ISD Grade Level: 4th Grade ISD Content: ELA Week: April 20 – April 24





Work Page

Weekly Reading Journal

April 20th-24th, 2020

(o) Use the thinking strategy of asking questions during reading to strengthen understanding.

	Log your reading!	Express your reading!		
0	Book:	What is my reading goal?		
Mon. 4/20	Circle: Fiction Non–Fiction	What information did I gain reading today?		
W		Reading Rating		
1	Book:	What is my reading goal?		
Tues. 4/21	Circle: Fiction Non–Fiction	What information did I gain reading today?		
Ţ	Pages Today:	Reading Rating		
2	Book:	What is my reading goal?		
d. 4/22		What information did I gain reading today?		
Wed.	Circle: Fiction Non–Fiction Pages Today:	Reading Rating		
23	Book:	What is my reading goal?		
Jrs. 4/23	Circle: Fiction Non–Fiction	What information did I gain reading today?		
Thurs.	Pages Today:	Reading Rating		
	Book:	What is my reading goal?		
Fri. 4/24	Circle: Fiction Non–Fiction	What information did I gain reading today?		
Ē	Pages Today:	Reading Rating		

What are some things that stood out to you during reading? What did you learn that was new?





Choice Board Weekly Reading Skill

-Pick 1-2 activities per day to complete to practice questioning skills.

That's Questionable: Superb Stems! Dear Author... **BEFORE:** Write down As you read, complete the Write a letter to the question about your book following thinking stems: author with questions using each of the 5Ws plus you have about the How does the character feel H! (who, what, when, book or characters. This about ? where, why, how) What is the purpose of can be as you are AFTER: Go through your reading, or when you auestions and see how What does this tell me about finish the book. many you can answer now! 5 Interview Time! **PROVE IT!** Write down two or three Pick a character from your Read aloud story that you would like to possible questions you have interview, or ask questions. about your book. to someone Ask them some of the While you are reading, pause to write down where questions you have as you at home! are reading. Try to think of in the book your questions how they might answer were answered. those questions. В Before, During, & After Character Questions Stop Light Questioning Ask each type of guestion at each stage of your reading Explicit-get answers directly While reading, jot down and

within the text.

have in our schema.

we can find outside the text or

Abstract- get their answers from sources outside the tex

answer explicit, implicit and

abstract questions about

your text.

Ask Questions about your character as you read. Implicit -get answers from connecting the text to what

> Answer them as you have finished your reading.

April 20th-24th, 2020

Practice Page for April 20th

Read about the Arctic Fox. Using evidence from the text, write 2 facts about the arctic fox. Then, write an opinion statement you have about the arctic fox.

An Arctic Fox lives in the Artic regions of the Northern Hemisphere. It lives in northern Europe, northern Asia, and North America. An arctic fox has many adaptations that help it live in the cold climate. It has a thick fur coat that is brown in the summer and white in the winter to help it blend into the snow. The arctic fox also has fur on the bottom of its paws to help it walk on the ice.

The arctic fox also has great hearing! It can hear small animals moving under the snow. Then, it jumps towards the animal and punches through the snow to grab its prey. Arctic foxes normally eat small animals. These small animals include lemmings, voles, hares, fish, and birds. They are also scavengers and will eat dead animals that the larger predators leave behind.

Male and female arctic foxes are different sizes. The male arctic fox is about 22 inches in length and weighs about 7 pounds. The female arctic fox is about 20 inches long and weighs about 6 pounds.

Facts:

1.

2.

Opinion Statement:

<u>Related Words--April 20th</u>

Related words are words that share a root word and meaning.

Example: "On a cloudy day the sun will suddenly **appear** then **disappear**."

Root Word: appear

Below use the following two related words in a sentence. You may create two sentences if needed.

1. hid/ hide _____

2. dish/ dishes

Opinion Writing

Topic:	
Purpose:	
Opinion Statemen	t:
Use transition words o your opinion statemer	and phrases like because, therefore, since, for example, and for instance to link It to your reasons.
Reason #1:	
Concluding State	ment:

Lunch Time

Tyron looked at Vincent's lunch, then back at his. His mom had packed a bologna sandwich with stale Cheetos. Vincent's mom, on the other hand, had packed a delicious peanut butter & jelly sandwich with crisp Doritos and apple juice. "Doritos taste so much better than Cheetos," Tyron thought to himself. He thought ANYTHING would taste better than what he had.

Identify 2 facts and 2 opinions from the passage.

FACTS

OPINIONS

Definitions

Practice Page–April 21st

Directions: Read the definition, and write down the spelling word that relates to the definition.

	Answer Key	
honest nosy		noisy dine

1. to eat dinner.

2. showing too much interest in other people's activities.

3. truthful, real or sincere.

4. making a lot of noise.

Opinion Writing

Who makes better pets: cats or dogs? Write a persuasive letter to convince a friend or family member of your position. What are your reasons why?

Read the two different paragraphs. Identify the author's purpose and support your answer with proof from the text.

Vote for Carl for class president! Carl is a leader! Last year in fourth grade, he was a great vice president. This year he volunteers to help with after school clubs. He will do great things for our class! Carl promises more school dances and better choices at lunch. So vote for Carl for class president!	How to Hem Pants First, turn up the hem and press into place. Then, turn under a small edge on the inside of the hem. Press that, too. Next, pin the hem in place. Then thread a needle. Sew the hem in place. Use longer stiches on the inside and smaller stiches on the outside. That way, the stiches will barely show.
The author's purpose is	The author's purpose is
because	because

First Person Subject/Verb Agreement Practice

Circle the correct verb for the sentence. Write the subject on the line next to the sentence.

- 1) I go/goes to baseball practice every night.
- 2) We is/are late for school.
- 3) We ate/eats pizza for dinner.
- 4) I is/am ready for the party!
- 5) We have/has a new puppy.
- 6) I want/wants the new game.

Bonus Challenge:

Choose one sentence above and change the subject. Does the verb change with a new subject? Yes/No

For the first paragraph, write a Youtube advertisement to one of your grandparents on why a dog or a cat would be a better pet. For the second paragraph, write a Youtube advertisement to an alien on why a dog or a cat would be a better pet. *Remember to be thinking how each advertisement will be different depending on the audience*. What do aliens know about pets? What kind of animals do grandparents like? How could a cat or a dog help an alien or a grandparent?

Paragraph 1: (Grandparent)

Paragraph 2: (Alien)

Practice Page for April 23rd

Read the two different paragraphs. Identify the author's purpose and support your answer with proof from the text.

John dragged his feet and slowly walked	The month of February usually has 28	
home from school. Today had been the	days, except during leap years. Every	
worst day ever. At lunch, he spilled his	four years, the month of February will	
tray of food on the floor. During P.E., he	have 29 days. That means that there	
had struck out every time he went to	will be 366 days in a leap year instead of	
bat. He just knew he had done poorly on	365 days. 2016 is a leap year with	
his spelling test. Was it possible for this	February having 29 days. The next leap	
day to get any worse?	year will happen in 2020.	
The author's purpose is	The author's purpose is	
because	because	

2nd Person Subject/Verb Agreement

Look at the sentences below. Underline the subject and fill in the blank with the verb from the word bank that completes the sentence.Not all words will

be used.

- 1. You _____ blue candies the best.
- 2. You all _____ to go to the beach today.
- 3. You ______ enough tokens for the big prize!
- 4. You _____ your favorite shoes today.
- 5. You all _____ to study to pass the test.
- 6. You all _____ doing a great job!

<u>Word Bank</u> İS	are	need	needs	has	have
like	likes	_	want		wear
			wore		

Sea Turtle Citations Paraphrasing & Direct Quotes

Paraphrase

-translate the author's words into your own words

-use your own writing style and voice

-avoid plagiarism



Direct Quotation

-copy author's words directly from the text

-include quotation marks

-credit the author

Title: Sea Turtles

Author: Jane Robertson

Page: 7

Sea turtles are a group of turtles that are adapted to living in the ocean. They live in every ocean except the Arctic Ocean. There are only seven living species of sea turtles and all of them are endangered species. The seven species are: flatback sea turtles, green sea turtles, hawksbill sea turtles, Kemp's ridley sea turtles, leatherback sea turtles, loggerhead sea turtles, and olive ridley sea turtles. Sea turtles spend most of their time underwater. They breathe air, but can use anaerobic metabolism if they need to stay underwater longer. Sea turtles can take one huge, fast breath to fill their lungs. When they need to come up for air, they can do so quickly and stay away from danger.

Directions: Write <u>P</u> for paraphrase or <u>DQ</u> for direct quote on the blank line next to each citation.

1. In the book *Sea Turtles*, Jane Robertson explains that, "sea turtles can take one huge, fast breath to fill their lungs." _____

2. I learned that seven types of sea turtles are still alive today.

3. On page 7, the author states, "There are only seven living species of sea turtles and all of them are endangered species." _____

4. Based on what I read in *Sea Turtles*, I know that sea turtles are able to live in all of the oceans in the world except the Arctic Ocean. _____

Directions: Refer to the sentences above to see how to accurately paraphrase and quote text.

5. Do sea turtles breathe air? Paraphrase the author's words in your answer.

6. What is one interesting fact about sea turtles? Use a direct quote in your answer.



Eating in Egypt

Suppose you lived thousands of years ago in Ancient Egypt. What would you have eaten? Like all Ancient Egyptians, you would eat bread with every meal. Garlic bread, raisin bread, and nutbread were three favorites. Egyptians also ate a lot of fruit including figs, dates, and pomegranates. Vegetables were also part of their diet. Lettuce, beans, onions, cucumbers, and leeks were all popular.

what is the author's purpose for writing this passage?

- a) To persuade readers that Egypt is the best place for a vacation.
- b) To inform readers about what Ancient Egyptians would have eaten.
- c) Persuade readers that Ancient Egyptians ate better than anyone else in the world.
- d) Entertain readers with a story about dinner time in Ancient Egypt.

Write one fact from this passage.

What is your opinion about the eating in Egypt?

Subject/Verb Agreement Practice

Write the form of the verb that agrees with the subject.

Ex.) (to run) Johnny runs to the pool.

- 1. The students _____ Pokemon cards. (to collect)
- 2. Angela ______ ketchup on her fries. (to put)
- 3. He ______ that I am a good friend. (to think)
- 4. I ______ to go to the mall. (to want)
- 5. I ______ to my parents after school. (to talk)
- 6. They ______ to have a surprise party for their mom. (to plan)
- 7. She ______ very quickly! (to type)
- 8. The teacher ______ the students take their test. (to watch)
- 9. We _____ milk with our breakfast. (to drink)

Cite and Explain Your Evidence #1

Literary Response Essayists state an opinion that they can support with strong evidence. They also explain why their evidence matters. Let's take a look at an example of this.

Example

Claim: In Gary Soto's short story "The Marble Champ," Lupe learns that with determination and hard work, you can overcome difficulties and accomplish your goals.

Evidence: On page 37, Soto emphasizes Lupe's dedication when he writes, "... she realized that she had only two weeks to practice." This shows the reader that this story took place in two weeks.

Explanation of Evidence: The author wants the reader to pay attention to the time it took Lupe to learn how to play marbles. At the beginning of the story, Lupe had never played marbles. After only two weeks, Lupe became a champ at this game as a result of practicing every day, even when she was tired.

Directions: Take a close look at the example as you complete the following tasks.

- 1. Highlight the punctuation that the writer used when she wrote the name of the story.
- 2. Highlight the punctuation that the writer used when she quoted the text.
- 3. Circle the ellipsis.

Directions: Now, it's your turn! Record the title and author of your text. Then, write your claim.



ISD Grade Level: 4th Grade ISD Content: Social Studies Week: April 20 – April 24





Work Page

Types of Savings- April 20, 2020

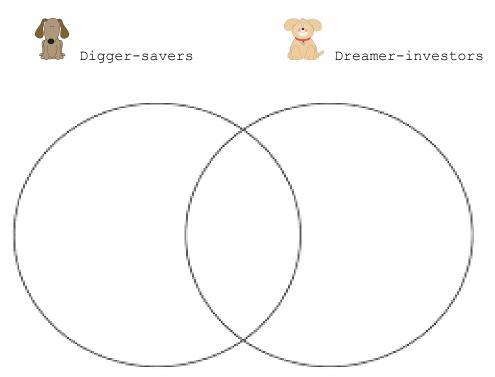
Savings—money deposited in an account at a bank or credit union. The money earns a stated amount of interest.

Investing- putting money into a business in the hopes of earning a long-term profit

Directions: Read this story then fill out the venn diagram.

Pretend you owned two big dogs, Digger and Dreamer. Each of the dogs went to work every day at the We Dig Holes company. Digger was a very good worker. He loved digging holes. Every day he dug exactly five holes and every day he earned exactly \$5, which he brought home to you. Dreamer also loved digging holes, but he also liked to take naps under the big shade tree. So on some days Dreamer dug six holes and earned \$6, which he brought home to you. Some days he dug eight holes and earned \$8. And one day he even dug 10 holes and earned \$10. However, on some days instead of digging holes, Dreamer napped under the big shade tree. And on those days, Dreamer didn't earn any money, and he didn't bring any money home to you. But at the end of every day, Digger and Dreamer both give you big, sloppy, wet dog kisses, and you just laugh while you give them their favorite doggy treats.

Digger and Dreamer are a lot like savers and investors. Like Digger, savers put their money to work in a bank or credit union, where it earns the same amount of money every day. But like Dreamer, investors put their money into businesses to help them grow and be successful. Sometimes the businesses are very successful and the investor earns a lot of money. But if the business doesn't do well, the investor may not make any money and could even lose all the money that he put into the business.



Types of Investments- April 21

Stocks - Stocks represent ownership in a company. You can buy stock in all sorts of companies like Coca Cola, Apple, and Walmart. The hope is that the company will be profitable and grow. Then the value of the stock will go up and your money will grow, too.

Mutual Funds - Mutual funds are like stocks. A mutual fund represents a group of stocks. When you buy a mutual fund you are investing in a group of stocks. This is a way to invest in a number of different stocks, but not have to buy a bunch of individual stocks.

Bonds - A bond is sort of like a loan. When you buy a bond you are lending your money to a company or government. Bonds can pay higher interest than a bank account, but also come with more risk.

Real Estate - A lot of people invest in real estate. This can be buildings or land. The biggest investment many people make is when they buy their home.

Bank - One of the most conservative investments is with the bank. This might be with a savings account, a money market account, or a CD. With the bank you get some security, but the return is low.

Gold - Precious metals such as gold are often used as investments.

- 1. A _____ is sort of like a loan. 2. Mutual Funds are like ______.
- 3. At a _____ you can open up a savings account.
- **4.** ______ is ownership in a company. You can buy stock from companies like ______ and ______.
- 5. Name all the different types of investments. (Hint: there are 5) _____

Risk and Reward- April 23

Before investing your money, you will have to understand the important concept of risk and return. Risk and return means that the returns you will get when investing your money will vary. You may even lose money. However, no matter what you do with your money, you are always taking some amount of <u>risk</u>. If you keep your money at home, you <u>risk</u> that it could be lost or stolen. If you place your money in a bank account, you <u>risk</u> that the returns that you get will not be high enough.

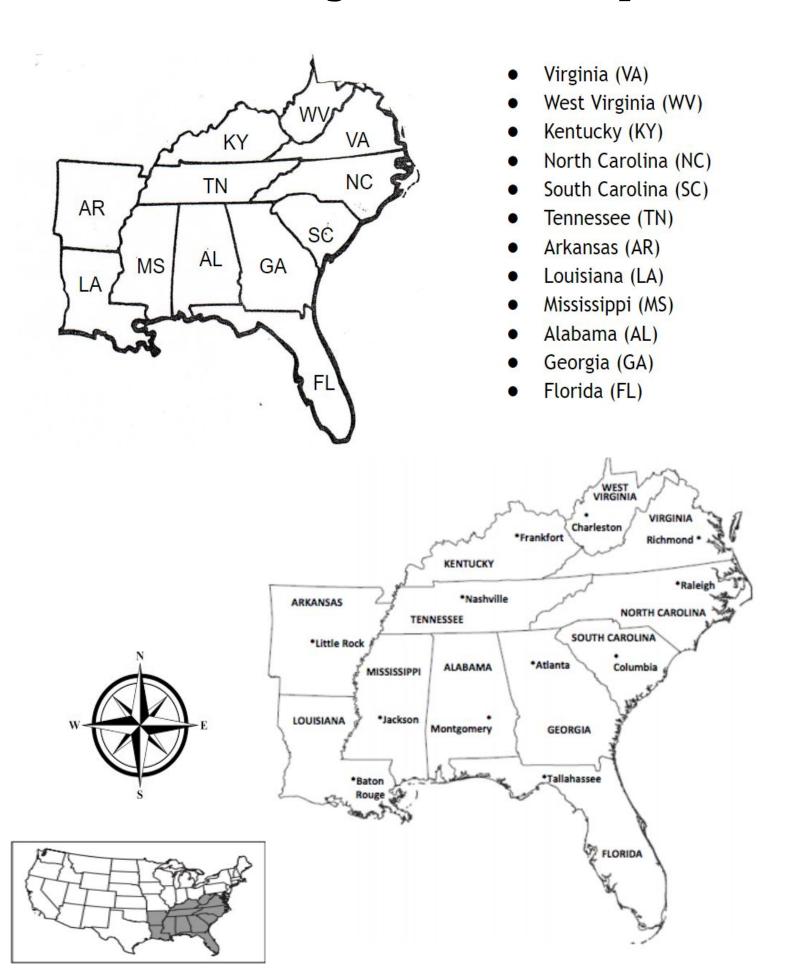
Risk and reward also means that if you take greater risks, you should expect to get greater <u>rewards</u>. If you want the possibility of getting greater <u>rewards</u>, you need to invest your money in more risky investments, for example bonds or stocks. Different bonds and stocks even have different degrees of risk.

From: Moneyinstructor.com

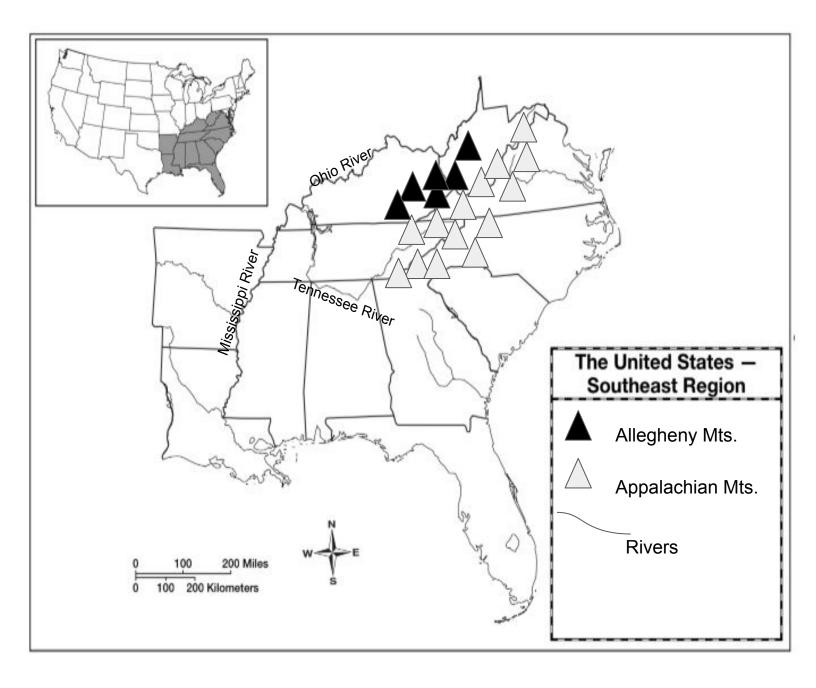
Directions: Draw a picture about what risk and reward means when you invest your money. <u>Remember</u> \rightarrow Risk: possibility of loss, Reward: money you earn from your investment

Risk	Reward

The Southeast Region--States & Capitals



The Southeast Region--Rivers and Mountains



The Southeast Region

Label and color the map using the information from the labeled map of the Southeast Region states and capitals.



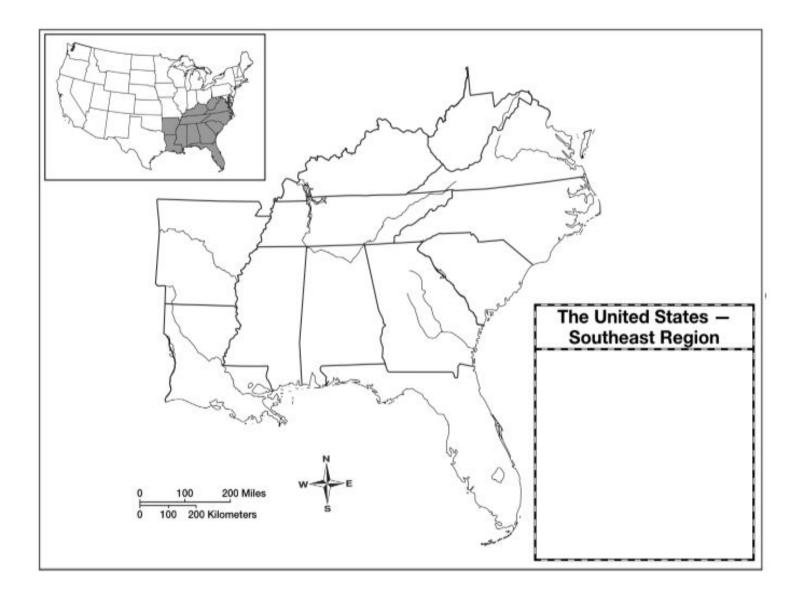
- Raleigh
- Nashville
- Richmond

- Virginia (VA)
- West Virginia (WV)
- Kentucky (KY)
- North Carolina (NC)
- South Carolina (SC)
- Tennessee (TN)
- Arkansas (AR)
- Louisiana (LA)
- Mississippi (MS)
- Alabama (AL)
- Georgia (GA)
- Florida (FL)



The Southeast Region

Label and color the map using the information from the labeled map of the Southeast Region rivers and mountains. Don't forget to label the legend/key!



The Southeast Region

Using the bank of words, complete this word search by looking for Southeast Region words.

DVIRGINIAINIGRI VT S E W G KNARFDQKANAI S Ι U 0 T R O F L VV S N POE FCNYKCORE L T T Τ L NCNVWPN LX W OB DJC J Z E H Z G HCAROLINAPAW N 0 R T L P P Х 0 S S E E F N HOKKCN Μ J T E N N Ε L 0 L A N Т A A W A 0 U A T Μ E G K 0 D D L L Ι J Μ P Ζ G H NW S R D E D PK B K F М 0 Ι L Ι N B C T AON LV H AOK V C F \mathbf{Z} Z X S S I U Z NA I Μ BNR A J R В U L C 0 H Ι K MR P Х Ι INN 0 C D F C AW 0 В P L K T E H LA M L G S G Ε S S A AL LA T Τ Y T R I Ι Ι Z W N Α B V S 0 A F J A P A S T S 0 D Т Μ Z AR MO N G Μ E R Y N G Х 0 F A В C H A R L E S т J S F 0 N В E 0 Y P I S S I S S I H XC JC Ι P Ι B J М 0 F H Κ J S W N т R R v т W VB D J Κ P М R \mathbf{Z} R Y K A T L A R Т B N R H Т E 0 0 U E G G H P JQU T E J Z E H T D N Μ E H M 0 Τ F LLERODPU ASHV Ι F J N E R A U E SMIKMKGZOLAYSEDLQSBOZ

West Virginia	South Carolina	North Carolina	Virginia
Florida	Georgia	Alabama	Mississippi
Kentucky	Louisiana	Arkansas	Tennessee
Charleston	Columbia	Raleigh	Richmond
Tallahassee	Atlanta	Montgomery	Jackson
Frankfort	Baton Rouge	Little Rock	Nashville

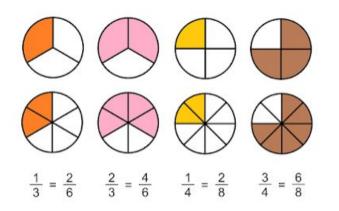


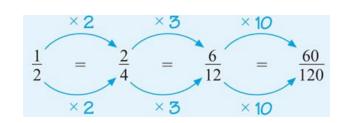
Work Page

ISD Grade Level: 4th Grade ISD Content: Math Week: April 20 – April 24



Choice Board 4th Grade /Math Equivalent Fractions





Name an equivalent fraction to 5/10?	True or false? 1/3=3/9 Why?	Draw a model of 2/4 and 4/8. Are they equivalent?
	Explain to someone in your house how to find an equivalent fraction.	Name an equivalent fraction to 2/6?
True or false? 1⁄2=3⁄4 Why?	Draw a model of 6/12 and 6/10. Are they equivalent?	

Math Geometry

Education.com

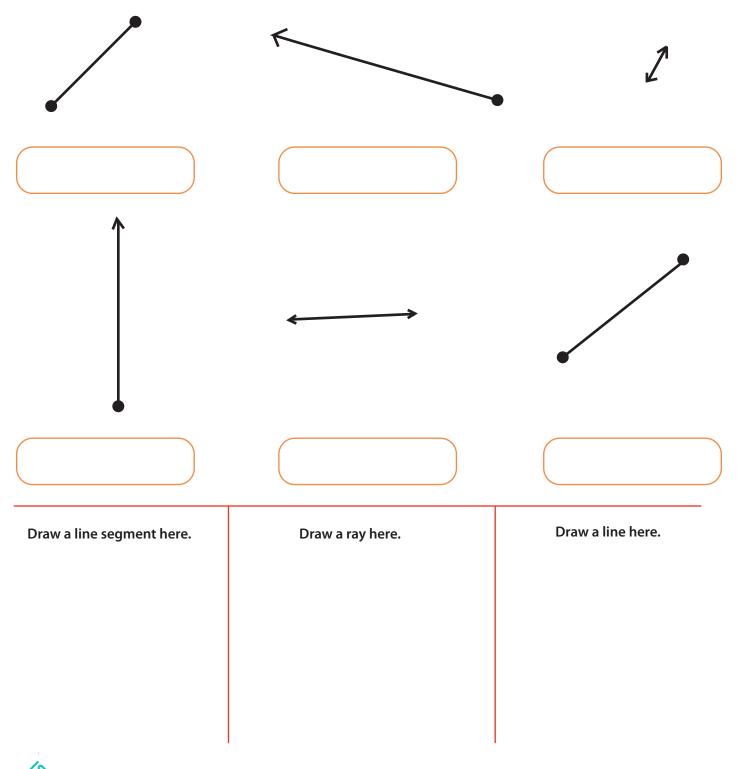
April 20–4th Quarter Lines, Line Segments, and Rays

A line is a path that extends in two directions with no end.

A line segment is a path that has two fixed end points.

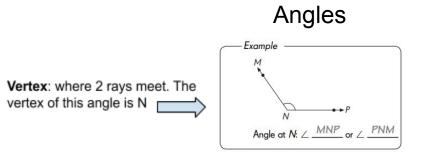
A ray is a path that has one end point and extends infinitely in the other direction.

Look at the pictures below. Label them whether they are lines, line segments, or rays.



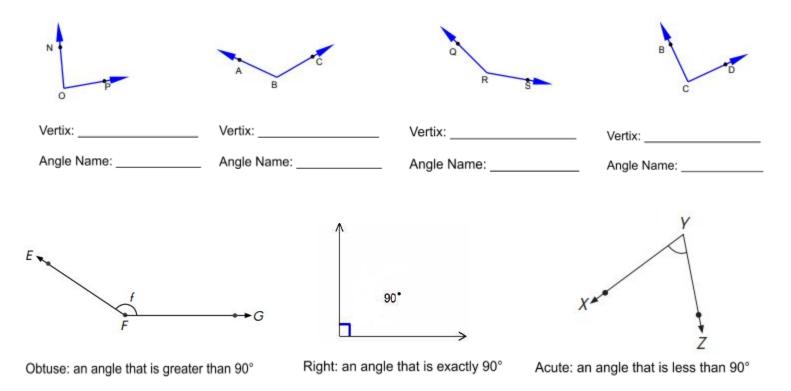
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$\frac{1}{20} \text{ math } \textbf{T} = \text{mode}$	el Place Value Relations	511175710		
ind the value of the unde	erlined digit.			
1. 26 <u>4,</u> 769	2. <u>6</u> 4,876	3.	132,95 <u>5</u>	
4. <u>8</u> 0,352	 5. <u>3</u> 48,147	6.	21, <u>3</u> 61	
ompare the values of t	he underlined digits.			
7. <u>3</u> 0,000 and <u>3</u> ,000	The value of 3 times the value			
8. <u>6</u> 0 and <u>6</u> 00	The value of 6 times the value			
olve.				
9. Alicia has walked 4,310 feet and Jessica has walked 3,297 feet. How many times as great as the value of 3 in 4,310 is the value of 3 in 3,297?				
10. Jason has slept 5,040 minutes this week. Tonya has slept 4,670 minutes this week. How many times as great as the value of 4 in 4,670 is the value of 4 in 5,040?				



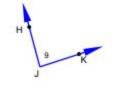
Angle Name: start with either end of the angle and list the points. This angle has two names: MNP or PNM. The vertex is ALWAYS in the middle of the name.

Write the vertex name and angle name for each of the following angles.

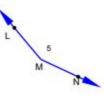


Identify whether the angle is obtuse, right, or acute.











Mixed rounding: round numbers to the underlined digit

Grade 4 Rounding Worksheet

Example: 4,689 rounded to the nearest 1,000 is 5,000

Round to the accuracy of the underlined digit.

1.	5 <u>6</u> ,914 =	2. 77, <u>4</u> 53 =	3. 6 <u>3</u> ,678 =
4.	1 <u>9</u> ,113 =	5. 1 <u>5</u> ,003 =	6. 33,5 <u>7</u> 5 =
7.	33, <u>4</u> 46 =	8. 8 <u>4</u> ,822 =	9. 95, <u>1</u> 50 =
10.	49,3 <u>3</u> 2 =	11. <u>3</u> ,655 =	12. 97,7 <u>2</u> 2 =
13.	59,8 <u>9</u> 9 =	14. 3 <u>2</u> ,420 =	15. 20,1 <u>5</u> 1 =
16.	2 <u>1</u> ,391 =	17. 7 <u>5</u> ,705 =	18. 57, <u>3</u> 11 =
19.	6 <u>7</u> ,195 =	20. 77, <u>3</u> 03 =	21. 9 <u>0</u> ,205 =

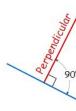
It just means at right angles (90°) to.

The red line is perpendicular to the blue line:

Perpendicular and Parallel Lines

Parallel

Perpendicular



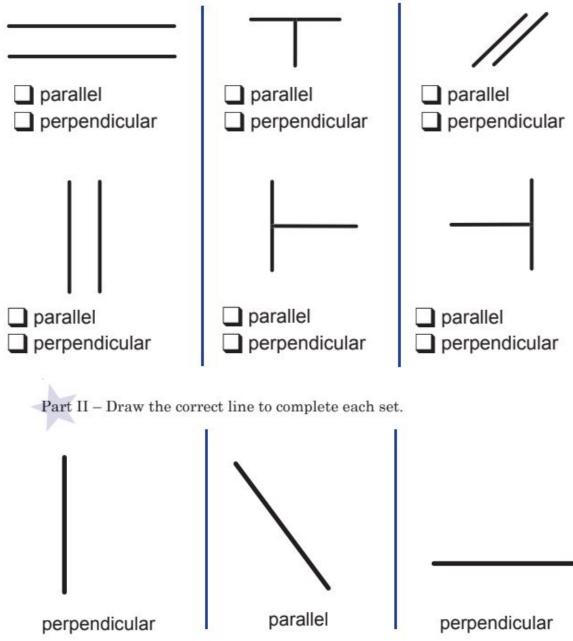
Lines are parallel if they are always the same distance apart (called "equidistant"), and will never meet. (They also point in the same direction). Just remember:

Always the same distance apart and never touching.

The red line and blue line are parallel in both these examples:

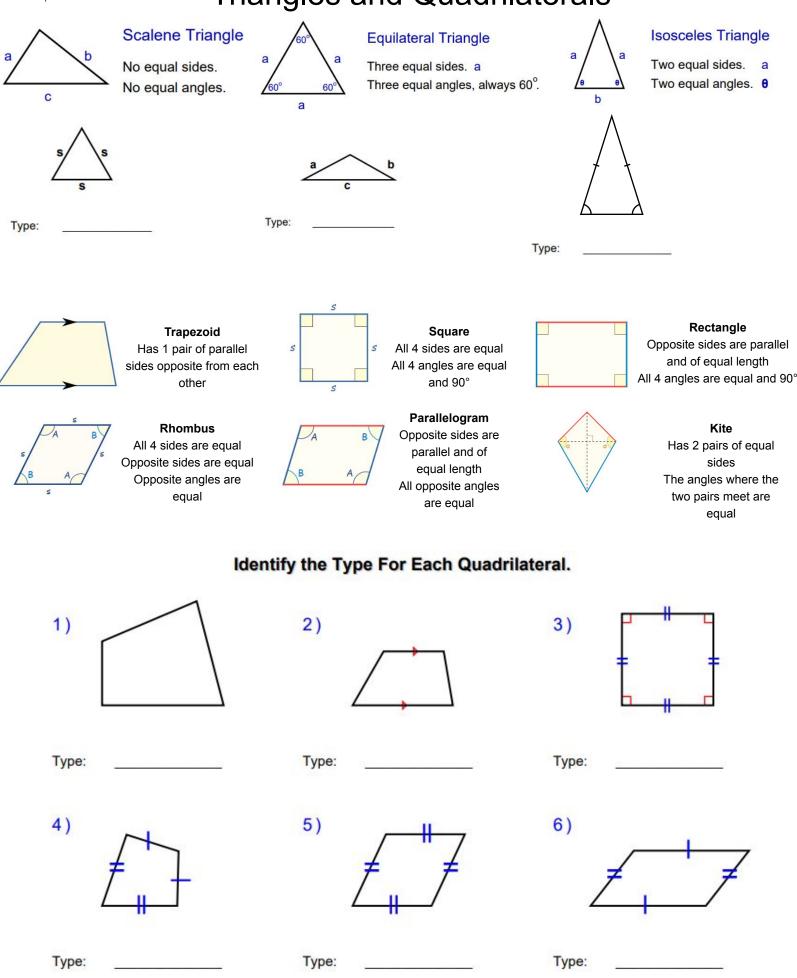


Part I – The following sets of lines are either parallel or perpendicular. Check the correct box for each set of lines.



Place Value (A)			
W	What is the value of each underlined digit?		
6 <u>8</u> 6,529	179,0 <u>0</u> 8		
230, <u>9</u> 23	317, <u>6</u> 68		
32 <u>5</u> ,094	2 <u>9</u> 4,271		
537,3 <u>0</u> 8	<u>5</u> 14,766		
<u>4</u> 00,059	<u>6</u> 80,371		
128,3 <u>3</u> 1	421,72 <u>3</u>		
<u>9</u> 21,008	918,2 <u>5</u> 0		
<u>9</u> 49,902	<u>6</u> 74,782		

April 23rd-4th Quarter Triangles and Quadrilaterals



Place Value (E)		
What is the value of each underlined digit?		
3 <u>1</u> 9,510	$668, \underline{4}48$	
9 <u>3</u> 6,703	88 <u>7</u> ,913	
813, <u>3</u> 11	845, <u>7</u> 11	
, <u>-</u>		
552 015	<u>3</u> 56,408	
552,9 <u>1</u> 5	<u> </u>	
5 01 40 <i>C</i>	504.000	
501,40 <u>6</u>	524,29 <u>6</u>	
342,410	905, <u>9</u> 44	
521,6 <u>5</u> 5	927, <u>6</u> 85	
619,6 <u>7</u> 7	388,4 <u>5</u> 2	

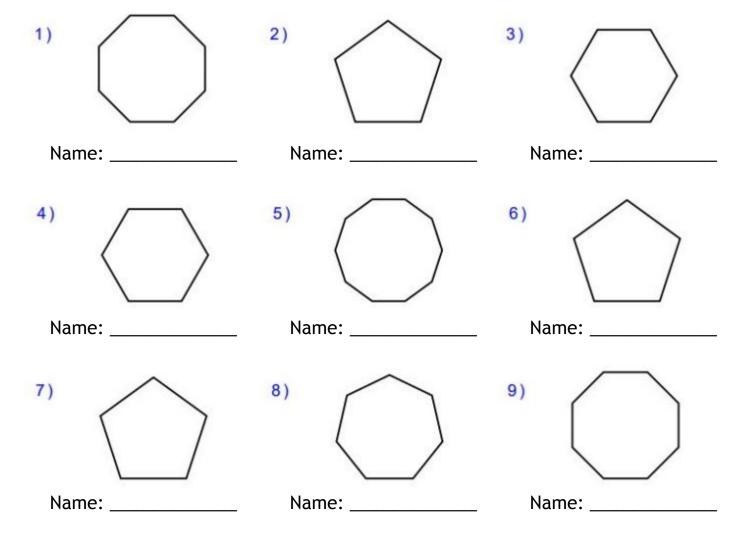
<u>-agon</u>	<u># of Sides</u>
Pent	5
Hex	6
Hept	7
Oct	8
Non	9
Dec	10

Polygons

A polygon is a many sided shape that can have any number of sides. To be a polygon, it only has to be a closed shape. When all the sides are the same length, we call it a **regular** polygon.

We can be specific about how many sides. We change the prefix to show the exact #.

Use the chart to the left to name the following regular polygons.



Draw and name three irregular (The sides are not the same length) polygons.

Word Problem Practice

Building blocks on the playroom floor are lined up carefully in 8 rows with 10 building blocks in each row.

- A. How many building blocks are there altogether?
- B. There are 5 rows of 6 toy cars lined up on the shelf. How many more building block than cars are there?

Word Problem Challenge

There are 825 girls and 763 boys in a school. Including adults, the total number of people in the school is 2,031. How many adults are in this school?

ISD Grade Level: 4th Grade ISD Content: Science Week: April 20 – April 24





SOUND ENERGY AND THEIR WAVES

Read through the information below, then answer the questions that follow.

All sounds begin with vibrations. When vibrations bump into air molecules, those molecules alternate between a series of rarefactions (fewer particles spread out in a low pressure area) and compressions (many particles packed closely together in a high pressure area). This creates waves, which carry sound energy. In the BrainPop video "Sound", Tim and Moby show an example with a cymbal from a drum set. When the cymbal is struck, the object begins to vibrate rapidly. As the cymbals move back and forth, they begin to create longitudinal waves, quickly alternating between rarefactions and compressions (which can be show in a series of peaks and dips - almost like a wavy scribble). This creates the sound we hear as the cymbal is struck. If the cymbals are played in an area surrounded by hard, smooth surfaces, such as a cave, the sound will bounce off those surfaces and create an echo. This is when the sound is heard repeatedly.

Now, imagine that you are shouting to a friend standing at the opposite end of a long tunnel. Use what you've learned today to explain how sound travels from your mouth to your friend's ears. Try using the terms listed in the word bank.

compression	rarefaction	wave	echo	molecules	
	YOU SHOUT YO	UR FRIEND	'S NAME.		
		-			
		-			
		-			
	E SOUND REACH				

Read the article and answer the questions.

SPEED OF SOUND AND STATE OF MATTER:

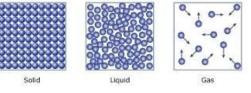
Sound travels at different speeds through different states of matter. The particles in each state of matter look different. The particles in a solid are packed tightly together, so when sound vibrations hit a particle, the particles collide sooner allowing sound to travel faster. Think back to the marble experiment in the sound video on the previous page. Particles in a gas are spread far apart, so it takes longer for one particle to collide into another. This is why sound travels the slowest through gas.

SPEED OF SOUND AND TEMPERATURE:

The temperature of a medium (solid, liquid, and gas) also affects how fast sound can travel. In warmer air, particles move around quickly, causing them to collide more often. This helps sound travel faster. In colder air, the particles moves slower, causing them to collide less often. This is why sound travels slower in colder temperatures.

SOUND IN SPACE:

Space is considered a "vacuum" or an area that has few or no particles. Since space has very few particles, there are no mediums (solids, liquids, or gas) for sound to travel through. This is why sound cannot travel in outer space. If an astronaut took of their helmet and try to talk, no one would hear them. They must use radios and can only hear it through the air in their helmets.



Sound and How It Moves

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Write the letter of the correct match next to each problem.

Created on TheTeachersCorner.net Match-up Maker

a. Sound can travel quickly because the particles are moving faster and colliding

1	mediums	more often.
2.	gas	b. solids, liquids, and gas
3.	solid	c. a back and forth motion that creates sound
4	outer space	 d. Sound travels quickly through this medium because the particles are packed tightly together and collide more often.
5.	warmer temperatures	e. a series of rarefaction and compressions traveling through a substance
6.	colder temperatures	 Sound travels slowly through this medium because the particles are far apart and collide less often.
7.	vibrations	g. Sound travels slower because the particles are moving slowly and colliding less often.
8	sound waves	 h. Sound cannot travel here because there are no mediums for it to travel through.

ECHOLOCATION : IN REAL LIFE

Read the article & answer the corresponding questions.

The **echolocation** used by bats is similar to **S.O.N.A.R**, a technology used by boats & submarines to navigate and detect other marine craft and even measure depth!

Sonar devices bounce a sound pulse, called a **ping**, off a target object & then "listen" for it's echo. The time it takes for the echo to be detected tells you how far away the object is!

Interestingly, the invention of sonar was prompted by the sinking of the Titanic in 1912! One month after that disaster, British meteorologist Lewis Richardson filed a patent for an underwater echolocation device.

Back then, all ships had to detect the presence of icebergs were humans spotters. While you still need a human to look at a sonar display and interpret what it's saying, it's a much safer system than simply looking for icebergs, rocks and reefs with our human eyes!

WHY was S.O.N.A.R invented?	WHAT historical event prompted its invention?	HOW is it useful to humans today?

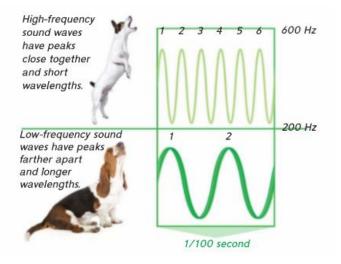
Comparing Wavelength FREQUENCY & PITCH

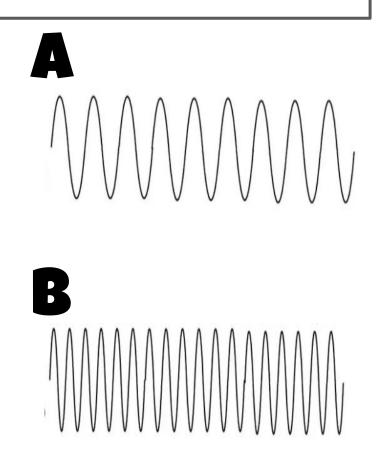
Circle your answer.

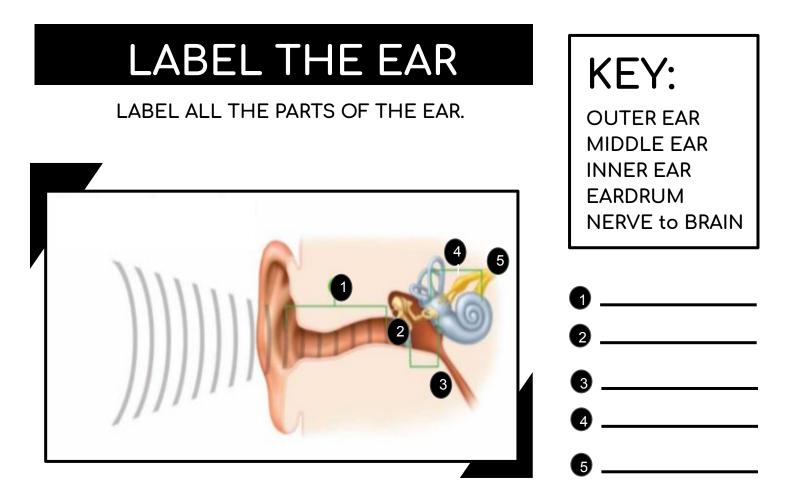
Which of the two images shows the higher frequency with the higher pitch? **A** or **B**

Which of the two images shows the lower frequency with the lower pitch?

Use this information to help you!







Definitions:

OUTER EAR: collects sound waves. Like a funnel, it directs sound waves to the ear.

EARDRUM: sound waves make the eardrum vibrate like the head of a drum.

MIDDLE EAR: vibrations are picked up by tiny bones in the middle ear: the hammer, anvil & stirrup.

INNER EAR: the stirrup passes vibrations to a tube in the inner ear filled with fluid & lined with tiny hair cells.

NERVE to BRAIN: moving hair cells signal a nerve in the ear & carries to the brain. The brain interprets it as SOUND!













