorial on a topic related to one raised in the book. Encourage your child to express his/her views clearly and support his/her arguments.

Learn at Home, Grade 6

| Math	Science	Social Studies
Fractions Fractions can be written as decimals by dividing the numerator by the denominator. Decimals can be written as fractions by writing the number as it is read, then reducing it. *See* Math, Week 21, numbers 1 and 2. Based on today's lesson, explain how a whole number can be written as a fraction. **Example:** $4 = {}^{16}/_4$	**Light Spectrum** The electromagnetic spectrum shows waves ranging from short gamma rays to long radio waves. Visible light is a small band in the middle of the spectrum. *See* Science, Week 21, number 1.	**World War II** Spend several days reading about and discussing the Holocaust. Rent the movie *Schindler's List* and watch it over the next several days. Discuss the story and try to answer any questions your child may have.
To convert an improper fraction to a mixed number, divide the numerator by the denominator. Write the remainder over the divisor. **Example:** ${}^{13}/_3 = 13 \div 3 = 4{}^1/_3$ Have your child write the following improper fractions as mixed numbers: ${}^{37}/_7$ ${}^3/_2$ ${}^{127}/_5$ ${}^{59}/_{12}$ ${}^{154}/_5$ ${}^{133}/_8$ ${}^{51}/_8$ ${}^{100}/_3$	Use a prism to project the visible spectrum of colors. Introduce your child to the mnemonic device *ROY G BIV*. *See* Science, Week 21, number 2.	Have your child read about the Holocaust in an encyclopedia. Then, have your child read a nonfictional account of the time in a book such as *The Diary of a Young Girl* by Anne Frank or *The Holocaust: A History of Courage and Resistance* by Bea Stadtler. Discuss the reading with your child.
Review multiplication of fractions. *See* Math, Week 21, number 3. Have your child draw models of the following multiplication problems: $\frac{1}{2}$ x $\frac{3}{4}$ $\frac{5}{6}$ x $\frac{2}{3}$	Explain to your child that the colors we see are wavelengths of light reflected off an object. Hold up a sheet of red construction paper. Explain that when light hits the paper, all wavelengths are absorbed by the paper except red. White light is a mixture of the seven colors of the spectrum. When all the colors are blended, they produce white. Have your child make a color wheel using **The Spectrum Color Wheel** (p. 219).	Make sure your child is familiar with vocabulary related to the Holocaust. Your child should know and understand these terms: *anti-Semitism, Aryan, concentration camp, crematorium, death camp, deportation, genocide, Gestapo, ghetto, Holocaust, Juden, Nazi, prejudice, racism, scapegoat, swastika, yellow star*. *See also* Social Studies, Week 21, numbers 1 and 2.
If possible, cancel numbers when multiplying fractions. This is done by dividing a numerator and a denominator by their GCF. Cancelling will make the multiplication easier and the resulting product will be in simpler terms. **Example:** $\frac{{}^2\cancel{8}}{11}$ x $\frac{3}{\cancel{4}_1}$ = $\frac{6}{11}$ Give your child ten multiplication problems with fractions for practice.	Arrange a trip to a printing press to observe the printing process. Observe the mixing of the three primary colors (red, yellow and blue—also called magenta, yellow and cyan) to create colorful pages. Have your child write about the process of applying three colors to create all the colors necessary for printing.	After WWII, much of Europe lay in ruins. Most nations had no money to rebuild. The U.S. provided loans and grants to individual nations to help rebuild towns and cities. Ask your child to explain why he/she thinks the U.S. chose to help rebuild Europe.
When multiplying fractions by a whole number, place a one as a denominator under the whole number. Multiply as usual. **Example:** 4 x $\frac{2}{3} = \frac{4}{1}$ x $\frac{2}{3} = \frac{8}{3}$ Have your child complete **Soccer Fractions** (p. 218).	Have your child create a painting with tempera paints using only the three primary colors. Encourage the child to mix and blend the colors to make new colors.	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

TEACHING SUGGESTIONS AND ACTIVITIES

**LANGUAGE SKILLS (Diagramming Sentences)**

BACKGROUND
Diagramming is a tool that can be used to further your child's understanding of the structure of the English language. A diagrammed sentence is a visual demonstration of the structural relationships among elements within the sentence.

▶ 1. Simple sentences containing a single subject and a single verb can be diagrammed using a single horizontal line bisected by a vertical line. The vertical line separates the subject from the verb. The articles *a, an* and *the* are adjectives and are placed on a diagonal line beneath the nouns they modify.

Trees sway.
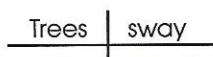
The birds can sing.
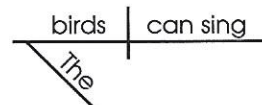
▶ 2. Give your child the following sentences. Have him/her underline the subjects once and the verbs twice, then diagram each sentence.

a. Dogs run.
b. Cats climb.
c. The fish swim.
d. Snakes slide.
e. A duck quacks.
f. The salamanders slither.
g. Dinosaurs rumble.
h. Badgers burrow.
i. The hyena yelps.

▶ 3. Sentences containing compound subjects require two parallel lines joined by diagonal lines to the horizontal line containing the verb. Note how the conjunction is written on a dotted line connecting the subjects.

Allison and Thomas won.
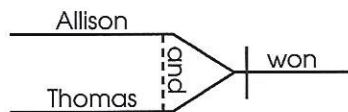
The boy and girl laughed.
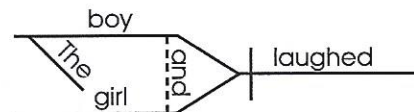
▶ 4. Give your child the following sentences. Have him/her underline the subjects once and the verbs twice, then diagram each sentence.

a. The soldiers and the civilians fled.
b. The shells and grenades exploded.
c. A fighter and a bomber collided.
d. The battle and the war were lost.
e. The horse and rider fell.
f. The castle and the parapet were taken.
g. General Grant and General Lee met.
h. The general and the officers surrendered.

▶ 5. Sentences containing compound verbs require two parallel lines joined by diagonal lines to the horizontal line containing the subject. Note how the conjunction(s) is/are written on a dotted line connecting the verbs.

March came and went.
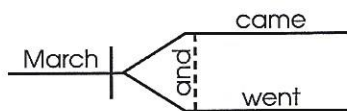
The audience will either cheer or boo.
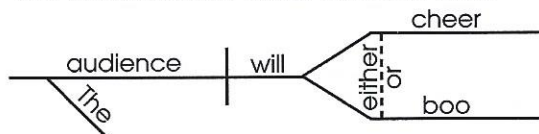
▶ 6. Give your child the following sentences. Have him/her underline the subjects once and the verbs twice, then diagram each sentence.

a. She swung and missed.
b. Kenisha and Riva ate and drank.
c. Frederick either plays or watches.
d. A dog can growl and whimper.
e. John and Gwen will listen and decide.
f. The crowd clapped and cheered.
g. The nomads packed and fled.
h. The hen and the rooster watched and waited.

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MATH (Fractions)

▶ 1. Fractions can be written as decimals by dividing the numerator by the denominator.

Examples: $^3/_4 = 0.75$

```
    0.75
4 ⟌ 3.00
   - 2 8
     20
   - 20
      0
```

$6\,^7/_8 = 6.875$

```
    0.875
8 ⟌ 7.000
   - 6 4
     60
   - 56
     40
   - 40
      0
```

Have your child write the following fractions as decimals: $^3/_{20}$ $3\,^7/_{10}$ $^4/_{25}$ $8\,^5/_8$ $^2/_5$ $2\,^{15}/_{16}$

▶ 2. Decimals can be written as fractions by reading the decimal, writing it out as read and reducing.

Examples: 0.55
Read as fifty-five hundredths
Write as $^{55}/_{100}$
Reduce to $^{11}/_{20}$

3.17
Read as three and seventeen hundredths
Write as $3\,^{17}/_{100}$
Already in lowest terms

Have your child write the following decimals as fractions: 0.642 8.7 0.64 3.16 0.85 1.625

▶ 3. To multiply fractions, simply multiply the numerators to find the numerator and multiply the denominators to find the denominator.

Examples: $^1/_3 \times ^2/_5 = ^2/_{15}$ $^7/_9 \times ^3/_8 = ^{21}/_{72}$

To help explain this, read the "x" as "of."
Then, $^1/_2 \times ^1/_2 = ^1/_4$ reads $^1/_2$ of $^1/_2 = ^1/_4$.
Demonstrate the concept visually with the diagram at right.

$\dfrac{1}{2}$ $\dfrac{1}{2}$ of $\dfrac{1}{2}$ = $\dfrac{1}{4}$

SCIENCE (Light Spectrum)

▶ 1. Explain that visible light is a small part of the total band of energy waves called the *electromagnetic spectrum*. Find a diagram of the electromagnetic spectrum in an encyclopedia. *Gamma rays* have the greatest amount of energy and shortest wavelengths. *Radio waves* have the least amount of energy and longest wavelengths. Ask whether the child knows any special uses for ultraviolet light, infrared light, radio waves or x rays.

▶ 2. *ROY G BIV* is a mnemonic device used to remember the order of the colors in the spectrum: *red, orange, yellow, green, blue, indigo, violet*. Have your child project a spectrum of light onto the ceiling using a simple technique. Fill a clear glass jar with water and lean a small rectangular mirror inside the jar. Shine a flashlight onto the mirror, and a spectrum will be projected onto the wall or ceiling. Try adjusting the angle of the flashlight to get the best results. Explain that the red end of the spectrum has the longest wavelengths and the least energy, and the violet end of the spectrum has the shortest wavelengths and the most energy.

SOCIAL STUDIES (World War II)

▶ 1. Disease ran rampant among the prisoners in concentration camps. Have your child read about the following diseases: *cholera, diphtheria, dysentery, smallpox, scarlet fever, tuberculosis* and *typhus*. Have your child make a chart showing each disease and indicating its definition, causes, symptoms and prevention.

▶ 2. Have your child read about recent examples of human rights violations. In what parts of the world do these violations continue? Compare the current examples with the Holocaust. Discuss some of the international organizations whose mission it is to put an end to such violations, such as Amnesty International.

Learn at Home, Grade 6

Dizzying Diagrams

Read the following sentences. **Underline** the subjects once and the verbs twice. On the line after each sentence, **write** whether the subjects and predicates are simple or compound. Then, diagram the sentences correctly below.
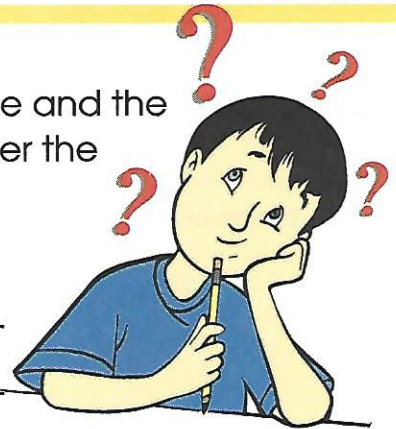
1. The baby laughs and smiles. (S) _____

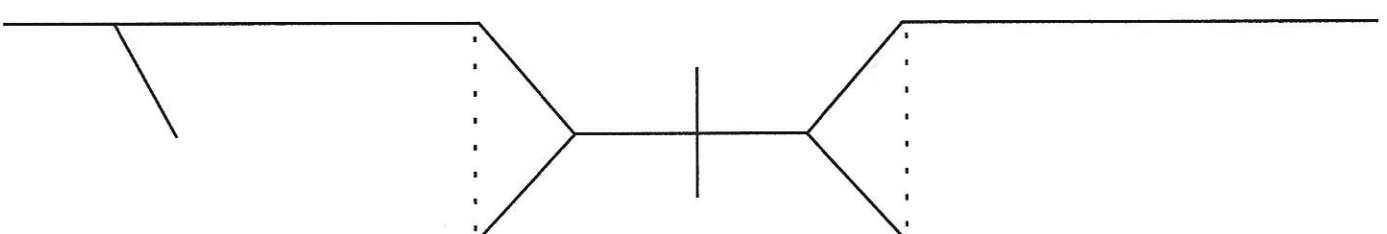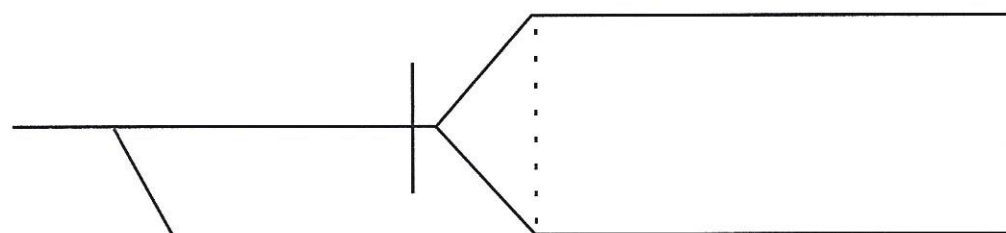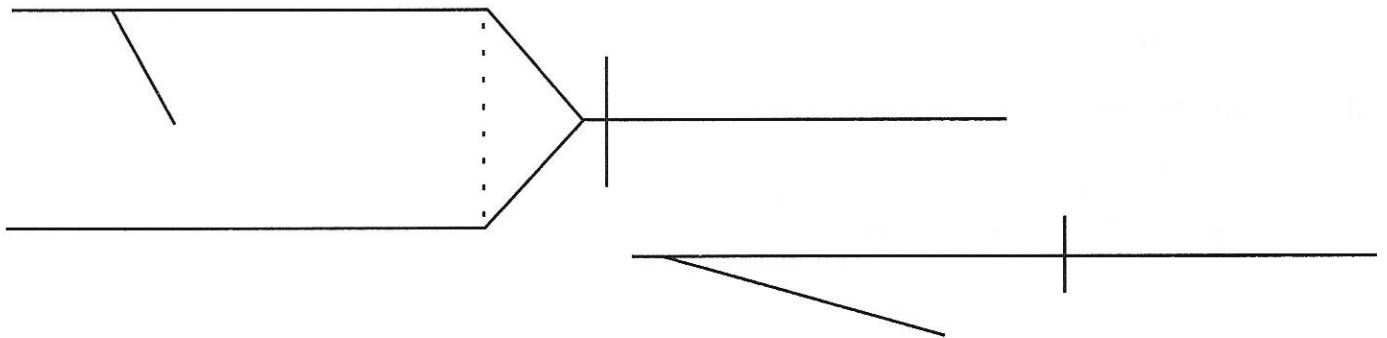   (P) _____

2. A bear hibernates. (S) _____

    (P) _____

3. The brother and sister argue. (S) _____

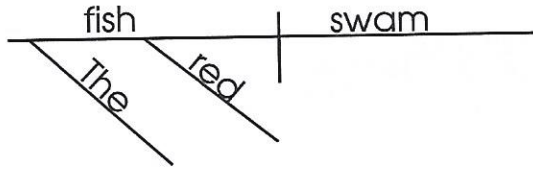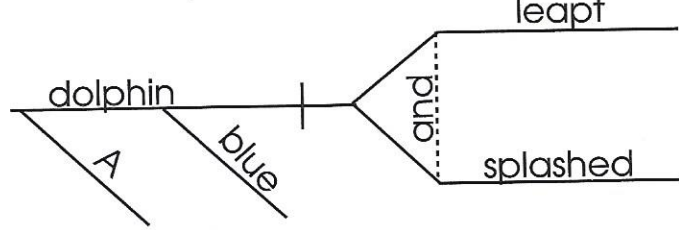   (P) _____

4. The wind and rain howled and blew. (S) _____

    (P) _____

Learn at Home, Grade 6

Adjective and Adverb Modifiers

An adjective is placed on a diagonal line beneath the noun it modifies.

Examples: The red fish swam.   A blue dolphin leapt and splashed.

An adverb is placed on a diagonal line beneath the verb it modifies. If the adverb modifies an adjective or another adverb, it is placed on a line parallel to the word it modifies and connected to it by a line.

**Examples:** Rainy weather occurs often here.   The car drove very quickly.
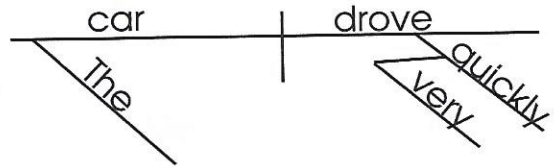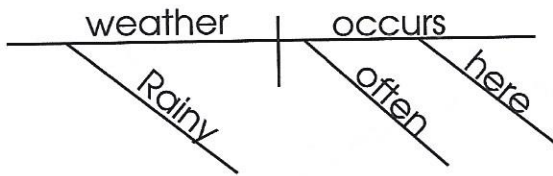
Read the following sentences. **Underline** the adjectives and **circle** the adverbs. Then, diagram the sentences on other sheet of paper.

1. The blue-green water sparkled.

2. Huge waves crashed loudly.

3. The little plovers scurried away.

4. The hot sun shone brightly.
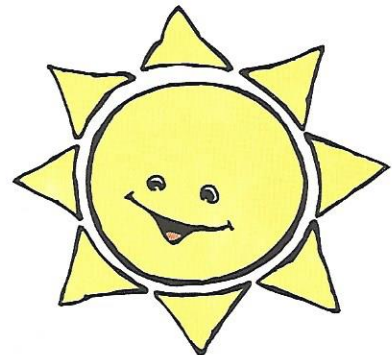
Create sentences to fit these diagrams. **Write out** each sentence on another sheet of paper before writing it in the diagram.
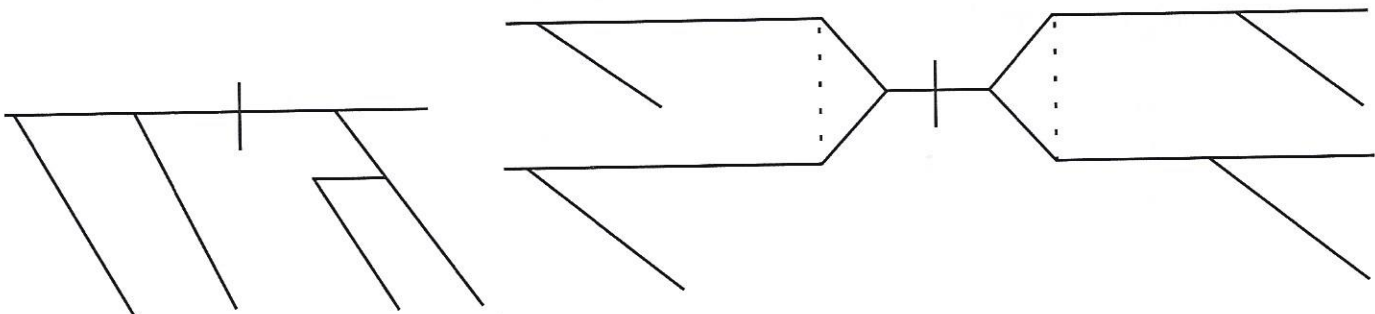
Intercepting the Ball

Write each spelling word in the category in which it belongs. Some words fit into more than one category.

interact
intercept
interchange
intercom
interest
interfere
interject
intermission
internal
interpret
interrogative
interrupt
intersect
interstate
interval
intervene
interview
intertwine

Nouns

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

Verbs
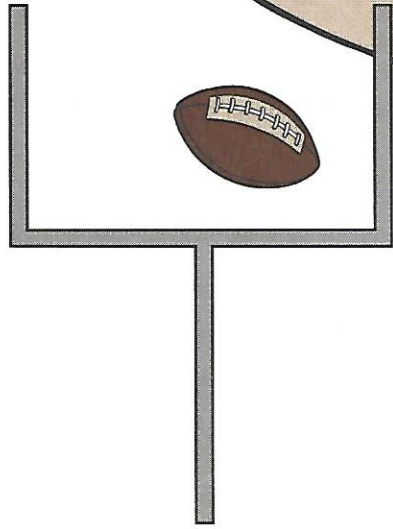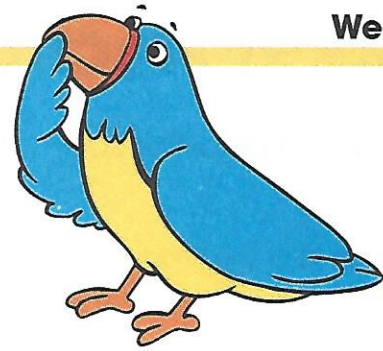
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Adjectives

1. _____
2. _____
3. _____

Learn at Home, Grade 6

What Do You Think?

Read each sentence. **Write** two sentences explaining what could have caused each event to happen.

1. The bird ceased its singing in the forest.

   a. _____

   b. _____

2. Tim came home crying. His backpack was open.

   a. _____

   b. _____

3. Five hundred people laughed at Lana as she stood in the bright light.

   a. _____

   b. _____

4. The saddled horse galloped onto the track without a jockey.

   a. _____

   b. _____

5. Pam sat soaking wet on the bench with her friends.

   a. _____

   b. _____

6. Martin stared with mouth agape at his teacher, Mr. Lancaster.

   a. _____

   b. _____

Soccer Fractions

Soccer is a popular sport at Forestview Middle School.

1. There are 30 students in one seventh-grade classroom. If $\frac{1}{3}$ of them play soccer, how many play soccer? _____

2. One-sixth of 24 soccer players are girls. How many boys are on the team? _____

3. The coach ordered 48 uniforms for the seventh-grade team. The sizes varied. Two-thirds of the uniforms were large sizes. How many were large sizes? _____

4. Eighty-four people came to watch one game. Six-eighths of the spectators were parents. How many were parents? _____

5. Thirty-two candy bars were sold at the first game. Two-eighths of them were with almonds. How many almond bars were sold? _____

6. One sixth-grade team played 10 games. Three-fifths of the games were played at home. How many were away games? _____

7. The eighth graders won eight of their games. One-fourth of the games were won by only two points. How many were won by two points? _____

8. Out of the 486 students at Forestview Middle School, $\frac{1}{3}$ of them play soccer. How many of the students do not play soccer? _____

Extension: Each game is 90 minutes long. Eleven players per team are on the field at one time. If each of the 24 players on a team must play for an equal fraction of the time, how long will each team member play?

Learn at Home, Grade 6

White light is made up of seven colors of the spectrum: red, orange, yellow, green, blue, indigo and violet. You can see these colors in a rainbow or when light passes through a glass prism.

You will need: a compass, a piece of white poster board, a short nail or screw, a hand drill
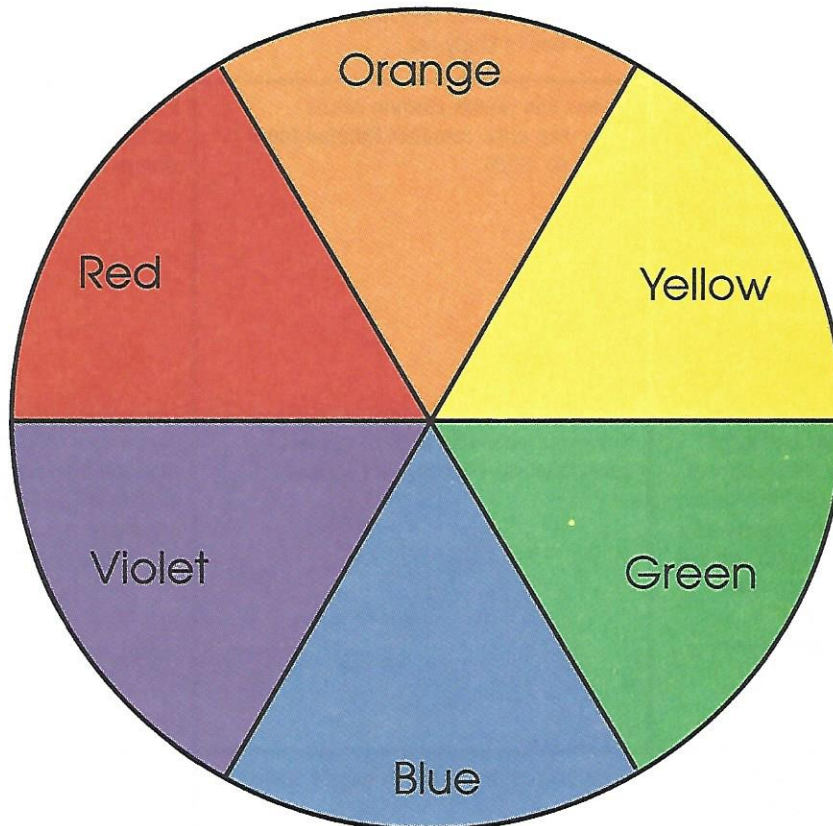
Making a Color Wheel

Set your compass at a radius of 2 inches. Draw a circle on the poster board and mark a point on the circle. Keep your compass setting the same and draw six arcs around the circle. Make a point where each arc crosses the circle. Next, draw lines from each point to the center of the circle. Color each section in this order: red, orange, yellow, green, blue and violet. Cut out the circle.

Turning the Color Wheel

Have an adult help you press a short nail or screw through the center of the color wheel. Place the nail in the bit of a small hand drill. Lock it tightly in place. Turn on the drill and watch the color wheel spin. What happens? _____

_____

Language Skills	Spelling	Reading
Monday Have your child choose a topic, make a plan for writing and begin working on a rough draft.	Pretest your child on these spelling words: infect, inflate, inform, injury, insecure, insist, inspire, install, instant, instead, instinct, institute, instruct, insult, intense, intent, intrude, invade. Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	**Story Elements** Introduce this week's reading selection. Suggestion: *From the Mixed-Up Files of Mrs. Basil E. Frankweiler* by E. L. Konigsburg. Discuss the elements of a story. Use a serial comic strip to review the elements. *See* Reading, Week 22, number 1.
Tuesday **Diagramming Sentences:** Teach your child to diagram sentences with appositives. An *appositive* is a phrase set off by commas that explains a nearby noun or noun phrase. In diagramming, appositives are written in parentheses following the words they explain. Have your child complete **Appositives** (p. 224).	Review this week's spelling words. Have your child complete **Inflated Inner Tubes** (p. 228).	Discuss the current reading book in a conference. Focus on identifying the conflict and predicting outcomes.
Wednesday Teach your child to diagram sentences with prepositional phrases. *Prepositional phrases* that act like adjectives are written on diagonal lines beneath the nouns they modify. *Prepositional phrases* that act like adverbs are written on diagonal lines beneath the verbs they modify. Have your child complete **Adjective Prepositional Phrases** (p. 225).	Have your child use each of this week's spelling words correctly in a sentence.	Teach your child to plot the elements of a story on a line graph to track the excitement level. The climax of the story should be the highest point on the graph. *See* Reading, Week 22, number 2.
Thursday Teach your child to diagram sentences with direct objects. A *direct object* receives the action of the verb. The direct object is placed on the horizontal line after the subject and verb. It is separated from the verb by a vertical line that does not cross below the horizontal line. Have your child complete **Direct Objects** (p. 226).	Have your child study this week's spelling words.	Discuss fact and opinion. Can your child recognize the difference? *See* Reading, Week 22, number 3. Have your child complete **You Be the Judge** (p. 229).
Friday Teach your child to diagram sentences with indirect objects. An *indirect object* names the person to whom or for whom something is done. The indirect object is placed on a horizontal line parallel to the verb. Modifiers of the indirect object are placed on diagonal lines beneath it. Have your child complete **Indirect Objects** (p. 227).	Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Hold a reading conference to discuss the outcome(s) of the story. Was your child surprised by the ending? Have your child rewrite the ending of the story as he/she would have written it.

Learn at Home, Grade 6

Math	Science	Social Studies
Fractions Teach your child to estimate the products of mixed numbers before multiplying. Then, show your child the procedure for multiplying mixed numbers. *See* Math, Week 22, numbers 1 and 2. Write eight to ten word problems involving multiplication of fractions for your child to solve. *See* Math, Week 22, number 3 for some sample problems.	**Lenses** Allow your child to explore convex and concave lenses. Demonstrate their effects on light. *See* Science, Week 22, numbers 1 and 2.	**The Postwar Period** Discuss the period of American prosperity that immediately followed WWII. *See* Social Studies, Week 22. Discuss events that reached outside of the U.S., such as the formation of an organization called the U.N. and the beginnings of the Cold War. *See* Social Studies, Week 22, numbers 1–4.
Have your child find fractions in designs. Have your child complete **Designing Fractions** (p. 230).	Have your child conduct a simple experiment using a drop of water as a lens. *See* Science, Week 22, number 3.	After WWII, the U.S. tried to avoid the mistakes made after WWI. Have your child compare American attitudes and policies after World War I with those after World War II. Ask your child six questions. *See* Social Studies, Week 22, number 5. Have your child make a list of points for each war, then use those points to construct a short compare-and-contrast essay.
Teach your child the formula for finding the area of a triangle: multiply the length of the base by the height of the triangle, then multiply that number by one-half. **Note:** The height of the triangle is not always the length of a side. $$\text{area} = \tfrac{1}{2}(b \times h)$$ Have your child complete **I'm Hungry!** (p. 231).	Have your child read about nearsightedness, farsightedness and astigmatism. Have your child research how lenses are used to correct these vision problems.	Discuss people who had the greatest influence in the years following WWII. Consider four categories of people: *politicians, entertainers, innovators* and *leaders.* Have your child choose one personality from each category to research. Have him/her explain how the person fits into that particular category and describe the impact that person had on American society.
Generate problems that combine measurement and fractions for your child to solve. **Example:** *Kyle and Traci measured 18 5/6 yards from their house to the bus stop. How many feet is that? How many inches?*	Have your child read about professions related to vision and the eyes. What is the distinction between an optometrist and an ophthalmologist?	The Korean War brought the U.S. overseas again just 5 years after the end of WWII. Discuss the involvement of the United Nations and American troops in this battle. Have your child add the Korean War to the time line. Have him/her research the war and write details on an index card.
Use today to catch up and review the material on fractions covered so far. Encourage your child to ask questions if he/she has any. Discuss any difficulties your child may be having with certain concepts.	If possible, arrange a trip to an optical lab where lenses are made, a science lab where an electron microscope is used, an observatory where telescopes are used, a science lab where different types of microscopes are used or a nature trail where binoculars are used.	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

TEACHING SUGGESTIONS AND ACTIVITIES

READING (Story Elements)

▶ 1. For several days in a row, cut a serial comic strip from the newspaper. Cut the frames apart and put them in an envelope. Have your child arrange the frames in sequential order. When the frames are arranged, discuss the story elements: characters, setting, problem(s), climax and solution(s).

▶ 2. Have your child keep a record of the events in the story as they unfold. Have your child make a line graph. The horizontal axis will show events from the story, and the vertical axis will list level of excitement. See the illustration at right for an example. As the story unfolds, have your child place the events on the graph and plot the level of excitement in pencil. As your child reads, he/she may adjust the excitement levels of the previous events. The completed graph will trace the story's plot.

▶ 3. A *fact* is something that is known to be true or that can be measured or counted. An *opinion* is a belief or view held by a person and not necessarily based on fact. Give examples of facts and opinions. Have your child identify whether each statement is a fact or an opinion. Discuss clue words that help identify the statement.
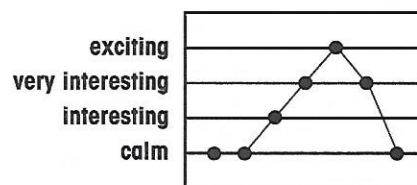
Examples:

The temperature is below freezing.	There seems to be a delay.
It's like the North Pole outside.	The bus is an hour late.
It appears that someone took my money.	My vegetables are the best in town.
I am missing fifteen dollars from my purse.	My tomatoes won first prize at the garden show.

MATH (Fractions)

▶ 1. To estimate the product of two mixed fractions, round each fraction to the nearest whole number. Decide if each fraction is less than or greater than $1/2$. If the fraction is greater than $1/2$, round to the next whole number. If the fraction is less than $1/2$, the whole number stays the same.

Example: Estimate the product of $5\,7/10 \times 2\,3/10$

Round $5\,7/10$
Since $7/10$ is greater than $1/2$, round up to 6.

Round $2\,3/10$
Since $3/10$ is less than $1/2$, round down to 2.

$6 \times 2 = 12$

Hint: If you are not sure whether a fraction is greater than or less than $1/2$, multiply the numerator by 2. If the product is greater than the denominator, the fraction is greater than $1/2$. If the product is less than the denominator, the fraction is less than $1/2$.

▶ 2. If one factor in a multiplication problem is a fraction, then all factors must be fractions. If any of the factors is a mixed number, it must be converted into an improper fraction.

▶ 3. Generate eight to ten word problems involving multiplication of fractions for your child to solve. Center the problems around a common theme.

Examples:

a. Jenna sold $7\,1/2$ flats of strawberries at the farmer's market. Michael sold $2\,2/3$ times that many. How many flats of strawberries did Michael sell?

b. Kari bought a $8\,1/4$-ounce jar of honey at the market. Hugh bought a jar that was $3/4$ that size. How many ounces of honey did Hugh buy?

c. Gregor sold $12\,3/5$ pounds of organic potatoes. Jonah, who owns a small restaurant, bought $10\,1/2$ times as many potatoes. How many potatoes did Jonah buy?

Learn at Home, Grade 6

d. Gwen sold 17 heads of lettuce. Each weighed approximately $2^4/_9$ pounds. How many pounds of lettuce did Gwen sell all together?

SCIENCE (Lenses)

▶ 1. Display a variety of convex and concave lenses (a magnifying glass, binoculars, a telescope, eyeglasses, a paperweight, a camera). Have your child look at the same object through a magnifying lens, binoculars, telescope or eyeglasses. Ask your child to describe how the object looks with and without the lens. Then, have your child hold a magnifying glass or eyeglass lens in front of a flashlight and describe the light's projection. Go outside and have your child project the sunlight onto a sidewalk or a piece of cardboard with a magnifying glass.

▶ 2. A convex lens is thicker in the center than on the edges. Light can be projected through this type of lens for use in motion-picture projectors. A concave lens is thinner in the center than on the edges and cannot be used to project light onto an object. Concave lenses are used to correct nearsighted vision.

▶ 3. Place a drop of water on the glossy cover of a magazine so that the droplet is over some letters or numbers. Examine the shape of the droplet to determine whether it is a convex or concave lens. Look through the droplet of water to see how it magnifies the print underneath.

SOCIAL STUDIES (The Postwar Period)

BACKGROUND
Between 1945 and the early 1960s, there were plenty of jobs to go around. The United States was producing a fascinating variety of goods for people who had done without during wartime shortages. Government-backed loans made it possible for a young married couple to buy a new home with a down payment of only a few hundred dollars. Exciting new cars rolled off the assembly line and into the family garage. America's factories were making all kinds of labor-saving devices for homes and farms. Medical science produced thousands of new medical products, such as the anti-polio vaccine. Never before in history had so many people enjoyed so much prosperity. People were too busy concentrating on getting ahead to care about world affairs.

▶ 1. Immediately after the war, the U.S. and other countries established a group called the United Nations (UN) dedicated to keeping world peace. Have your child look in a recent newspaper for information on what the UN is currently discussing and debating.

▶ 2. The Cold War began after WWII when the Soviet Union used military force to install communist governments in eastern European countries. This action generated fear that the Soviet Union would try to communize western Europe as well. Have your child explain the term *Cold War*.

▶ 3. Provide information on the Cold War for your child's reference. Have him/her define the following vocabulary words related to the Cold War:

Berlin Blockade	capitalism	compromise	neutral country
Berlin Wall	Cold War	Imperialism	occupation zones
bloc	communism	Iron Curtain	satellites

▶ 4. The use of the atom bomb in Japan during WWII ushered in the nuclear age. Both superpowers (the United States and the Soviet Union) in the Cold War built up an arsenal of nuclear weapons. Fortunately, none were ever fired.

▶ 5. Ask your child the following six questions. Have him/her respond to each question twice: once for the years immediately after WWI and once for the years immediately after WWII.

How did Congress and the rest of the country prepare for returning veterans?

What was the United States' attitude toward European nations?

What was the relationship between labor unions and the changing economy?

What changes happened in terms of population growth and shifts?

What was the attitude of the American republic toward foreign relations?

*What attitudes and situations prevailed in the area of race relations?*

Appositives

An **appositive** is placed in parentheses following the word it identifies or explains. Any words that modify the appositive should be placed on diagonal lines directly beneath it.

Examples:

Mr. Poon, our English teacher, won easily.

Mr. Poon   (teacher) | won
our English / easily
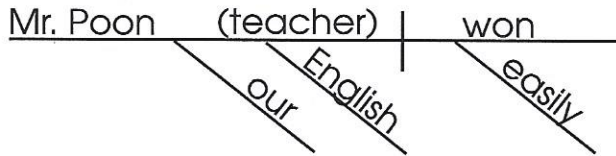
Venice, a famous Italian city, was conquered that year.

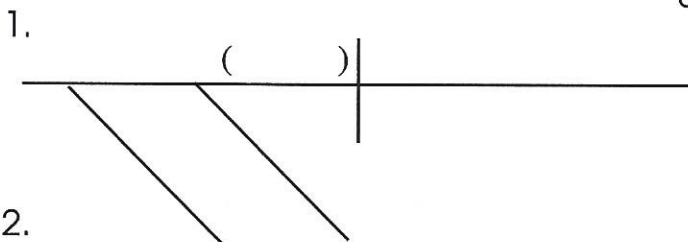Venice   (city) | was conquered
a famous Italian / year that
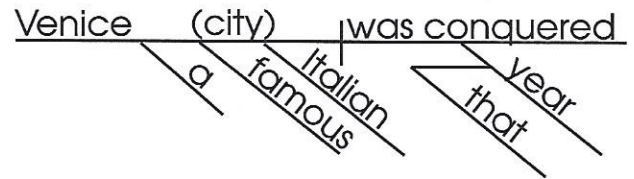
Read the following sentences. **Underline** the appositives once and their modifiers twice. Then, diagram the sentences on another sheet of paper.

1. Kerri, my older sister, left immediately.

2. His car, a vintage roadster, crashed.

3. The senator, a Democrat, voted today.

4. That man, the village chief, will command.

5. Baseball, my favorite sport, ended yesterday.

6. The dog, a huge shepherd, jumped up.

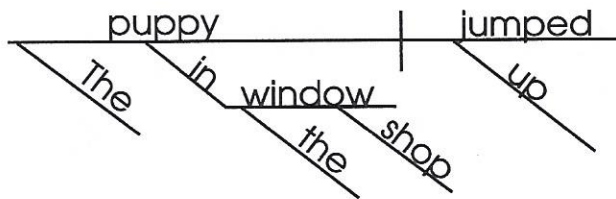Create sentences to fit the diagrams below. **Write out** each sentence before writing it in the diagram.

1.

2.

3.

4.

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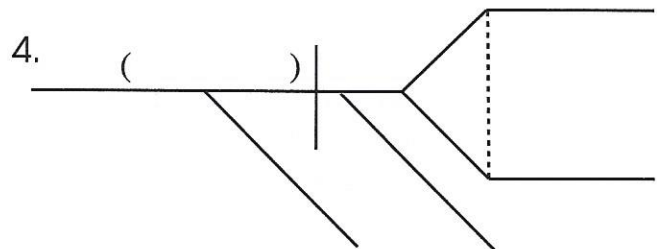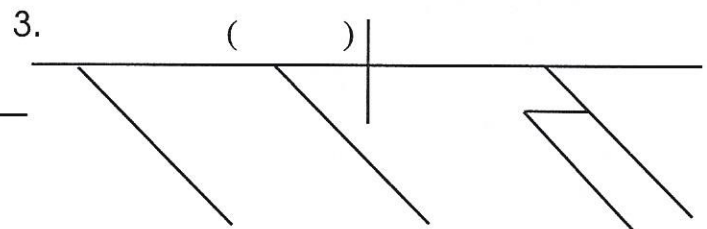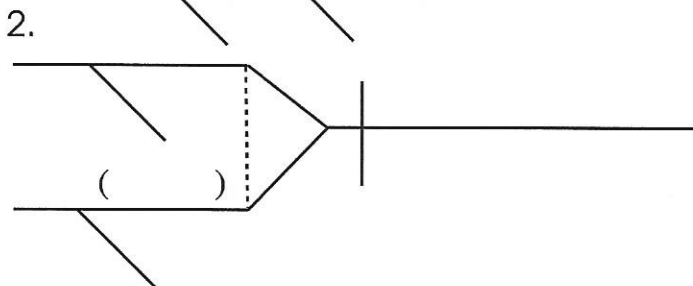
Adjective Prepositional Phrases

Adjective prepositional phrases are placed beneath the nouns they modify. The preposition is placed on a slanted line and its object is placed on a horizontal line connected to it. Modifiers of the object of the preposition are placed on slanted lines beneath the object.

Examples:

The puppy in the shop window jumped up.   The novel by Hemingway was finally located.
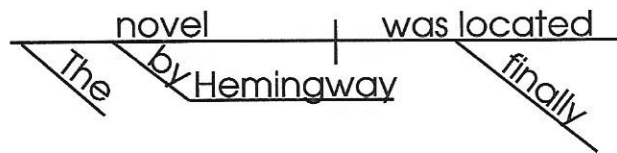
Read the following sentences. **Underline** the prepositions once and their objects twice. Then, diagram the sentences on another sheet of paper.

1. My friend with the broken arm is leaving.
2. The drugstore in town burned last night.
3. The musical with the best choreography will win.
4. A man in a red jumpsuit and a woman in a yellow dress ran away.
5. The music on the radio is disrupting.
6. The doctors in the hospital are working very hard.

Create sentences to fit the diagrams. **Write out** each sentence before writing it in the diagram.

1.

2.

3.
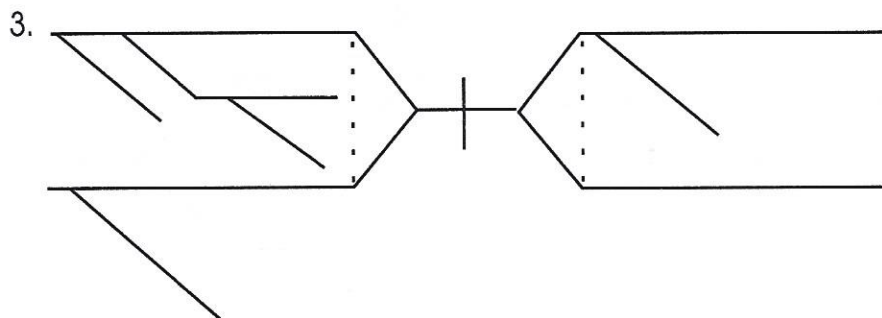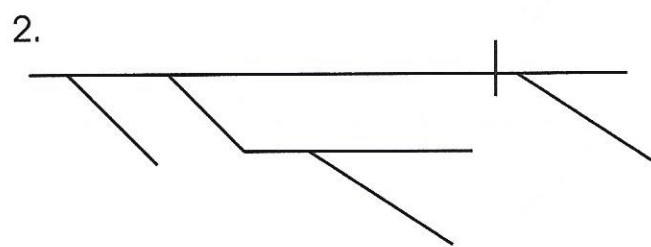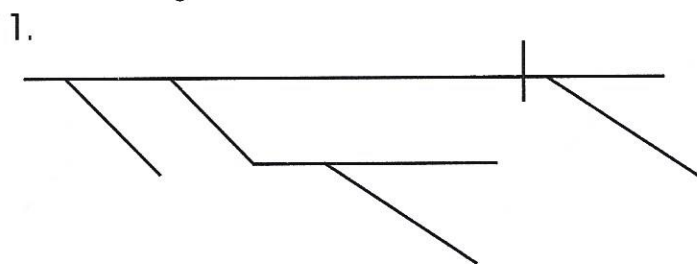
Direct Objects

A **direct object** is placed on the same horizontal line as the subject and the verb. It is separated from the verb by a short vertical line which does not cross the horizontal line. Modifiers of the direct object are placed on diagonal lines directly beneath it.

Examples:

The men tracked a bear.

| men | tracked | bear |

The substitute teacher taught the class.
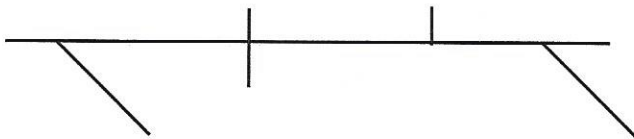
| teacher | taught | class |
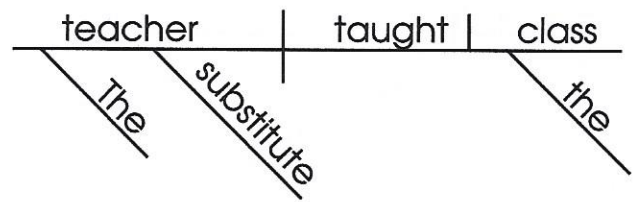
Read the following sentences. **Underline** the verbs once and the direct objects twice. Then, diagram the sentences on another sheet of paper.

1. The Polar Bears won the championship.
2. Darcy answered the teacher's question.
3. The salesclerk in the men's department sold every pink shirt in stock.
4. Marcel received a check and other gifts.
5. The three networks sent their best reporters to the scene.
6. A good student will read a newspaper every day.

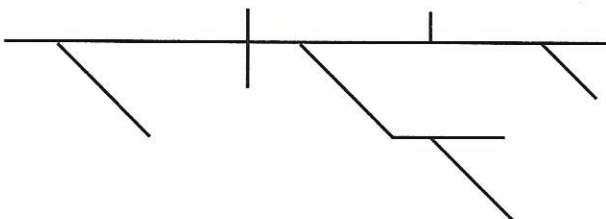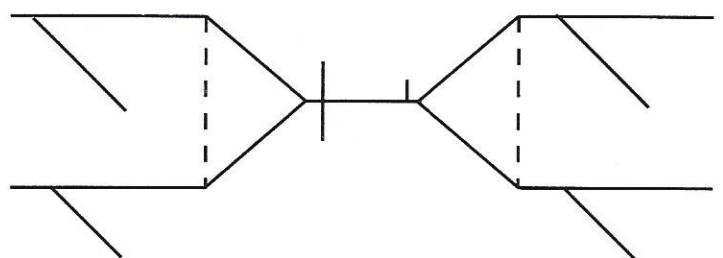Create sentences to fit the diagrams. **Write out** each sentence before writing it in the diagram.
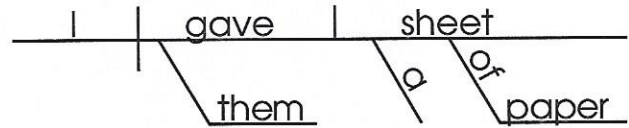
1.
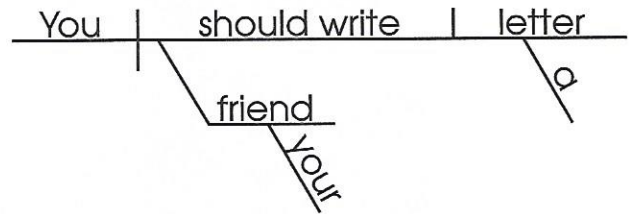
3.

2.

4.

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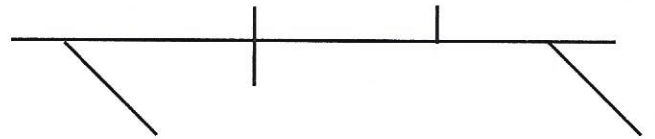
Indirect Objects

An **indirect object** is always placed below the verb on a line parallel to the verb and connected to it by a diagonal line. Modifiers of the indirect object are placed on slanted diagonal lines directly beneath it.

Examples: I gave them a sheet of paper.

You should write your friend a letter.

Read the following sentences. **Underline** the verbs once, the direct objects twice and the indirect objects three times. Then, diagram the sentences on another sheet of paper.

1. She gives me a headache.
2. Paul told them the bad news.
3. The director taught the choir a new song.
4. He gave Sharon a symbol of his love.
5. I sent Barbara a postcard from France.
6. The star goalie left his sister two tickets at the gate.

Create sentences to fit the diagrams. **Write out** each sentence before writing it in the diagram.

1.

2.

3.
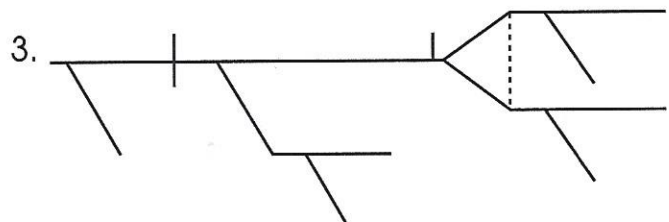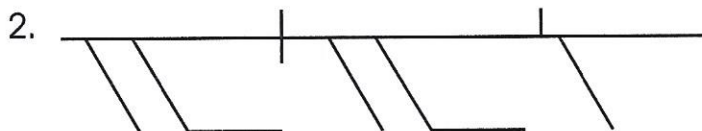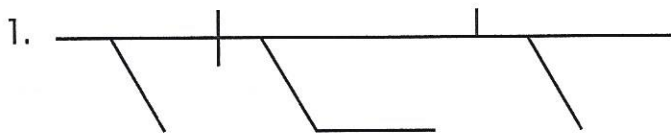
Inflated Inner Tubes

infect
inflate
inform
injury
insecure
insist
inspire
install
instant
instead
instinct
institute
instruct
insult
intense
intent
intrude
invade

Inflate the inner tubes by adding the missing vowels to each word.

nspr
ntns
nstd
nfrm
nstnt
ntrd
nscr
nflt

nslt
nvd
nsst
nfct
njry

ntnt
nstnct
nstrct
nsttt
nstll
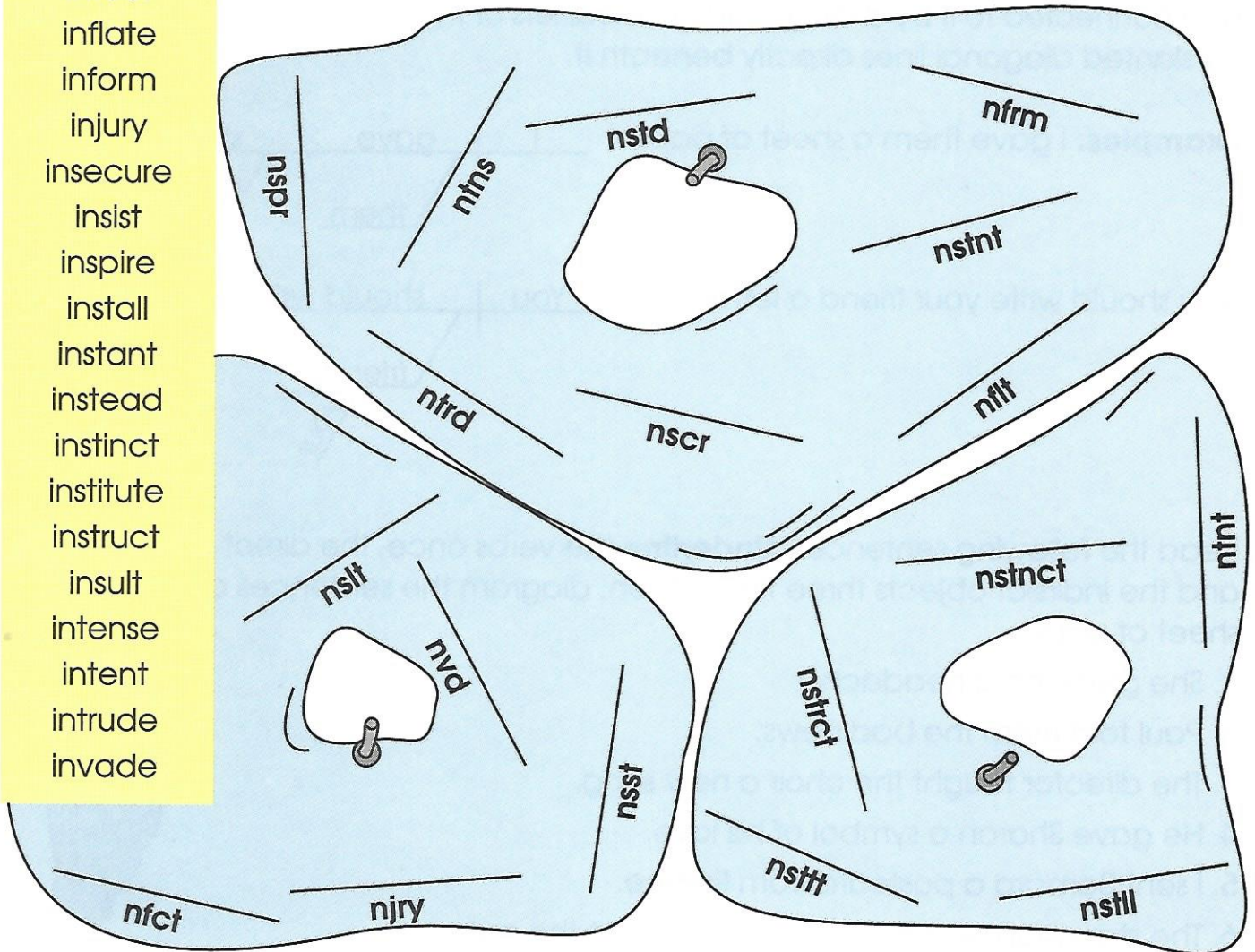
Write a short definition for five of the spelling words.

1. _____

2. _____

3. _____

4. _____

5. _____

Learn at Home, Grade 6

You Be The Judge

The lawyer is asking the witnesses many questions. Some of the answers are facts, some are opinions. The judge will only accept facts. Read each question and answer. Check fact or opinion next to each answer. If you checked fact, write a second answer that is an opinion. If you checked opinion, write a second answer that is a fact.

FACT OPINION?

☐ fact
☐ opinion
1. **question:** Mr. Wallace, what was the stranger wearing?
   answer: He was wearing a blue coat, red scarf, black slacks and black shoes.

☐ fact
☐ opinion
2. **question:** Mr. Henry, what did you hear from your window?
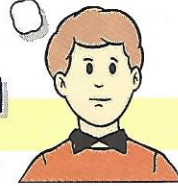   **answer:** I heard a sound that must have been the intruder breaking in.

☐ fact
☐ opinion
3. **question:** Ms. Harris, what time did you notice the broken lock?
   answer: It was 10:15 p.m., just as I arrived home.

☐ fact
☐ opinion
4. **question:** Mrs. Patterson, do you know the owner of the stolen painting?
   answer: He is the nicest boss I have ever worked for.

☐ fact
☐ opinion
5. **question:** Mr. Samuels, was the painting insured?
   answer: Yes, the painting was insured for ten thousand dollars.

☐ fact
☐ opinion
6. **question:** Miss Ryan, did you see the defendant take the painting?
   answer: Of course he took it! It had to be him.

Designing Fractions

Mr. Artsy's class was studying design. He drew the following design for the students to study.
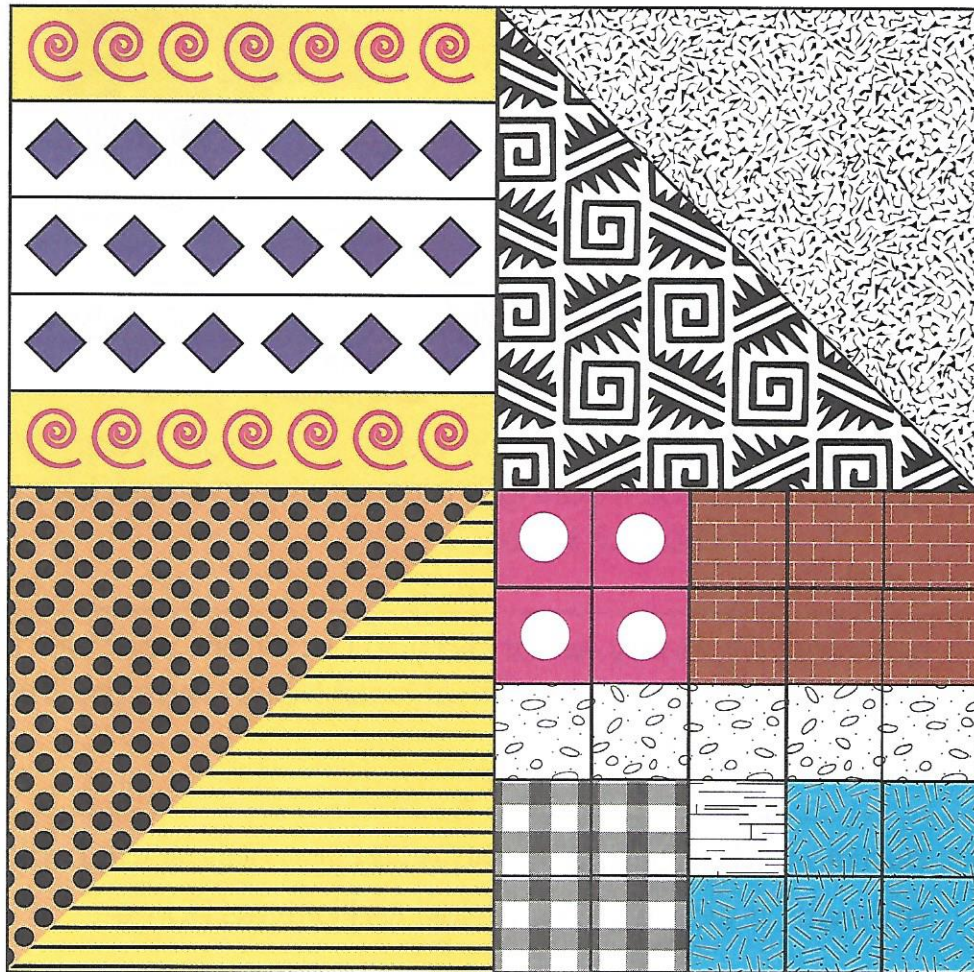
Find what fraction each pattern is of the whole square.

1. ▨ = ___   2. ▦ = ___   3. ▦ = ___   4. ▭ = ___

5. ▦ = ___   6. ◉ = ___   7. ▨ = ___   8. ◈ = ___

9. ◉ = ___   10. ▤ = ___   11. ◆ = ___   12. ◎ = ___

Extension: Make your own design in a square. Look at the patterns and list what fraction of the whole each pattern represents.

Learn at Home, Grade 6

I'm Hungry!

Help Gerry the Giraffe get to the tree by shading in the path that contains the correct areas. Then, find the correct areas for the ones that are wrong.
Remember: area = $\frac{1}{2}(b \times h)$

A= 70 ft.^{2}

A= 52 m^2

A= 40 in.^{2}

A= 12 m^2

A= 40 mm^2

A= 12 in.^{2}

A= 120 m^2

A= 290 m^2

A= 20 cm^2

A= 160 cm^2

A= 160 in.^{2}

A= 960 in.^{2}

A= 324 hm^2

A= 65 m^2

A= 308 in.^{2}

A= 68 cm^2

A= 216 dm^2

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	Language Skills	Spelling	Reading
Monday	Have your child choose a topic, make a plan for writing and begin working on a rough draft.	Pretest your child on these spelling words: auction, champion, collection, companion, competition, cushion, digestion, election, location, mention, occupation, onion, operation, opinion, portion, position, region, religion Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	Introduce the new reading selection or continue with the book from last week.
Tuesday	**Writing Paragraphs:** What is a paragraph? Discuss the purpose of a paragraph and what makes a good paragraph. *See* Language Skills, Week 23.	Review this week's spelling words. Have your child complete **Alphabetizing Champion** (p. 236).	Discuss the current reading book in a conference. Focus on plot. Have your child explain what has happened in the story so far.
Wednesday	Have your child write a topic sentence for each topic listed below. Each topic sentence should express an opinion or feeling about the topic. Save the topic sentences for later lessons. homesick saving energy a nightmare leftovers made in America sick in bed cats as pets hot breezes a safe environment rising smoke	Have your child use each of this week's spelling words correctly in a sentence.	**Summarizing:** Review the skill of summarizing. Ask your child to recall a familiar children's story, such as *Little Red Riding Hood,* and tell you what the story is about. Point out that his/her response is a "summary." A story summary is a brief description of the problem and events in a story. A summary may also include an evaluation or opinion. Have your child write a summary of one chapter from the book he/she is reading.
Thursday	Have your child choose one of the topic sentences written yesterday. Ask your child to fill out a paragraph by writing sentences that contain details to support the topic sentence.	Have your child study this week's spelling words.	Newspaper articles often state in the first paragraph what you can expect to read in the rest of the article. Read several newspaper articles with your child and summarize and discuss what the articles are about. Have your child read a newspaper article on a topic of interest. Have your child write a summary of the article.
Friday	Have your child write an ending sentence for the paragraph that restates the topic sentence or reminds the reader of the point of the paragraph. The final sentence should be strong and interesting. Encourage your child to use humor or descriptive language when appropriate.	Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Hold a reading conference. Have your child choose and read aloud passages from the book that create strong visual images in the mind of the reader.

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Math	Science	Social Studies
Division of Fractions Teach your child how to divide fractions. *See* Math, Week 23, numbers 1 and 2. Have your child complete **Dividing Fractions** (p. 237).	**Light** Explain the difference between incandescent and fluorescent light bulbs. *See* Science, Week 23, number 1. Have your child count the number of incandescent and fluorescent lights in your house. Have your child plot the information on a bar graph to compare the two. Discuss the difference in energy costs between the two types of bulbs.	**The Protest Years** The 1960 and 1970s saw many protests. *See* Social Studies, Week 23. The biggest social issue of the 1960s was civil rights. Discuss the rights that have been won over the years. Review the **Synopsis of Civil Rights Acts** (p. 241) with your child. Have your child write an example of someone acting under the authority of each act. *See also* Social Studies, Week 23, number 1.
Discuss practical situations in which you would need to divide fractions. Have your child complete **Art Show** (p. 238).	Your child may already be familiar with a strobe light, which creates the illusion that something is moving differently than it is. Have your child imitate the effects of a strobe light with a stroboscope. Have your child complete **Stroboscope** (p. 240).	Add presidents from the 1960s and early 1970s to the time line. Have your child write the names of Presidents John Kennedy, Lyndon Johnson, Richard Nixon and Gerald Ford on index cards followed by their years in office. Have your child read about each president, then write at least three things that happened during each one's administration on the backs of the index cards. Attach the cards to the time line.
Provide your child with situational problems to solve using division of fractions. *See* Math, Week 23, number 3.	Demonstrate the science of chromatography, or the separation of colors. *See* Science, Week 23, number 2. Have your child repeat the chromatography experiment, testing different variables. For the first round of tests, have your child vary the paper; for the second round, the liquid solvent; for the third round, the source of pigment. *See* Science, Week 23, number 3.	Have your child locate Vietnam on a map. Have him/her read about the Vietnam War. *See* Social Studies, Week 23, number 2. Discuss. Add the dates of the war (1957–1975) and U.S. involvement to the time line. Look at political cartoons from this period. Discuss the symbolism of the hawk and dove. Have your child draw a political cartoon (one that might have appeared at the time of the war) to comment on the Vietnam War.

Continue to discuss and practice division with fractions.
Have your child complete **Invert and Multiply** (p. 239).
	Demonstrate the spectrum of light using soap bubbles. Buy some bubble solution with a wand and have your child blow bubbles in the sunlight. Observe the colors that appear on the bubbles. The bubbles refract light much like raindrops refract light to produce rainbows. *See* Science, Week 23, number 4.	Ask your child to contemplate what he/she has learned about the protest years. Have your child write a poem using couplets beginning with the following phrases:
		    I used to think . . .
		    But now I know . . .

Show your child how to change fractions and mixed numbers to percents. Divide the numerator by the denominator. Move the decimal two places to the right before adding the percent sign. **Example:** $\frac{9}{10}$ $9 \div 10 = 0.9$ Move the decimal: 90.0 Add the percent sign: 90%	Have your child write a poem, story or riddle about light. Encourage your child to include vocabulary and concepts discussed in his/her writing.	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

Learn at Home, Grade 6

TEACHING SUGGESTIONS AND ACTIVITIES

LANGUAGE SKILLS (Writing Paragraphs)

A good paragraph should focus on one topic and contain a strong beginning, middle and end. The beginning of a paragraph is often the topic sentence. A *topic sentence* should grab the reader's attention and state what the paragraph is about. The best topic sentence states an opinion or feeling about the topic. This sets the stage for the rest of the paragraph to support this feeling or opinion. The middle of the paragraph includes details and supports the topic sentence. The end of the paragraph follows all the details and restates the topic sentence or reminds the reader of the point of the paragraph.

MATH (Division of Fractions)

▶ 1. To divide fractions, simply invert and multiply. In other words, multiply the first fraction by the *reciprocal* (or inversion) of the second fraction. Read the following scenario to teach the concept of reciprocal fraction.

> *James has 12 ounces of soda in a can. He wants to divide it evenly among himself and two friends. James has to figure out how many ounces to give each of them. James can divide 12 ounces by 3 to find that each person will get 4 ounces. But with what James knows about fractions, he can also multiply 12 by $^1/_3$ to get the same answer. One-third is the reciprocal of 3.*

The reciprocal is found by inverting the fraction. Have your child find the reciprocal of a variety of numbers, including whole numbers, fractions and mixed numbers.
What is the reciprocal of . . .

$^2/_3$ ($^3/_2$) $2^1/_6 = {}^{13}/_6$ ($^6/_{13}$) 5 ($^1/_5$)

▶ 2. To divide fractions, multiply the first fraction by the reciprocal of the second fraction.
Example: $^4/_5 \div {}^2/_6 = {}^4/_5 \times {}^6/_2 = {}^{24}/_{10} = {}^{12}/_5 = 2^2/_5$

▶ 3. Copy or read aloud the following situational problems for your child to solve.

   a. Dottie fixed $^2/_3$ of the box of flapjack mix for breakfast. Each flapjack consisted of $^1/_8$ of the batter that she mixed. How many delicious flapjacks was she able to make using these portions?

   b. There was $^2/_3$ of the huge king salmon in the refrigerator at Andy's house ready to be served. If the family ate $^5/_{10}$ of this at each meal, how many meals will it take to finish this delicious fish?

   c. There is $^5/_9$ of the red watermelon left to enjoy. If Jerry's family cuts up and eats $^4/_8$ of it at a time, how many times will it take the family to finish it?

   d. Doug still needs to clean $^1/_3$ of the pool before he can go on his trip to the mountains. If he cleans $^5/_8$ of this amount in 1 hour, how many hours will it take for him to complete this task?

   e. Lowell has $^5/_9$ of a quart of orange juice to share with his friends on a field trip. If each friend gets $^1/_4$ of a quart, how many friends get orange juice on the trip?

SCIENCE (Light)

▶ 1. Observe the inner workings of a clear incandescent light bulb and a fluorescent light bulb. Explain the differences between these two types of bulbs and the light that they produce.

The incandescent light is produced by heat. Have your child imagine a burning candle—the candle produces both heat and light. Ask your child to name some other devices that produce both heat and light (toaster, oven coils, burning charcoal, the sun). Put the incandescent light bulb in a lamp and observe the filament in the bulb when it is turned on.

Fluorescent light is produced when ultraviolet rays strike phosphors inside a bulb. The fluorescent bulb or tube is filled with gas. The inside of the bulb is coated with phosphors, chemicals that glow when ultraviolet radiation is present. Fluorescent light is much cooler than incandescent light and uses much less electrical energy. If you have a fluorescent light, have your child observe and feel the lighted bulb.

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2. Use a water-soluble black marking pen to make a large dot on a paper coffee filter. Have your child use an eyedropper to add drops of water to the black dot and observe the changes for a few minutes. The colors that are part of the black pigment should begin to separate. Ask your child to describe the order of colors observed after a few minutes and how this order is similar to the color spectrum studied earlier.

3. For the paper, your child could use a paper towel, a tissue, a sheet of newsprint or an index card. The liquid solvent could be water, ammonia, rubbing alcohol, vinegar or a soft drink. The pigment could come from paint, flower or leaf stains, ink or food coloring.

4. Help your child conduct a second experiment with bubbles. Cover a table or desk with a sheet of plastic (a garbage bag works well). Pour a small amount of liquid detergent solution onto the center of the plastic. Have your child hold a drinking straw straight down in the solution and blow gently until a bubble appears. As the child continues to blow, the bubble will get much larger. Have your child describe the colors in the bubble. Use different liquid detergents to determine which brand produces the largest or the most colorful bubbles.

SOCIAL STUDIES (The Protest Years)

BACKGROUND

The 1960s and early 1970s were disturbing and disorderly times in the United States. It was a period of both great idealism and great upheaval. One president was assassinated, another declined to run again because of opposition to an undeclared war and a third, facing impeachment, resigned.

Thousands of boycotts, demonstrations, sit-ins and marches occurred during this period as various advocates came on the scene and began to exert influence. Each of these advocates had a particular message and means of delivery. Just as Martin Luther King, Jr., became the symbol of civil rights agitation, Ralph Nader emerged as the defender of American consumers against defective and unsafe products. Bob Dylan, with his folk songs, expressed the hopes and angers of his generation. Women such as Gloria Steinem and Shirley Chisholm held up the hope for equal opportunity for women.

Another reason for protest was the Vietnam War. Peace advocates viewed U.S. involvement in the war as immoral and an improper use of human and economic resources. Supporters believed the war was necessary to stop the spread of communism in Asia.
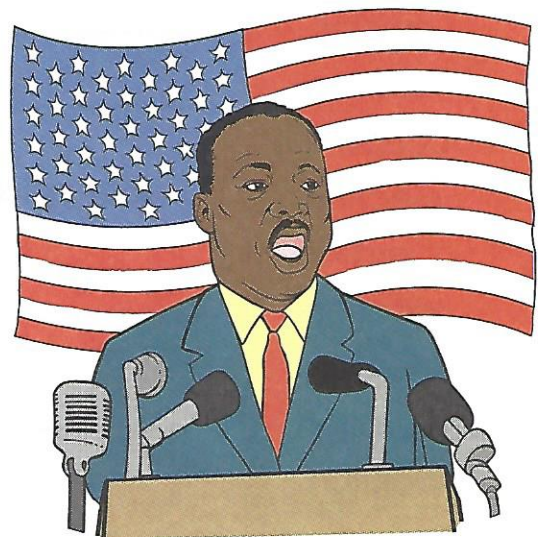
1. Read aloud each situation below. Have your child tell which civil rights act is demonstrated.

    Valerie had not been allowed to vote before, so she got help registering. (1960)

    The doors were open to everyone who wanted to see the movie. (1964)

    My father realized that the government was using an incorrect middle name for him. (1974)

    The architect of the new building made sure all passageways were wide enough for a wheelchair to pass through. (1990)

2. Have your child try to answer the questions below as he/she reads about the Vietnam War.

    What were the reasons for U.S. involvement in the war?

    What countries fought in the war? Do you think all the parties who fought should have been involved? Give reasons for your opinions.

    Was America's security at risk in any way?

    Identify the "hawks" and "doves."

Learn at Home, Grade 6

Alphabetizing Champion

religion
region
portion
collection
competition
companion
onion
champion
cushion
opinion
auction
occupation
election
operation
location
mention
digestion
position

Write each spelling word in the correct category and in alphabetical order.

two-syllable words

_____

_____

_____

_____

_____

_____

_____

three-syllable words

_____

_____

_____

_____

_____

_____

_____

four-syllable words

_____

_____

CHAMPI

Learn at Home, Grade 6

Dividing Fractions

$6 \div \frac{1}{4}$

Step 1: Write both numbers as fractions. $\frac{6}{1} \div \frac{1}{4}$

Step 2: Invert the second fraction and multiply. $\frac{6}{1} \times \frac{4}{1}$

Step 3: Reduce. $\frac{24}{1} = 24$
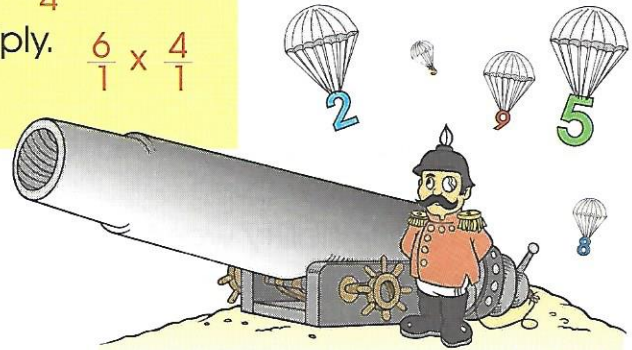
Solve each problem.

1. $7 \div \frac{1}{3}$

2. $8 \div \frac{1}{2}$

3. $16 \div \frac{1}{3}$

4. $6 \div \frac{1}{2}$

5. $5 \div \frac{1}{6}$

6. $18 \div \frac{1}{7}$

7. $8 \div \frac{1}{5}$

8. $7 \div \frac{1}{9}$

9. $15 \div \frac{1}{6}$

Invert and Multiply

Solve the problems. Reduce your answers to lowest terms.

1. $\dfrac{1}{5} \div 3$

2. $\dfrac{5}{7} \div 15$

3. $\dfrac{7}{8} \div 21$

4. $\dfrac{3}{5} \div 12$

5. $\dfrac{3}{7} \div 6$

6. $\dfrac{3}{8} \div 6$

7. $\dfrac{5}{7} \div 10$

8. $\dfrac{5}{6} \div 15$

9. $\dfrac{7}{10} \div 2$

10. $\dfrac{7}{8} \div 14$

11. $\dfrac{7}{9} \div 7$

12. $\dfrac{1}{4} \div 3$

Stroboscope

You will need: a 6-inch square piece of poster board, a straight pin, a pencil with an eraser

Making a Stroboscope

Cut out the pattern shown below. Place the pattern on a piece of poster board and **cut it out** carefully. Push a pin through the center of the disk, then into the eraser of a pencil.
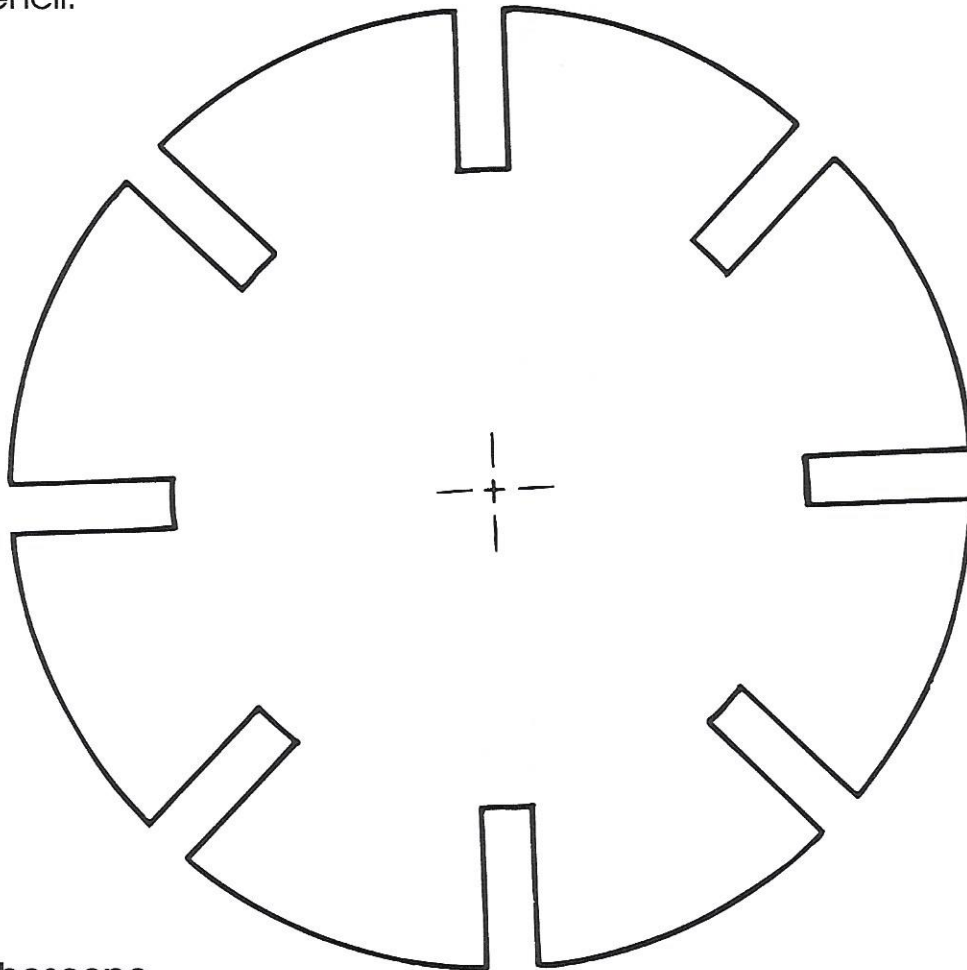
Using the Stroboscope

Hold the stroboscope in front of one eye. Look at a rotating object such as a fan while you spin the disk. What does it look like? _____

Making and Testing Hypotheses

What would happen if the fan were moving faster? _____

_____

Look into a mirror and spin the scope. What happens? _____

_____

Design another stroboscope with a disk of another size. Try more or fewer notches.

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Synopsis of Civil Rights Acts

1957 — **Civil Rights Act of 1957**
Set up Commission on Civil Rights to investigate civil rights violations. Creates Civil Rights Division in Department of Justice to enforce federal civil rights laws and regulations.

1960 — **Civil Rights Act of 1960**
Provides referees to help African Americans register to vote.

1964 — **Civil Rights Act of 1964**
Orders businesses that serve people to do so regardless of race, color, religion or national origin. Bars discrimination by employers and unions. Establishes Equal Employment Opportunity Commission to enforce fair employment policies. Cuts off federal funding for any program or activity which allows racial discrimination.

1968 — **Civil Rights Act of 1968**
Ends discrimination in sale or rental of housing.

1974 — **Privacy Act**
Makes it possible for U.S. residents to check themselves in government files and request correction.
Right of Privacy Law
Recognizes a person's right not to have pictures used for advertising without permission.

1990 — **Americans With Disabilities Act**
Protects handicapped people from discrimination by private employers. Requires that buildings and mass transportation be accessible to disabled people. Orders phone companies to provide devices to people with speech and hearing disorders so they can make and receive calls.

1991 — **Civil Rights Act of 1991**
Makes winning job discrimination suits easier for workers. Employer must prove that his/her hiring or promotion practices are necessary to his/her business. Gives victims the right to sue for monetary damages in cases of intentional job discrimination based on sex, religion, national origin or disability.

	Language Skills	**Spelling**	**Reading**
Monday	**Writing Paragraphs** Have your child choose a topic, make a plan for writing and begin working on a rough draft. Encourage your child to practice writing strong paragraphs.	Pretest your child on these spelling words: chemical medical surgical classical musical technical comical optical theatrical cylindrical practical tropical electrical radical typical identical skeptical vertical Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	Introduce this week's reading selection or continue with the book from last week.
Tuesday	Find an example of a well-written, strong paragraph from a book. Copy each sentence on a separate index card. Scramble the cards. Have your child arrange the sentences to form a paragraph. Discuss the clues that helped your child order the paragraph.	Review this week's spelling words. Have your child complete **Chemical Reaction** (p. 246).	**Vocabulary:** With your child, discuss this week's reading book in a conference. Focus on vocabulary. Ask your child to write down unfamiliar words from the reading. Have your child guess at their meanings based on context, then look up the definitions in a dictionary. How accurate were your child's guesses?
Wednesday	Look at several models of good paragraphs and discuss the elements of a strong paragraph. *See* Language Skills, Week 24, number 1.	Have your child use each of this week's spelling words correctly in a sentence.	Ask your child to look up the word *etymology* and write a definition in his/her own words. Then, discuss the meaning of the word *etymology* and explore word origins as indicated in the dictionary. *See* Reading, Week 24, number 1.
Thursday	Have your child choose one of the topic sentences generated on Wednesday, Week 23. Brainstorm a list of feelings, adjectives and adverbs associated with the topic. Have your child write a descriptive paragraph incorporating several words from the list. *See* Language Skills, Week 24, number 2.	Have your child study this week's spelling words.	Look through a dictionary with your child to find words with origins in Latin, Spanish or French. Many English words have origins in other languages. Introduce your child to common English words that have origins in other languages. Have your child use these words in sentences. *See* Reading, Week 24, number 2.

Friday	Have your child write a topic sentence and two supporting sentences about each of the following subjects:
	   a trip to the dentist
	   a scary dream
	   holiday times
	   shopping for a gift
	   favorite season
		Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Hold a reading conference with your child. Discuss the meaning of new words in context.
			Have your child complete **Do You Speak Spanish?** (p. 247).

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Math	Science	Social Studies
Fractions How can you tell which of two fractions is larger without drawing a picture? Ask your child to come up with a procedure for comparing fractions. If your child has difficulty, remind him/her that if the denominators are the same, it is easy to compare fractions. *See* Math, Week 24, number 1.	**Sound** *Sound* is caused by *vibrations*. *See* Science, Week 24. Ask your child to tell you where the vibration is when we use our voices. Ask your child to touch his/her throat while speaking or singing. Then, have him/her whisper and then mouth some words. Have your child describe the difference in the vibrations felt on the throat. *See* Science, Week 24, number 1.	**The Protest Years** President Kennedy brought youth to the White House when he took office in 1961. He brought many changes to America in an effort many called the *New Frontier*. Among his goals was putting a man on the moon before 1970. Have your child research and list the accomplishments in space from the time that NASA was created to the time that Neil Armstrong and Edwin Aldrin stepped foot on the moon.
To keep fractions in simplest terms when choosing a common denominator, use the *least common multiple*. *See* Math, Week 24, number 2.	Have your child make a poster showing the many sources of sound using pictures from old magazines, newspapers, ads and catalogs. Have your child group the pictures into categories (artificial sounds, musical instruments, sounds of nature) and label them. Other poster themes might include *Early Uses of Sound, Communications Through Sound, History of Sound, Noise Pollution*.	The women's movement made great strides in the 1970s. The ERA had a tremendous influence on women in America. Career opportunities and equal pay for women improved. *See* Social Studies, Week 24, number 1. Have your child write a letter expressing his/her opinion as to whether or not the ERA should be ratified.
Adding fractions is simple when the denominators are the same. Simply add the numerators and keep the same denominator. When there are mixed numbers involved, add the whole numbers, then the fractions. Have your child complete **Egyptian Math** (p. 248).	Sound is made by vibration. Changing the tightness of a vibrating string changes the character of the sound. *See* Science, Week 24, number 2. An *oscilloscope* is an instrument that can detect the variation in frequency and pitch of sound vibrations. Help your child make a simple oscilloscope. *See* Science, Week 24, number 3.	Discuss the rising concern about pollution and conservation. *See* Social Studies, Week 24, number 2. Discuss the oil crisis of the 1970s. What impact did it have? How did it change people's attitudes toward cars and driving?
When adding fractions with unlike denominators, find equivalent fractions for one or both fractions so the denominators are the same. Find the *least common multiple* of the denominators and make equivalent fractions, then add. Have your child complete **Adding Unlike Fractions** (p. 249).	Study how the human ear works to admit sound vibrations. Have your child read about the different parts of the ear and their functions. Have your child draw and label a diagram of the inner ear. Discuss hearing impairments and what causes them.	Have your child add presidents from the late 1970s to the present to the time line. Have your child write the names of Presidents Jimmy Carter, Ronald Reagan, George Bush, Bill Clinton and any succeeding presidents on index cards followed by their years in office. On the back of each card, have your child list at least three things that happened during each president's administration. Then, have your child attach the cards to the time line.
When adding mixed numbers, add the whole numbers first, then the fractions. Generate fifteen to twenty addition problems with fractions and mixed numbers. Have your child solve the problems, reducing his/her answers to lowest terms.	Have your child design and create a stringed instrument that produces at least four different notes.	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

TEACHING SUGGESTIONS AND ACTIVITIES

LANGUAGE SKILLS (Writing Paragraphs)

▶ 1. Look through a variety of books and magazines and select strong paragraphs for your child to read. Have your child read each paragraph, identify the main idea and describe the purpose of the supporting sentences (to describe, explain, compare or persuade).

▶ 2. Sometimes it is helpful to make an outline before writing a paragraph.

Topic Sentence: I could tell that my mom had been baking.

    I. There were several clues.
        A. Aroma of cinnamon
        B. Warmth from the oven
        C. My mouth started watering
    II. I ran to the kitchen.

Ending Sentence: My mom makes the best cinnamon raisin cookies in town.

Final Paragraph:

I could tell that my mom had been baking. When I opened the door to the house, I felt a rush of warmth from the oven's heat. The aroma of cinnamon met me at the door, and my mouth started watering in anticipation. When I ran to the kitchen, I saw my favorite cookies cooling on the rack. My mom makes the best cinnamon raisin cookies in town.

READING (Vocabulary)

▶ 1. Ask your child to think of last names that are also common nouns, such as Baker, Smith, Tanner and Snow. Discuss the origin of names. Sometimes people took on names that indicated their profession. Sometimes inventions are named after the people who invented them. Have your child look up the following words in the dictionary. Ask the child to write two meanings for each word.

limerick	Rugby	Ford	Chateaubriand
Chesterfield	sandwich	Panama	Tony

▶ 2. Review the dictionary symbols (abbreviations) that indicate word origins. Write the following words, or words of your own, on the chalkboard.

boulevard	chapeau	digit	lariat	menu	mustache
oleander	poncho	robot	siesta	taco	valet

Tell your child to copy the words on a sheet of writing paper, leaving about five lines between them. After each word, have your child write the origin of the word in parentheses. Then, have your child write the definition of the word and use the word correctly in a sentence.

MATH (Fractions)

▶ 1. It may be hard for your child to tell which fraction is larger: $5/6$ or $11/12$. The best way to compare fractions is to find a common denominator. In this case, the common denominator would be 12. Multiply the numerator and denominator by 2, and $5/6$ becomes $10/12$. Now it is easy to see that $11/12$ is larger than $5/6$. When the denominators are the same, comparing these fractions is the same as comparing 10 apples and 11 apples.

▶ 2. The *least common multiple* (LCM) is found by listing all the multiples of both denominators and identifying the smallest multiple both numbers have in common.

Example: What is the least common multiple of the following denominators?

$\frac{5}{6}$ and $\frac{13}{15}$ **6:** 6, 12, 18, 24, <u>30</u>, 36
                15: 15, <u>30</u>, 45, 60

Which fraction is larger? $\frac{25}{30}$ $\frac{26}{30}$

    Learn at Home, Grade 6

SCIENCE (Sound)

BACKGROUND

Sounds are caused by *vibrations*. There are many kinds of sounds including natural, artificial, soft, loud, pleasant, unpleasant, warning, musical, voice, geological, weather, chemical and animal. Sound vibrations reach your eardrums, and messages are sent to your brain to be interpreted. Sounds vary in pitch and loudness. Musical instruments produce sounds through string, wind or percussional vibrations. Instruments such as microphones, megaphones and hearing aids help people to hear sounds better.

▶ 1. Add sound-related vocabulary to the weekly spelling lists as the terms are discussed.

acoustics	decibel	loudness	music	resonance	trough
amplitude	frequency	medium	noise	reverberation	vibration
crest	hertz	megaphone	pitch	timbre	wavelength

▶ 2. Have your child touch his/her throat and make humming sounds. Then, have him/her make some low growls and high screeches and feel the changes in the vibrations on the throat and describe the differences. Stretch a rubber band between your hands and have your child pluck the band as you stretch it tighter and tighter. Ask your child to describe the different sounds produced. The rubber band is similar to the vocal cords in the throat. Different qualities of sound are produced as the vocal cords become tighter or more relaxed. Ask your child to recall a time when he/she was hoarse. What happened to his/her voice? Have your child think of other situations in which vibrations are changed by the tightness of strings or bands of different materials.

▶ 3. Use a can opener to cut a tin can open at both ends. Be careful of any sharp edges. Cover one end of the can with a piece of balloon pulled taut like a drum. Hold it in place with a tight rubber band.

Cut a small piece of thick, reflective plastic (or a piece of mirror). Use rubber cement or glue to stick the plastic to the balloon as shown in the illustration. Be sure not to attach the plastic exactly to the center.

Stand near a strong beam of sunlight coming through a window (or use a flashlight). Hold the oscilloscope so that the sunlight reflects off the plastic like a mirror onto a wall. Sing into the mouth of the can. Watch the wall. Patterns of lines, loops, curves or other shapes should be visible.
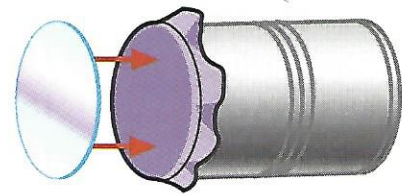
SOCIAL STUDIES (The Protest Years)

▶ 1. Have your child read about the *Equal Rights Amendment* (ERA). What does it state? In 1972, Congress passed the ERA. It did not become law, however, because the amendment was not ratified by enough states. Discuss the current state of women's rights. *Are men and women viewed as equals today in the workplace and at home? Support your answer.*

▶ 2. Pollution and conservation became hot issues in the 1970s. Have your child complete one or more of the activities listed below.

a. Read a newspaper article about pollution or conservation. Write a summary of the article and express an opinion.

b. Research the development of conservation as a movement. Make a time line of events starting in the early 1900s.

c. List what your family does to help improve the environment.

d. Read about antipollution laws passed by the federal government. Do you think pollution should be controlled at the federal or local level? Support your answer.

Chemical Reaction

chemical
classical
comical
cylindrical
electrical
identical
medical
musical
optical
practical
radical
skeptical
surgical
technical
theatrical
tropical
typical
vertical

Rewrite the adjectives from the spelling list and add a noun to make a short phrase.

Example: *political — political reaction*

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____

Write a quatrain (a poem with four rhyming lines).
Try to end each line using a spelling word.

Example:

Me

Usually I like to be practical,
But sometimes I'd rather be radical.
Occasionally I feel kind of musical,
But the results are often quite comical.

_____

_____

_____

_____

Learn at Home, Grade 6

Do You Speak Spanish?

Read the story. Then, use context clues to translate the **bold** Spanish words into English.

doll	sun	parrot	bookstore	chair
lake	eat	glass	brother	cool
house	mother	teacher	grandpa	good
door	swim	table	school	sick
money	garden	pretty	windows	hot

The **sol** _____ in the sky was shining brightly that day. In our **escuela** _____ , my **maestra** _____ needed to open all **ventanas** _____ to cool the air. I wished we could leave the building to **nadar** _____ at the **lago** _____ nearby.

To avoid the heat of my walk to my **casa** _____ , I stopped at a **líbreria** _____ . It felt **bueno** _____ indoors, so I sat and read some of the colorful and **lindo** _____ magazines. My **silla** _____ was very hard to sit on so I left. But the weather was **caliente** _____ !

At home I stayed in our shaded flower **jardin** _____ so I might feel the **fresco** _____ breeze. My brother brought me a **vaso** _____ of juice and set it on a **mesa** _____ nearby. I felt **enferma** _____ from the heat.

At suppertime my **abuelo** _____ came for a visit. He knocked at the **puerta** _____ even though he comes every evening to **comer** _____ . Today, he had **dinero** _____ to buy me a **muneca** _____ for my collection. He bought my **hermano** _____ a volleyball. For my **mamá** _____ he bought a **loro** _____ that talks and squawks too much!
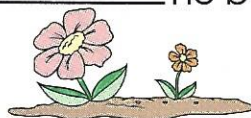
Egyptian Math

Help build the pyramid by adding the fractions.
Reduce each to its lowest term.

Use the following rule:

c

a **b**

$$a + b = c$$

$$\frac{4}{15} \qquad \frac{8}{15} \qquad \frac{1}{15} \qquad \frac{2}{15} \qquad \frac{7}{15}$$

248

Learn at Home, Grade 6
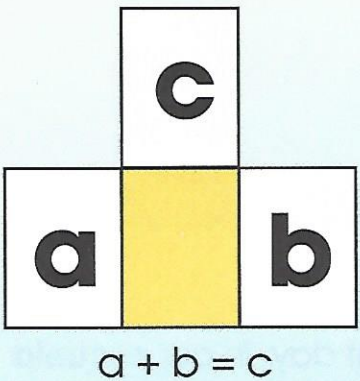
Example: $\dfrac{4}{5} + \dfrac{1}{4}$

$$\dfrac{4}{5} + \dfrac{1}{4} = \dfrac{4(\times 4)}{5(\times 4)} + \dfrac{1(\times 5)}{4(\times 5)} = \dfrac{16}{20} \xleftrightarrow[\text{same}]{\text{add}} \dfrac{5}{20} = \dfrac{21}{20} = 1\dfrac{1}{20}$$

5, 10, 15, (20)
4, 8, 12, 16, (20)
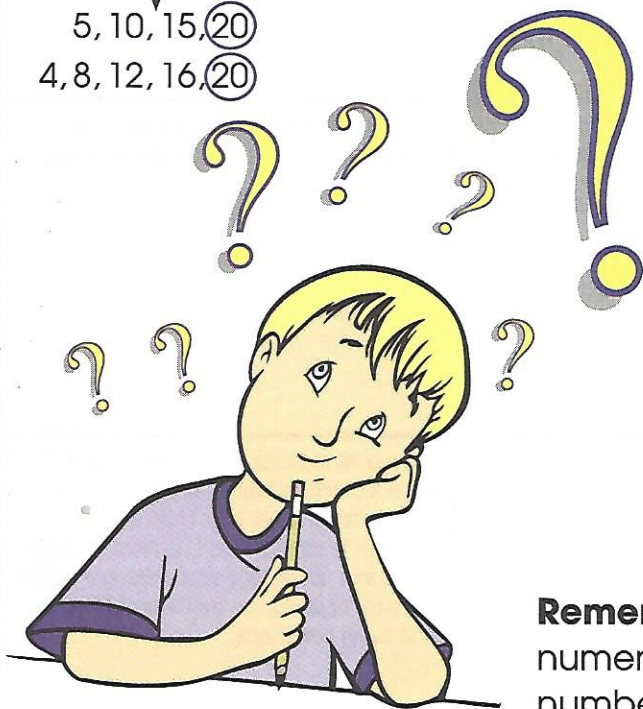
Steps:
1. Find the LCM of both denominators (20).
2. Multiply the numerator and denominator of each fraction by a number to arrive at the LCM.
3. Add numerators.
4. Denominators stay the same.
5. Write improper fractions as mixed numbers.
6. Reduce to lowest terms.

Remember: Since you are multiplying both numerator and denominator by the same number, you are just multiplying the fraction by 1 ($\dfrac{4}{4} = 1$, $\dfrac{5}{5} = 1$).

Add.

1. $\dfrac{2}{3} + \dfrac{1}{5}$

2. $\dfrac{3}{4} + \dfrac{1}{6}$

3. $\dfrac{7}{8} + \dfrac{5}{6}$

4. $\dfrac{1}{2} + \dfrac{8}{9}$

5. $\dfrac{11}{12} + \dfrac{1}{4}$

6. $\dfrac{3}{10} + \dfrac{1}{5}$

7. $\dfrac{3}{4} + \dfrac{2}{5}$

8. $\dfrac{5}{8} + \dfrac{9}{10}$

9. $\dfrac{1}{5} + \dfrac{7}{15}$

Language Skills	Spelling	Reading
Monday		
Writing Paragraphs Have your child choose a topic, make a plan for writing and begin working on a rough draft. Encourage your child to continue practicing writing strong paragraphs.	Pretest your child on these spelling words: aggravate · graduate · navigate appreciate · hesitate · participate circulate · immigrate · populate enunciate · liberate · rotate estimate · migrate · terminate fascinate · narrate · translate Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	Introduce this week's reading selection. Suggestion: *The Secret Garden* by Frances Hodgson Burnett. **Note:** If you choose to read *The Secret Garden* this week, evaluate your child's comprehension daily. The vocabulary and dialects in the book may be unfamiliar to your child.
Tuesday		
Give your child several paragraphs to read and analyze. Use well-written paragraphs found in books and magazines. Alter the paragraphs so there are sentences that do not support the topic sentence, or change the topic sentence so that it does not state the main idea of the paragraph. Have your child improve the paragraphs by crossing out sentences that do not belong or rewriting misfit topic sentences.	Review this week's spelling words. Have your child complete **Migration Fascination** (p. 254).	Discuss the current reading book in a conference. Focus on character analysis.
Wednesday		
Have your child plan a paragraph using an outline, concept map or list. Have your child follow these steps to write a good paragraph: Choose a subject. List details about the subject. Write a topic sentence expressing the main idea. Use the details to write support sentences. Write a strong wrap-up sentence. Have your child plan and write a paragraph about a recent event.	Have your child use each of this week's spelling words correctly in a sentence.	Draw a Venn diagram with three circles. Write the names Mary, Dickson and Colin in the circles. Have your child use the diagram to compare and contrast the three characters. Encourage your child to consider physical appearance, behavior, interests and living conditions.
Thursday		
Have your child plan and write a persuasive paragraph. The paragraph should present a convincing argument supported by details.	Have your child study this week's spelling words.	**Prefixes/Root Words:** Study prefixes and root words that come from Greek and Latin. *See* Reading, Week 25, numbers 1 and 2. Discuss analogies. Encourage your child to look for similarities and relationships between things. Have your child complete **Sing Is to Song as . . .** (p. 255).
Friday		
Have your child plan and write a paragraph that gives directions. The paragraph should present the information clearly and in an order that makes sense.	Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Hold a reading conference. Discuss the ways in which the characters in the story have changed.

Learn at Home, Grade 6

Math	Science	Social Studies
Subtraction of Fractions Subtraction of fractions is simple when the denominators are the same. Simply subtract the numerators and keep the same denominator. Subtracting one-half from three-halves is the same as subtracting one ball from three balls. Give your child twenty subtraction problems with fractions (same denominators) to solve. Review your child's work.	**Sound** Have your child read about and define the term *wavelength*. Demonstrate wavelength using a long rope. *See* Science, Week 25, number 1. *Frequency* is the number of crests or troughs of a sound wave that pass a given point in 1 second. Use the rope to demonstrate how the waves can be made to go faster or slower.	**Moving Toward the Future** Have your child create a time line showing U.S. involvement in world events since the end of the Cold War. Have your child consider American involvement over the years in the following countries: China, the former Soviet Union, Iraq, Iran, Egypt, Israel, Kuwait, the former Yugoslavia, Nicaragua and El Salvador.
Teach your child how to subtract fractions from whole numbers. *See* Math, Week 25, number 1. Have your child complete **Fractions** (p. 256).	Have your child read about and define the terms *pitch*. Pitch is directly related to frequency. The higher the frequency, the higher the pitch. If possible, obtain some tuning forks to demonstrate different pitches. Have your child name things that emit sounds at a high pitch and things that emit sounds at a low pitch. Discuss *amplitude. See* Science, Week 25, number 2.	"If we do not learn about the mistakes of the past, we are doomed to repeat them." Ask your child to consider some of the issues confronting society today to see if he/she can find any historical precedents for them. *How did we respond in the past? How should we respond now? How can the past affect the future?* Have your child write an essay about what we as a nation have learned that will help us meet the unknown challenges of the future.
When subtracting fractions with unlike denominators, find equivalent fractions for one or both fractions so the denominators are the same. Find the *least common multiple* of the denominators and make equivalent fractions, then subtract. Have your child complete **Fraction Frenzy** (p. 257).	Have your child read about and define the term *decibel*. Look at a chart showing the decibel levels of common sounds. *See* Science, Week 25, number 3. Generate some problems that require your child to use information from the decibel chart. **Examples:** *How many decibels louder is a power saw than a purring cat? How many times louder is a conversation than a whisper?*	Find a newspaper article that covers a current issue that has implications for the future. Possible topics include homelessness, violence, substance abuse, child abuse, social security, gun control, education and illegal immigration. Ask your child to read the article carefully, then reflect on the information it presents. Pose questions that require your child to find connections between the current issue and past events. *See* Social Studies, Week 25, number 1.
When subtracting mixed numbers, you may need to borrow from the whole number before subtracting. When the fractions have the same denominators, subtract the whole numbers and then the fractions. *See* Math, Week 25, number 2. Have your child complete **Subtracting Unlike Mixed Numbers** (p. 258).	Gather twelve film canisters or plastic eggs for a simple experiment. Place a small object (tack, pea, cotton ball, rice, paper clip, washer, die, marble, etc.) inside each container and label with a number from 1 to 12. Have your child shake the containers and place them in order from softest to loudest. Have your child note the order on paper and guess what each object is before looking inside the containers.	Help your child make a "Hallway of History." Allow your child to develop and draw an image that will help him/her remember the eras of U.S. history. *See* Social Studies, Week 25, number 2.
Estimating sums or differences with fractions is an important skill. It has many practical applications, and it can be used as a self-check to make sure an addition or subtraction answer is reasonable. *See* Math, Week 25, number 3. Have your child complete **Fun Facts** (p. 259).	Have your child write about noise. Let your child decide the format—a poem, an article, a letter to an editor, a riddle. If there is time, have your child illustrate the piece as well.	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

TEACHING SUGGESTIONS AND ACTIVITIES

READING (Prefixes/Root Words)

▶ 1. Study some prefixes and root words derived from Latin and Greek words. Here is a list to get you started:

anti (against)	bio (life)	graph (write)	octa (eight)	scope (see)
auto (self)	centi (hundred)	mega (large)	phone (sound)	tele (at a distance)
biblio (book)	ex (away from)	micro (small)	photo (light)	tri (three)

▶ 2. Have your child combine some of the root words and prefixes to form words, such as *bibliography, megaphone, microscope* and *photograph*. Then, use the prefixes to form other words, such as *antisocial, expanse, biology, photosynthesis* and *triathlon*, and have your child write the definitions.

MATH (Subtraction of Fractions)

▶ 1. Start with models. Have your child show you five wholes. Ask your child to take away one-half of one whole. Write the same problem on paper. Have your child "borrow" one whole from the five and make it a fraction with a like denominator ($^2/_2$). Then, your child can subtract the fractions.

Example: $5 - ^1/_2$ (Think of 5 as $4^2/_2$) = $4^2/_2 - ^1/_2$ = $4^1/_2$

▶ 2. Use the following problem to demonstrate borrowing from a whole number:

Ling has $2^1/_4$ cups of cooking oil. She used $1^3/_4$ cups in a recipe and wants to figure out how much oil she has left. How can Ling subtract $^3/_4$ cup from $^1/_4$ cup? How much oil does she have left?

To solve this problem, borrow from the ones place of the first fraction.

    a. Borrow 1 cup from $2^1/_4$ cups.

    b. Write the 1 cup as a fraction. (1 cup is equivalent to $^4/_4$ of a cup.)

    c. Add the $^4/_4$ to the first fraction ($^4/_4 + 1^1/_4 = 1^5/_4$).

    d. Subtract the second mixed number from the first (altered) mixed number. $1^5/_4 - 1^3/_4$.

    e. The answer is $^2/_4$ or $^1/_2$.

▶ 3. Estimating sums or differences involves the same process as estimating products. Decide if each fraction is less than or greater than $^1/_2$. If the fraction is $^1/_2$ or greater, round to the next whole number. If the fraction is less than $^1/_2$, the whole number stays the same. Add or subtract the whole numbers to obtain the estimate.

Hint: If you are not sure whether a fraction is greater than or less than $^1/_2$, multiply the numerator by 2. If this product is greater than the denominator, the fraction is greater than $^1/_2$. If this product is less than the denominator, the fraction is less than $^1/_2$.

SCIENCE (Sound)

▶ 1. Sound waves are measured by their wavelength. A *wavelength* is the distance between a point on one sound wave to the same point on the next wave. Demonstrate waves with a long rope. Have the child hold one end of the rope. Take the other end and swing the rope in an up and down motion to produce a wave effect. Have your child make a sketch of this wave. The highest point on the wave is called the *crest;* the lowest point of the wave is called the *trough*. The distance between one crest and the next crest or between one trough and the next trough is the wavelength.

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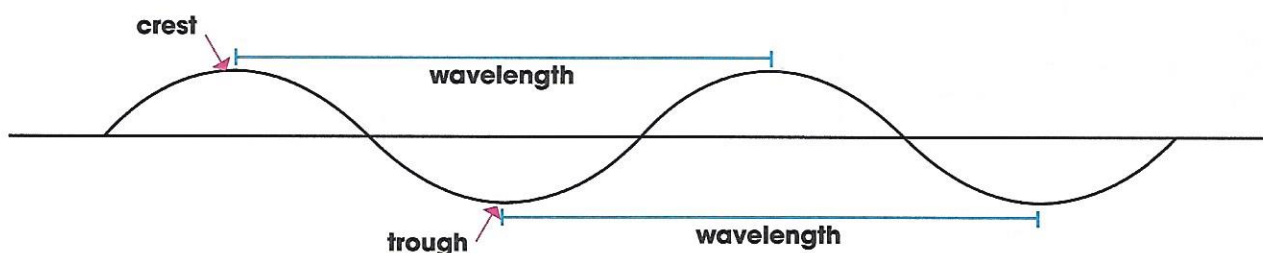
2. The *amplitude* of a sound wave is the height. Have your child make a soft whispering sound, then a loud yell. The loud yell takes more energy and has a higher amplitude than the soft sound. People who work around loud noises, such as airplanes, machinery, traffic or explosive detonations, wear special ear protection. If possible, borrow some of these ear protectors from a factory or airline worker for your child to examine. With the ear protectors in place, turn on some music to a very high volume and have your child describe the effect. Obtain materials from your doctor on the effects of prolonged exposure to loud noise or music.
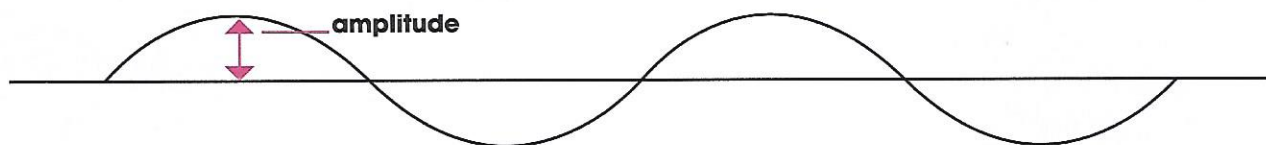
3. Explain that the volume of a sound is measured in units called decibels (dB). The following chart lists some decibel readings for common events.

|			
0 dB	threshold of audibility	70–80 dB	street traffic
20 dB	whisper	75 dB	vacuum cleaner
25 dB	purring cat	100 dB	power saw
30 dB	very soft music	110 dB	thunder
40–50 dB	average residence	140 dB	threshold of pain
60 dB	conversation	140–170 dB	jet plane taking off

SOCIAL STUDIES (Moving Toward the Future)

1. Once he/she has read the article, have your child answer the following questions:

   What is the topic of your article?

   What basic issue is involved?

   What might be some solutions to the problem?

   Describe a similar situation from the past.

   What was the outcome?

   Could there have been a better solution?

2. Using the sketch at right as a guide, have your child create an image of a hallway on a piece of poster board. Each room should represent a different era in U.S. history. Have your child label the rooms, adding any applicable notes, then think of an icon to help remember each room. The icon should represent a key moment or event from that particular era and trigger recognition for the child.

   Example: a confederate flag to represent the Civil War period. Have your child sketch an appropriate icon at the entrance to each room.
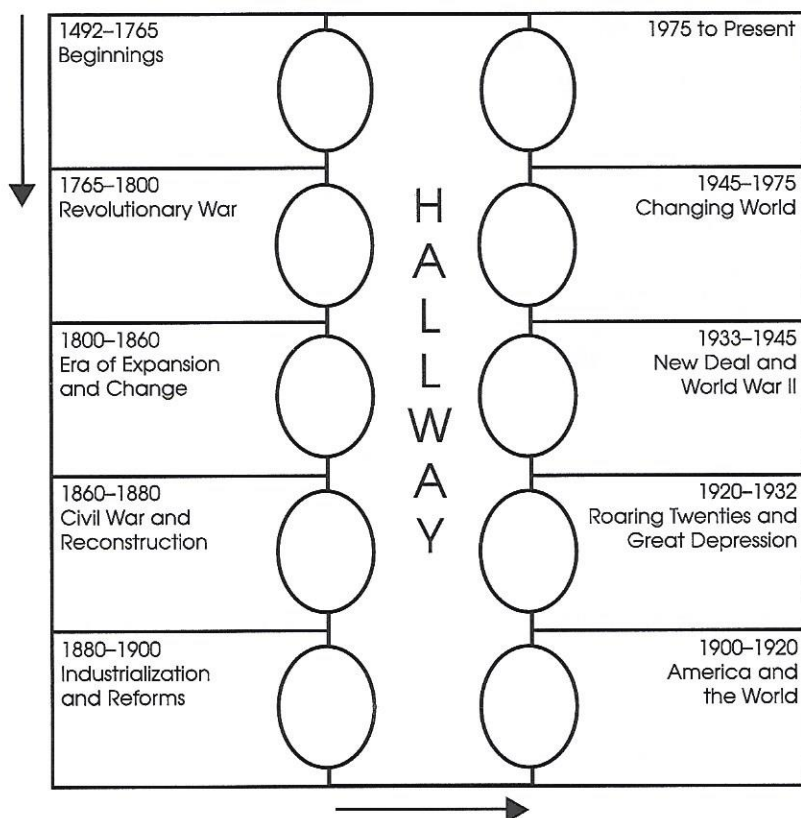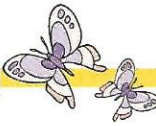
aggravate
appreciate
circulate
enunciate
estimate
fascinate
graduate
hesitate
immigrate
liberate
migrate
narrate
navigate
participate
populate
rotate
terminate
translate

Drop the final **e** and add the suffix **tion** to change each verb to a noun form. Then, make word associations by writing the noun form next to a word in the numbered column. The first one is done for you.

1. a sharing   participation
2. boats   _____
3. gifts   _____
4. blood   _____
5. birds   _____
6. slave   _____
7. senior   _____
8. tire   _____
9. entering   _____
10. cost   _____
11. Spanish   _____
12. a play   _____
13. problem   _____
14. words   _____
15. interest   _____
16. final   _____
17. people   _____
18. pausing   _____
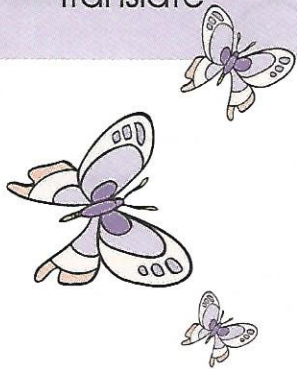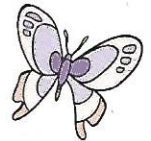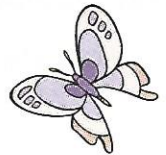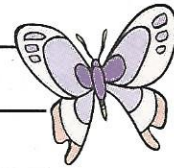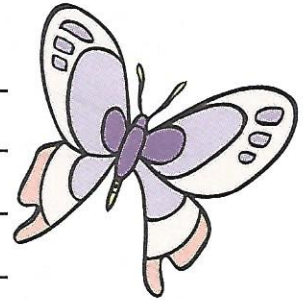
Write four sentences using spelling words in their noun forms.

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

Learn at Home, Grade 6

Sing Is to Song as . . .

Complete each phrase.

1. Glue is to sticking as pencil is to _____.

2. Son is to mother as daughter is to _____.

3. Country is to continent as city is to _____.

4. 5 is to 15 a 4 is to _____.

5. Garage is to car as library is to _____.

6. Victoria is to lake as Pacific is to _____.

7. Hot is to steam as cold is to _____.

8. Weak is to strong as good is to _____.

9. Skin is to human as _____ are to fish.

10. 2 is to bicycle as 3 is to _____.

11. Clipper is to sail as _____ is to paddle.

12. Drama is to act as ballet is to _____.

13. *Adiós* is to Spanish as *au revoir* is to _____.

14. Pilot is to aircraft as nurse is to _____.

15. Damascus is to Syria as Tokyo is to _____.

16. Moo is to herd as _____ is to flock.

17. Lion is to pride as wolf is to _____.

18. Racket is to tennis as club is to _____.

Subtract. Reduce your answers to lowest terms and **write** them here. The first one has been done for you.

1. $5 \quad 4\frac{4}{4}$
    $-\frac{3}{4} \quad -\frac{3}{4}$
    $\qquad 4\frac{1}{4}$

2. 8
    $-\frac{7}{8}$

3. 4
    $-\frac{3}{6}$

4. 10
    $-\frac{3}{8}$

5. 14
    $-\frac{2}{5}$

6. 11
    $-\frac{7}{9}$

7. 4
    $-\frac{3}{5}$

8. 7
    $-\frac{5}{8}$

9. 6
    $-\frac{2}{4}$

10. 12
    $-\frac{3}{6}$

11. 9
    $-\frac{5}{8}$

12. 3
    $-\frac{6}{10}$

13. 7
    $-\frac{3}{4}$

14. 40
    $-\frac{3}{7}$

15. 5
    $-\frac{2}{3}$

16. 8
    $-\frac{5}{9}$

17. 11
    $-\frac{6}{12}$

18. 4
    $-\frac{3}{8}$

19. 6
    $-\frac{5}{7}$

20. 9
    $-\frac{3}{4}$

21. 12
    $-\frac{5}{9}$

22. 4
    $-\frac{6}{11}$

23. 7
    $-\frac{5}{10}$

24. 32
    $-\frac{5}{7}$

25. 25
    $-\frac{3}{4}$

26. 20
    $-\frac{5}{8}$

27. 5
    $-\frac{3}{6}$

28. 8
    $-\frac{2}{5}$

Learn at Home, Grade 6

Fraction Frenzy

Subtract. Reduce your answers to lowest terms and **write** them here.

1. $\dfrac{3}{8}$ $-\dfrac{1}{4}$

2. $\dfrac{2}{5}$ $-\dfrac{2}{15}$

3. $\dfrac{3}{4}$ $-\dfrac{1}{12}$

4. $\dfrac{5}{6}$ $-\dfrac{1}{3}$

5. $\dfrac{3}{5}$ $-\dfrac{2}{10}$

6. $\dfrac{6}{7}$ $-\dfrac{3}{14}$

7. $\dfrac{5}{8}$ $-\dfrac{5}{16}$

8. $\dfrac{7}{10}$ $-\dfrac{2}{20}$

9. $\dfrac{2}{4}$ $-\dfrac{1}{12}$

10. $\dfrac{5}{15}$ $-\dfrac{1}{5}$

11. $\dfrac{7}{16}$ $-\dfrac{2}{8}$

12. $\dfrac{4}{9}$ $-\dfrac{1}{3}$

13. $\dfrac{5}{7}$ $-\dfrac{2}{14}$

14. $\dfrac{9}{10}$ $-\dfrac{2}{5}$

15. $\dfrac{2}{3}$ $-\dfrac{1}{9}$

16. $\dfrac{5}{8}$ $-\dfrac{1}{4}$

17. $\dfrac{2}{4}$ $-\dfrac{1}{2}$

18. $\dfrac{3}{6}$ $-\dfrac{1}{3}$

19. $\dfrac{1}{2}$ $-\dfrac{2}{8}$

20. $\dfrac{8}{9}$ $-\dfrac{3}{18}$

21. $\dfrac{6}{8}$ $-\dfrac{2}{16}$

22. $\dfrac{3}{4}$ $-\dfrac{5}{16}$

23. $\dfrac{7}{16}$ $-\dfrac{3}{8}$

24. $\dfrac{5}{6}$ $-\dfrac{2}{18}$

25. $\dfrac{7}{21}$ $-\dfrac{1}{7}$

26. $\dfrac{8}{24}$ $-\dfrac{2}{12}$

27. $\dfrac{5}{6}$ $-\dfrac{3}{16}$

28. $\dfrac{7}{10}$ $-\dfrac{1}{5}$

Subtracting Unlike Mixed Numbers

Example: $41\frac{2}{8} - 20\frac{2}{3}$

$$41\frac{2}{8} - 20\frac{2}{3} = 41\frac{2(\times 3)}{8(\times 3)} - 20\frac{2(\times 8)}{3(\times 8)} = 41\frac{6}{24} - 20\frac{16}{24} = 40\frac{30}{24} - 20\frac{16}{24} =$$

8, 16, ㉔

3, 6, 9, 12, 15, 18, 21, ㉔

$$20\frac{14}{24} = 20\frac{7}{12}$$

subtract

same

Steps:

1. Find the LCM of both denominators (24).
2. Multiply the numerator and denominator of each fraction by a number to arrive at the LCM.
3. When regrouping, borrow a whole number and write the fraction as an improper fraction.
4. Subtract whole numbers.
5. Subtract numerators.
6. Denominators stay the same.
7. Reduce your answer to lowest terms.

Subtract.

1. $24\frac{2}{9} - 11\frac{2}{3}$ 2. $86\frac{1}{5} - 72\frac{7}{10}$ 3. $44\frac{3}{8} - 26\frac{5}{6}$

4. $19\frac{1}{4} - 12\frac{2}{3}$ 5. $17\frac{4}{5} - 8\frac{1}{4}$ 6. $50\frac{2}{9} - 26\frac{1}{2}$

7. $10\frac{1}{2} - 3\frac{2}{3}$ 8. $12\frac{1}{5} - 7\frac{2}{3}$ 9. $28\frac{5}{12} - 11\frac{2}{3}$

Learn at Home, Grade 6

Fun Facts

The World Trade Center towers in New York are so large and tall that each tower has its own. . .

$$\underline{}_{1} \quad \underline{}_{2} \quad \underline{}_{3} \quad \quad \underline{}_{4} \quad \underline{}_{5} \quad \underline{}_{6} \quad \underline{}_{7} !$$
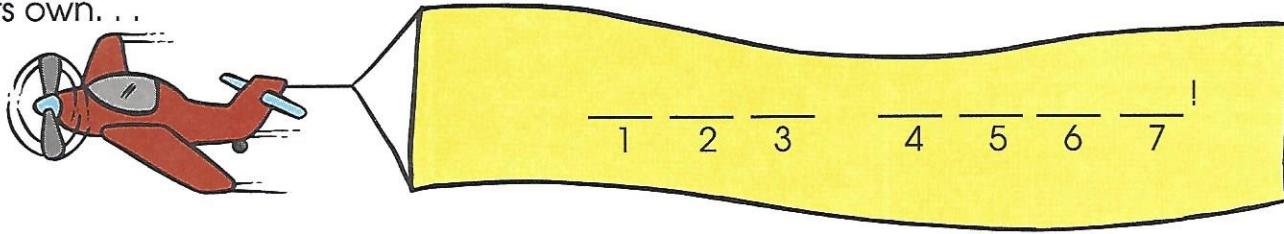
To find the answer, follow the directions below.

Put an O above number 5 if the estimated difference between $13\frac{1}{3}$ and $5\frac{3}{7}$ is 8.

Put an A above number 6 if the estimated difference between $21\frac{5}{6}$ and $9\frac{4}{9}$ is 12.

Put an R above number 4 if the estimated difference between $16\frac{9}{20}$ and $13\frac{11}{15}$ is 3.

Put a B above number 1 if the estimated difference between $8\frac{3}{5}$ and $3\frac{7}{12}$ is 6.

Put a C above number 4 if the estimated difference between $25\frac{7}{20}$ and $13\frac{7}{12}$ is 11.

Put an E above number 7 if the estimated difference between $32\frac{7}{15}$ and $14\frac{9}{16}$ is 17.

Put a D above number 3 if the estimated difference between $18\frac{1}{3}$ and $15\frac{4}{13}$ is 2.

Put an I above number 2 if the estimated difference between $19\frac{7}{10}$ and $9\frac{6}{11}$ is 10.

Put a P above number 3 if the estimated difference between $58\frac{5}{12}$ and $42\frac{3}{10}$ is 16.

Put a D above number 6 if the estimated difference between $30\frac{13}{20}$ and $19\frac{7}{18}$ is 12.

Put an L above number 1 if the estimated difference between $11\frac{5}{7}$ and $5\frac{2}{5}$ is 6.

Put a Z above number 1 if the estimated difference between $16\frac{3}{8}$ and $9\frac{3}{7}$ is 7.

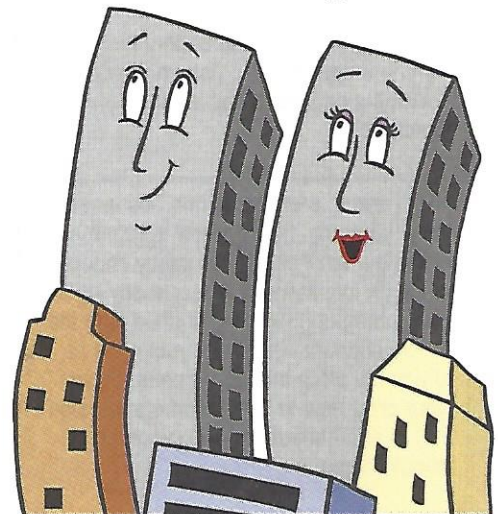|	Language Skills	Spelling	Reading
Monday	**Writing Paragraphs** Have your child choose a topic, make a plan for writing and begin working on a rough draft. Encourage your child to continue practicing writing strong paragraphs.	Pretest your child on these spelling words: atrocious ferocious precious conscious furious serious curious generous spacious delicious gracious suspicious disastrous luscious vicious enormous malicious vivacious Have your child correct the pretest. Add personalized words and make two copies of this week's study list.	Introduce this week's reading selection or continue with the book from last week.
Tuesday	An *essay* or *composition* is made up of several paragraphs. Each paragraph stands on its own but contributes to the essay as a whole. *See* Language Skills, Week 26, number 1. Have your child write a biographical essay about a famous person or about someone he/she knows. *See* Language Skills, Week 26, number 2.	Review this week's spelling words. Have your child complete **Malicious Monsters** (p. 264).	Discuss the current reading book in a conference. Focus on the author's purpose for writing this piece. Discuss why the author might have written this particular book—to entertain, to teach a lesson, etc.
Wednesday	Have your child write an essay about a familiar animal. The essay should begin with a strong introductory paragraph expressing why the animal was chosen. The body of the essay should have at least two paragraphs filled with details and information about the animal. The final paragraph should not introduce new information but restate key points from the essay and bring the essay to a close.	Have your child use each of this week's spelling words correctly in a sentence.	**Outlining:** Review the format for outlining. Have your child choose an interesting article from an encyclopedia that contains an outline. Have your child read the outline first, then read the article and compare to the outline. Have your child read a second article that is short but still includes an outline. Have your child outline the article, then compare his/her outline with the published outline.
Thursday	Writing strong beginning and ending paragraphs is challenging. Have your child read beginning and ending paragraphs from magazine articles and books. Discuss what makes them good paragraphs. Have your child choose a story that he/she wrote this year. Ask your child to revise the beginning and ending paragraphs.	Have your child study this week's spelling words.	Discuss the practical uses for outlines. An outline is an organized format for taking notes—build the outline as you read a text, then refer to it later to recall information. An outline can help you study for a test. An outline is also ideal for organizing thoughts before writing a paper or a speech. Have your child refer to the outline created yesterday, then summarize the article in his/her own words.
Friday	In an essay, each paragraph has its own topic sentence. Begin a new paragraph when the emphasis of the essay changes. Copy an interesting article or essay as one long paragraph. Have your child read the article carefully. Then, ask your child to divide the piece into paragraphs. Show your child how to use the paragraph sign (¶) to show where a new paragraph should begin.	Give your child the final spelling test. Have your child record pretest and final test words in his/her word bank.	Hold a reading conference to monitor your child's understanding of the reading.

Learn at Home, Grade 6

Math	Science	Social Studies
Fractions Discuss practical applications for subtracting fractions. Have your child write one or two situational problems, then solve them. Have your child complete **Research Time** (p. 265).	**Sound** Sound waves travel at different speeds through different mediums. *See* Science, Week 26, numbers 1 and 2. Have your child make a simple stethoscope out of a cardboard paper towel tube.	**Latitude and Longitude** The world is often divided into hemispheres: northern and southern, or eastern and western. Review the locations of the four hemispheres. Have your child complete **Hemispheres** (p. 268).
Provide practice problems for your child using all four operations and fractions. *See* Math, Week 26, number 1.	Explore the use of a megaphone as an amplifier of sound. Have your child make his/her own megaphone to perform a simple experiment. *See* Science, Week 26, number 3.	The lines on a globe help pinpoint the locations of places in the world. Review *lines of latitude* and *longitude*. *See* Social Studies, Week 26, numbers 1 and 2. Give your child practice naming lines of latitude and longitude on a globe. Point to a place on the globe and have the child name the location by latitude and longitude.
Review the procedure for converting fractions to decimals: simply divide the numerator by the denominator. Give your child several fractions to convert into decimals. *See* Math, Week 26, number 2 for sample problems.	Just as light can be reflected, so can sound. Discuss the reflection of sound and the meaning of the term *acoustics*. *See* Science, Week 26, number 4. Have your child conduct a simple experiment to find the best insulating material to mask the sound of a ticking clock inside a shoe box.	Teach your child to estimate latitude and longitude when describing a location between the labeled lines. *See* Social Studies, Week 26, number 3. Have your child complete **Plotting North American Cities** (p. 269).
Use today to review fraction concepts learned so far. Let your child catch up on any assignments as well.	Explore musical instruments with your child. Show your child real instruments, if you have access to any. If you do not have any instruments of your own, take your child to visit a music store. Study families of instruments and countries of origin of unusual instruments.	Name cities for your child to locate on a globe. *See* Social Studies, Week 26, number 4. Have your child find the approximate location of his/her hometown on a globe. Have your child trace around the globe to find other cities located on the same parallel. How do the climates of the cities compare? Then, have your child find other cities located on the same meridian. How do these climates compare?
Test your child's understanding of fractions. Have your child complete **Fraction Test** (p. 266). Reteach any skills missed on the test, if necessary.	Have your child build a simple instrument called a panpipe. Have your child complete **Panpipes** (p. 267).	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

Learn at Home, Grade 6

TEACHING SUGGESTIONS AND ACTIVITIES

LANGUAGE SKILLS (Writing Paragraphs)

▶ 1. The paragraphs in an essay work together to tell about the main idea or topic, but each paragraph should still have its own topic sentence and supporting sentences. In an essay, the first paragraph and final paragraph grab the reader's attention and state the main idea. In multiple-paragraph writing, the first paragraph generally introduces the topic. The middle paragraphs provide information and details. The final paragraph restates the topic, ties everything together and states a conclusion.

▶ 2. Have your child plan out the essay before writing by listing the main topic or topic sentence of each paragraph. The first paragraph of the essay should introduce the subject and explain why your child chose to write about him/her. The second paragraph could describe early accomplishments. The third paragraph could describe later accomplishments. The fourth paragraph should summarize and wrap up the essay.

MATH (Fractions)

▶ 1. Give your child ten situational problems to solve. Center the problems around a common theme, such as desserts. Here are some sample problems:

   a. Myra ate $1/4$ of her mother's famous key lime pie. Her brother Nick ate $1/3$ of the pie. How much of the pie did Myra and Nick eat altogether?

   b. Mr. Michaels sold $5/8$ of his 48 loaves of banana bread at the bake sale. How many loaves did he sell?

   c. Judy bought 36 doughnuts for brunch. She and her friends ate $5/6$ of the doughnuts. How many doughnuts were left over after brunch?

   d. Karl had $2/3$ of his birthday cake left. He invited some friends over after school, and they ate $5/8$ of the remaining cake. How much of the whole cake did they eat?

▶ 2. Give your child 35–40 fractions and mixed numbers to convert into decimals. Have your child round his/her answers to the nearest thousandth. Here are some sample numbers to get you started:

$\frac{1}{2}$	$\frac{2}{5}$	$\frac{8}{9}$	$\frac{3}{4}$	$\frac{1}{8}$	$\frac{4}{9}$	$\frac{13}{20}$	$\frac{5}{8}$
$\frac{7}{40}$	$4\frac{4}{5}$	$3\frac{2}{6}$	$6\frac{1}{3}$	$42\frac{1}{3}$	$1\frac{2}{9}$	$\frac{39}{40}$	$17\frac{3}{5}$
$\frac{14}{15}$	$32\frac{1}{8}$	$\frac{3}{50}$	$8\frac{1}{5}$	$2\frac{1}{4}$	$\frac{7}{12}$	$\frac{6}{25}$	$5\frac{21}{30}$
$\frac{16}{33}$	$\frac{2}{15}$	$\frac{3}{13}$	$4\frac{2}{7}$	$\frac{6}{17}$	$\frac{23}{25}$	$\frac{3}{11}$	$82\frac{3}{8}$

SCIENCE (Sound)

▶ 1. Sound waves can travel through solids, liquids or gases. Ask your child to recall swimming underwater in a pool and hearing the sounds around the pool. Explain that sounds travel much faster through solids than through liquids and much faster through liquids than through gases. Place a ticking clock on a table. Ask your child to listen to the sound by placing his/her ear on the same table. Then, have your child lift his/her head and listen again. Your child should observe that the ticking was louder when the sound traveled through the solid table than when it traveled through the air.

▶ 2. Have your child name some objects or devices used to increase the intensity of sound waves (amplifiers, microphones, megaphones, hearing aids, etc.). Explain that materials can also be used to muffle or decrease the intensity of sound waves, such as insulation, carpet, foam and fabrics. Acoustical tiles and materials are used in sound and recording studios, concert halls, radio and television stations and factories to absorb or soften sounds.

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▶ 3. Show your child a picture of someone using a megaphone and discuss the purpose of the megaphone. Next, have your child make a simple megaphone from a piece of poster board. Ask your child to stand in the corner of the room opposite from you. Speak softly without using the megaphone and then through the megaphone. Ask your child to describe the difference in your voice's audibility. Discuss the following questions:

When would you need to use a simple megaphone?

How could the megaphone also be used as a hearing device?

What part of a tuba, trumpet, trombone or bugle is similar to a megaphone? How?

▶ 4. An echo is a *reflection* of sound. Ask your child why he/she thinks a sound echoes off walls or the sides of a deep canyon. Explain that the echo or reflection of sound is called *reverberation*. In a large auditorium, materials are used on the stage and throughout the auditorium to control the reverberations of the sounds produced on stage. The expressions "the acoustics are poor" and "the acoustics are good" are used to describe how the sounds are controlled through the design of a building or the materials used. Some modern auditoriums have movable panels that can be adjusted to achieve the desired acoustic effect.

SOCIAL STUDIES (Latitude and Longitude)

▶ 1. The lines that stretch from the North Pole to the South Pole are called *lines of longitude*, or *meridians*. The lines of longitude tell how far east or west of the *prime meridian* (0°) a location is. The *prime meridian* is the imaginary line that passes through Greenwich, England. All lines of longitude are measured from the prime meridian in *degrees*. Everything west of the prime meridian is labeled *W* for west, and everything east of the prime meridian is labeled *E* for east.

▶ 2. The lines that go around the globe from east to west are called *lines of latitude*, or *parallels*. The lines of latitude tell how far north or south of the *equator* (0°) a location is. All lines of latitude are measured from the equator in *degrees*. Everything north of the equator is labeled *N* for north, and everything south of the equator is labeled *S* for south.

▶ 3. If there is not a labeled line of longitude going through a designated place, the map reader must note the nearest lines of longitude. Look between the meridians 70° W and 80° W. Trace your finger and count, "71°, 72°, 73°, 74°, 75°, 76°," etc. Teach your child to estimate the number of degrees to describe the location of a site between labeled lines of latitude or longitude.

▶ 4. Write some of the following cities on the chalkboard. Have your child name the latitude and longitude for each. Remind your child to indicate both the number of degrees and whether it is east or west of the prime meridian and north or south of the equator.
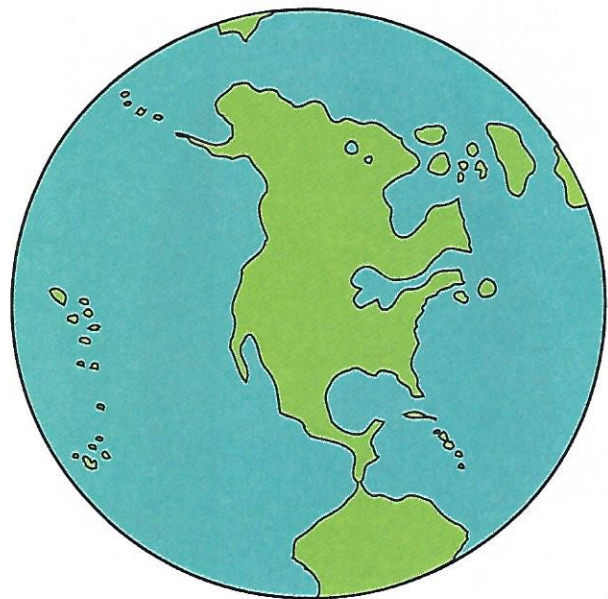
Los Angeles, U.S.A.	London, England	Wellington, New Zealand
Tokyo, Japan	Bangkok, Thailand	Santiago, Chile
Nairobi, Kenya	Teheran, Iran	Paris, France
Cairo, Egypt	Shanghai, China	Glasgow, Scotland
Baghdad, Iraq	Madrid, Spain	La Paz, Bolivia
Canberra, Australia	Prague, Czech Republic	Reykjavik, Iceland
Athens, Greece	Helsinki, Finland	Oslo, Norway
Quito, Ecuador	Karachi, Pakistan	Lisbon, Portugal

Malicious Monsters
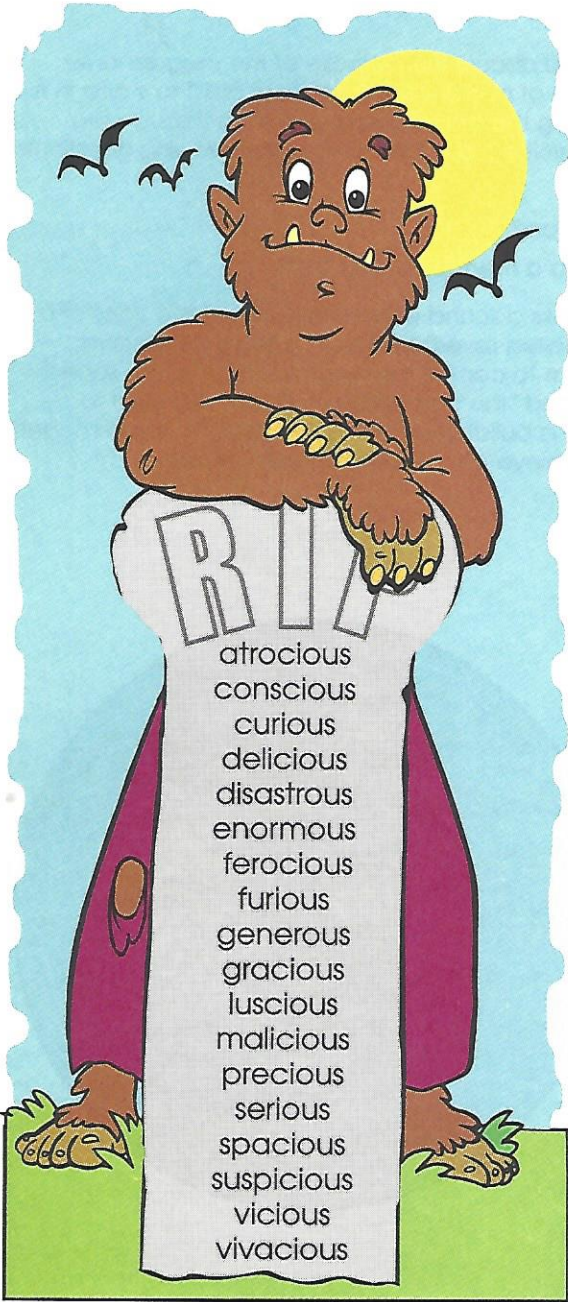
Use an adjective from the spelling list to describe each noun below. Both adjective and noun will begin with the same letter.

atrocious
conscious
curious
delicious
disastrous
enormous
ferocious
furious
generous
gracious
luscious
malicious
precious
serious
spacious
suspicious
vicious
vivacious

Adjective   **Noun**

Example:

1. ___precious___   princess
2. _____   cat
3. _____   limes
4. _____   sunroom
5. _____   villain
6. _____   Frankenstein
7. _____   gift
8. _____   dessert
9. _____   elephant
10. _____   situation
11. _____   felines
12. _____   violinist
13. _____   commitment
14. _____   act
15. _____   demonstration
16. _____   secret agent
17. _____   gestures
18. _____   mischief

Use four of the adjective/noun phrases above to create an interesting sentence that makes sense. **Underline** each phrase.

Example: Six ferocious felines and one curious cat sat in the senator's spacious sunroom eating delicious dessert.

_____

_____

_____

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Research Time

Mr. Write-A-Lot assigned research papers to his class. He divided the class into two groups. One person from each group was responsible for each part of the research process.

1. Marisha and John each found several books on their subjects. It took Marisha $2\frac{1}{2}$ hours to skim through her stack of books, and it took John $1\frac{3}{4}$ hours to look through his. How much longer did it take Marisha? _____

2. Neal and Geraldo were working on note cards. Neal was able to complete his in $48\frac{4}{6}$ minutes, and it took Geraldo $51\frac{3}{8}$ minutes to finish his. How much longer did Geraldo take? _____

3. Bobby and Gordon found it difficult to write outlines. It took Bobby $38\frac{2}{3}$ minutes and Gordon $36\frac{3}{4}$ minutes. How many more minutes did it take Bobby? _____

4. Anita finished the first draft of her report in $48\frac{1}{2}$ minutes, while it took Pablo $51\frac{3}{8}$ minutes to write his. How much longer did it take Pablo? _____

5. The final draft of their reports went smoothly for Katie and Laura. Katie zipped hers off in $18\frac{3}{4}$ minutes, and Laura's took $21\frac{1}{8}$ minutes. How much longer did Laura's final draft take? _____

6. Find out how long it took Marisha, Geraldo, Bobby, Anita and Katie altogether. Then, find out how long it took John, Neal, Gordon, Pablo and Laura. Find the difference between the two groups' times. _____

Extension: Subtract $2\frac{7}{8}$ from . . .

a. 4   d. $6\frac{3}{8}$

b. $5\frac{1}{8}$ e. $7\frac{5}{8}$

c. $8\frac{7}{8}$ f. $9\frac{6}{8}$

Fraction Test
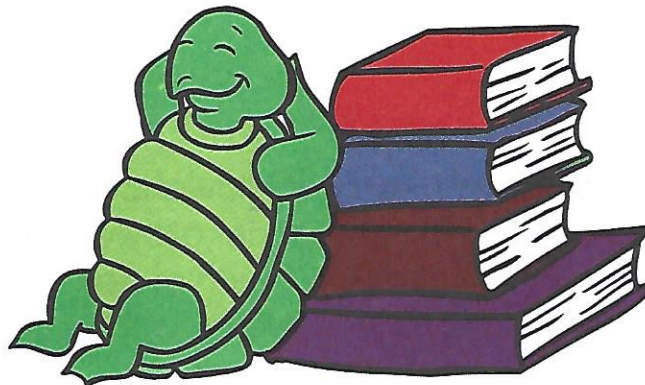
1. $\dfrac{1}{6} + \dfrac{4}{6} =$

2. $4\dfrac{1}{12} + 3\dfrac{2}{12} =$

3. $18\dfrac{1}{3} + 12\dfrac{1}{3} =$

4. $19\dfrac{1}{5} + 4\dfrac{2}{3} =$

5. $37 - \dfrac{3}{11} =$

6. $\dfrac{4}{5} - \dfrac{1}{4} =$

7. $\dfrac{4}{5} \times \dfrac{3}{8} =$

8. $\dfrac{5}{6} \times 15 =$

9. $4\dfrac{1}{4} \times \dfrac{2}{5} =$

10. $3\dfrac{1}{2} \times 2\dfrac{1}{3} =$

11. $7 \times \dfrac{3}{5} =$

12. $\dfrac{3}{7} \div \dfrac{4}{5} =$

13. $\dfrac{2}{3} \div 9 =$

14. $2\dfrac{6}{7} \div \dfrac{5}{14} =$

15. $\dfrac{1}{2} \div \dfrac{1}{3} =$

16. $7\dfrac{1}{3} \div 2\dfrac{2}{6} =$

17. Write $\dfrac{3}{5}$ as a decimal. _____

18. Leroy got $\dfrac{7}{8}$ of his 24 homework problems correct. How many did he correct? _____

19. Jean gave $\dfrac{3}{16}$ of her allowance to her sister and $\dfrac{1}{8}$ of her allowance to her brother. How much of her allowance did she give away? _____

20. Jack and Jill had a canteen full of 5 quarts of grape juice. They drank $3\dfrac{5}{9}$ quarts. How much was left? _____

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Panpipes

Sound is produced by **vibrations**. A column of air will vibrate when you blow across it. A short column of air will have a high pitch. A long column of air will have a low pitch.

Making the Panpipes

Take five pieces of tubing that are the following lengths: 6 inches, 5 inches, 4 inches, 3 inches and 2 inches. Lay the tubes in a row, arranging them from longest to shortest, about 1 inch apart. With the tops even, tape them together.
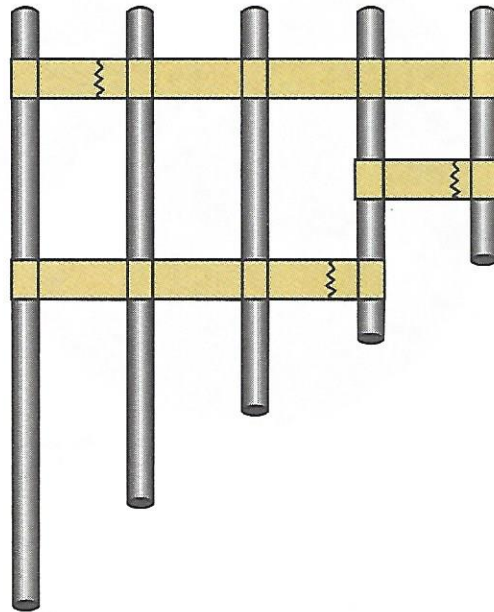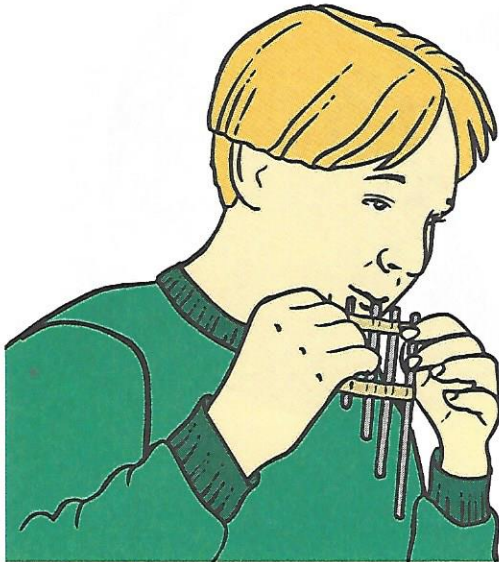
Playing the Panpipes

Blow across the top of each tube, like a flute player. Listen to the sounds. Which tube has the highest pitch?

_____

Blow across the tubes again going first in one direction, then in the other. Describe the sound.

_____

What do you think makes the pitch change?

_____

What would happen if you added and blew on a tube that is 1 inch longer than the longest tube already on your pipes?

_____

Hemispheres

The earth is a sphere. When the earth is cut in half along a vertical or horizontal axis, hemispheres are created. The **equator** divides the earth into the **Northern Hemisphere** and the **Southern Hemisphere**. The **prime meridian**, which runs from the North Pole to the South Pole, divides the earth into the **Eastern Hemisphere** and the **Western Hemisphere**.
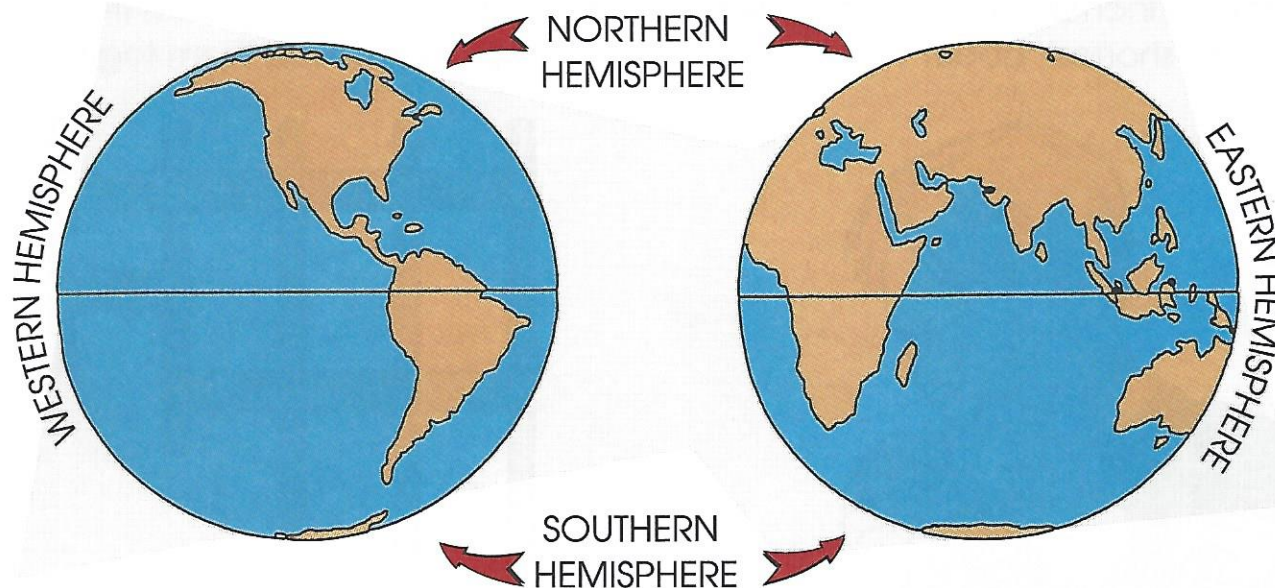
Study the illustration of the hemispheres. Then, read the following country names. Decide in which two hemispheres (Eastern or Western, and Northern or Southern) each is located.

Example: The United States lies in the Northern and Western Hemispheres.
Use a more detailed globe or map to find the exact locations of the countries.

1. Australia _____

2. India _____

3. Japan _____

4. Italy _____

5. Argentina _____

6. Ethiopia _____

7. South Africa _____

8. Mexico _____

9. China _____

10. Canada _____

11. Israel _____

12. Chile _____

13. Iraq _____

14. Peru _____

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Plotting North American Cities

Determine the approximate coordinates of the North American cities on the map above. **Write** the coordinates for each city in the blanks below.

	Latitude	Longitude		Latitude	Longitude
1. Seattle	_____	_____	2. St. Louis	_____	_____
3. Kingston	_____	_____	4. Toronto	_____	_____
5. Dallas	_____	_____	6. New York	_____	_____
7. Vancouver	_____	_____	8. Monterrey	_____	_____
9. Managua	_____	_____	10. Chicago	_____	_____

	Language Skills	Spelling	Reading
Monday	**Writing Paragraphs** Have your child choose a topic, make a plan for writing and begin working on a rough draft. Encourage your child to continue practicing writing strong paragraphs.	Select words from the past 8 weeks for this week's pretest. Have your child correct the pretest and make a list of any misspelled words. Have your child study the list this week.	Choose a nonfiction book as this week's reading selection. Introduce the book.
Tuesday	Descriptive writing is a way of "painting a picture with words." Some words describe how things look; others describe how things feel. Read several groups of descriptive phrases to your child. Ask him/her to guess what each group of words describes. Then, have your child write a descriptive paragraph about one of those topics. *See* Language Skills, Week 27, number 1.	Have your child use spelling words from the past 8 weeks to write tongue twisters.	Discuss the current reading book in a conference. Focus on purpose for reading. Why does your child think he/she is reading this particular book?
Wednesday	Discuss the editorial section of the newspaper. Have your child look at articles and letters on the editorial page as models of persuasive writing. Have your child choose a topic and write a persuasive essay. *See* Language Skills, Week 27, number 2.	Have your child write words from the past 8 weeks using colorful paint or markers.	**Outlining:** Help your child develop an outline based on this week's nonfiction book. *See* Reading, Week 27, number 1.
Thursday	Today, discuss explanatory writing. An *explanatory composition* states reasons for supporting an opinion. The opinion is stated in the topic sentence, the reasons for supporting it are discussed in the middle paragraphs and a conclusion is drawn in the final paragraph. Have your child write an explanatory composition based on given topic sentences. *See* Language Skills, Week 27, number 3.	Have your child look up the spelling words in the dictionary. Then, have your child write a sentence (on the index card) for each word in his/her word bank.	Take an existing outline and mix up the order of the headings and subheadings. Have your child arrange the headings in a meaningful order. *See* Reading, Week 27, number 2.
Friday	An expository paragraph may explain a fact or idea, give directions or define a term. Help your child select a narrow topic about which to write an expository paragraph. Encourage your child to choose a topic related to a current unit of study, such as sound, geography or rivers. The child may need to do some additional research before writing the paragraph.	Give your child the final spelling test.	Hold a reading conference to check your child's comprehension of the reading. Ask pointed questions to determine your child's level of understanding.

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Math	**Science**	**Social Studies**
Ratios and Percents Discuss the meaning of *ratio. See* Math, Week 27, numbers 1 and 2. *What is the ratio of females to males in your family?* Have your child compare that ratio to a friend's family. Discuss the value of using ratios. Have your child complete **Hhhmm?** (p. 274).	**Sound** Discuss the sounds of nature, such as wind, waves and thunder. What causes the sound in each case? (vibration) Explain how to calculate the distance of a thunderstorm by counting the time elapsed (in seconds) between the lightning and thunder, then dividing by 5. (Light travels faster than sound.) This gives you the distance in miles. *See* Science, Week 27, numbers 1 and 2.	**Latitude and Longitude** Answer questions about latitude and longitude. *See* Social Studies, Week 27, number 1.
Explain how to create equal ratios by multiplying or dividing each term by the same number. *See* Math, Week 27, number 3. Have your child complete the equal ratio problems in Math, Week 27, number 4.	Play recordings of common sounds in nature or make sounds in the classroom while your child shuts his/her eyes. Ask your child to identify the different sounds.	**Rivers:** Discuss why pioneers often settled along waterways. Water is important for drinking, cooking, cleaning and transportation. On a map of the U.S., have your child find a major river and count the number of major cities that lie along its banks. Have your child complete **River System** (p. 276).
Discuss the relationship between percentages and ratios. *Percent* is actually a number out of 100. Therefore, 25% is the same as the ratio 25:100. To convert a percent to a fraction, place the percent number over 100 and simplify to lowest terms. **Example:** $35\% = \dfrac{35}{100} = \dfrac{7}{20}$ Have your child convert several different percents to fractions.	Visit a radio or television station or a musical concert. Have your child prepare questions prior to the visit and write a summary or report after the visit.	Refer to a world map to locate important rivers of the world. Help your child identify where each begins and into what body of water each flows. Have your child refer to an atlas, encyclopedia or almanac to learn about ten important rivers, then make a chart to present the information. *See* Social Studies, Week 27, number 2.
To change fractions to percents, divide the numerator by the denominator. Then, move the decimal point two places to the right. Add the percent sign. *See* Math, Week 27, number 5 for an explanation of changing mixed numbers to percents. Have your child complete **Percents** (p. 275).	Have your child research deafness, hearing impairment, diseases of the ear and hearing aid technology. Introduce your child to Helen Keller and her achievements. Help your child learn to form some basic words using American Sign Language.	Have your child complete **River Cities** (p. 277).
Give your child practice comparing fractions, decimals and percents. Create a three-column, ten-row chart with the headings *Fraction, Decimal* and *Percent.* In each row, write a number in only one of the columns. Your child must find the other two forms for each number. **Example:** 0.05 Your child must find the fraction ($^5/_{100} = ^1/_{20}$) and the percent (5%).	Have your child make a concept map to review concepts learned in the unit on sound. Have your child write the word *sound* in the center of a sheet of paper, then write related areas of study on radiating arms around the word. Around each area of study, have your child add details about that particular area.	Arrange for your child to perform a community service. Have your child write in his/her Social Studies Journal.

TEACHING SUGGESTIONS AND ACTIVITIES

LANGUAGE SKILLS (Writing Paragraphs)

▶ 1. Read aloud the following groups of descriptive phrases. Have your child guess what each group describes.

crowd cheering, the loud "crack" of a bat, the smell of hot dogs

rising dust, bending trees, dark clouds

shaky knees, fast heartbeat, sick feeling in stomach

water splashing, sand between the toes, colorful shells

Have your child write a descriptive paragraph about one of these topics.

▶ 2. When a person wants to persuade others of a certain opinion, he/she must state the opinion clearly and back it up with strong arguments or evidence. It is important to understand the topic fully in order to write a well-organized and persuasive piece.

Give your child a list of common proverbs, such as those listed here. Have your child write a persuasive essay about one of the proverbs, arguing that it is indeed true or that it is completely false.

Look before you leap.　　　　　　　　You can't tell a book by its cover.

A dog is a man's best friend.　　　　　He who hesitates is lost.

▶ 3. Have your child write an explanatory composition around the following topic sentences. Have your child write a good paragraph with supporting sentences for each topic sentence. The completed paragraphs will comprise a composition.

Chewing gum is not allowed in school.

Chewing gum in class is disruptive.

People are careless about where they put their chewed gum.

It can be dangerous to chew gum while participating in strenuous sports.

The chewing gum rule was not made because teachers were mean, but because they care.

READING (Outlining)

▶ 1. Select a passage from this week's nonfiction book for your child to read. Once your child has finished the passage, discuss the reading. Help your child organize the information in the format of an outline.

▶ 2. The title of the following scrambled outline is "Dogs." Have your child arrange the headings to create a meaningful outline. Hint: There are three main topics.

Reasons for training	Grooming	Breeds	Brush teeth	Shots
Medical	Retrievers	Exercise	Setters	Guard dogs
Good manners	General care	Hunting game	Feeding	Spaniels
Guide dogs	Terriers	Wash and cut		

MATH (Ratios and Percents)

▶ 1. A ratio compares two or more quantities. Ratios may describe a variety of relationships. A recipe may use ratios. For example, 2 parts flour to 1 part water can be written as the ratio 2:1. A ratio may also describe probability. There may be a 4:1 chance that you will pull a blue sock out of a drawer of blue and white socks. Ratios may also explain rates such as the number of miles your car travels on a gallon of gasoline. A ratio may also compare quantities. For example, if an animal shelter receives 3 dogs for every 4 cats . . .

the ratio of dogs to cats is 3:4.　　　　the ratio of dogs to animals is 3:7.

the ratio of cats to dogs is 4:3.　　　　the ratio of cats to animals is 4:7.

▶ 2. Ratios may be written three (or more) ways: 3:4, 3 to 4, or $^3/_4$. Look for ratios used around the house, in the community and in the media. Make note of the various words used in the comparisons (to, for, per, etc.).

　　　　　　　　　　　　　　Learn at Home, Grade 6

3. Ratios name relationships, not specific numbers. If you look in your sock drawer and closet, you may discover that the ratio of pairs of socks to pairs of shoes is 5:2. That does not mean you necessarily have two pairs of shoes. Using the ratio, you can plot different numbers into an equation and come up with some different options. The equation is the same as for finding equivalent fractions. Write the ratio like a fraction. If you have 6 pairs of shoes, how many pairs of socks do you have?

socks $\frac{5}{2}$ x $\frac{3}{3}$ = $\frac{?}{6}$
shoes

The answer is 15 socks. 15:6 is an equal ratio to 5:2.

4. Copy or read aloud the following ratio problems for your child to solve.

   a. A baseball player has a ratio of 4 hits for every 10 times at bat. Using that ratio, how many hits would he have if he went to bat 20 times? 5 times? How many times at bat would he need to get 16 hits? 30 hits?

   b. The farmers' market sells apples at a cost of 5 for $1.00. How many apples can you buy for $6.00? How much does it cost to buy 20 apples? What is the cost for 1 apple?

   c. An airplane travels at 550 miles per hour. If the plane flies for 4 hours, how far has it gone? How long will it take to fly 3,025 miles?

   d. On vacation, a family drives at an average of 90 km per hour. At this rate, how long will it take to drive to the next stop 315 km away? How far will they travel every minute?

   e. A train travels 195 miles every 3 hours. How many miles per hour is the train traveling?

5. Mixed numbers can be converted into percents two ways:

   a. Change the mixed number to an improper fraction, then divide.
      Example: $4\frac{2}{3} = \frac{14}{3}$
      $14 \div 3 = 4.6666$ or 467%

   b. Or, multiply the whole number by 100% and add the percent calculated by the fraction.
      Example: $4\frac{2}{3}$
      $4 \times 100\% = 400\%$
      $\frac{2}{3} = .6666$ or 67%
      $400\% + 67\% = 467\%$

SCIENCE (Sound)

Give your child problems to solve using this simple formula. Here are two sample problems.

1. How far away is a storm if the time between the lightning and thunder is . . .

   a. 25 seconds?   b. 40 seconds?   c. 5 seconds?   d. 1 minute?

2. If a thunderstorm is 15 miles away, how much time should elapse between a streak of lightning and a rumble of thunder?

SOCIAL STUDIES (Latitude and Longitude)

1. Have your child find the answers to the following questions. Provide any necessary resources.

   Some lines of latitude have special names. What are they and where are they located?

   What country spans the greatest number of degrees of longitude?

   What country reaches the highest degree of south latitude?

   Where do all lines of longitude come together?

   Over what land and water bodies is the Arctic Circle drawn?

   What are the approximate coordinates of your hometown?

2. Have your child read about these important rivers: Amazon, Colorado, Danube, Ganges, Niger, Mississippi, Nile, Rhine, Volga and Yangtze. Have your child make a chart to present the information he/she has learned, including the location and length of each river, as well as where (lake, ocean) the river ultimately ends.

Hhhmm?

Find the answer to the riddle below by solving the following ratios. Put the corresponding problem letter above each answer below. When you have answered the riddle, **write** each ratio two other ways, then find two equivalent ratios for each one.

E.   tennis shoes to sandals _____

N.   bare feet to men's dress shoes _____

S.   high heels to tennis shoes _____

E.   sandals to bare feet _____

E.   men's dress shoes to high heels _____

A.   high heels to sandals _____

T.   bare feet to tennis shoes _____

A.   high heels to bare feet _____

D.   tennis shoes to men's dress shoes _____

H.   men's dress shoes to sandals _____

H.   bare feet to sandals _____

R.   sandals to high heels _____

H.   tennis shoes to high heels _____

D.   sandals to tennis shoes _____

T.   men's dress shoes to tennis shoes _____

H.   tennis shoes to bare feet _____

L.   high heels to men's dress shoes _____

A.   men's dress shoes to bare feet _____

A.   bare feet to high heels _____

H.   sandals to men's dress shoes _____

What do the four H's stand for in the 4-H Club?

___ ___ ___ ___ ,   ___ ___ ___ ___ ___ ___ ,
3:5 6:5 2:5 3:1   5:6 3:6 1:5 6:2 5:3

___ ___ ___ ___ ___ ___ ,   ___ ___ ___ ___ ___
1:6 1:2 5:2 2:1 1:3 6:1   3:2 2:6 5:1 6:3 2:3

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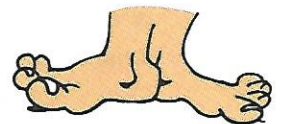
Percents

Convert these proper fractions and mixed numbers into percents. Show your work on another sheet of paper. **Write** your answers here.

1. $\dfrac{37}{100}$ =

2. $\dfrac{3}{100}$ =

3. $\dfrac{65}{100}$ =

4. $\dfrac{49}{100}$ =

5. $\dfrac{1}{4}$ =

6. $\dfrac{12}{100}$ =

7. $\dfrac{11}{50}$ =

8. $\dfrac{71}{100}$ =

9. $4\dfrac{1}{2}$ =

10. $3\dfrac{1}{4}$ =

11. $1\dfrac{3}{4}$ =

12. $\dfrac{2}{5}$ =

13. $\dfrac{3}{10}$ =

14. $\dfrac{63}{100}$ =

15. $\dfrac{1}{20}$ =

16. $\dfrac{1}{5}$ =

17. $\dfrac{17}{20}$ =

18. $\dfrac{57}{100}$ =

19. $\dfrac{3}{5}$ =

20. $\dfrac{1}{25}$ =

21. $\dfrac{7}{10}$ =

22. $5\dfrac{1}{4}$ =

23. $\dfrac{37}{50}$ =

24. $\dfrac{23}{100}$ =

25. $\dfrac{1}{2}$ =

26. $\dfrac{9}{10}$ =

27. $\dfrac{81}{100}$ =

28. $\dfrac{39}{100}$ =

29. $3\dfrac{3}{4}$ =

30. $\dfrac{73}{100}$ =

31. $\dfrac{7}{20}$ =

32. $9\dfrac{1}{2}$ =

33. $\dfrac{4}{5}$ =

34. $\dfrac{1}{10}$ =

35. $\dfrac{13}{20}$ =

36. $\dfrac{91}{100}$ =

37. $\dfrac{51}{100}$ =

38. $5\dfrac{1}{4}$ =

39. $\dfrac{11}{100}$ =

40. $\dfrac{3}{20}$ =

River System

The river systems of the world provide people with transportation, energy and fertile soil, as well as water for drinking, washing and irrigation. The terms below are used to describe a river system. Learn the meanings of these terms, then label the parts of the river on the illustration.

flood plain	delta	mouth
tributary	rapids	swamp
lake	levee	source

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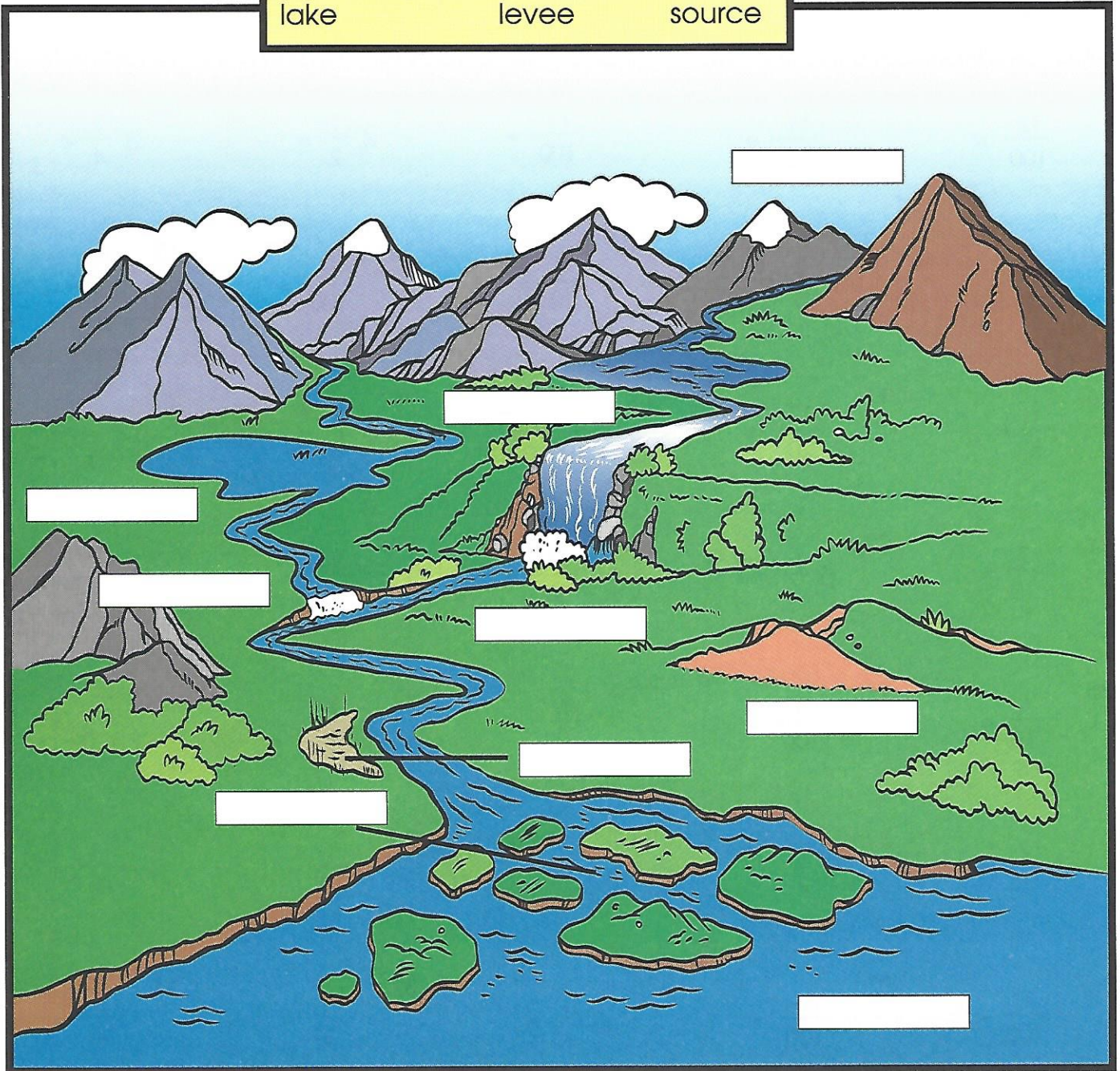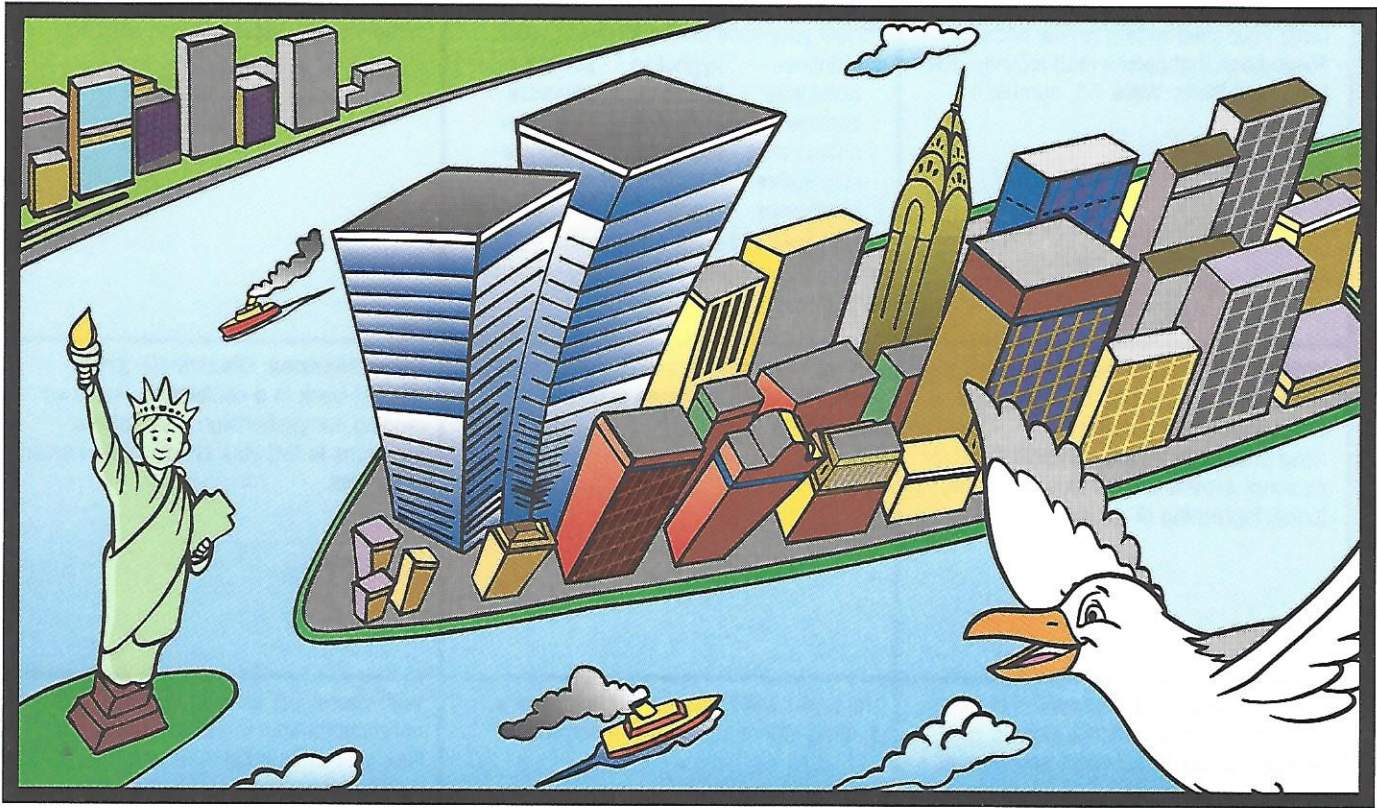
River Cities

Many of the world's great cities began as small towns and settlements along major rivers. Communities near water were easily accessible. Water was readily available for drinking, cooking, washing, irrigation and obtaining food. Use an atlas, almanac or encyclopedia to help you complete the chart.

River	City	Country	Continent
Mississippi			
	New York		
	Rome		
Nile			
	London		
	Buenos Aires		
Seine			
	Shanghai		