Christina School District Assignment Board

Grade Level: 6th

Week of May 4th, 2020

		Day 1	Day 2	Day 3	Day 4	Day 5
ELA		*This week we will explore persuasive rhetoric.* *Read and complete the Persuasive Techniques in Advertising sheet.* *****On the Identifying Persuasive Techniques*** *in the box identify the persuasive technique used and your rationale for choosing the technique.*	*Review your notes from Day 1. When authors and advertisers write they always have an audience in mind. Revisit the* ***Identifying Persuasive Techniques sheet.*** *In the box identify the audience. Who is the advertiser speaking to? Review the* ***Demographics*** *sheet and complete the exercise.*	*Complete the* ***Analyzing Ads*** *sheet. Once complete analyze your data. In 1-2 paragraphs respond to the following. What do you notice? Compare and contrast the commercial shown on the two Networks. Explain whether or not the commercials matched the target audience for the show. Give specific examples of products, considering whom the products were intended. Finally, examine the commercials for your demographic. Did the commercials appeal to you, why or why not?*	*Choose one (or both) of the articles to read. As you read mark the ethos, pathos, logos and other persuasive techniques used by the author. In a paragraph identify the writer's claim and supports. What is the writer supporting, who is the target audience, what are the demographics? Cite specific evidence from the text to support the response.*	*Make your own advertisement. Use at least 3 of the persuasive techniques learned this week. Identify your target audience with demographics. Draw a picture of the product or idea you are advertising.*
Math	**6**	*Another Strategy for Dividing Fractions* Answer "Which One Doesn't Belong?" and	Complete 7-51, 7-52, and 7-53. (attached) Refer to Math Notes if needed.	Complete Division Practice Worksheet #1-3. (attached) Refer to Math Notes if needed.	Complete Division Practice Worksheet #4-6. (attached) Refer to Math Notes if needed.	Complete Division Practice Worksheet #7-9. (attached) Refer to Math Notes if needed.

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		justify your choice. (attached) Read Math Notes on Fraction Division and complete 7-49 and 7-50.				
	6+	*Subtraction of Integers* Answer "Which One Doesn't Belong?" and justify your choice. (attached) Without a calculator, complete 3-24 through 3-27. (attached)	Without a calculator, complete 3-28, 3-29, 3-30, and 3-32. (attached)	Complete Always, Sometimes, Never True #1-6. Show examples to support. (attached) Read page 31 and use examples to complete p. 32 #1-6 without a calculator. (attached)	Complete p. 32 #7-15 without a calculator. Use examples from p. 31 as a guide. (attached) complete Subtraction with Integers Practice Problems #1-5. (attached)	Complete Puzzle Investigator Problem (PIP) 5 - Polyominoes! (attached)
Science		**What's the Big Idea...About Earth (part 1):** Read section subtitled, "Our Earth Is Always Changing". Underline and/or highlight important parts of the text for understanding. Write your answer to the following: When did the Earth form?	**What's the Big Idea...About Earth (part 2):** Read sections subtitled, "A Peek Inside Our Planet" and "Earth's Layers Work Together". Underline and/or highlight important parts of the text for understanding. Write your best answer to the following: The Earth's mantle flows in circles, causing tectonic plates to move. What is an effect of these moving plates?	**What's the Big Idea...About Earth (part 3):** Read sections subtitled, "Humans Are Just a Tiny Part…" and "Rocks Tell Stories…". Underline and/or highlight important parts of the text for understanding. Write your best answers to the following: a) What can you infer about the age of rocks as compared to humans? b) Why might the author have asked the reader to "imagine the entire history of the Earth squeezed into just twelve hours"? c) What type of rock can fossils be found in? d) Based on the information in the text, what do fossils tell us?	**What's the Big Idea...About Earth (part 4):** Read sections subtitled, "All Rocks Are Made of Minerals" and "There Are Three Types...". Underline and/or highlight important parts of the text for understanding. Write your best answer to the following: "Scientists can learn where a rock formed by studying the minerals in the rock." What evidence in the text supports this claim?	**What's the Big Idea...About Earth (part 5):** Read section subtitled, "Scientists Discover Things...". Underline and/or highlight important parts of the text for understanding. Write your best answers to the following: Studying rocks can help scientists learn about the history of Earth. Provide at least two pieces of evidence from the text to support this statement.
Social Studies		Complete Activity 1 from the document titled, "Where Would You Like to Live in the World?"	Complete Activity 2 from the document titled, "Where Would You Like to Live in the World?	Complete Activity 3 from the document titled, "Where Would You Like to Live in the World?	Complete Activity 4 from the document titled, "Where Would You Like to Live in the World?	Complete Activity 5 from the document titled, "Where Would You Like to Live in the World?

Persuasive Techniques in Advertising

The persuasive strategies used by advertisers who want you to buy their product can be divided into three categories: **pathos, logos,** and **ethos**.

Pathos: an appeal to emotion.

> An advertisement using **pathos** will attempt to evoke an emotional response in the consumer. Sometimes, it is a positive emotion such as happiness: *an image of people enjoying themselves while drinking Pepsi*. Other times, advertisers will use negative emotions such as pain: *a person having back problems after buying the "wrong" mattress*. **Pathos** can also include emotions such as fear and guilt: *images of a starving child persuade you to send money.*

Logos: an appeal to logic or reason.

> An advertisement using **logos** will give you the evidence and statistics you need to fully understand what the product does. The **logos** of an advertisement will be the "straight facts" about the product: *One glass of Florida orange juice contains 75% of your daily Vitamin C needs.*

Ethos: an appeal to credibility or character.

> An advertisement using **ethos** will try to convince you that the company is more reliable, honest, and credible; therefore, you should buy its product. **Ethos** often involves statistics from reliable experts, such as *nine out of ten dentists agree that Crest is the better than any other brand* or *Americas dieters choose Lean Cuisine*. Often, a celebrity endorses a product to lend it more credibility: *Catherine Zeta-Jones makes us want to switch to T-Mobile.*

Practice labeling **pathos, logos,** and **ethos** by placing a **P, L,** or **E** in the blank :

_____ A child is shown covered in bug bites after using an inferior bug spray.

_____ Tiger Woods endorses Nike.

_____ Sprite Zero is 100% sugar-free.

_____ A 32-oz. bottle of Tide holds enough to wash 32 loads.

_____ A commercial shows an image of a happy couple riding in a Corvette.

_____ Cardiologists recommend Ecotrin more than any other brand of aspirin.

_____ Advil Liqui-Gels provide up to 8 hours of continuous pain relief.

_____ Miley Cyrus appears in Oreo advertisements.

_____ People who need more energy drink Red Bull Energy Drink.

_____ A magazine ad shows people smiling while smoking cigarettes.

Part 2: The Power of Persuasion The persuasive messages that have made a lasting impression on you have probably been based on specific persuasive techniques, or methods, that were used to sway your heart and mind. The persuasive techniques shown in the chart can make strong arguments even more powerful. However, they can also disguise flaws in weak arguments because these techniques can lead to faulty reasoning. Faulty reasoning is a claim based on information that is incorrect, biased, or simply does not make sense. The examples below will help you be alert to common kinds of faulty reasoning.

Appeals by Association

"Sell" a product or an idea by linking it with something or someone positive or influential

Bandwagon
Taps into people's desire to belong to a group

> Don't miss the fundraiser that everyone's talking about!

Testimonial
Relies on the backing of a celebrity, an expert, or a satisfied customer

> As the lead singer of Destination Home, I know good sound when I hear it. That's why I won't go anywhere without my FX portable music player.

Emotional Appeals

Use strong feelings, rather than facts and evidence, to persuade

Appeal to Fear
Makes people feel as if their safety, security, or health is in danger

> If a hurricane hit tomorrow, would your family be safe?

Appeal to Vanity
Uses flattery to win people over

> We're looking for talented athletes like you. Join our after-school running club.

Loaded Language

Relies on words with strongly positive or negative associations

Words with Positive Associations
Bring to mind something exciting, comforting, or desirable

> Sparkling waters, silky sands, and breezy air all await you at Shongum Lake Park.

Words with Negative Associations
Call up unpleasant images, experiences, or feelings

> The calves were raised in cramped, filthy stalls.

Name _____ Persuasive

Identifying Persuasive Techniques

Directions: Identify the kind of persuasive language being used in each of the advertising slogans below.

1. Liquid Armor
   Your nails will be beautiful — and 50% stronger than they are today.

2. *Love your wife. Love your kids. Love your* **Buick.**

3. Babette's Basil
   is fresh, beautiful, and bright, bright green.

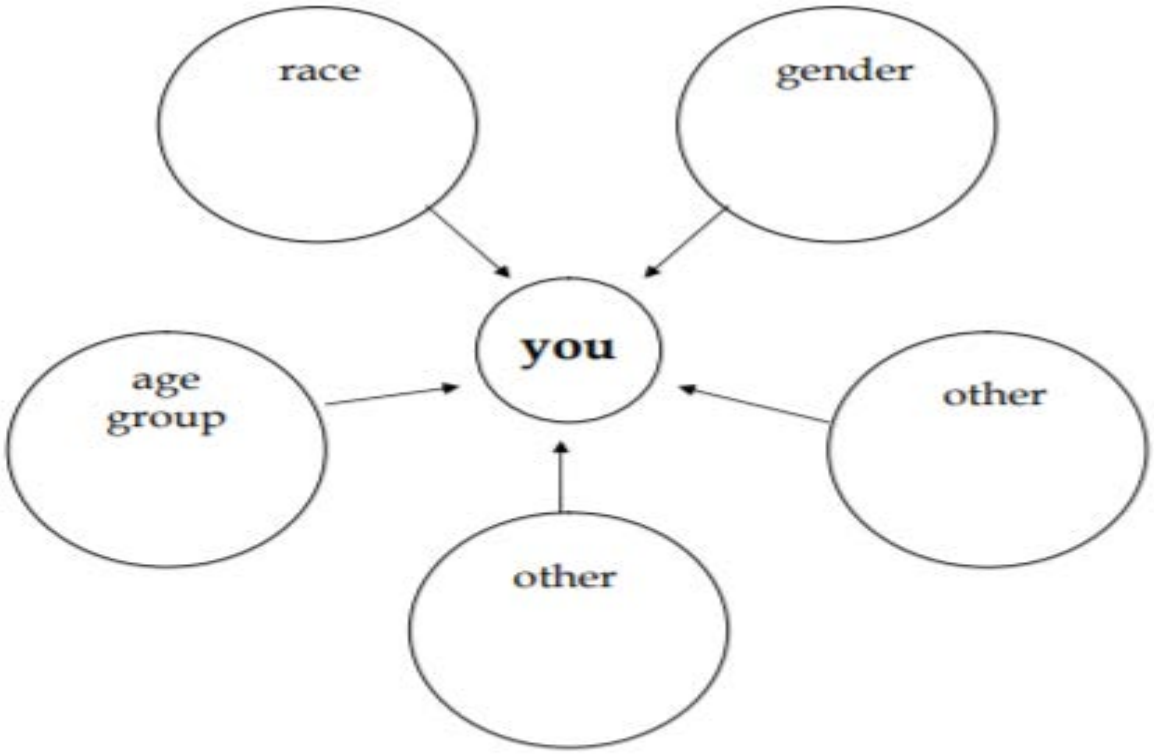
4. Congressman Louis Black trusts his money to U.S.A. Bank

5. **Do you want all of your child's dreams to come true?**
   529 College Savings Plans
   Invest TODAY for her TOMORROW.

Demographics

Demographics are the characteristics that make up a human population such as gender, age, and race. *Demographics* are how advertisers think of consumers: not as individuals, but as members of groups that tend to believe, behave, or purchase in certain patterns. Even when an advertisement is appealing to the idea of individuality (such as Burger King's "Have It Your Way" promotion), advertisers are appealing to the demographic group of "people who eat meat and like to be thought of as individuals," not to any single consumer.

Which demographic do you belong? Complete the chart.



With these demographics in mind, list of specific types of media that people expect to appeal to someone like the person you described above:

TV programs	Music	Movies
1.	1.	1.
2.	2.	2.
3.	3.	3.

Advertising isn't a random process—commercials are often carefully chosen to match the "target audience" of a particular show. The characteristics of this "target audience" are referred to as demographics. Watch your favorite show. As you watch try to determine the target audience.

Network (Lifetime, BET, Cartoon Network, etc.) _____

Age range of the target audience: □ 0 - 4 □ 5 - 9 □ 10 - 12 □ 13 - 17 □ 18 - 24 □ 25 - 35 □ 36 - 49 □ 50+

Race of the target audience □ African-American □ Asian □ Caucasian □ Hispanic □ Other

Gender of the target audience □ Male □ Female **Other** characteristics of the audience? Explain _____

_____

After the program. In at least one paragraph, explain whether or not the commercials matched the target audience for the show. Give specific examples of products, considering for whom the products were intended.

Analyzing Ads

Choose two shows to watch on two different TV Networks. Explain how each uses pathos, logos, and ethos and other persuasive techniques. Not every advertisement will use all three, but examine the ad carefully before you decide to write "none." Also list any other strategies used. Refer to the definitions and examples given earlier for help.

Network (Lifetime, BET, Cartoon Network, etc.) _____ TV **Show** _____
Age range of the target audience: □ 0 - 4 □ 5 - 9 □ 10 - 12 □ 13 - 17 □ 18 - 24 □ 25 - 35 □ 36 - 49 □ 50+
Race of target audience □ African-American □ Asian □ Caucasian □ Hispanic □ Other **Gender of target audience** □ Male □ Female

Product Name	Use of **pathos**	Use of **logos**	Use of **ethos**	Other **strategies**
Product 1				
Product 2				
Product 3				

Network (Lifetime, BET, Cartoon Network, etc.) _____ TV **Show** _____
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Product Name	Use of **pathos**	Use of **logos**	Use of **ethos**	Other **strategies**
Product 1				
Product 2				
Product 3				

Barbie's Malibu Dream house will be on Airbnb for $60 per night

Have you ever fantasized about having your own “dream house”? What kind of features, gadgets and memorabilia would you put in it? Where would it be located? Who would live there with you? Well look no further! Call three friends, jump in the bubble gum pink Jeep, and hop on the Pacific Coast Highway. The Barbie Malibu Dream house is available to rent!

It is beachy and dreamy, and it is very, very pink. Better yet? It's only $60 per night on Airbnb. With panoramic ocean views and beachy, glamorous decor, the home is a larger-than-life recreation of Barbie's signature style and hospitality. The real house even has the iconic hot pink slide from the balcony to the infinity pool below.

In addition to relaxing alongside the infinity pool that boasts uninterrupted views of the Pacific Ocean, guests will be able to unwind in a stone-clad bathtub with windows that look out over the California hills or spend time painting in Barbie's hobby room.

Among the defining features are the pink accents that range from painted walls and furniture inside, to balustrades and sun loungers outside. There is also a bright-pink, oversized large radio speaker that appears to be modelled on a toy version.

The house, of course, is absolutely stunning. There's an insane closet decked out in Barbie attire. Hanging inside a massive walk-in closet are Barbie-style clothes – including several uniforms that catalog her fashions over the last 60 years. Styles include white cat eye sunglasses, an astronaut suit, a striped bathing suit and lots of high heels.

Barbie Malibu Dream house can accommodate four guests, with access to two bedrooms, kitchen with dining, an office and craft room. Guests can also try out a myriad of activities that draw on the careers of varieties of the doll, such as fencing, exploring outer space and crafting.

There is also a personal home movie theater, and a peaceful meditation terrace. In addition to the once-in-a-lifetime chance to stay in Barbie's Dream house, some pretty inspirational women will be there, too.

The world-class fencing champion, Ibtihaj Muhammad, will offer one-on-one fencing lessons. Pilot and aerospace engineer Jill Meyers will give a behind-the-scenes tour of the Columbia Memorial Space Center. Chef Gina Clarke-Helm, founder of Malibu Seaside Chef, will cook farm-fresh food and give a hands-on cooking lesson. And because Barbie is the ultimate glam girl, celebrity hair stylist Jen Atkin will provide makeovers. Yes, she's the one who works with Kim, Khloe and Kourtney Kardashian, so be ready for that glow up.

It's all in honor of the Barbie brand's 60th Anniversary. The quintessential Dream house will bring to life what drives Barbie, from spotlighting powerful and diverse role models to showcasing underrepresented career paths and giving all girls a voice," Mattel said. Airbnb will donate to The Barbie Dream Gap Project GoFundMe initiative, which gives young girls the resources and support to follow their dreams.

Nike Basketball Camp: Helping Players Reach Their Athletic Goals

Nike is arguably the most visible sports brand on basketball courts across the nation. It's easy to spot that trademark swoosh on everything from shoes and jerseys to headbands and socks. However, Nike also leaves a more direct mark on the athletes. Every year, thousands of young players participate in a Nike basketball camp.

By partnering with US Sports Camps and other youth athletics organizations, the brand has played a significant role in developing basketball talent. Nike basketball is all about providing opportunities for boys and girls from all walks of life. You'll find Nike basketball camps in 39 states and many countries across the globe. These Nike sports camps run the gamut from youth programs for kids just learning basketball to showcases for experienced players looking to earn athletic scholarships.

Like it or not, becoming a great athlete involves instituting much structure and hard work. Nike basketball camps are known for being very organized and always keeping attendees busy. While different instructors run the various Nike sports camps, they all exist for the betterment of the players involved. Partnerships with US Sports Camps enhances the player's skill. They have overseen hundreds of programs for children ages 7-18.

The benefits of going to Nike basketball camps and other basketball camps can include fun atmosphere, confidence building, excellent instructors, focus on a variety of skills, life lessons, sweet swag and visibility to coaches/scouts. If coaches see you playing like a star, word will spread to colleges.

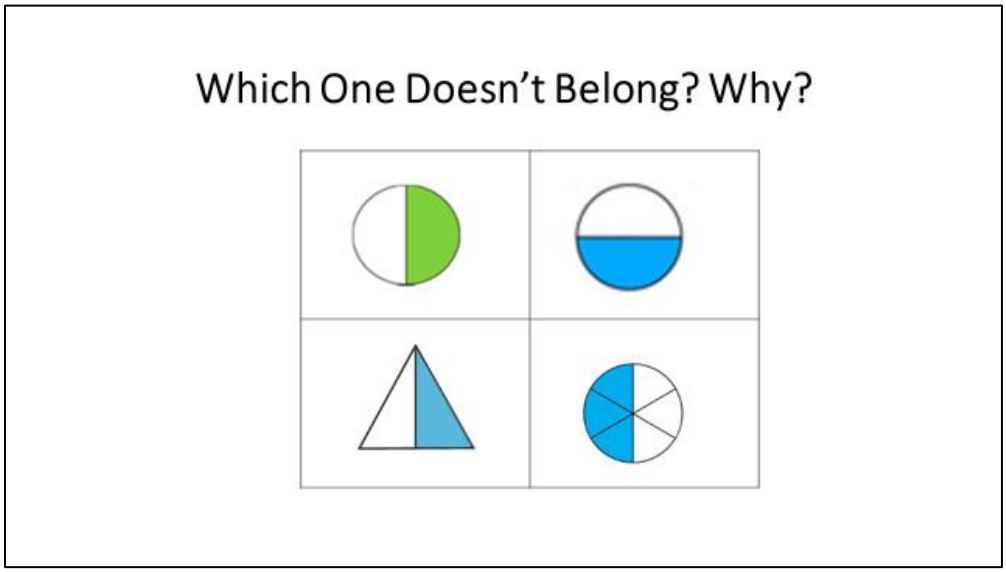
The road to becoming a successful basketball player is never a solitary journey. With more than 130 camp locations, Nike basketball programs are often the most trusted option for players in many parts of the country.

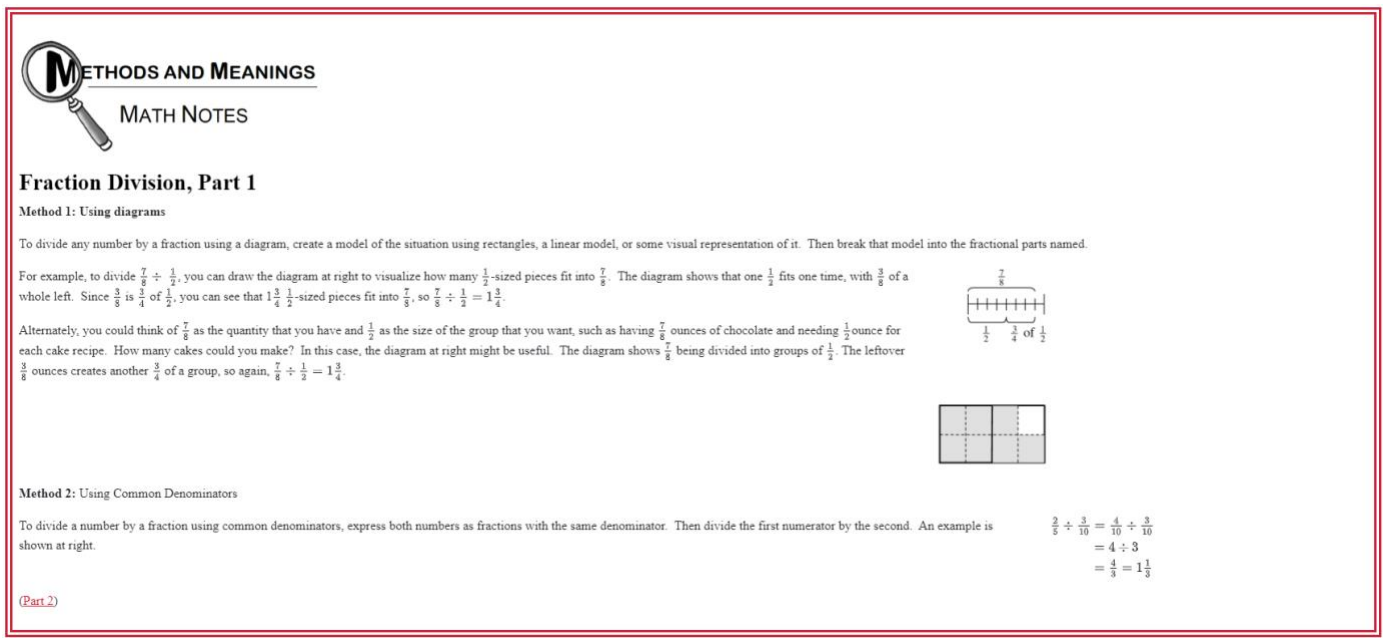
When you join the NCSA network, you create a recruiting profile that will be viewed by interested parties. The profile, which is like an online athletic resume, can be updated with personal information, statistics, highlight videos and more. NCSA staff will also provide you with an objective recruiting assessment to find out where you stand. Once you're set up, you'll be more visible to college coaches looking to fill roster positions.

More than 90 percent of U.S. colleges with athletic programs have had at least one NCSA client on their rosters. If you want to realize your athletic scholarship dreams, it's time to take control and make yourself stand out. The first step is to create a free recruiting profile with NCSA. Join today or call (866) 495-5172 with any questions.

Math 6 – Week of May 4th

Another Strategy for Dividing Fractions





METHODS AND MEANINGS

MATH NOTES

Fraction Division, Part 1

Method 1: Using diagrams

To divide any number by a fraction using a diagram, create a model of the situation using rectangles, a linear model, or some visual representation of it. Then break that model into the fractional parts named.

For example, to divide $\frac{7}{8} \div \frac{1}{2}$, you can draw the diagram at right to visualize how many $\frac{1}{2}$-sized pieces fit into $\frac{7}{8}$. The diagram shows that one $\frac{1}{2}$ fits one time, with $\frac{3}{8}$ of a whole left. Since $\frac{3}{8}$ is $\frac{3}{4}$ of $\frac{1}{2}$, you can see that $1\frac{3}{4}$ $\frac{1}{2}$-sized pieces fit into $\frac{7}{8}$, so $\frac{7}{8} \div \frac{1}{2} = 1\frac{3}{4}$.

Alternately, you could think of $\frac{7}{8}$ as the quantity that you have and $\frac{1}{2}$ as the size of the group that you want, such as having $\frac{7}{8}$ ounces of chocolate and needing $\frac{1}{2}$ ounce for each cake recipe. How many cakes could you make? In this case, the diagram at right might be useful. The diagram shows $\frac{7}{8}$ being divided into groups of $\frac{1}{2}$. The leftover $\frac{3}{8}$ ounces creates another $\frac{3}{4}$ of a group, so again, $\frac{7}{8} \div \frac{1}{2} = 1\frac{3}{4}$.

Method 2: Using Common Denominators

To divide a number by a fraction using common denominators, express both numbers as fractions with the same denominator. Then divide the first numerator by the second. An example is shown at right.

$$\frac{2}{5} \div \frac{3}{10} = \frac{4}{10} \div \frac{3}{10}$$
$$= 4 \div 3$$
$$= \frac{4}{3} = 1\frac{1}{3}$$

(Part 2)

7-49 Atticus wants to know how much paint he will need to paint the fence in his yard. So far he has used 3/4 of a gallon of paint, but he only covered 2/5 of the fence.

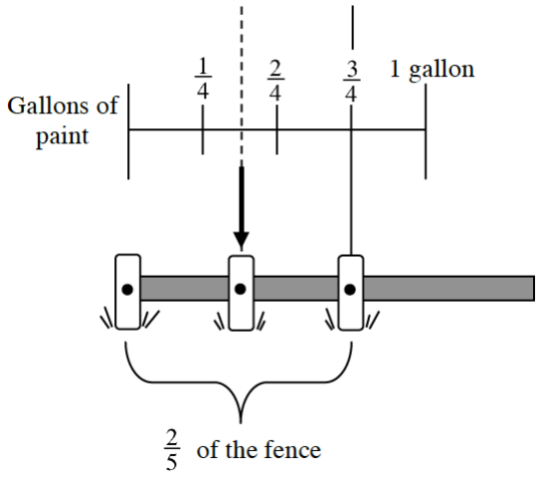
a. *Approximately* how many gallons of paint Atticus would need to paint his whole fence. More than one gallon? More than two gallons? Five gallons? Determine your estimate without actually calculating or diagramming the situation. Explain your reasoning.

b. Now calculate *exactly* how much paint Atticus would need to paint his whole fence. Explain your thinking and what strategy you used.

c. Atticus reasons that since he used 3/4 gallon to paint 2/5 of the fence, he should be able to write a number sentence to express the idea that 3/4 gallon equals 2/5 of the amount he needs to paint the whole fence. Write Atticus's problem and its solution in two different number sentences, one that uses division and one that uses multiplication.

7-50 Atticus thinks he has found a clever way to calculate the amount of paint he will need. He explained his thinking to the class like this:
"*If 3/4 of a gallon of paint covers 2/5 of the fence, I can divide to figure out how much paint I need for 1/5 of the fence. Once I know how much paint I need for 1/5 of the fence, I can multiply to find out how much I need for the whole fence.*"

Atticus started the diagram below, but he did not have time to finish it.



a. Consider Atticus's reasoning and complete his diagram to show the exact amount of paint he will need.

b. Write a note to Atticus explaining how his "divide and then multiply" strategy works. What division did he do? Why does it make sense? What multiplication did he do? Why does it make sense?

7-51 Julian noticed that when Atticus solved 3/4÷2/5, he divided 3/4 of a gallon of paint into 2 parts and then multiplied the result by 5. Julian realized that Atticus used the numerator and the denominator of 2/5 in his calculations.
"*Look! He just divided 3/4 by the numerator of 2/5 and then multiplied by the denominator.*" Julian said.

Is this a coincidence, or will it always work? In other words, when dividing fractions, can you always divide by the numerator and then multiply by the denominator? Make up several of your own fraction division problems to investigate Julian's method. Does this method always work? How can you be sure?

7-52 Simplify each of the following expressions.

a. 2/3÷1/12

b. 5/6÷5/12

c. 5/6÷3/12

7-53. Calculate each of the following products.

a. 1/8·8/1

b. 3/4·4/3

c. 2/3·3/2

d. 7·1/7

e. What do the products in parts (a) through (d) have in common?

Dividing Fractions Practice Worksheet

1. Use a standard inch ruler to answer each question. Then, write a multiplication equation and a division equation that answer the question.

a. How many $\frac{1}{2}$s are in 7?

b. How many $\frac{3}{8}$s are in 6?

c. How many $\frac{5}{16}$s are in $1\frac{7}{8}$?

2. Diego said that the answer to the question "How many groups of $\frac{5}{6}$ are in 1?" is $\frac{6}{5}$ or $1\frac{1}{5}$. Do you agree with his statement? Explain or show your reasoning.

3. Select **all** equations that can represent the question: "How many groups of $\frac{4}{5}$ are in 1?"

   a. $? \cdot 1 = \frac{4}{5}$

   b. $1 \cdot \frac{4}{5} = ?$

   c. $\frac{4}{5} \div 1 = ?$

   d. $? \cdot \frac{4}{5} = 1$

   e. $1 \div \frac{4}{5} = ?$

4. Draw a diagram to represent and answer the question: What fraction of $2\frac{1}{2}$ is $\frac{4}{5}$?

5. How many groups of $\frac{3}{4}$ are in each of the following quantities?

   a. $\frac{11}{4}$

   b. $6\frac{1}{2}$

6. Which question can be represented by the equation $4 \div \frac{2}{7} = ?$

   a. What is 4 groups of $\frac{2}{7}$?

   b. How many $\frac{2}{7}$s are in 4?

c. What is $\frac{2}{7}$ of 4?

d. How many 4s are in $\frac{2}{7}$?

7. Select **all** statements that show correct reasoning for finding $\frac{14}{15} \div \frac{7}{5}$.

   a. Multiplying $\frac{14}{15}$ by 5 and then by $\frac{1}{7}$.

   b. Dividing $\frac{14}{15}$ by 5, and then multiplying by $\frac{1}{7}$.

   c. Multiplying $\frac{14}{15}$ by 7, and then multiplying by $\frac{1}{5}$.

   d. Multiplying $\frac{14}{15}$ by 5 and then dividing by 7.

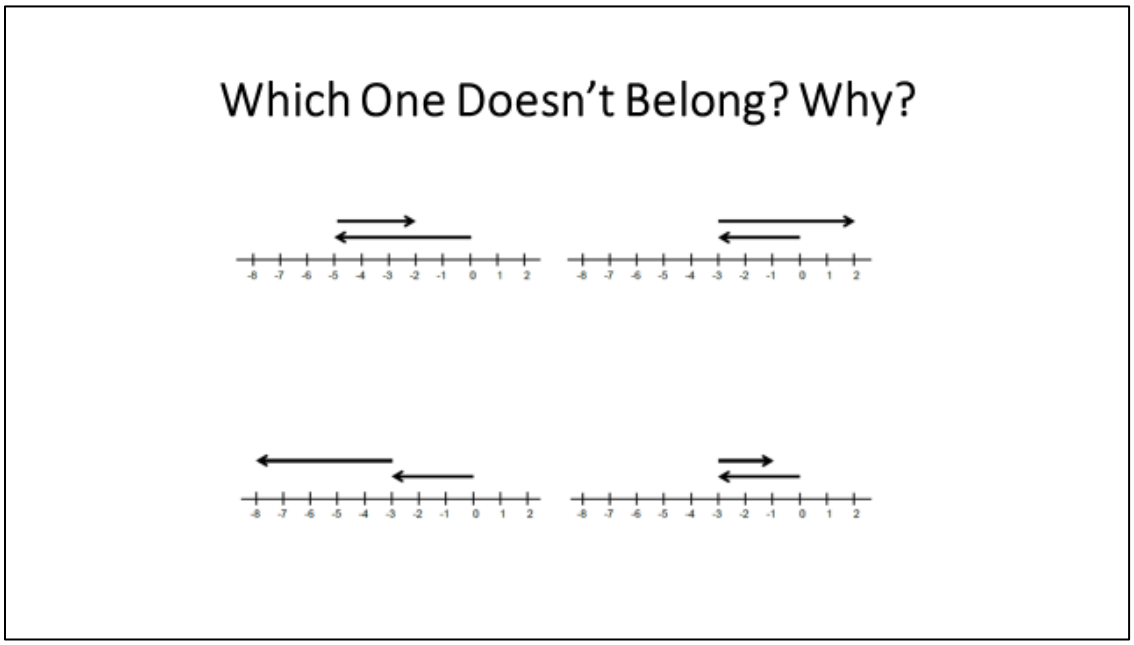
8. Clare said that $\frac{4}{3} \div \frac{5}{2}$ is $\frac{10}{3}$. She reasoned: $\frac{4}{3} \cdot 5 = \frac{20}{3}$ and $\frac{20}{3} \div 2 = \frac{10}{3}$.

   Explain why Clare's answer and reasoning are incorrect. Find the correct quotient.

9. Find the value of $\frac{15}{4} \div \frac{5}{8}$. Show your reasoning.

Math 6+ – Week of May 4th

Subtraction of Integers



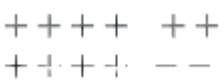
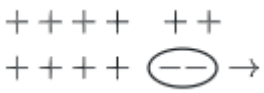
3-24 Examine the assortment of positive and negative tiles below. What integer does this assortment represent?

a. What happens if three + tiles are removed? How can you use numbers and symbols to represent this action and the resulting value?
b. What happens if three − tiles are removed from the original set of tiles? Again, how can you represent this action and the result using numbers and symbols?

3-25 It is often useful to represent operations and expressions in multiple ways. These ways include:

- A diagram (for example, using + and − tiles or with a number line)
- A numerical expression
- A situation described in words
- The total value

In each part labeled (a) through (c) below, one representation is given. Create each of the other representations.

a. Start with:  Then: 
b. −8−(−3)
c. It is cold! The first time I looked at the thermometer today, it said it was 0 degrees Fahrenheit. Then it dropped 5 degrees! How cold is it now?

3-26 For each of the expressions below:

- Build an assortment of tiles that represents the first integer.
- Explain how to subtract using words.
- Find a way to draw the process on your paper.
- Record the expression and result as a number sentence.

a. $7-5$

b. $0-4$

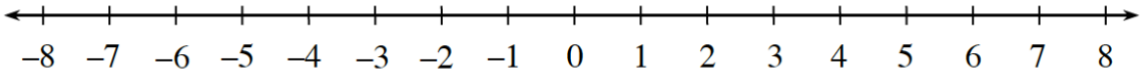
c. $-6-2$

d. $3-(-4)$

e. $-8-(-5)$

f. $-1-(-9)$

3-27 Subtraction can also be represented on the number line model.



a. Sketch the number line above on your paper.
b. How can you represent $2-7$ using the number line? Use the number line to represent your answer.
c. How can you represent $1-(-2)$ using the number line? Use the number line to represent your answer.

3-28 Alvin, can dive to a maximum depth of 14,764 ft. If sea level is 0, then this depth can be written as −14,764 ft. The deepest point in the Pacific Ocean, as well as the world, is a location called Challenger Deep in the Mariana Trench. It has a depth of −35,840 ft. Tory and Nina wanted to know the distance from the bottom of the trench to Alvin when the submarine was at its maximum dive depth.
Tory knew that they needed to subtract to find the difference between the two depths, so she did $-35{,}840-(-14{,}764)$, Nina, on the other hand, did $-14{,}764-(-35{,}840)$.

a. Complete both computations. What do you notice about the solutions?
b. If you want to find the distance between the two depths, what could you do with the computations to get a positive value? Write both expressions to show this.
c. Use your work from part (b) to find the distance between Alvin at its deepest dive depth and the following points. For each calculation, write an equation and your solution.
    i. The Puerto Rico Trench in the Atlantic Ocean, −28,374 ft.
    ii. The Eurasia Basin in the Arctic Ocean, −17,881 ft.
    iii. The Java Trench in the Indian Ocean, −23,376 ft.

3-29 Absolute value can be thought of as the distance between a number and zero, but it can be thought of as the distance between two non-zero numbers, as well. Use your number line model from problem 3-27 to answer the following questions.

a. Place points at 8.6 and 3.4 on your number line. What is the absolute value (distance) between 8.6 and 3.4? How can you tell?
b. Use the number line to find the absolute value (distance) between −6.72 and 4.13.

3-30 Represent the distance between each pair of points below in two ways using the absolute value symbol. For example, the distance between 8 and 3 can be written $|8-3|=|5|=5$ as well as $|3-8|=|-5|=5$.

a. −2 1/6 and 1

b. 2.38 and 7.49

c. 9 3/10 and −6.55

3-32 Add parentheses to make each subtraction equation true.

a. $1-3-5-7=0$

b. $1-3-5-7=-14$

c. $1-3-5-7=-4$

d. $1-3-5-7=10$

Always, Sometimes, Never True? Support your answer with examples.

1. positive – positive = positive
2. negative – positive = negative
3. negative – negative = positive
4. positive – negative = negative
5. negative – positive = positive
6. positive – positive = negative

SUBTRACTION OF INTEGERS

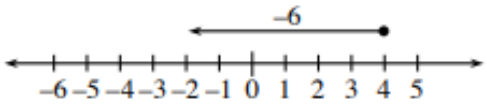
Subtraction of integers may also be represented using the concrete models of number lines and (+) and (–) tiles. Subtraction is the opposite of addition so it makes sense to do the opposite actions of addition.

When using the number line, adding a positive integer moves to the right so subtracting a positive integer moves to the left. Adding a negative integer move to the left so subtracting a negative integer moves to the right.

When using the tiles, addition means to place additional tile pieces into the picture and look for zeros to simplify. Subtraction means to remove tile pieces from the picture. Sometimes you will need to place zero pairs in the picture before you have a sufficient number of the desired pieces to remove. For additional information, see the Math Notes box in Lesson 3.2.2 of the *Core Connections, Course 2* text.

Example 1

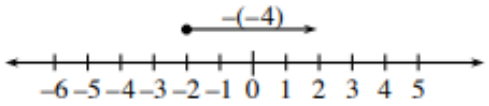
$4 - 6$



$4 - 6 = -2$

Example 2

$-2 - (-4)$



$-2 - (-4) = 2$

Example 3

$-6 - (-3)$

Build the first integer.

Remove three negatives.

Three negatives are left.

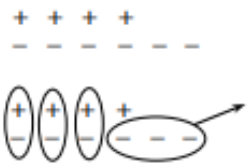
$-6 - (-3) = -3$

Example 4

$-2 - (-3)$

Build the first integer.

It is not possible to remove three negatives so add some zeros.



Now remove three negatives and circle any zeros.

One positive remains.

$-2 - (-3) = 1$

Problems

Find each difference. Use one of the models for at least the first five differences.

1. $-6-(-2)$	2. $2-(-3)$	3. $6-(-3)$
4. $3-7$	5. $7-(-3)$	6. $7-3$
7. $5-(3)$	8. $-12-(-10)$	9. $-12-10$
10. $12-(-10)$	11. $-6-(-3)-5$	12. $6-(-3)-5$
13. $8-(-8)$	14. $-9-9$	15. $-9-9-(-9)$

Subtraction with Integers Practice Problems

1. The temperature in Tahiti is 27 degrees Celsius. The temperature in Siberia is -33 degrees Celsius. What is the difference in temperatures?

2. A mountain climber is at an altitude of 4572 meters and, at the same time, a submarine commander is at -609 meters. What is the difference in altitudes?

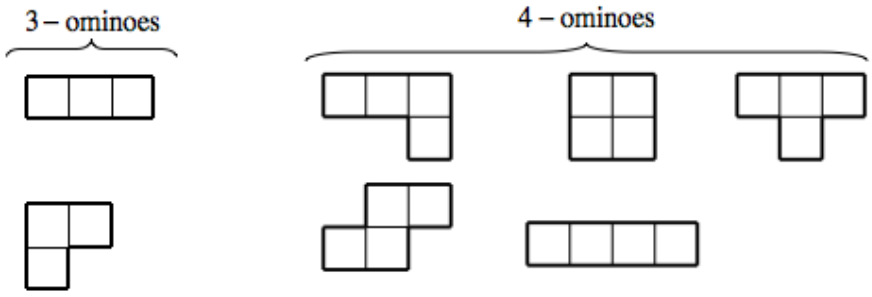
3. A scuba diver is at an altitude of -12 meters and a shark is at an altitude of -31 meters. What is the difference in altitudes?

4. Find the difference in elevation between Death Valley (-282 feet) and the Dead Sea (-1348 feet).

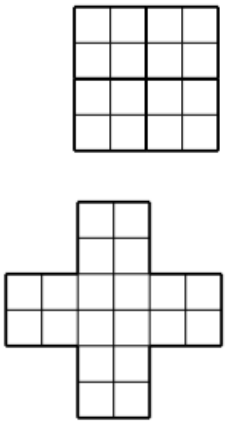
5. The highest ever recorded temperature on earth was 136 degrees Fahrenheit in the US and the lowest was -129 degrees Fahrenheit in Antarctica. What is the difference of these temperatures recorded on Earth?

PUZZLE INVESTIGATOR PROBLEM (PIP) 5 – POLYOMINOES!

Polyominoes are shapes made of some number of unit squares. This is why a game using rectangular pieces made with two squares is called "dominoes" (which can be referred to as 2-ominoes). Below are all the possible 3-ominoes and 4-ominoes.



a. It turns out there are 12 different 5-ominoes! Draw them. For two designs to be different, one design should not be able to be turned or flipped or slid onto another so that it will match exactly.



b. It turns out that 9 of the 5-ominoes can be created by adding a single square to one of the 4-ominoes. Which 4-omino would that be? Use diagrams to show how the 5-ominoes are formed.

c. Using the 2 × 2 square, four 4-ominoes can be put together to make a 4 × 4 square, as shown at right. Will this work for the other 4-ominoes? Form 4 × 4 squares using four of the same 4-omino. Are there any 4-ominoes that will not form a square?

d. The cross shape at right can be tiled using four copies of one 5-omino. In fact, it turns out that there are several different 5-ominoes that can do this. See how many ways you can find to do it.

What's the Big Idea...About Earth

This text is provided courtesy of OLogy, the American Museum of Natural History's website for kids.

Our Earth Is Always Changing

The Earth formed over 4.5 billion years ago, and it has been changing ever since.

Sometimes these changes happen very fast. An earthquake can split the ground in a few seconds. Lava from a volcanic eruption can spread over the side of a volcano in minutes. A heavy rainstorm can flood a neighborhood in a day. These changes are easy to see.

But most changes happen so slowly we don't notice them at all. The continents slowly creep across the surface of the Earth at an average speed of eight centimeters a year. Over hundreds of millions of years, mountains form, and then slowly erode away.

How do Earth scientists know about these changes? They do a lot of detective work, and they look for clues all over the Earth!

Photo Credit: NPS

The Grand Canyon started to form about six million years ago.

Photo Credit: USGS

Earthquakes change the landscape suddenly, but are caused by pressure built up over a long time.

A Peek Inside Our Planet

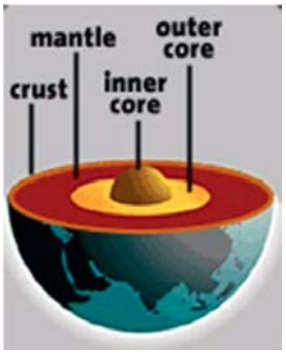
The Earth is made of different layers.

We live on the Earth's crust, a layer of rock about 30 kilometers (22 miles) thick. That might seem thick, but it's actually very thin, considering the size of the Earth. The Earth's crust and some of the mantle below is broken up into large pieces called tectonic plates.

The mantle is a thick layer just under the crust. It's as hard as rock, but it's actually flowing very slowly, about as slowly as your fingernails grow.

The outer core is a liquid layer, made mostly of iron and

nickel, that moves around the inner core. This motion causes the Earth to act like a giant magnet.



Illustrations: Courtesy of AMNH

The Earth's Layers

The inner core is a solid ball made almost entirely of two metals, iron and nickel. It's hotter here than on the surface of the Sun!

Earth’s Layers Work Together

Under your feet, the Earth's different layers are moving and interacting all the time. All the layers work together in a system, and each one plays an important role.

Here's just one way they all work together:

- Intense heat flowing out of the core and mantle makes the mantle flow in circles.
- The motion of the mantle causes the plates to move.
- The moving plates create volcanoes.
- The volcanoes release gases into the atmosphere.
- The atmosphere acts like a giant blanket, keeping the planet warm.

This makes life on Earth possible!

Photo Credit: USGS

Movement of the plates causes volcanoes and earthquakes and forms mountains and continents.

Photo Credit: NOAA

Early in the Earth’s history, water vapor from volcanoes helped form our oceans.

Humans Are Just a Tiny Part of Earth's Long History

Our planet Earth formed 4.5 billion years ago. That's a really, really long time ago! Humans like us have only been around for 30,000 years. That's just a small part of the Earth's past.

It's hard to picture the Earth's long history. Here's one way to do it. Imagine the entire history of the Earth squeezed into just twelve hours, from noon to midnight.

When we think of time in this way, humans have only been around three seconds!

Illustrations: Courtesy of AMNH

Rocks Tell Stories About the Earth

Rocks hold important clues about our planet. They reveal secrets about remote places we can't go to and about distant times in the past.

Scientists might not be able to travel inside an erupting volcano, to the bottom of the ocean, or across the solar system. But they can learn about the conditions in these places from rocks they collect.

Rocks also give scientists a look back in time. We know about life long ago from the fossils held in sedimentary rocks. Fossils tell us when, where, and how ancient plants and animals once lived on the Earth.

Rocks can also tell us about the history of Earth itself. They hold clues to how the Earth formed and how it's changed over billions of years.

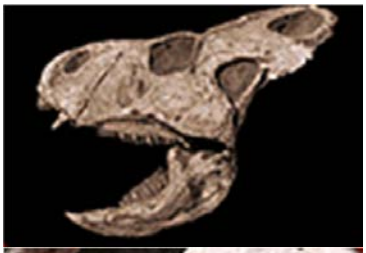


Photo Courtesy of AMNH

This is a fossil of Protoceratops, an animal that lived about 80 million years ago.

Photo Credit: NPS

This marine fossil-rich rock was found high on the Guadalupe Mountains in west Texas.

All Rocks Are Made of Minerals

Whether it's a rock in your backyard or in a canyon wall, almost every rock you've ever seen is made of minerals.

Rocks are different because they have different types and amounts of minerals in them. One way scientists identify rocks is by looking closely at their minerals. For example, the rock sandstone is made of the mineral quartz. The rock granite contains quartz too, but it also has other minerals like mica and feldspar.

The kinds of minerals in a rock give clues to where the rocks formed. A rock with the mineral garnet probably formed deep in the Earth, like under a mountain. A rock with the mineral muscovite probably formed on land.

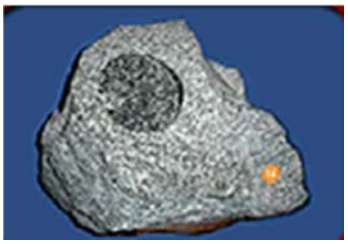


Photo Courtesy of AMNH

This is a rock called gabbro. It's made of the minerals plagioclase, clinopyroxene, and orthopyroxene.

Photo Courtesy of AMNH

A piece of gabbro was crushed. Its three main minerals were separated.

There Are Three Types of Rock

Rocks come in all sizes, shapes, colors, and textures.

Despite their differences, there are three basic types of rocks:

Igneous (IG-nee-us) rocks form from melted rock, or magma, that comes from inside the Earth. Sometimes the magma erupts from a volcano, and then cools and hardens at the Earth's surface. Magma can also cool slowly and form rocks underground. Igneous rocks are brand-new rocks. They don't form from other rocks.

Sedimentary (sed-uh-MEN-tuh-ree) rocks form from tiny pieces of rock that are broken down by wind and water. Over time, these pieces settle in layers with sand, silt, dead plants, and animal skeletons. These sediments are squeezed by other sediments above them until they cement together to form a rock.

Photo Courtesy of AMNH

Top: Igneous Middle: Sedimentary Bottom: Metamorphic

Metamorphic (meh-tuh-MOR-fik) rocks form from igneous, sedimentary, and even other metamorphic rocks deep in the Earth's crust. When these rocks are heated and squeezed, they slowly change into new, metamorphic rocks.

Scientists Discover Things About Our Planet All The Time

In the 1960s, scientists discovered evidence that the Earth's crust and upper-most mantle are broken into plates that are always moving.

In the late 1970s, scientists found hot-water vents at the bottom of the ocean where plates are moving apart.

In 2004, scientists discovered that there once was liquid water on Mars. Other planets could hold important clues to the history, or future, of our own planet Earth.

Scientists are always exploring new mysteries. Sometimes they do fieldwork, traveling to places like volcanoes or earthquake sites. Other times they do experiments in labs, recreating conditions deep inside the Earth where we can't go.

We have learned a lot about our Earth, but there is much more to learn. What will scientists discover tomorrow? Will that scientist be YOU?

Photo Credit: USGS

A scientist might gather rocks at a volcano to find out why it erupted.

Photo Credit: NASA/JPL

What kinds of things do you think we could learn from other planets?

Where would you like to live in the World?

Standard Benchmark	Geography 1a: Students will demonstrate mental maps of the world and its sub-regions which include the relative location and characteristics of major physical features, political divisions, and human settlements.
Grade Band	6-7
Vocabulary	Map, mental maps

A **mental map** is a person's internalized picture of a part of the Earth's surface. It contains our knowledge of the relative position of places as well as their physical environments and cultural characteristics. People have several mental maps at different scales.

ACTIVITY 1:
Directions: Pick a place and answer the questions below.

Wilmington, Delaware or Rehoboth Beach, Delaware

- What images or words come to mind for this place? On a separate sheet of paper, either draw a picture or list the words.

- Now draw an outline of the state of Delaware on the same sheet of paper from above.

Your answers above are your perception of a place or a part of your mental map! Usually our mental maps of places we live have the most details.

- How accurate was your outline of Delaware?

ACTIVITY 2:
Answer the following questions on the same sheet of paper you used for previous questions:

- **What makes a place desirable to visit?**
- **What makes a place desirable to live for a long time?**
- (your answers could include weather and climate, access to mountains or beaches, large country with big cities or small country with not a lot of people, etc.) ***Try to come up with at least Five characteristics of a place.***

ACTIVITY 3:
Directions: Use your list above (what makes a place desirable to live) to rank the countries of North and South America using the (1-5) scale below. You should be able to identify some characteristics just by looking at a physical map. You can use Google Maps to help identify where each of the countries are located.

Where would you like to live in the World?

Rate the Countries in North and South America Using the Rating Below

___Argentina ___Bolivia ___Brazil ___Chile ___Colombia ___Ecuador ___Guyana ___Paraguay ___Peru ___Suriname ___Uruguay ___Venezuela	___Antigua and ___Barbuda ___Bahamas ___Barbados ___Belize ___Canada ___Costa Rica ___Cuba ___Dominica	___Grenada ___Guatemala ___Haiti ___Honduras ___Jamaica ___Mexico ___Nicaragua ___Panama ___United States of America (USA)

1. Which countries had the highest (most desirable) ratings?

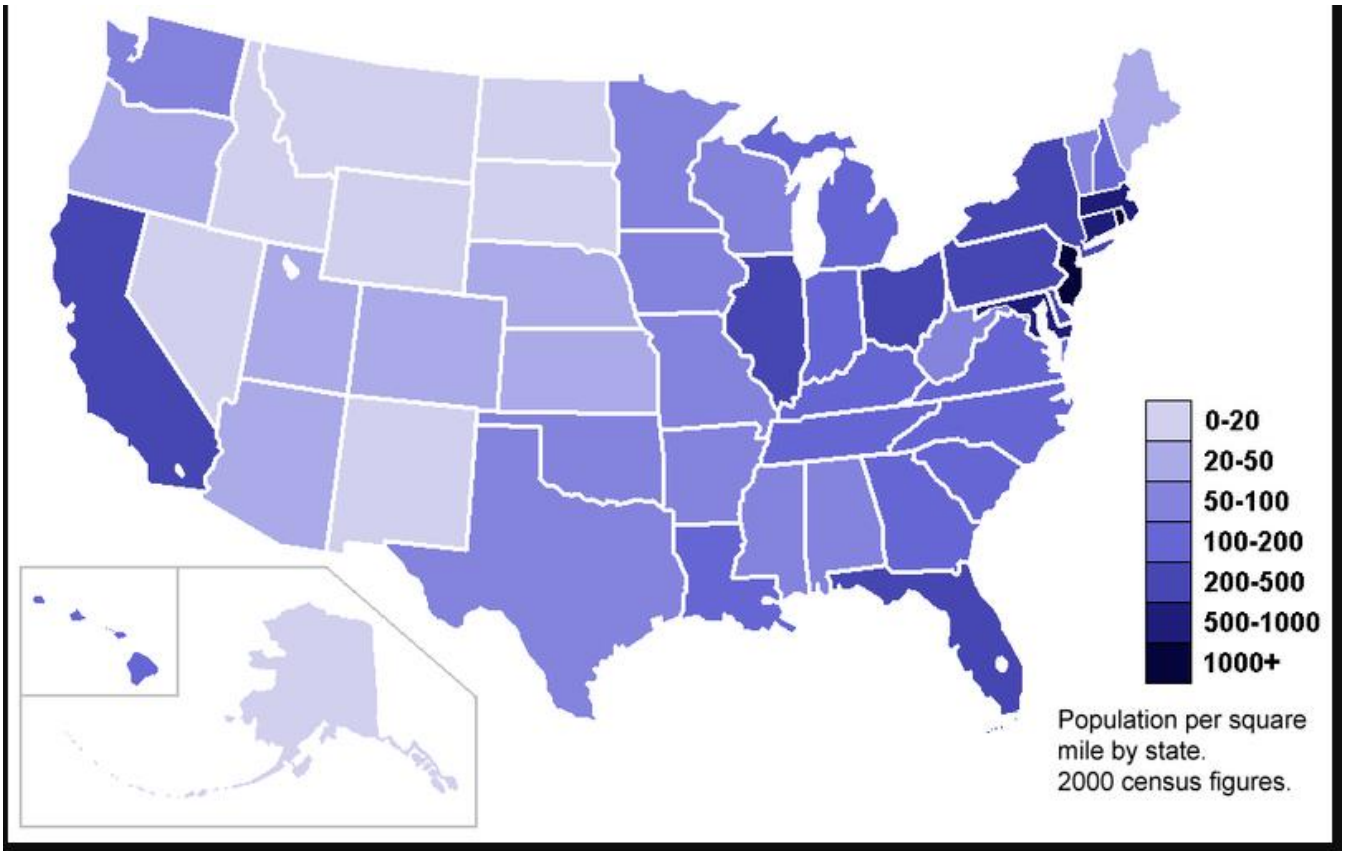
2. Which countries had the lowest (least desirable) ratings?

ACTIVITY 4:

Create a map using your, Where Would You Like to Live? worksheet ratings. You will be creating a **choropleth m**ap. A choropleth map is a representation of data, such as population, over a specific area using colors or patterns to represent types or intensity of data. The choropleth map below colors US states with high population density in darker colors, and states with lower population densities in lighter colors.

Where would you like to live in the World?

Choropleth Map:



Directions:

- You can either use the map of North and South America (on page 4) or you can create your map using this website: https://mapchart.net/americas.html
- Here is a tutorial. If you use this website, include your map below.

- FOR YOUR RATINGS (of desirable countries to live – from above):
- Create a color gradation. Choose a light color for the lowest rated countries and a dark color for the highest rated countries. Create a legend for your map.
- Color each country with the color that represents its ranking. Title your map "[Your Name]'s Country Preference Map."

ACTIVITY 5:

After you completed your creation of a Choropleth Map (on page 4), answer the following questions:

1. What patterns do you see on the map?

2. How can you explain those patterns? (ex. Countries I have already visited tend to be more desirable).

Where would you like to live in the World?