MCMS
6th Grade
NTI Packet
Day 17

Day 17 6th Grade Math

Name _____

Reteaching
19-4

Median, Mode, and Range

The median, mode, and range are each numbers that describe a set of data.

Here is Eduardo's survey of how many books his friends read last month.

What are the median, mode, and range of Eduardo's survey?

Book Reading	
Friend	**Number of books read**
Jean	2
Raul	3
Sally	8
Jonathan	5
Haley	6
Kristen	3
Owen	1

Median: The median is the middle number in a set of data. To find it:

1. Arrange the data in order from least to greatest. 1, 2, 3, 3, 5, 6, 8
2. Locate the middle number. middle number = 3

The median number of books read is 3.

Mode: The mode is the data value that occurs most often. To find it:

1. List the data. 1, 2, 3, 3, 5, 6, 8
2. Find the number that occurs most. 3

The mode of the books read by Eduardo's friends is 3 books.

Range: The range is the difference between the greatest and least values. To find it:

1. Identify the greatest and least values. 8 and 1
2. Subtract the least from the greatest value. $8 - 1 = 7$

The range of the books read by Eduardo's friends is 7 books.

1. Find the median of this data set: 12, 18, 25, 32, 67. _____
2. Find the mode of this data set: 123, 345, 654, 123, 452, 185. _____
3. Find the range of this data set: 24, 32, 38, 31, 61, 35, 31. _____

Name _____

Practice
19-4

Median, Mode, and Range

1. Find the range of this data set: 225 342 288 552 263. _____
2. Find the median of this data set: 476 234 355 765 470. _____
3. Find the mode of this data set: 16 7 8 5 16 7 8 4 7 8 16 7. _____
4. Find the range of this data set: 64 76 46 88 88 43 99 50 55. _____
5. **Reasoning** Would the mode change if a 76 were added to the data in Exercise 4?

_____

_____

The table below gives the math test scores for Mrs. Jung's fifth-grade class.

Test Scores					
76	54	92	88	76	88
75	93	92	68	88	76
76	88	80	70	88	72

6. Find the mean of the data. _____
7. Find the mode of the data. _____
8. Find the median of the data. _____
9. What is the range of the data set? _____
10. Find the range of this data set: 247, 366, 785, 998.

    A 998 **B** 781 **C** 751 **D** 538

11. **Explain It** Will a set of data always have a mode? Explain your answer.

_____

Basic Skills with Decimals Name_____ Day ID:17

DO NOT USE A CALCULATOR

Date_____ Period____

Find each sum.

1) 364.2 + 251.5

A) 983.3 B) 615.7
C) 1073.6 D) 613.3

2) 350.3 + 383.3

A) 474.1 B) 733.6
C) 779.6 D) 503.5

3) 230.9 + 42.7

A) 610.7 B) 273.6
C) 419.5 D) 539.5

4) 449.5 + 238.9

A) 757.1 B) 674.811
C) 688.4 D) 561.4

Find each difference.

5) 493.1 – 446.8

A) 105.4 B) 46.3
C) 382 D) 141

6) 338.6 – 185.8

A) 303.8 B) 649.1
C) 152.8 D) 617.7

7) 273.2 – 180.5

A) 219.6 B) 92.7
C) 52.5 D) 447.9

8) 421.8 – 37.28

A) 384.52 B) 162.02
C) 662.62 D) 691.32

Find each quotient.

9) 2.97 ÷ 2.2

A) 0.13 B) 7.9
C) 1.35 D) 6.3

10) 3.6 ÷ 5

A) 8.6 B) 2.4
C) 6.1 D) 0.72

11) 1.2 ÷ 7.5

A) 0.16 B) 5.7
C) 3.7 D) 5.004

12) 3.6 ÷ 1.6

A) 7.6 B) 2
C) 2.25 D) 6.6

Find each product.

13) 4.172 × 6

A) 31.632 B) 15.032
C) 16.332 D) 25.032

14) 4.91 × 2.5

A) 15.775 B) 13.575
C) 12.275 D) 18.375

15) 4.9 × 2.9

A) 14.21 B) 22.71
C) 22.01 D) 15.91

16) 3.8 × 3.9

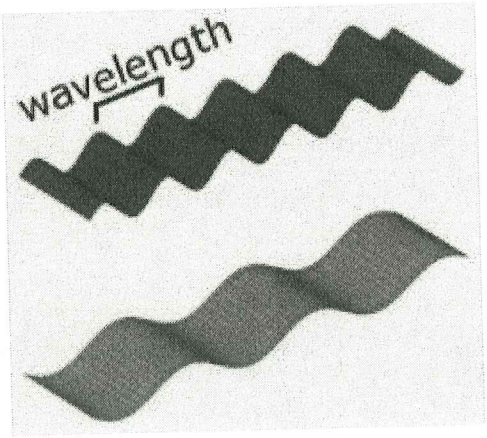
A) 13.12 B) 7.02
C) 7.7 D) 14.82

How Are Rainbows Formed?

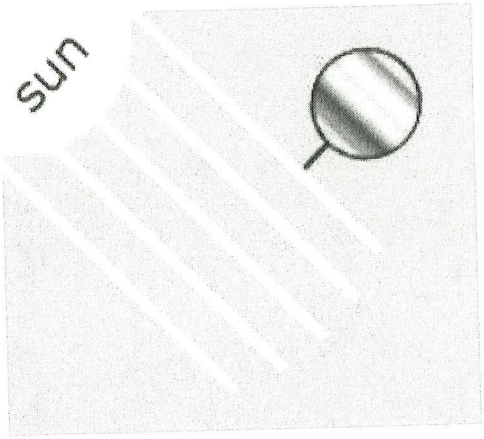
by Dr. Hany Farid

Sunlight is composed of light of varying wavelengths. Short wavelength light appears blue, violet and indigo, and long wavelength light appears red, orange and yellow. When sunlight enters a raindrop in the air, the light splits into a multitude of colors. This light then reflects off the back of the raindrop and re-emerges in the direction in which the light first entered. The light emerging from many raindrops creates a rainbow. Read on for a more detailed explanation.

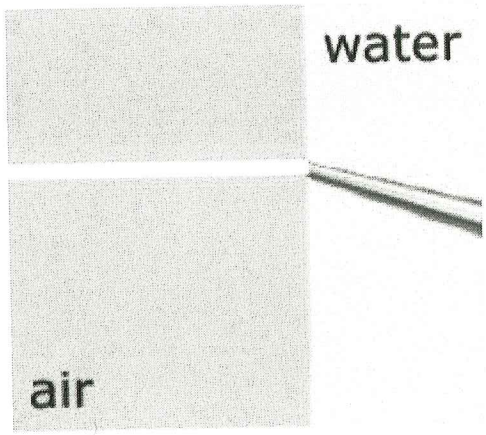
Fact 1. Light travels in waves. The light's wavelength determines its perceived color. Short wavelength light, for example, appears blue, and long wavelength light appears red.



Fact 2. Sunlight is composed of light of many wavelengths. In the range that we can see, this includes the colors of the rainbow.

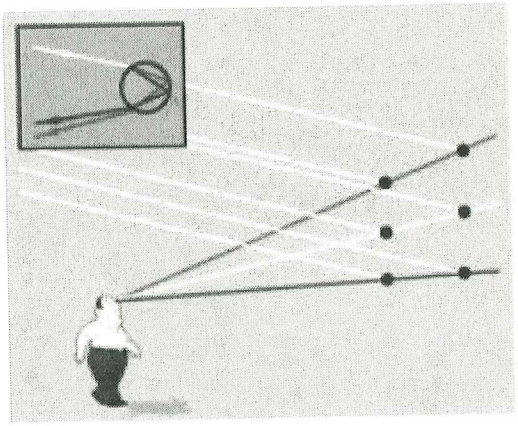


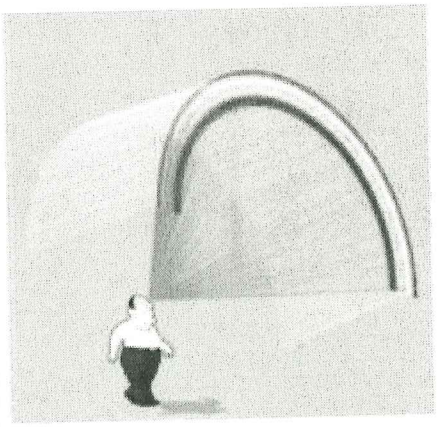
Fact 3. When light enters water it bends (refracts). The amount of bending depends on the wavelength of light. As a result, the light splits into its component colors.



When a ray of sunlight enters a raindrop it bends (refracts). The light then strikes the back of the raindrop, where some of the light passes through and some is reflected. As the light exits the raindrop, it is refracted again. The angle at which the light emerges depends on the wavelength of light. This path is illustrated in the small box below, where only the bending of two wavelengths (blue and red) are shown.

Consider now the diagram on the left. The sun is behind you (white rays) and there is rain in front of you (black dots). As the sunlight enters each raindrop, the light is refracted and reflected as described above. Because the sun is so far away, the rays of sunlight are nearly parallel to one another. As a result, the angle between the red line and each ray of sunlight striking a raindrop on that line will be the same. So, the light that reaches your eye along this ray will be of the same wavelength (color). The same is true for the yellow, blue and intermediate lines corresponding to each color of the rainbow.





Consider now the diagram on the right which explains why the colors of a rainbow form an arc. The angle between the incoming rays of sunlight (white) and all of the red lines, forming a circular cone, have the same angle. As a result, the light that reaches your eye along these lines have the same wavelength (color). The same is true for each band of the rainbow.

The reason that rainbows are somewhat rare is that you will only see them when there is rain in front of you and somewhat in the distance, and the sun is behind you and fairly low on the horizon.

Name: _____ Date: _____

1. What is sunlight composed of?

A. light of varying intensity

B. light of varying wavelengths

C. light traveling at different speeds

D. light of a single color

2. What does the author explain in the first paragraph of the text?

A. why rain causes light to split into separate colors

B. how a rainbow is formed

C. how light travels

D. why rainbows are shaped like an arc

3. Please read these sentences from the text.

"Sunlight is composed of light of varying wavelengths. [...] When light enters water, it bends (refracts). The amount of bending depends on the wavelength of light. As a result, the light splits into its component colors."

What can you conclude based on this evidence?

A. Each wavelength of light bends the same amount when it enters water.

B. When light enters water, its wavelength is altered.

C. Each component color of light has a different wavelength.

D. The component colors of light all have the same wavelength.

4. When would you be most likely to see a rainbow?

A. in the evening on a cloudy, rainy day

B. at noon on a partly cloudy day

C. in the morning on a bright, sunny day

D. in the evening on a partly rainy, partly sunny day

5. What is the main idea of this text?

A. The colors of a rainbow form an arc because of the angles at which light of different wavelengths reaches your eye.

B. Rainbows form when sunlight enters raindrops, splits into different color components, and then re-emerges from the raindrops.

C. You will only see rainbows when there is rain in front of you and somewhat in the distance, and the sun is behind you and fairly low on the horizon.

D. Sunlight is composed of light of varying wavelengths. Short wavelength light appears blue, and long wavelength light appears red.

6. Why might the author have chosen to list Facts 1, 2, and 3 separately instead of describing them in one paragraph?

A. to make the explanation of how rainbows form seem more complicated

B. to indicate that these facts do not affect the way rainbows form

C. to show that these facts are not related to each other in any way

D. to emphasize the importance of these facts to the way rainbows form

7. Choose the answer that best completes the sentence below.

Light's wavelength determines its perceived color; _____, short wavelength light appears blue.

A. however

B. similarly

C. initially

D. for instance

8. When light enters water, it bends. What does the amount of bending depend on?

_____

_____

_____

9. For a rainbow to form, sunlight needs to enter and then re-emerge from raindrops. Describe what happens to the light between when it first enters a raindrop and when it comes out of the raindrop. Support your answer with evidence from the text.

10. Why might you only see a rainbow when rain is in front of you? Support your answer with evidence from the text and images.

6th English
NTI Day #17

Directions
Read this article. Then answer questions 29 through 35.

Getting Lost in a Good Book Can Help Keep You Healthy

by Hilary Freeman

Reading is good for you. I would say that, of course. I'm a novelist—I've written five books for teenagers—and it's obviously in my interest to encourage people to read.

But there's increasing evidence that reading for pleasure isn't just another leisure pursuit, or merely a way of improving literacy skills and factual knowledge.

It might actually be good for our mental and physical health too.

In an age of Twitter and short attention spans, reading novels—which requires intense concentration over a long period of time—could be the antidote.

Neuroscientist Baroness Susan Greenfield says that reading helps to lengthen attention spans in children and improves their ability to think clearly.

"Stories have a beginning, a middle and an end—a structure that encourages our brains to think in sequence, to link cause, effect and significance," she says.

"It is essential to learn this skill as a small child, while the brain has more plasticity,[1] which is why it's so important for parents to read to their children."

"The more we do it, the better we get at it."

Reading can enrich our relationships by increasing our understanding of other cultures and helping us learn to empathize.

A recent study at the University of Michigan found that there had been a 48 percent decrease in empathy among college students, with the sharpest decline in the past ten—most technology dependent—years, suggesting, although not proving, a correlation. Encouraging reading could counteract this.

"In a computer game, you might have to rescue a princess, but you don't care about her, you just want to win," explains Baroness Greenfield.

"But a princess in a book has a past, present and future, she has connections and motivations. We can relate to her. We see the world through her eyes."

[1] **plasticity:** flexibility or capability to grow and change

According to John Stein, emeritus professor of neuroscience at Magdalen College, Oxford, reading is far from a passive activity. "Reading exercises the whole brain," he explains.

"When we 'get lost' in a good book, we're doing more than simply following a story. Imagining what's happening is as good at activating the brain as 'doing' it."

New MRI scanning techniques now enable science to prove this. In 2009, an American brain-imaging study showed that when we read and imagine the landscapes, sounds, smells and tastes described on the page, the various areas of the brain that are used to process these experiences in real life are activated, creating new neural pathways.

In other words, our brains simulate real experiences, just as if we were living them ourselves. This doesn't happen when we're watching TV or playing a computer game.

Getting stuck into a good novel appears to be beneficial to our mental health. As the old saying goes: "You're never alone with a book." Reading not only staves off [2] feelings of loneliness, it helps us to wind down, de-stress and forget our own problems for a while.

In 2009, researchers at the University of Sussex found that just six minutes of reading can reduce stress levels by more than two-thirds, more than listening to music or going out for a walk.

It is thought that the concentration required to read distracts the mind, easing muscle tension and slowing the heart rate.

Reading may be good for physical health too, preventing brain aging and disease.

A study, just published in the Archives of Neurology, from the University of California, Berkeley, found that engaging in brain-stimulating pursuits including reading on a daily basis—from a young age—could help prevent Alzheimer's by inhibiting the formation of the amyloid (protein) plaques which are found in the brains of those with the disease.

Scientists scanned the brains of healthy adults aged 60 and over (average age was 76) with no signs of dementia and found those who had been doing daily brain-stimulating activities, such as reading, playing chess, and writing letters since they were six years old showed very low levels of amyloid plaques.

But those who did not enjoy these activities had lots of plaques.

Although the study was small and did not take socio-economic effects into account, it is certainly an indication that reading may be as good for the brain as it is for the mind.

[2] **staves off:** holds back; stops

29 Lines 6 through 14 are important to the article because they

A show the potential effects of reading over time

B highlight the value of scientific research

C emphasize the challenges beginning readers face

D provide examples of the problems scientists face

30 Why is it important for parents to encourage reading at a young age?

A Children are more likely than adults to follow stories all the way through.

B Children are more likely than adults to use technology for information.

C Children have longer attention spans than college students and older adults.

D Children can more easily grasp new ideas and abilities than adults.

31 What is the meaning of the word "simulate" as it is used in line 34 of the article?

A to expect

B to illustrate

C to remember

D to imitate

32 How do lines 45 through 53 illustrate possible ways to prevent brain disease?

A by including the positive effects of certain activities on the brain

B by describing how harmful substances form in the brain

C by emphasizing the importance of brain scans for older adults

D by proving that brain-based activities should be enjoyed by adults

33 How does the author support John Stein's claim that "Reading exercises the whole brain" (line 26)?

A by describing how other physical functions in the body work

B by explaining which parts of the brain connect to senses

C by explaining how functions of the brain are triggered

D by describing a new method of creating pathways

34 Which statement **best** conveys the central idea of the article?

A "I'm a novelist—I've written five books for teenagers—and it's obviously in my interest to encourage people to read." (lines 1 and 2)

B "But there's increasing evidence that reading for pleasure isn't just another leisure pursuit, or merely a way of improving literacy skills and factual knowledge." (lines 3 and 4)

C "When we 'get lost' in a good book, we're doing more than simply following a story." (line 28)

D "As the old saying goes: 'You're never alone with a book.'" (lines 36 and 37)

35 What is the author's **main** purpose for writing the article?

A to encourage teens to read books that she has written

B to convince people that reading is a worthwhile activity

C to demonstrate why reading is a good form of entertainment

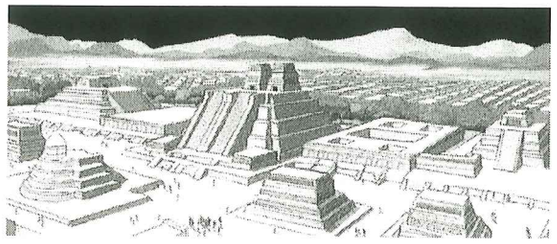
D to show the negative effects of playing games instead of reading

STOP

Aztec Warriors

This text is adapted from an original work of the Core Knowledge Foundation.

Conquering City-States



The Aztec capital Tenochtitlán was one of the largest cities in the world.

The Aztec civilization arose in what is now known as central Mexico. The Aztec established Tenochtitlán, their capital, by the year 1325. By the 1400s, the Aztec civilization had begun to expand. The Aztec proved to be fearsome warriors. One by one they conquered neighboring city-states and added them to their empire. By the early 1500s, the Aztec Empire included four hundred to five hundred city-states and controlled much of present-day Mexico. The Aztec emperor ruled more than five million people. Tenochtitlán alone probably had between 150,000 and 200,000 residents, making it one of the largest cities in the world at this time. No city in the United States would grow so large until the 1800s.

The Aztec were well-known warriors. By conquering other people, they were able to gain wealth. Aztec warriors then forced conquered peoples to send their gold, silver, jade, and turquoise to Tenochtitlán. Those who had no valuables could send food, cloth, or other goods. People who lived by the ocean might also have to send seashells, fish, or turtles. Farmers might send corn, beans, peppers, squash, or fruit. Groups with access to specific environments might have to give animal skins and feathers. Craft-working communities might send pottery or blankets to Tenochtitlán.

Success at War



The Aztec were fierce warriors ready to go to battle against their neighbors at a moment's notice. This is an Eagle warrior dressed for battle.

As in many societies until recent times, Aztec people were born into a certain social class. Most people had relatively little chance to advance out of it. The army provided one opportunity for brave men to better themselves. Success in battle was rewarded with advancement and honor. The Aztec people believed there was no greater honor than to die in battle.

No doubt about it-the Aztec were fierce warriors. But their capabilities in warfare and skill at fighting helped create a rich empire and a remarkable civilization.

Name: _____ **Date:** _____

1. What were the Aztec people well-known for?

A. for being farmers

B. for being fishermen

C. for being sculptors

D. for being warriors

2. What does this text describe?

A. This text describes the difficulties Aztec people had when trying to leave the social class they were born into.

B. This text describes how fierce Aztec warriors expanded the Aztec empire and created a remarkable civilization.

C. This text describes the way the warriors forced conquered peoples to send their wealth and resources to the capital.

D. This text describes how craft-working communities of the Aztec empire made their pottery and blankets.

3. By conquering other people, the Aztec were able to gain wealth.

What evidence from the text supports this statement?

A. Aztec warriors forced conquered peoples to send their gold, silver, jade, and turquoise to Tenochtitlán

B. Aztec people were born into a certain social class. Most people had relatively little chance to advance out of it.

C. The Aztec proved to be fearsome warriors. One by one they conquered neighboring city-states and added them to their empire.

D. By the early 1500s, the Aztec Empire included four hundred to five hundred city-states.

4. Read these sentences from the text:

The Aztec were well-known warriors. By conquering other people, they were able to gain wealth. Aztec warriors then forced conquered peoples to send their gold, silver, jade, and turquoise to Tenochtitlan. Those who had no valuables could send food, cloth, or other goods.

Based on this information, what can you conclude about the conquered people?

A. They were happy to give away their wealth and supplies.

B. They became best friends with the Aztec warriors.

C. They became wealthier after being conquered.

D. They unwillingly gave up their wealth and supplies.

5. What is the main idea of this text?

A. Aztec warriors forced conquered peoples to send their gold, silver, jade, and turquoise to Tenochtitlán. Those who had no valuables could send food, cloth, or other goods. People who lived by the ocean might also have to send seashells, fish, or turtles.

B. Until the 1800s, no city in the United States was as large as Tenochtitlán. Tenochtitlán alone probably had between 150,000 and 200,000 residents in the 1500s. During this time, it was actually one of the largest cities in the world.

C. The Aztec people were fearsome warriors. They conquered many people and were able to gain all kinds of wealth from four to five hundred different city-states. Brave men liked to join the army because they could use success in battle to advance in society.

D. Aztec people were born into a certain social class. Most people had relatively little chance to advance out of it. The army provided one opportunity for brave men to better themselves, so this is why many of them joined the army.