ELA Answers: Week 6 (Change)

Day 1: Questions about *Nothing Gold Stays*	1. In line 1, what is "nature's first green"? Hint: Think about what happens in the spring. *Nature's first green is are the first buds or first signs that spring is coming when trees start to spring leaves and flowers. The actual gold can be golden flowers on some trees.* 2. The speaker says that nature's first green "is gold." What are some words, ideas, images, or emotions that we associate with gold? Are these associations mostly positive or negative? *Answers will vary but student should list items of value--jewelry, anniversaries, gold tends to signify great value and that is a positive connotation.* 3. Considering your answer to question 2, what is the speaker saying about "nature's first green" when he calls it "gold"? *Nature's first green, or those first leaves, are the first signs of spring--and it gold because it so important and beautiful. It symbolizes new life and new beginnings.* 4. In line 2, the speaker says that gold is nature's "hardest hue to hold." As it is used in this line, what does hold mean? *The hardest hue to hold...the hardest color or feeling to maintain. Have students think of a new relationship or new activity they start--it's like the honeymoon phase of anything new.* 5. In lines 3 and 4, the speaker says that nature's early leaf is a flower that lasts only for "an hour." Do you think he means this literally—that the flower dies after one hour? If he doesn't mean it literally, what is the speaker saying here? *It is not meant literally...it signifies how quickly the "newness" of something passes away.* 6. Tone is the attitude that the speaker or poet has towards what he is writing about. Look at lines 1-4 then lines 5-6. What is the change or shift in tone that happens? What words reveal this change? *The first 2 stanzas (Lines 1-4) are describing the beginning and then in lines 5-8, the poem shifts to the "subsiding" or the ending that begins to happen.* 7. Consider the three things in the poem that change: a bud, Eden, and dawn. What do these three things have in common? *All are the beginning--they are beautiful but also fragile and end quickly---a flower bud, Paradise, and the new morning.*
Day 1: Answer Questions for *Stay Gold.*	1. Where does the speaker want the reader to go (in his/her imagination) in lines 1-5? *The speaker refers to " a moment of long ago" so he wants them to think about a time in their past--when they were young and "carefree.*

	2. According to the speaker, how did they feel about life "way back when"? *When you are young, you tend to look at life as if it will last forever.* 3. Why do you think most people tend to look at the past in that way? Why is that time considered "so gold"? *People tend to look at times in their past as "the good old days". We tend to forget some of the problems because as children, we might not realize they were challenges.* 4. There is a tone shift starting on line 8. What does the speaker start to describe? T*he poem says "but nothing can stay gold"..that change will have to happen.* 5. Interpret the lines 17-18 into your own words: "Life ..is but a twinkling of an eye Yet filled with sorrow and compassion" *In the twinkling of an eye means that change feels like it happens quickly...and we often feel a loss for times that has passed.* 6. In the movie, one friend is telling the other to "stay gold", what does he mean by that? *He doesn't want his friend to change. He wants him to stay as he is.* 7. In Frost's poem, he is talking about nature. In Stevie Wonder's song, he is referring to a friendship. What is the common theme (message of the poem)? What can we learn from this theme? *Our relationships and our lives go through stages as well...when we start a relationship or a journey in life, we are often in that "carefree" stage where everything is exciting, but things change as we grow older.*
Writing for Day 1	Answers will vary.
Day 2:	1. What does the pre-frontal cortex part of the brain control? How does the fact that it is not fully developed until someone is in their 20's affect teen behavior? *The prefrontal cortex allows us to move beyond impulse and to think about consequences and make better decisions. This part of the brain doesn't develop fully until the mid-twenties so often, teens are working on impulse instead of thinking things through completely. It is a time when teens make mistakes and hopefully are learning from it.* 2. Teens tend to increase their "risky" behavior during adolescence. What does the article note as the positive side of this risky behavior? *The positive side of risky behavior is that you attempt things and learn from them. Additionally, if it is a positive risk (like deciding to speak in*

	front of the class or to raise your hand, even) the brain process the results as a reward so you'll probably want to do it again. 3. How does being more sensitive or emotional during adolescence help teens become better learners? E*motions help teens connect with others and they also tend to make teens remember and learn from experiences more because they have had an emotional reaction to them.* 4. What additional benefit do teens experience because they are more emotional? *Emotions can not only make you feel and learn more, but this is also helping people with their ability to avoid unwanted circumstance*s.

Day 3: Answer Questions to The Circuit.	1. Reread the opening paragraphs. What kind of work do the narrator and his family do? Cite details from the story that support your answers. T*he family work as migrant farmers. When you read the beginning of the story, you can see that the author refers to the different picking seasons such as strawberry season, He specifically mentions the Braceros which are immigrant workers who work harvesting crops by season.* 2. How does the narrator feel about moving? How do you know? Cite examples from the text. *At the beginning of the story, you can tell that he doesn't enjoy it. At the beginning of the story, he "feels the weight of the move" and it brings him to tears. He also stays up the night before and thinks about how he "hated this move" and finally, as they drive away, he "feels a lump" in his throat indicating that he wants to cry.* 3. Describe the narrator's work day once he moves to Fresno. *He works picking grapes and it is very hard work. They wake early in the mornings and work in the heat of the summer. His body is worn out by this work as he notes that his "body ached all over" and he "could hardly move".* 4. Why does the narrator consider Mr. Lema his "only friend"? *Mr. Lema, the teacher, takes a special interest in him. He doesn't laugh at him, but understands that he is behind academically. He also wants him to learn new things like how to play an*

	instrument. 5. Reread the last paragraph of the story. How do you think that the constant change of moving so often affects the narrator? What do you predict will happen to him? *Answers will vary, but it is obviously and hard for this teen to move from place to place. It puts him behind academically and then he worries that others will find out about it. He is also not really able to connect with anyone because he moves so much. While it might break some people, with this author, it didn't--he ended up attending college and becoming a professor.*
Day 3: Answers to the questions about Coming of Age	1. What ritual does the speaker in the poem experience with her mother? *She sits on her mother's lap each morning and looks out at the world and tells her mother what she sees.* 2. Her mother asks her the same question each day. Is she asking the speaker to literally describe what she sees out the window? Explain your answer. *You can picture a mother and child having this routine where she is learning about new things and talking to her mother. The mother asks the same question each day because she is waiting for her daughter to see beyond the childlike perspective that most kids have and to also see the harsh reality of life.* 3. Explain the speaker's view of the world as a child. Use specific examples from the text. *She sees only the positive and the beauty. Everything is new and there are endless possibilities.* 4. How does the speaker's tone change? Cite examples from the text. *In stanza 3 you see that she also sees the negative side of things..she sees the "gray", the "crying of children", "hunger", "famine" and "wars and blood", "guns and blood".* 5. How does the mother interpret these changes? T*he mother interprets this as her child maturing because she is no longer naive, she can see both sides of a situation.* 6. What does knowing "the world isn't such a pretty place" symbolize? Explain how the change in how she sees the world has signalled her change from child to adult. *At the beginning, she sees everything through the view of a child--only the beauty and fun. As she starts to mature, she sees that things are more complex--not all good, not all bad.*

Day 4: Answers to questions to *Same Drugs*	1. The chorus of the song is "We don't do the, we don't do the same drugs no more". If the speaker is talking about relationships, what is the phrase "same drugs" a metaphor (a comparison) for? *The same drugs is a metaphor for all the things that the speaker and the person he is talking to had in common. They have changed and grown over time and they no longer do or feel the same things.* 2. In the first stanza, the speaker tells Wendy that she has aged and gotten old. Is he surprised, angry, upset? What words tell you how he feels? Why do you think he feels this way? *He is surprised and saddened that she has grown up..He asks her when she changed..almost like he didn't notice it happening until it was too late. He feels upset and betrayed because he tells her that "I thought you'd never grow up". Students might cite different reasons for his feelings, but you might want them to think about relationships they have had where one or both of the people in the relationship have changed and they start to grow apart.* 3. Why do you think that the speaker says "we don't do what we say we're gonna"? (Hint: Again, think about a relationship that is either ending or changing) *This is a reference to him wanting to save the relationship, but sometimes even when we say we will "keep in touch" or "stay friends", and even if we mean it, we don't and start to move apart. He already feels betrayed by the fact that she has grown up and apart from it, so he sees this as inevitable.* 4. The last stanza refers to what life was like when they were kids. PIck 2-3 lines and explain how he describes childhood and how that might be different as we grow up. *Answers will vary but may include: All of the references describe things that children might do like "color inside the lines" , look at things with "wide eyed" wonder and thinking only "happy thoughts". As we get older, all of those things can change.*
Answers to the questions to *Seven Years*	1. What do you think of the pieces of advice given by the singer's mom and dad? Have you ever been given similar advice from your parents? Answers will vary 2. Fill out three of the sections of the timeline below by listing three major life events that happen to the speaker in the song. *Answers will vary but can include:*

	<table><tr><td>*7 years old*</td><td>*11 years old*</td><td>*20 years old*</td><td>*30 years old*</td><td>*60 years old*</td></tr><tr><td>*It was a big world and he and his friends thought they could do anything.*</td><td>*He was getting older, started smoking and drinking and looking for ways to make money*</td><td>*He has started writing songs. Very focused on his goals of having a band*</td><td>*He has already "made it" as a musician and traveled the world. He gets married and has kids.*</td><td>*He is a grandfather and hopes his grandkids will come and spend time with him.*</td></tr></table> 3. How does the speaker change throughout his life? Pick one transitional period (between 7 and 11, between 11 and 20, between 20 and 30, or between 30 and 60) and describe how he is different and how his life has changed. *Answers will vary. See above.*
Day 5: Questions to Answers about Youth Activists.	Graphic Organizer: Students pick any two Activists--answers will vary but can include: *Activist 1: Zion Kelly (Gun Control)* *Event that changed his life: His brother was shot and killed.* *How he/she responded: He began to speak out about gun control and demand legislative gun control. He meets with city and national leaders about the importance of getting guns off the street.* *Notable achievement: What is something he/she accomplished?He has become a well known activist in Washington DC and is able to speak to people who have influence: Mayor, congressional reps, etc...* *Activist 2 : Ashean Johnson (Educational Reform)* *Event that changed his life: Chicago public schools wanted to close his school* *How he/she responded: He has become a speaker and advocate for funding public schools in Chicago and nationally.* *Notable achievement: What is something he/she accomplished?* *He spoke out a a Board of Ed meeting and has also spoken out at a national level --speaking on the steps of the Lincoln Memorial in DC. The school board ended up not closing his school.* *Activist 3: Sophie Cruz (Immigration Reform)* *Event that changed her life: She learned her parents could be deported because they are undocumented.* *How he/she responded: She pushed past crowds and security to get a note to*

	the Pope and ask for his help. *Notable achievement: What is something he/she accomplished? She has spoken at the national level at the Women's March in DC and also got to speak to President Obama about immigration.* *Activist 4: Sonita Alizadeh* *Event that changed her life: She was set to be married at the age of 10 and later at 16--against her will.* *How he/she responded: She began rapping about and released a rap video telling the story of girls being sold into marriage by their families.* *Notable achievement: What is something he/she accomplished? She prevented her own forced marriage and got a scholarship to finish her education here in the United States.*

Science Week 6 Answer Key

Day 1 - Chemical and Physical Changes

1. Chemical Change is a type of change in which a new substance is formed; for example: burning something.

2. Physical Change is a type of change in which a new substance is NOT formed; for example: boiling water.

3. Catalyst is a substance that speeds up a chemical reaction.

4. Oxidizer is a chemical that provides a lot of oxygen to help things burn.

5. Hydrogen is a gas less dense than air that has no color or smell. It is extremely flammable, meaning it can burn.

6. Carbon Dioxide is a gas without any color or smell that is commonly found in soda. It is also called CO2 and comes out the back of a car or bus that is running.

Day 2 - Recycling

1. Which of the following is sometimes recycled into fibers for carpets or clothing?
    a. Aluminum cans
    b. Plastic bottles
    c. Paper

2. Which of the following materials is converted into a pulp or slurry during the recycling process?
    a. Aluminum cans
    b. Plastic bottles
    c. Paper

3. Gold is sometimes recovered from recycling which of the following materials?
    a. Computers
    b. Aluminum cans
    c. Plastic bottles

4. How many arrows are there in the typical recycling loop?
    a. 3
    b. 4
    c. 5

5. What do the arrows of the recycling loop represent?
    a. The main materials that can be recycled
    b. A different step in the recycling process
    c. A different method of recycling materials

6. Around what percentage of trash in the United States is recycled?
    a. 33%
    b. 27%
    c. 10%

7. Recycling can be a very complicated process and is different depending on the type of material.
    a. TRUE
    b. FALSE

Day 1: Change/Understanding % Math

What is this lesson about?: Today we are going to focus on understanding percentages, and percentage change. These concepts come up often in everyday life and it is important to be able to understand them.

Today's Warm-Up Problem

Kenny invested $100 in the stock market. One year later his stock was worth $110.
Alvin invested $10 in the stock market. One year later his stock was worth $20.

- Who made more money over the course of the year? THEY MADE SAME ($10)
- Who made a better investment? — ALVIN —
- Do you know what % return Kenny got on his investment? 10% 10/100 = 10%
- How about Alvin? 10/10 = 1 = 100%

San Antonio had a population of 2,000,000 in 1980. By 1990 it had a population of 3,000,000.
Houston had a population of 5,000,000 in 1980. By 1990 it had a population of 6,000,000.

- What city grew more over that 10 year period? SAME (1,000,000)
- What city, do you think, experienced a greater % increase over the 10 year period.
  — SAN ANTONIO —

Activity #1: Getting the Basics down...

Percent is a way of saying "out of one hundred"

Example: If you get a 90% on a test that means you earned 90 *out of 100*.

- Consider: How does your teacher know that you got a 90% if the test only had 50 questions (and not 100).

Example: James Harden shoots 40% from behind the three point line means that out of every 100 three point shots he takes, he makes 40.

- Consider: How do we calculate his % shooting in a game when he only takes 20 shots (and not 100?)

When you see decimals written out to 2 decimal places, that is also "out of one hundred" or x "hundredths."

Example: How do you say: 5.25. Many people say: "five point two-five".

- But a more correct way to say that is: "**five and 25 hundredths.**" 25 hundredths is the same as twenty-five percent. You might also think of it as 25 cents....

Practice writing out below how to 'say' each of the decimals below. Do NOT write out "**point 20**" or '**point 02**" or "**one hundred point 40**". Use the word "**hundredths**" -- that will get you thinking in percents!

- Example: 5.25= five and twenty-five hundredths…

.07 = 7 hundredths

.44 = forty-four hundredths

.21 = twenty-one hundredths

3.14 = three and fourteen hundredths

21.21 = twenty-one and twenty-one hundredths

.09 = nine hundredths

.80 = eighty hundredths

2.88 = two and eighty-eight hundredths

100.07 = one hundred and seven hundredths

.22 = twenty-two hundredths

Activity 2: Converting decimals to percents…

When you say **.07** as "**seven hundredths**" you are saying that it is the same as **7 out of 100….and that is the same as 7%**!

When you say **.50** as "**fifty hundredths**" you are saying that is the same as **50 out of 100….and that is 50%**.

Now, write each of the decimals below as a percent…

- Example: .04 = **four percent or 4%**

.07 = seven percent or 7%

.44 = 44%

.21 = 21%

.14 = 14%

.29 = 29%

.18 = 18%

.89 = 89%

.88 = 88%

.079 = Rounds to .08 ⇒ 8%

.24 = 24%

NOTE: If the decimal goes beyond 3 places, round it off to the hundredths place (2 digits) and convert to a %...

- Example: .048 → rounds off to **.05 = five percent or 5%**
- Example: . 089218 → rounds off to **.09 = nine percent or 9%**

Round each decimal below to the hundredths place and convert to a %.

Example: **.071** rounds to .**07** = **seven percent or 7%**

.222 rounds to .22 = 22%

.0295 rounds to .30 = 30%

.589 rounds to .59 = 59%

.009 rounds to .01 = 1%

.8598 rounds to .86 = 86%

.031 rounds to .03 = 3%

.7575 rounds to .76 = 76%

Step 3: Converting Fractions to Decimals

There are two main ways to convert a fraction to a decimal.

1. Option 1: You can find an equivalent fraction that has 100 in the denominator (the number at the bottom of the fraction). In that case, the numerator (the number in the top of the fraction) is the number 'out of one hundred" do it is the %.

   Note, you only do this when the denominator can easily be converted to 100. So it works well if the fraction has 2, 4, 5, 10. 20. 25 or 50 in the denominator. Let's try some of those below-

   Example:
   ¼ = __/100 → ask yourself what you multiply 4 by to = 100. That is 25. So, multiply 1 x 25. →
   ¼ = 25/100 == 25%

   25/100 is the same as twenty-five one hundredths...or 25%

Convert each of the fractions below to a fraction with 100 in the denominator, the write the % below

2/10 = 20/100 = 20 %

5/10 = 50/100 = 50 %

9/10 = 90/100 = 90 %

2/5 = 40/100 = 40 %

4/5 = 80/100 = 80 %

1/5 = 20/100 = 20 %

2/25 = 8/100 = 8 %

20/25 = 80/100 = 80 %

10/25 = 40/100 = 40 %

2/50 = 4/100 = 4 %

20/50 = ____/100 = ____%

40/50 = ____/100 = ____%

2/4 = 50/100 = 50 %

1/4 = 25/100 = 25 %

3/4 = 75/100 = 75 %

2. **Option 2**: You simply divide the numerator by the denominator, and then round the decimal off to two digits (remember from above).... This is what a fraction means: ¾ is the same as three (3) divided by four (4).

   If you have a calculator, this can be quite quick (clearly). If you have to do it by hand, make sure only go out to 3 digits and not spend lots and lots of time on it. So, try out a few of these below. If you don't have a calculator, just try and handful of these to get a feel for how these fractions convert to a decimal...and then to a percentage.

   Example:

   2/5 = 2 divided 5 = .40 → you say that as "forty hundredths" or 40%

   ⅛ = 1 divided by 8 (Write it out) = .125 (decimal) → you say that as Twelve and ½ hundredths (how many hundredths) or 12.5 % (%)

   3/9 = 3 divided by 9 (Write it out) = $.\overline{33}$ (decimal) → you say that as thirty-three hundredth (how many hundredths) or 33% (%)

   7/15 = 7 divided by 15 (Write it out) = $.4\overline{66}$ (decimal) → you say that as 47 hundredths (how many hundredths) or 47% (%)

   5/12 = 5 divided by 12 (Write it out) = .42 (decimal) → you say that as forty-two hundredths (how many hundredths) or 42% (%)

Step 4: Percentage Increase or Decrease

One of the most-used tools is to calculate the % change, or increase or decrease, in an amount, over time.

If you look back on the warm-up problem, or problems similar to it, you see why this is so important.

Example:

- Don takes $5,000 and invests it. Two years later, he has $6,000. Manny takes $2,000 and invests it. Two years later, he has $3,000.
- Who earned more money over the two years? They both earned SAME AMOUNT.

- Who's investment increased by a greater percent? MANNY!

Practice: To calculate the Percentage Change between two amounts, or over time you create a fraction that has the amount of change divided by the original amount. You then convert the decimal to a %.

Let's try that:
Don started with $5,000 and ended up with $6,000.
- His Amount of Change is: $6,000-$5,000= $1,000
- Next, create a fraction - $\frac{Amount\ of\ change}{Original\ amount}$ → write this as $1,000/$5,000
- Next, convert that to a decimal → .20 → say that as Twenty Hundredths...or 20%
- So, Don earned 20%.

Manny started with $2,000 and ended up with $3,000
- His Amount of Change is: $3,000-$2,000= $1,000
- Next, create a fraction - $\frac{Amount\ of\ change}{Original\ amount}$ → write this as $1,000/$2,000
- Next, convert that to a decimal → .50 → say that as Fifty Hundredths...or 50%

So, both Don and Manny earned $1,000. But Manny's investment went up by 50%. Don's investment went up by 10%.

Practice problems-

Rember: Percentage change =($\frac{Amount\ of\ change}{Original\ amount}$ -))→ then convert the decimal to a %

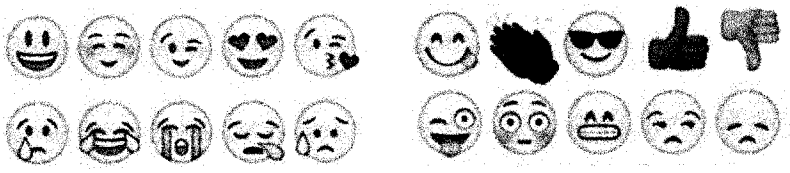
In 2018, the average number of students held at the DC detention center was 80. In 2019 the average number of students there was 64. By what percentage did the detention population go down? 80-64=16 16/80 = 2/10 (.2) 20%

Janelle averaged 18 points a game during her junior year in high school. During her senior year, she averaged 24 points a game. By what percentage did her scoring average go up?
18→24 ⟹ +6 6/18 ⇒ 1/3 ⇒ .33 ⇒ 33%

In April, there is approximately 12 hours of daylight in Alaska each day. By the late June there is nearly 18 hours of daylight. By what percentage has the amount of daylight per day gone up?
12→18=+6 → 6/12 ⇒ 1/2 ⇒ .50 = 50%

In 1980 cars in the US averaged 15 miles per gallon. By 2020, cars in the US averaged 25 miles per gallon. By what % has fuel economy gone up over the 40 years?
15→25=+10 ⇒ 10/15 = 2/3 ⇒ .666 ⇒ 67%

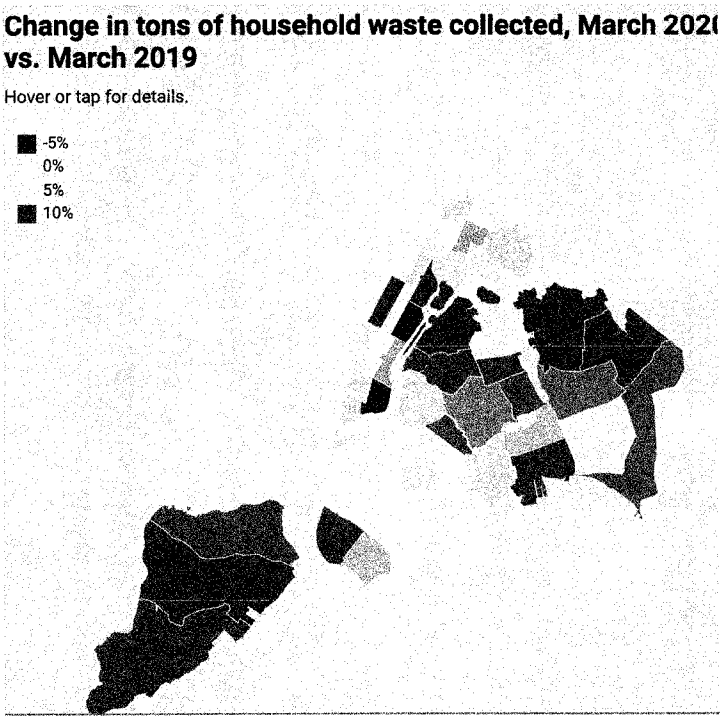
Student Feedback:

Circle the emojis that best represents how this activity made you feel.	

Day 2: Change/Pollution & COVID-19
Math

What is this lesson about?: Today we are going to focus on how the COVID-19 outbreak has influenced and is influenced by pollution. It has created significant changes to the pollution we see and feel and are influenced by.

Today's Warm-Up Problem



The above map shows the amount of trash collected in March of 2019 vs March of 2020 in New York City.

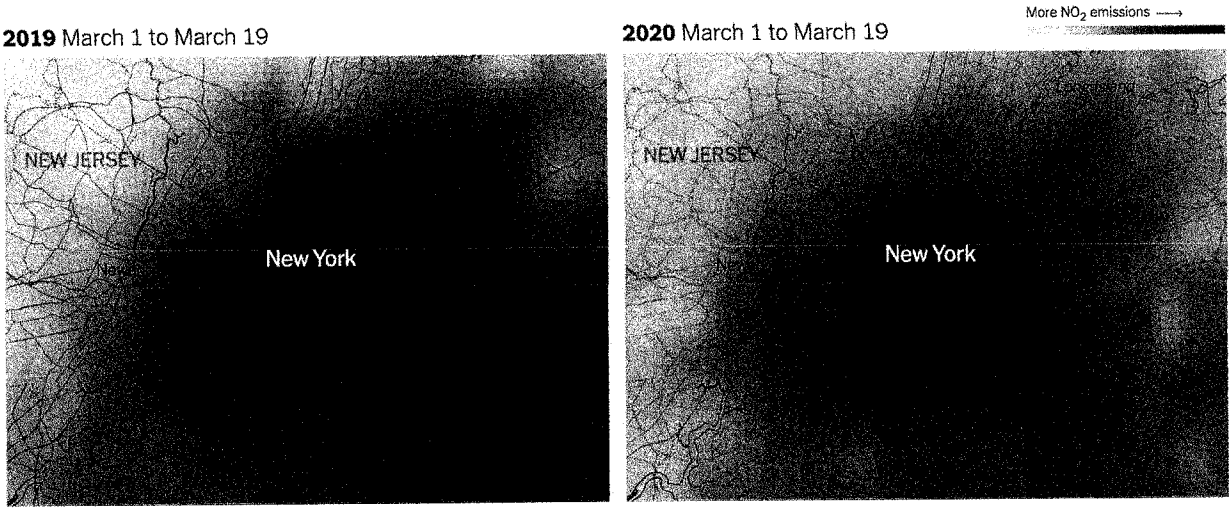
- Why, do you think, one part of the city would be seeing trash collections going down, while other parts are seeing it go up? Δ in # of People Living & Eating –
- In general, do you think trash collection from homes is going up or down between March 2019 and March 2020? ↑ BC People are stuck @ home
- If you were told that the areas in light pink/red--where residential trash collections have gone down are the wealthiest part of the city, what might you think this chart shows? Wealthy People left NYC for 2nd Homes

Note: Researchers have concluded that the reason for the decline is that many of the wealthy residents in Manhattan have left the city and gone to 2nd homes...to get away from New York during Covid-19....

Discuss/Consider: Does this raise any questions or concerns for you?

Activity 1: Carbon Monoxide in NYC

The photos below, show the carbon Monoxide levels in New York City, in March of 2019 and then again in March of 2020. The darker (purple if in color) reveal higher levels of carbon monoxide in the atmosphere.



Although this is an image of just one gas--carbon monoxide -- measures of air pollution yield similar results.

- List 1-2 reasons why you think air pollution might be down this March and April compared to last March and April.
  ⇒ Less People Driving to Work; Less People on Planes, Etc.
- The chart below shows average miles that families in Washington, DC drive in their cars over two time periods, as well as the cost of commuting to work by someone who uses public transportation

	March 2019	March 2020
Average Miles Driven Per Week	110	⇒ 20
Average cost for a gallon of gasoline	$3.50	$2.25
Monthly subway/metro cost	$140	$5

How many fewer miles is the family driving in 2020 than 2019 each week? 90 Miles Less

Assuming that their car gets 20 miles to the gallon, approximately how much money did they spend on gas each week in March, 2019?

$19.25

110/20 = 5.5 = Needed To Buy 5.5 Gallons @ Gas @ $3.50/Gallon

How about in March 2020?

Wow!

20/20 = 1 Gallon Per Week

$2.25

$2.25 × 1 = $2.25

The person who used to commute on the metro to and from work is now working from home. How much is she saving each week subway/metro costs? $35/wk $1.25/wk DIFF=$33.75 2019 $140/4 = $35/week 2020 $5/4 = $1.25

Many car insurance companies are offering rebates or reducing their car insurance rates this spring.

- Why would they be doing that? People Driving Less = Fewer Accidents

A recent study in California indicated that the number of car accidents per day in March 2020 was ½ what it was in March 2019 in California. In addition, the number of accidents resulting in injury was also cut in ½.

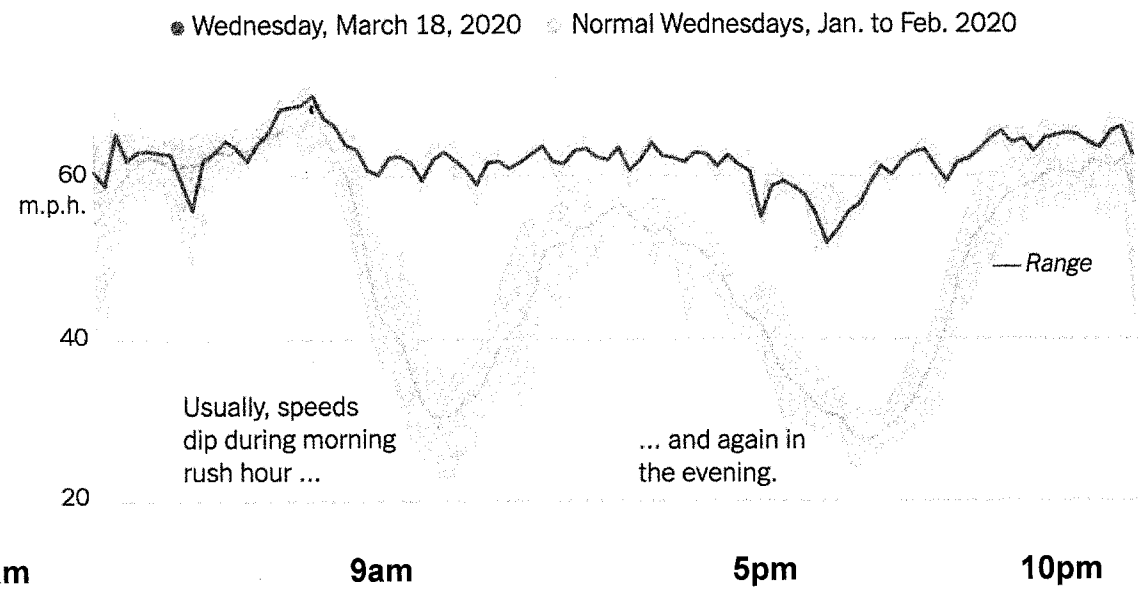
- In March 2019, there were on average 980 accidents and 390 injuries per day related to auto accidents.

- How many auto accidents and how many auto injuries were there per day in March 2020? 980/2 = 490 390/2 195

Activity 2: Traffic in Los Angeles

The chart below shows the average speed along a major interstate in Los Angeles. It compares the speeds on Wednesday, March 18, 2020 compared to the average speeds on Wednesdays earlier in the year.

Traffic speeds along Interstate 110 in Los Angeles were much faster than usual



Based on this chart-

- Back in January 2020,
  - What was the average speed on the highway at approximately 9am? 30 MPH
  - How about at 5am? 60 MPH
  - What happens to the average speed between about 3pm and 7pm? 55 MPH → 30 MPH
  - And if you were driving late at night or early in the morning, what is the average speed on the highway? 65 MPH
  - What is the difference between the average speed at 3am and 9am (approximately?) [25 MPH]

- On Wednesday, March 18, 2020,
  - What was the average speed on the highway at approximately 9am? 60MPH
  - How about at 5am? 60MPH
  - What happens to the average speed between about 3pm and 7pm? SMALL only
  - And if you were driving late at night or early in the morning, what is the average speed on the highway? 60+ MPH
  - What is the difference between the average speed at 3am and 9am (approximately?) ≈0

Why is there such a wide swing of speeds on the highway early in the year and such a narrow swing (almost a straight line) in March? LESS TRAFFIC — NO ONE ON THE ROAD —

What do you think this pattern will look like in October, 2020? > ≥

Step 3: Gallon of Gasoline

This chart shows the average cost of a gallon of gasoline in 4 states, comparing prices on April 20, 2020 compared to April 20, 2019.

	Price for 1 Gallon of Oil			
	April 2019	**April 2020**	**Price Decrease**	**% Decrease**
California	$4.50	$2.80	$1.70	-38%
Texas	$2.50	$1.55	.95	-38%
Florida	$3.45	$1.80	$1.65	-48%
New York	$3.90	$2.20	1.70	-44%

170/450

95/250

165/345

170/390

Complete the last two columns of the above chart. Use the reminder below if you need help completing the last column.

Rember: Percentage change =($\frac{\text{Amount of change}}{\text{Original amount}}$ -)→ then convert the decimal to a %

In what state did the price of gasoline fall the most? NY-CAL =
In what state did the price fall by the greatest percentage? FL
The price fell by the same amount in California and New York. Why is the percentage decrease different? NY STARTED OUT LOWER SO % A D GREATER

Predict what you think the average price of 1 gallon of gasoline is in your home state: $1.95 (DC)
What do you think that price will be in October 2020? $2.75 ?

Step 4: Thought Questions

Based on the information you have read about traffic, driving habits, price of gas, and pollution.....

- Why has the price of gasoline gone down so much during the COVID-19 time?

- What are 1 - 2 good things that are happening right now when it comes to keeping people and our environment healthy?

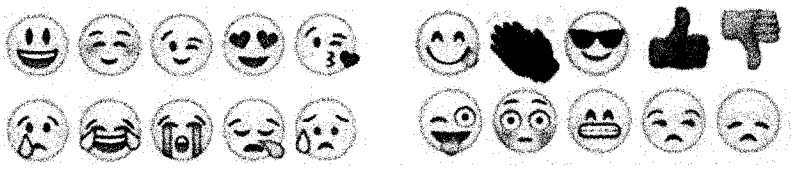
  LIT LESS TRAFFC

- Assuming that by the fall many people are going to head back to work..and start taking trips...will these benefits stay with us or go away? UNCLEAR!

- What might we do to make some of the 'benefits' stay with us after this pandemic subsides?

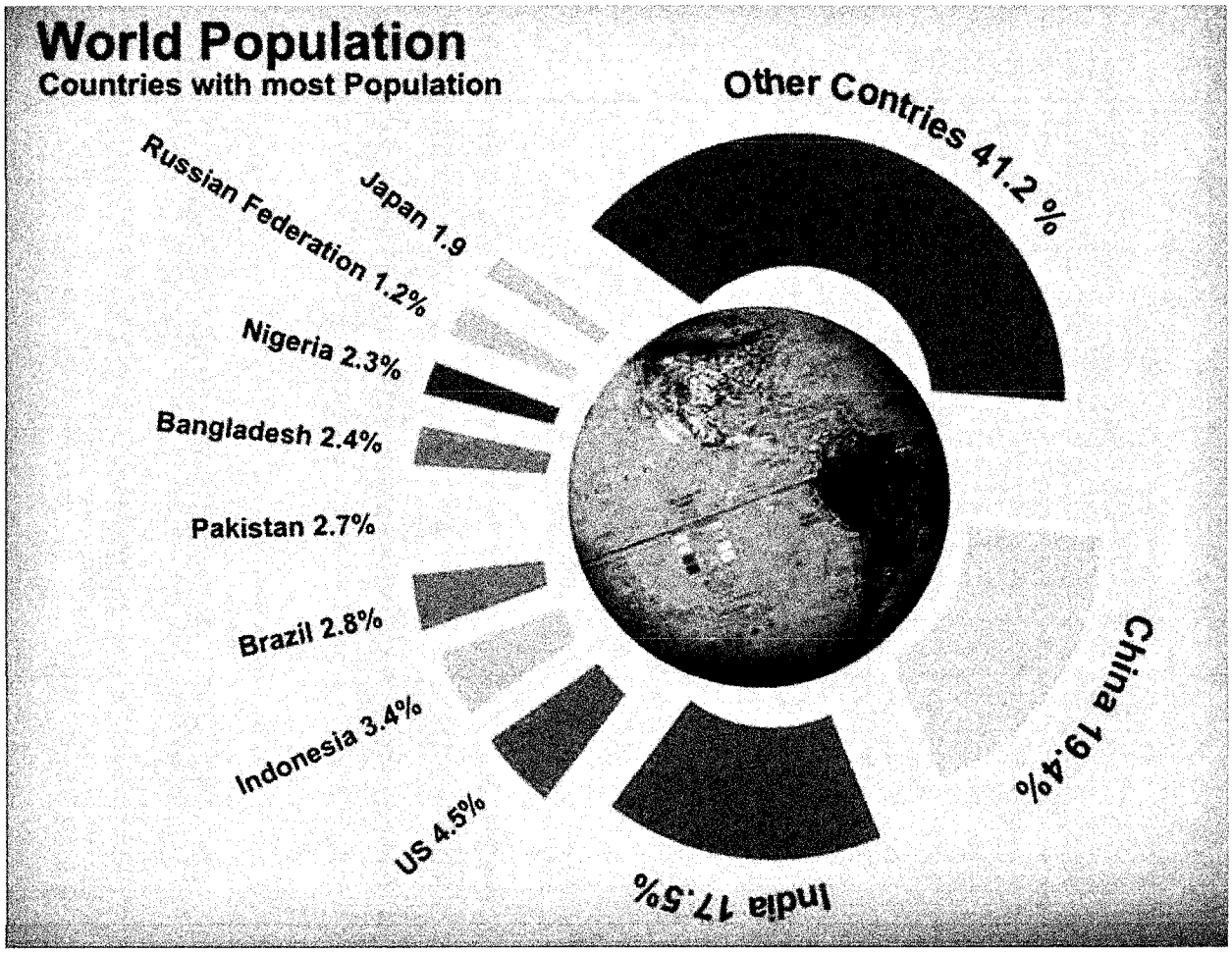
  Discuss — No 1 correct answer

Student Feedback:

Circle the emojis that best represents how this activity made you feel.	

Day 3: Change/Population Math

What is this lesson about?: This lesson is about world population and the percentage change over time.



Step 1: Country populations

The United Nations estimates that the world population for April 2020 is approximately 7.8 Billion people. In standard numeric form that's 7,800,000,000. Wow! Our global population is growing and there are currently more people on the Earth today then combining all the people who have ever died. Certain countries are continuing to grow, such as China, India and many African countries. Others, such as the Russian federation and Japan have shrinking populations.

To calculate how many people are currently in our country, we need to multiply 4.3%(.043) times 7,800,000,000. That is the percent of the world's population that is in the U.S. multiplied by the total world population.

7,800,000,000 times .043 = 335,400,000.

There are roughly 335 Million people currently living in the U.S. Using this method, please calculate the population for these three countries.

Country	*Population*
United States	335,400,000
Nigeria	**179,400,000**
Pakistan	**210,600,000**
India	**1,365,000,000**

Step 2: Differing populations by country

You can see from the pie chart above that the U.S. has a greater population than both Nigeria and Pakistan, but how much greater?

If you calculated step 1 correctly you should have found Nigeria's population to be 179,400,000. If we subtract Nigeria's population from the population of the U.S.(335,400,000-179,400,000) we find the difference to be 156,000,000. The U.S. has 156 Million more people than Nigeria.

Please fill out the chart below with the correct differences in populations for the other two countries compared with the U.S. Remember, if we are comparing them to the U.S. we use a negative sign if they are smaller and a positive sign if they are larger.

Country	*Population*	*Population difference*
United States	335,400,000	0
Nigeria	179,400,000	-156,000,000
Pakistan	**210,600,000**	**-124,800,000**
India	**1,365,000,000**	**1,029,600,000**

Step 3: Calculating a percentage difference

To calculate a percent difference we need to use a ratio (fancy word for a fraction.) If we take the difference in population for a country as the numerator, we then divide it by the U.S. population, the denominator.

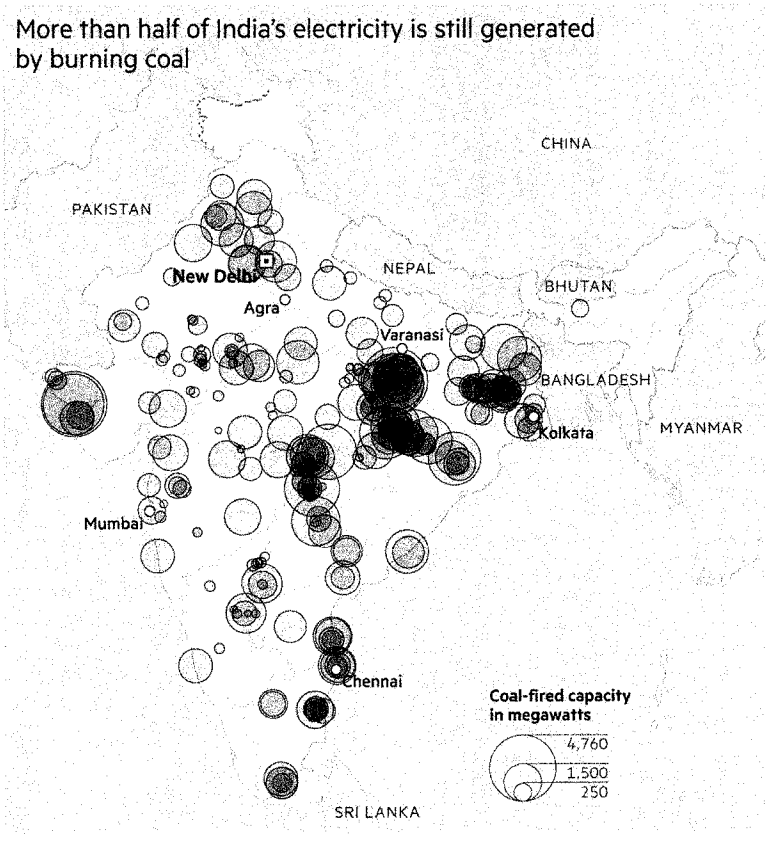
In the case of Nigeria we would calculate 156,000,000 divided by 335,400,000 to get .465. Then we convert our decimal to a percentage by moving the decimal point 2 units to the right which equals 46.5%. In other words, Nigeria has 46.5% less people than the U.S.

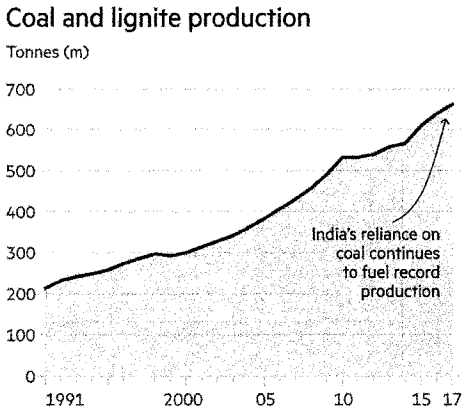
Using the information you found in step 2, please calculate the percent difference in population for Pakistan and India.

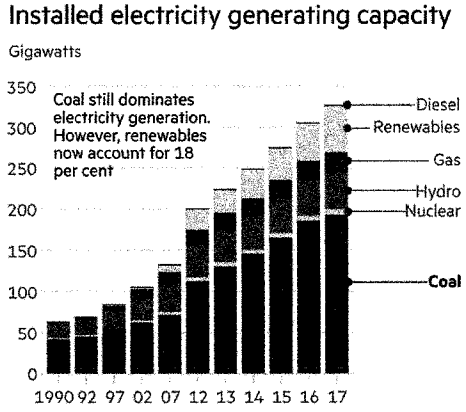
Country	*Population*	*Population difference*	*Percent difference*
United States	335,400,000	0	0
Nigeria	179,400,000	-156,000,000	-46.5
Pakistan	**210,600,000**	**-124,800,000**	**-37.2**
India	**1,365,000,000**	**1,029,600,000**	**306.98**

Step 4: Population and pollution

One of the challenges of a huge and growing population in India and China, is pollution. Both countries have historically relied on coal to produce electricity for their citizens, leading to dangerous levels of air pollution. Coal is the dirtiest, most inefficient way to produce electricity,







Sources: World Resources Institute; Haver Analytics; Central Electricity Authority
© FT

Based on these charts and graphs, answer the following questions:

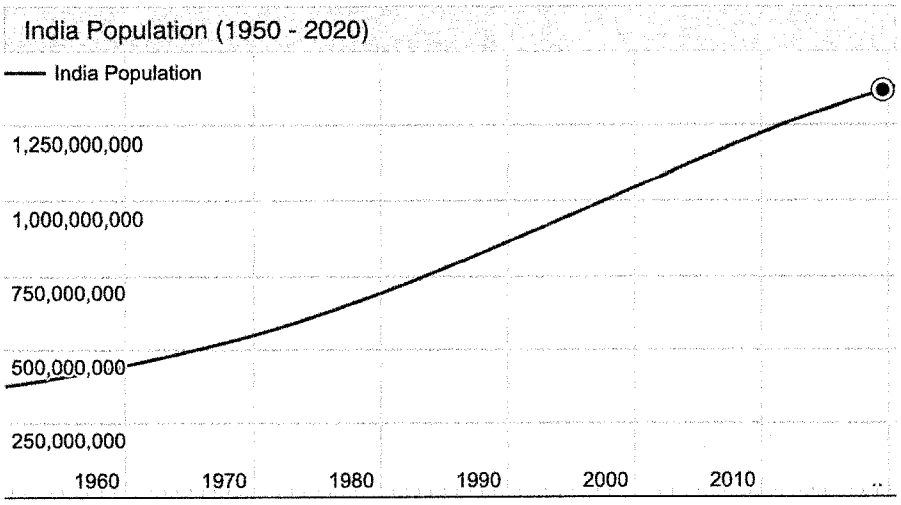
- How many approximately how many tons of coal did India produce back in 1990? **200**
- And how much are they producing now (2017) **650**
- Back in 1990, coal was used to generate most of the electricity in India. Today (2017), renewable energy such as solar and wind are a pretty big part (18%) of how India produces electricity. That is good. But...

- Does India use more coal now (2017) or in 1990 to produce electricity?

  India uses more coal now

- Why, do you think, does India use so much more electricity today than in 1990?

  Because their population has grown and they have more people to provide energy for/

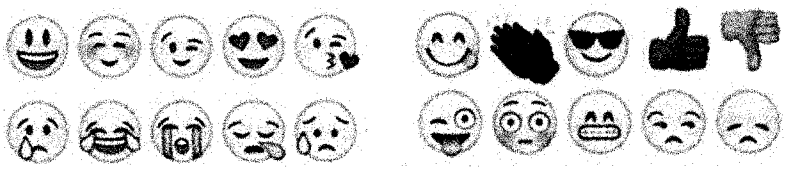


- Based on this chart, what was India's population, approximately in 1990? And what is it today, approximately?

  1990: 875,000,000 **Now: 1,400,000,000**

- **Discuss/consider**: As populations increase, what pressure does that put on energy needs? How can we provide energy needs to an increasing population and keep pollution down and keep the environment clean?

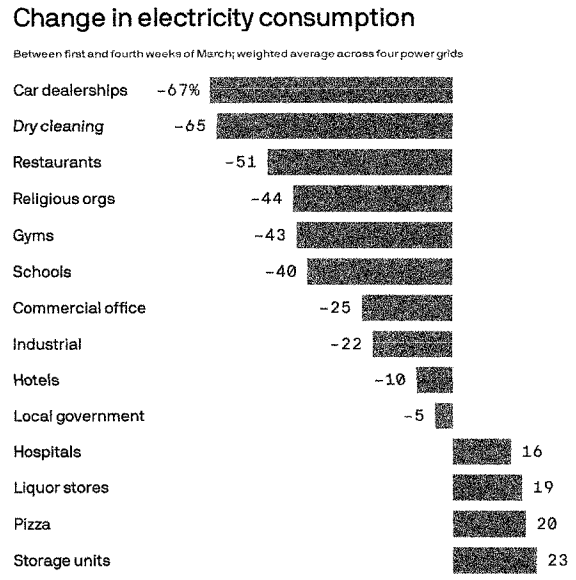
Student Feedback:

Circle the emojis that best represents how this activity made you feel.	

Day 4: Change/Flint, Michigan Math

What is this lesson about?: Today's lessons focus on the water crisis in Flint, Michigan that ran for a number of years. The activities focus on the changes that took place in Flint, in light of the City's decision to try and save money by changing its water source.

Today's Warm-Up Problem



The chart above shows how different industries are using more or less electricity, comparing the first week in March 2020 to the last week in March 2020. A negative % means that industry used that much less electricity. Looking at the chart:

- What industries are using a lot LESS energy now? Car Dealerships, Gyms
- Does it make sense to you that those industries are using less electricity? (Yes)/No
- What 2-3 industries are using more electricity? Hospitals, Liquor Stores
- What do you think that both pizza delivery and liquor stores are using more electricity?
  → More Pizza Del, More Drinking in —

Activity 1: Flint's population

Flint, Michigan is located about 60 miles from Detroit. For many years, it received its water from Detroit--a much larger city that has a well-tested water treatment system. In 2013, facing a budget shortfall and other challenges, the City of Flint decided to start pulling its water directly from the Flint River (Lake Huron), without adequate processes in place to test and purify the water.

Background on Flint: Use the chart below to answer some basic questions about Flint and its population, in 1990 and in 2018.

Flint, Michigan Statistics	1990	2018
Population	140,000	96,000
Population: Afican Americans	56,000	51,840
% with College Degree	15%	12%
Median Household Income	34,000	27,000
Population: People living in Poverty	35,000	38,400

By how much did Flint's population decline between 1990 and 2018?

What sort of percentage change (decline) is this?

How much did the 'average' family earn in 1990 in Flint?

How much was that in 2018?

What sort of percentage change (decline) is this?

What percent of the population was African American in 1990?

What percent of the population was African American in 2018?

What percentage of the population in Flint lived below the poverty level in 1990?

What was this percentage in 2018?

Activity 2: Level of lead in home water

Soon after the city began supplying residents with Flint River water in April 2014, residents started complaining that the water from their taps looked, smelled, and tasted foul. Despite protests by residents lugging jugs of discolored water, officials maintained that the water was safe.

A study conducted the following year by researchers at Virginia Tech revealed the problem: Water samples collected from 352 homes through a resident-organized effort indicated citywide lead levels had spiked. Homes were put into 3 categories:

- Safe tap water,
- "Action Level" tap water, meaning the level was so high that immediate action should be taken based on federal guidance
- "Very Serious" tap water, meaning the level was high enough that based on federal guidance, it was above safe levels and needed to be addressed.

Number of households tested (tap water supply)-	352
Number of households with Lead with "Quick Action" levels	53
Number of households with Lead with "Very Serious" levels	142

Out of the 352 homes tested, how many had lead levels at the "Action Level"?
- What percentage of the tested homes is this (approximately)?

53/352 = 15%

Out of the 352 homes tested, how many had lead level at the 'Very Serious' level?
- What percentage of the tested homes is this (approximately)?

142/352 = 40%

Taken together, what % of the homes had problems with high levels of lead in their water? 55%!

Discuss/Consider: What would you do if you lived in a neighborhood and more than 50% of the homes were determined to have unsafe drinking water? Not Good

Note: Similar testing conducted in 2010 revealed 0% of the homes with lead at the 'action level' and less than 5% at the 'very serious' level. How

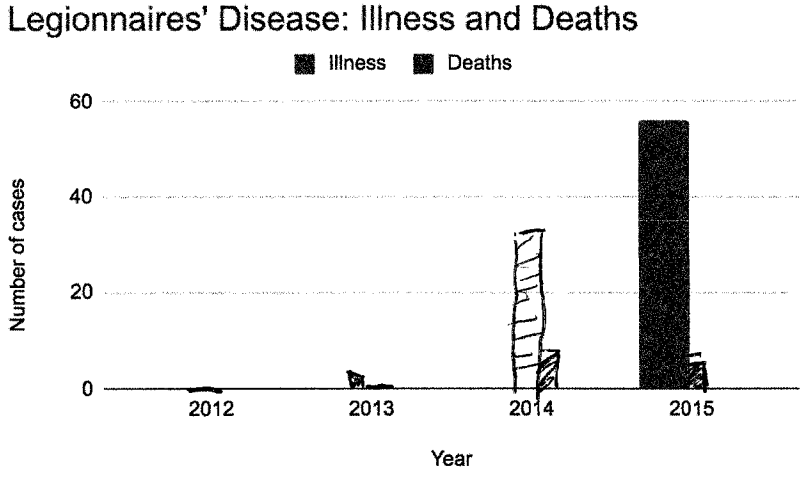
Activity #3: Legionnaires Disease in Flint after water crisis

Other problems also struck vulnerable populations in Flint. Legionnaires' Disease--a rare form of pneumonia--had never before been present in Flint, took hold, killing a number of adults and leaving others very sick.

Legionnaires' Disease

Year	Illness	Deaths
2012	0	0
2013	2	0
2014	31	7
2015	56	5

Use the data to the left to plot a double bar chart showing the spike in illnesses and deaths caused by the disease between 2012 and 2015. (we've already added the 2015 illness bar to the graph for you)



- What does this bar graph make clear to the viewer?

L Difference ↑ SkyRockets in 2014 & 2015

Activity 4: Cost of water in Flint

A survey of the 500 largest water systems in the country, conducted in 2015, found that on average, Flint residents paid about $910 a year for water service, the highest in the nation and nearly double the national average. The figure is based on an annual household consumption of 60,000 gallons. The chart below pulls the cities with the highest annual water bills and those with the lowest water bills.

In addition, the chart compared the cost of household water to Detroit.

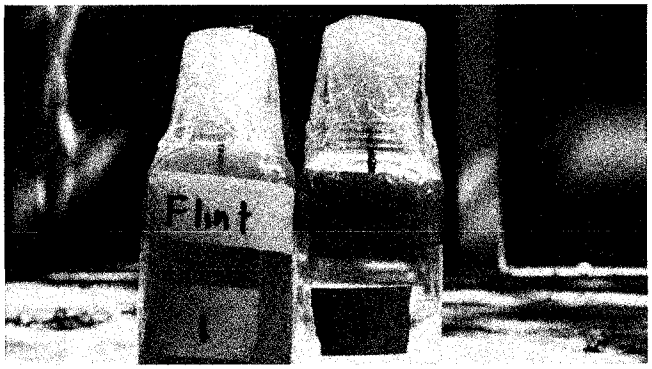


Photo from Metro Times, the Flint, Michigan Newspaper in 2014.

Annual Water Bills--2015 City	State	Population	Av. Annual Water Bill
Flint	MI	124,943	$910.05
Detroit	MI	787,289	$246.21
Pittsburgh	PA	516,411	$792.84
Monterey	CA	94,700	$716.18
Harrisburg	WV	217,959	$710.63
Memphis	TN	671,450	$120.71
Miami-Dade	FL	2,100,000	$116.46
Jefferson Parish	LA	308,362	$104.40
Phoenix	AZ	1,500,000	$84.24
* Based on 60,000 gallon/year usage-			

How much more $ does the average family in Flint pay for water than a family in Detroit?

910.05
246.21
663.74

Approximately, how much does a family in Flint pay for water each month? 910/12 = $76/M
How much is this for a family in Detroit? 246/12 = $20/M

How much does a family in Memphis spend per month on water? 120/12 = $10/M
How about a family in Phoenix? 84/12 = $7/M

Housing advocates say that families shouldn't pay more than 1% of their income for basic water in their homes. In Detroit, if the average household income is $27,000 and a family spends approximately $900 per year on water.

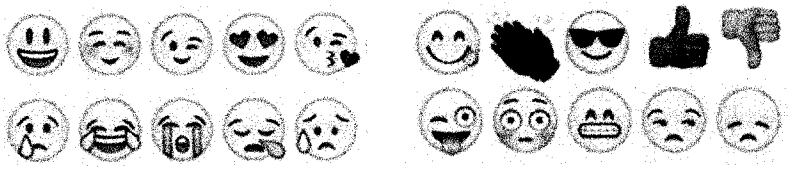
- About what % of $27,000 is $900. 3%

Consider/discuss: Back in 2010, the average resident in Flint, MI paid just slightly more for water than the average resident living in Detroit. The water quality in both cities was the same, coming from the same source. Five years later, residents in Flint are paying 3xs as much for water. The water for years had been dirty, with high lead levels.

- In hindsight, was the city's decision to try and purchase 'cheaper' water a good one?

No

Student Feedback:

Circle the emojis that best represents how this activity made you feel.	

Day 5: Change/Youth Change Makers (Climate) Math

What is this lesson about? Today's lesson will look into how young people and each of us can help slow climate change and reduce pollution.

Today's Warm-Up Problem

In many of the largest cities in the world, and in many small, rural communities in India and Africa, large portions of the population, earn their living by selling items each day, and using that money to enable them to purchase food for dinner in the evening.

The recent COVID-19 outbreak is making this nearly impossible for them to survive day to day. Estimates suggest that up to 265 million people in the world could be pushed to the brink of starvation this year.

- The entire population of the USA is 326 million people.
- Approximately what percentage of the US population is 265 million? 265/326 = 81%

Step 1: Background

"We do not inherit the Earth from our ancestors. We borrow it from our children," an oft-quoted saying from the Oglala-Sioux Native American nation.

- What does this quote mean, do you think?

"We will be known as the solution to the climate crisis," **17-year-old** Nadia Nazar, co-founder of the youth-led climate activist organization Zero Hour, said this September in Washington, D.C.

Later that week, **16-year-old** Greta Thunberg addressed the United Nations General Assembly. "You have stolen my dreams and my childhood with your empty words. And yet I'm one of the lucky ones. People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you!

"For more than 30 years, the science has been crystal clear. How dare you continue to look away and come here saying that you're doing enough.

What are some of her main points, do you think?

Discuss

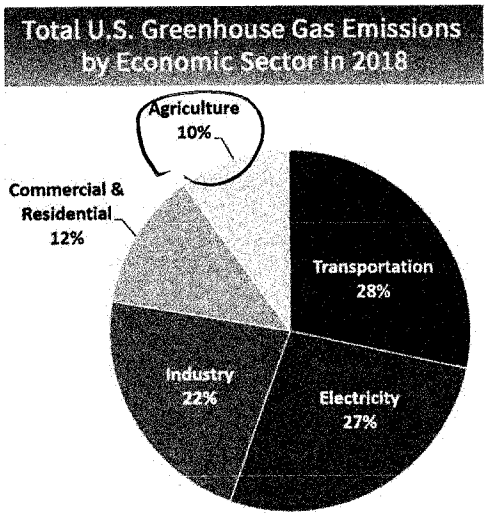
Greta Thunberg has gained prominence as a leading activist for changes to policies that might slow the rate of climate change and reduce the harm of pollution and greenhouse gasses.

She has highlighted the cost of air travel in terms of pollution, and has tried to avoid air travel and travel by boat, for example.

- What are some simple things that could be done to reduce air travel and pollution produced by airplanes? Discuss

Step 2 and 3: Greenhouse gas in the U.S. data and analysis

The chart below shows the major contributors to Greenhouse Gas Emissions in the US (in 2018).



Total Emissions in 2018 = 6,677 Million Metric Tons of CO2 equivalent. Percentages may not add up to 100% due to independent rounding.

* Land Use, Land-Use Change, and Forestry in the United States is a net sink and offsets approximately 12 percent of these greenhouse gas emissions, this emissions offset is not included in total above. All emission estimates from the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2018.*

Answer the questions below, based on the pie graph. We will round off numbers so that you don't spend too much time doing long division…

Researchers have estimated that if we stopped eating all red meat (beef and pork), greenhouse gasses we would reduce overall output by almost 10%. The 'agriculture' slice of the pie chart is almost all a result of greenhouse gas emissions from raising livestock.

- If the US puts out 6,677 million metric tons of greenhouse gas in 1 year, how many metric tons of that is from agriculture?

6677 x .10 = 6677

6067

The transportation 'slice' is primarily emissions from trucks and automobiles, but it also includes air travel, etc. Researchers say that if we could replace 50% of our current gas powered cars with electric cars we could reduce the greenhouse gasses produced by the transportation sector by that same amount (50%).

- How many metric tons of greenhouse gas would we 'save' if we converted over ½ of the car and truck fleet to electricity 6,677 x .28 ⇒ 1,869 ÷ 2 = 934

We also put out greenhouse gasses when we use coal plants (and others) to produce electricity. There are other ways to produce electricity, including wind, sun, and water (rivers, ocean currents). Right now this can't work for all of our electric needs, but as we build better batteries, we will get closer. 6677 x .27 = 1802

- How many metric tons of greenhouse gas would we 'save' if we were able to cut the pollution we put out in generating electricity by approximately 30%? 1802 - 540 = 1362 or 1802 x .30 = 540

1802
540
1362

Another way to reduce greenhouse gasses is to find ways to absorb the CO2 that we all put in the atmosphere. The best way to do this 'naturally' is to increase our forests, trees and plants, all of which 'take in' CO2. Right now, forests and woodlands in the US take in about 12% of the greenhouse gasses that we emit.

- How many metric tons of greenhouse gas do trees and forests take in? 6677 x .12 = 801

Researchers do NOT believe that we could plant enough trees to offset all of the carbon emissions we currently put out into the atmosphere. But many believe that we could likely double the amount of this intake over time if we were really smart.

- If we did double the amount of carbon emissions we took in by forests and trees, how many metric tons would that be? 801 x 2 = 1602

Step 4: How can you make a difference in your community--while detained or back at home

One of the hardest things about fighting climate change and working to reduce greenhouse gasses is that it is hard to see how small things matter. But it is important to know that a bunch of little things really add up.

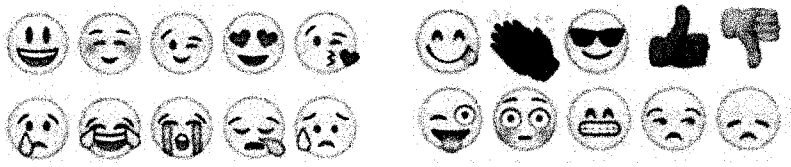
- Example, if each person recycled their plastic water and soda bottles, well, wouldn't all these plastic bottles that take hundreds of years to break down polluting the oceans. Similarly, if each person stopped using single-use plastic

bags when they go to the grocery store or dollar store, we would nearly eliminate their use and the problems they create. Each person decides what car to buy and makes a decision to buy one that does or does not get good gas mileage or s or is not a hybrid or electric car...

- What are 1-2 things that you could be doing now and when you are released to reduce the pollution and carbon emissions you put out into the world?

Discuss

Student Feedback:

Circle the emojis that best represents how this activity made you feel.	

Social Studies Week 6 Answers

Day 1	Why is history so important to society? *History is important because it helps society form an identity and it tells us what has happened that has worked for society and what hasn't worked. We can learn valuable lessons from history. History is society's memory!* Why is it too simple to describe history as "what happened in the past"? What more is in the equation of what history is? *History consists of evidence and interpretation. We don't know exactly what happened in the past unless we lived through it. Historians have to interpret evidence of the past and try to make sense of it. So calling history "what happened in the past" doesn't account for different perspectives or interpretations.* Why is history evolving? *History evolves as historians interpret historical evidence differently. When making sense of historical evidence and source, historians bring in their life experiences because those factor into how they will understand the evidence. As new historians study the evidence, history evolves with their changing mindsets and perspective.*
Day 2	Were 'witches' burned at the stake as punishment in Salem? If not, how were they punished? *No, they were not burned. They were hung at the gallows and one was crushed to death.* Why do you think people have the misconception that burnings at the stake happened in Salem? *Other events in history have included burnings at the stake, and in other places in the world witches were burned alive, so people get this confused with the Salem Witch trials.* In the section on teen angst and patriarchal oppression, the author explains how some historians believe teenage angst and societal rules that favor men played a role in causing the witch trials. What are some pieces of evidence or factors used to support this argument by historians? *(1) Most of the accusers during the witch trials were teenagers, which shows they may have been rebelling. (2) Most of the accused were women, which may show that they were being treated poorly.* In the section headed 'boredom and guilt" the author explains that the witch trials started with two young girls "began to hide under furniture, scream, and bark like dogs." In your opinion, based on your life experiences, do these seem like frightening or very odd behaviors for young girls? Why or why not? *Answers may vary but should likely include that this behavior doesn't seem that odd as we know that children role play and have tantrums and act up. In Salem, however, where the town was very strict and religious, these behaviors were not as accepted as they are today.* In 1692, the girls' behavior was determined to be very alarming. Based on your answer above would you say that interpretations of this type of behavior has changed over time? *Answers may vary. See answer above.*

	Why do you think so many theories for explaining the Salem witch trials have been developed by historians? How can you explain why there are so many different theories? *Answers may vary. Historians continue to consider explanations around the witch trials because it is an interesting period in time and there is no certain answer. As more evidence comes to light, more can be studied and explored to discover new theories. Different theories come about because of new evidence and because of new interpretations of evidence by historians who bring different perspectives to the table.*
Day 3	Mostly opinion-based questions. Answers will vary.
Day 4	How does the article describe the Texians who fought against the Mexican Army at the Alamo? *The article describes the Texians as heroes who were fighting for their liberty, as people who should be remembered and honored, and describes them as being mighty and brave.* Why did the Texians rebel against the Mexican government and engage the Mexican Army in this battle? What were they fighting for? *They were fighting for their lives and for liberty. To protect their land.* Based on these last two articles, Why did the Texians rebel against the Mexican government and engage the Mexican Army in this battle? What were they fighting for? *Texians were fighting over disputes around taxes and their ability to own slaves.* Did you answer the last question change as compared to when you answered it after reading the first article? *Students' answers should be in the affirmative.*
Day 5	Matching A. Imperial B. Whig C. Loyalist D. New Left E. Revolutionary The rest of the answers will vary by student.