Christina School District Assignment Board

Student's First & Last Name_____ **Student ID/Lunch #** _____ **School** _____ **Grade** _____

Grade Level: 8th

Week of May 18th, 2020

	Day 1	Day 2	Day 3	Day 4	Day 5
ELA	This week's focus is to build upon your prior knowledge, giving you experience in reading real-world informational texts, note-taking, critical thinking, and metacognitive skills. --- Review the chart on writer's moves. Put a check next to all of the ones that you remember from ELA class and that you understand. --- Read the following statements and respond in a sentence or two. Do you agree, disagree? Explain. -"Blindness separates us from things but deafness separates us	Read the article **"Huh? Teens, Tweens Suffer Hearing Loss.** Follow the instructions on the article.	Answer the **Digging Deep Questions.**	Analyzing Writer's Craft	Write a 1-2 paragraph response to the article. Utilize 1-2 of the writer's techniques in your response OR Choose one of the quotes from Day 1 and explain in a paragraph how it connects to the main idea of the article.

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		from people." "The most important thing in communication is hearing what isn't said." _____ On the same sheet of paper take the LOUD 'pre-test". 1. Do you believe the louder the music the better? Explain 2. List 1-2 benefits you get out of listening to music/tv loudly? 3. List 1-2 negative effects of listening to music/tv loudly?				
Math	**Math8**	*Understanding Square Roots* Answer "Which One Doesn't Belong?" and justify your choice. (attached) Read Math Notes: Right Triangles and the Pythagorean Theorem. Complete 9-80 and 9-81 (attached)	Complete 9-82, 9-83, and 9-84. (attached) Refer to Math Notes if needed.	Complete 9-85, 9-86, and 9-89. (attached) Refer to Math Notes if needed.	Complete Understanding Square Roots Practice Problems #1-3. (attached) Refer to Math Notes if needed.	Journal Entry: What is a square root? How can you estimate a square root? Write directions for a fifth grader to follow. Explain what a square root is and how to estimate a square root to the nearest tenth. Include examples of

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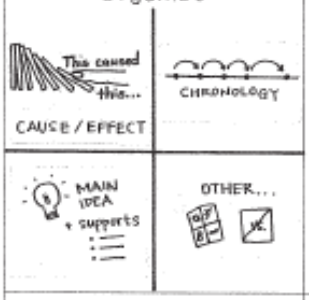
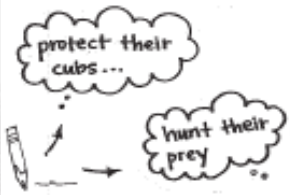
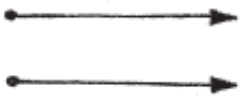
						perfect squares and non-perfect squares. Title this entry "Square Roots" and label it with today's date.
	IM1 (MS only) (IM 2 can be found on the HS Boards)	*Probability Distributions* Answer "Which One Doesn't Belong?" and justify your choice. (attached) Read pages 174-175 and use examples to complete p. 178 #1-5. (attached)	Complete page 178 #6-8 and #1-3. (attached) Refer to examples if needed.	Read pages 179-180 and use examples to complete p. 180 #1-5. (attached)	Complete page 181 #7-9. (attached) Refer to examples if needed.	Complete Probability Distribution Practice Problems #1-4. (attached) Refer to examples if needed.
Science		**Saving Swiss Glaciers (part 1):** Read article. In RED, highlight or underline information discussing how much melting the glacier has experienced in recent years. In GREEN, highlight or underline information related to what people are doing to prevent the glacier from melting. Annotate any questions that come up while reading.	**Saving Swiss Glaciers (part 2):** Reread article as necessary. Make a claim that answers this question: What are some other solutions to saving glaciers and how do they compare to using blankets? Support your claim with evidence from the article. Then, explain why the evidence supports your claim.	**The World's First Non-Melting Frozen Pop (part 1):** Read article. In YELLOW, highlight or underline information that describes the strategies used to keep the popsicles from melting.	**The World's First Non-Melting Frozen Pop (part 2):** Reread article as necessary. Then read the following claim: A popsicle made with fruit fibers is a cleaner treat during summer. Write your best answers to the following: What evidence from the article supports this claim? Think about what you read about ice and pykrete, then explain how the details support the claim.	**Claim-Evidence-Reasoning:** Complete the attached handout to answer the following question: Why would putting a blanket over a glacier slow down the melting process? Make sure to provide clear evidence to support your claim.
Social Studies		Complete Activities 1 & 2 from the document titled, "John Brown"	Complete Activity 3 from the document titled, "John Brown"	Complete Activity 4 from the document titled, "John Brown"	Complete Activity 5 from the document titled, "John Brown"	Complete Activity 6 from the document titled, "John Brown"

Writers of Informational Texts Use Techniques Such As:

Organize 	Make a comparison 	Raise questions (and sometimes answer them) 
Give an example/anecdote 	Address the reader directly 	Quote an authority 
Provide a surprising fact or statistic 	Choose words/phrases that lead the reader to think one way or another 	Repeat Use parallelism 
Use text features and/or provide a visual 	Define key terms and use technical vocabulary 	Incorporate humor 

Instructions:

Step 1: Number the paragraphs
Step 2: Skim the article using these symbols as you read:
(+) agree, (-) disagree, (*) important, (!) surprising, (?) wondering
Step 3: Read the article now carefully and make notes in the margin. Try to mark each paragraph with an important note, idea or question.
Step 4: Answer the following.

1. What surprised you as you read?
2. What did the author think you already knew?
3. What challenged, changed or confirmed what you knew?

Step 5: Write a 1-2 sentence summary of the article.

Huh? Teens, Tweens Suffer Hearing Loss.

January 17, 2012

A stunning one in five teens has lost a little bit of hearing, and the problem has increased substantially in recent years, a new national study has found.

Some experts are urging teenagers to turn down the volume on their digital music players, suggesting loud music through earbuds may be to blame —although hard evidence is lacking. They warn that slight hearing loss can cause problems in school and set the stage for hearing aids in later life.

The researchers analyzed data on 12- to 19-year-olds from a nationwide health survey. Based on the survey, that would mean about 6.5 million with at least slight hearing loss.

Most of the hearing loss was "slight," defined as inability to hear at 16 to 24 decibels — or sounds such as a whisper or rustling leaves. A teenager with slight hearing loss might not be able to hear water dripping or his mother whispering “good night."

Those with slight hearing loss "will hear all of the vowel sounds clearly, but might miss some of the consonant sounds" such as t, k and while the researchers didn't single out iPods or any other device for blame, they found a significant increase in high-frequency hearing loss, which they said may indicate that noise caused the problems. And they cited a 2010 Australian study that linked use of personal listening devices with a 70 percent increased risk of hearing loss in children.

Loud music isn't new, of course. Each new generation of teenagers has found a new technology to blast music — from the bulky headphones of the 1960s to the handheld Sony Walkman’s of the 1980s.

Today's young people are listening longer, more than twice as long as previous generations, said Brian Fligor, an audiologist at Children's Hospital Boston. The older technologies had limited battery life and limited music storage, he said. One of Fligor’s patients, 17-year-old Matthew Brady of Foxborough, Mass., recently was diagnosed with mild hearing loss. He has trouble hearing his friends in the school cafeteria. He ends up faking comprehension.

"I laugh when they laugh," he said.

Fligor believes Brady's muffled hearing was caused by listening to an iPod turned up too loud and for too long. After his mother had a heart attack, Brady's pediatrician had advised him to exercise for his own health. So, he cranked up the volume on his favorites — John Mellencamp, Daughtry, Bon Jovi and U2 — while walking on a treadmill at least four days a week for 30-minute stretches.

One day last summer, he got off the treadmill and found he couldn't hear anything with his left ear. His hearing gradually returned, but was never the same.

Digging Deep – answers may be in phrases.

1. The article mentions three specific types of technology associated with loud music and potential hearing loss. Next to each era, list the device mentioned in the article.

   1960s _____

   1980s _____

   Present _____

2. List three reasons today's loud music has more of a detrimental effect on hearing loss than music of the past. The exact answers are in the article. Do not guess.

   1.

   2.

   3.

3. Are you concerned with hearing loss? Do you engage in activities that may affect your hearing? Explain.

   _____

   _____

4. Pick a word/line/passage from the article and respond to it.

   _____

   _____

5. One popular way to respond to news articles is through a blog. A blog is a place on the web where individuals and groups can record opinions and information. Listed below is an example of a blog posted about this article. In the space below either respond to this blog or create your own blog based on this article. Your response should be a minimum of 5 sentences.

"**Submitted by peytondms1 on Tuesday, 01/17/2012 - 15:54.**
I definitely will not be one of the five teens who suffer from hearing loss. People do need to turn down their music because if you can hear it out of the headphones its way too loud. A lot of people do it and they need to stop before they have to wear hearing aids."

_____

_____

_____

_____

_____

Analyzing Writer's Craft

Re-read the article a final time looking specifically for writer's craft.
Make notes about the kinds of ideas covered in the text, the type of evidence the writer uses to support his ideas, how the piece is organized and presented, and how the writer uses language/words to add layers of meaning. Refer back to the writer's craft sheet from day 1 to help you.
After you identify some of the techniques choose one of focus.

- Quote the example from the text.
- Identify where in the text the author uses the technique.
- How does the use of this technique support the main idea and impact the reader?
- Explain in a paragraph.

Math 8 – Week of May 18th

Understanding Square Roots

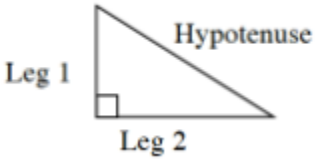
Which One Doesn't Belong? Why?

(1)	(2)
$\sqrt{36}$	$\frac{2}{3}$
(3)	(4)
$\frac{1}{5}$	$\sqrt{21}$

METHODS AND MEANINGS

MATH NOTES

Right Triangles and the Pythagorean Theorem

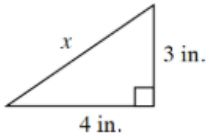


A right triangle is a triangle in which the two shorter sides form a right (90°) angle. The shorter sides are called **legs**. The third and longest side, called the **hypotenuse**, is opposite the right angle.

The **Pythagorean Theorem** states that for any right triangle, the sum of the squares of the lengths of the legs is equal to the square of the length of the hypotenuse.

$$(\text{leg } 1)^2 + (\text{leg } 2)^2 = (\text{hypotenuse})^2$$

Example:



$3^2 + 4^2 = x^2$
$9 + 16 = x^2$
$25 = x^2$
$5 = x$

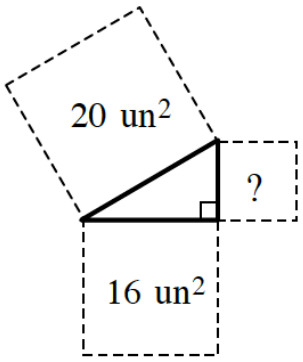
The **converse of the Pythagorean Theorem** states that if the sum of the squares of the lengths of the two shorter sides of a triangle equals the square of the length of the longest side, then the triangle is a right triangle.

For example:

Do the lengths 6, 9, and 11 form a right triangle?	Do the lengths 9, 40, and 41 form a right triangle?
$6^2 + 9^2 \stackrel{?}{=} 11^2$	$9^2 + 40^2 \stackrel{?}{=} 41^2$
$36 + 81 \stackrel{?}{=} 121$	$81 + 1600 \stackrel{?}{=} 1681$
$117 \neq 121$	$1681 = 1681$
No, these lengths do not form a right triangle.	Yes, these lengths form a right triangle

9-80 Nikita wants to use the area of the squares in the figure at right to find the lengths of the sides of a right triangle.

a. Find the missing area.
b. What are the lengths of the legs of the right triangle in Nikita's diagram? How do you know?
c. About how long is the hypotenuse? Are you able to find the length exactly? Explain your reasoning.



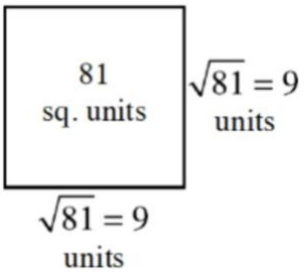
9-81 The numbers 36,64,4,16,100,144,121, and 225 are all examples of perfect squares.

a. If each of these numbers represents the number of square units in a square, what is the side length of each square?
b. Why do you think these numbers are called perfect squares?

9-82 To find the side length of a square with a particular area, you use an operation called the square root. The square root symbol looks like this: $\sqrt{\ }$. It is also called a radical sign.

To find the side length of a square with an area of 81 square units, for example, you would write 81 and would read is as "the square root of 81."

Since 9·9=81, then $\sqrt{81} = 9$.



Copy each square root expression below. Rewrite each square root as an equivalent expression without the radical sign. Explain your method for finding the square root of these numbers.

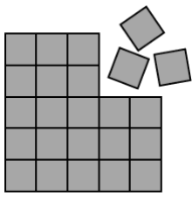
a. $\sqrt{49}$

b. $\sqrt{121}$

c. $\sqrt{9}$

d. $\sqrt{169}$

9-83 In problem 9-74, you tried to make a perfect square with 24 tiles and could not.



a. Why was it not possible?
b. Estimate the length of a side of a square with an area of 24 square units. What two whole numbers is the length between?
c. Is $\sqrt{24}$ closer to one of the whole numbers or to the other? If you did not already do so, estimate to the nearest tenth.
d. Multiply your estimate by itself. How close to 24 is your answer? If you revised your estimate, how would you change it?

9-84 Between which two whole numbers is each of the following square roots? To which whole number do you think it is closer? Estimate the value of the square root to the nearest tenth (0.1). You may find it helpful to create a list of the whole numbers from 1 to 17 and their squares to use with this kind of problem.

a. $\sqrt{40}$

b. $\sqrt{95}$

c. $\sqrt{3}$

d. $\sqrt{59}$

e. $\sqrt{200}$

f. $\sqrt{1}$

g. Describe your method for estimating the approximate value of a square root when the number is not a perfect square. Check each estimate for parts (a) through (f) on a calculator.

9-85 In earlier chapters, you examined the graphs of various relationships. What would the relationship between the side length of a square and the area of a square look like on a graph?

a. On the Lesson 9.2.3 Resource Page, complete the table for the side lengths and areas. Graph the points. Does it make sense to connect them? If so, connect them with a smooth curve.
b. Describe the relationship between the side length of a square and the area of the square. How is it the same or different than other relationships you have graphed?
c. How can you use the graph to estimate the side length for a square with an area of 24 square units? Does this estimate match your estimate in problem 9-83?
d. Use your graph to estimate these square roots:

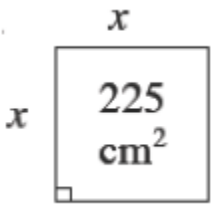
i. $\sqrt{10}$ *ii.* $\sqrt{15}$

iii. $\sqrt{5}$ *iv.* $\sqrt{33}$

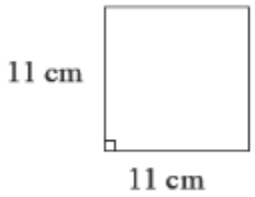
9-86 Nikita wonders, "*What can we say about the square root of a negative number?*" For example, can you find −16? Write an explanation of your thinking.

9-88 Find the missing length or area.

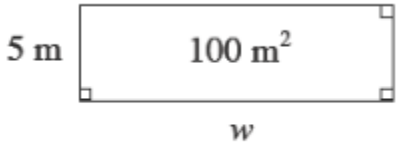
a.



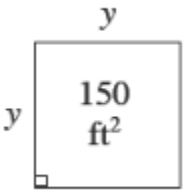
b.



c.



d.



9-89 Determine the positive value that makes each equation true. If the answer is not a whole number, write it as a square root, and then approximate it as a decimal rounded to the nearest tenth.

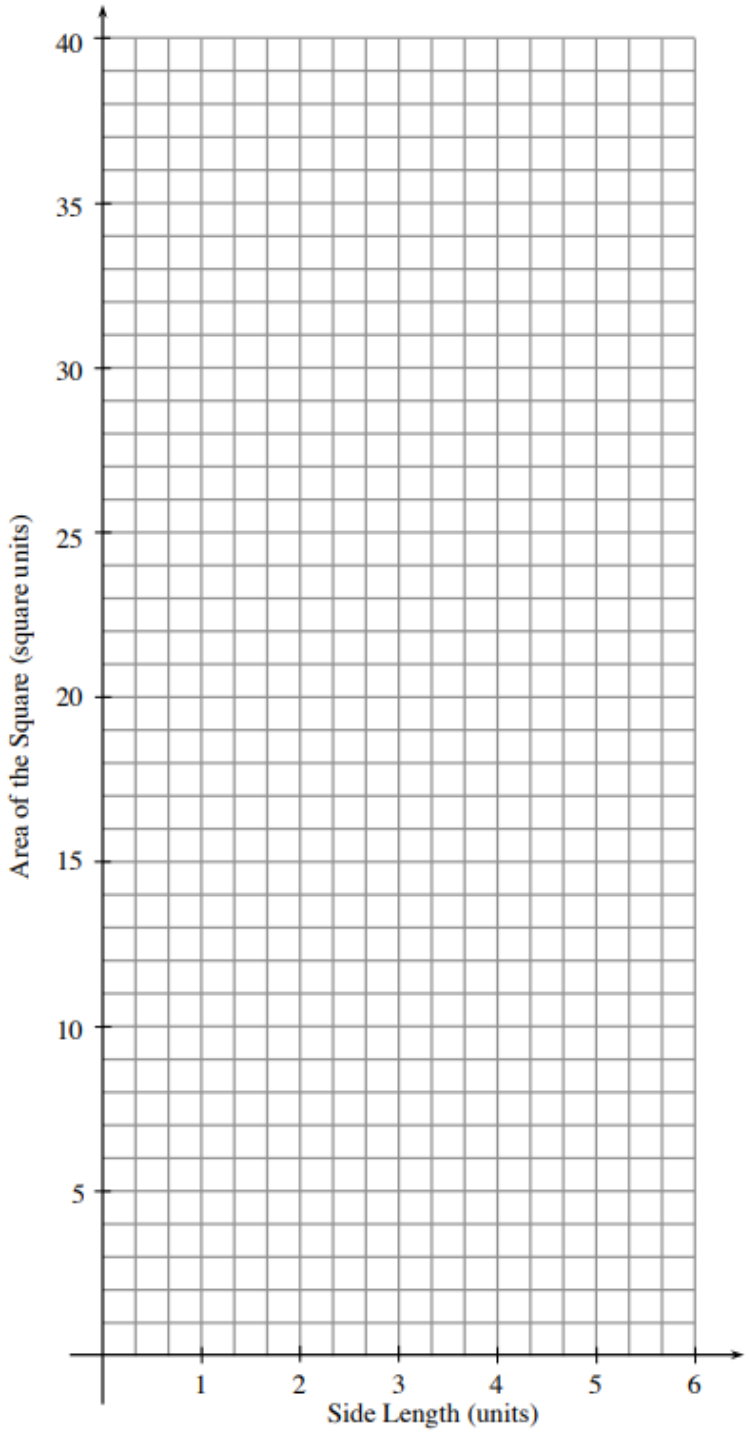
a. If $x_2=36$, x=?

b. If $x_2=65$, x=?

c. If $x_2=84$, x=?

d. If $x_2=13$, x=?

Graphing $y = x^2$



Side Length x	Area of Square y
0	0
1	
2	
3	
4	
	24
5	
6	

Understanding Square Roots Practice Problems

1. A square has an area of 81 square feet. Select **all** the expressions that equal the side length of this square, in feet.

   A. $\frac{81}{2}$

   B. $\sqrt{81}$

   C. 9

   D. $\sqrt{9}$

   E. 3

2. Write the exact value of the side length, in units, of a square whose area in square units is:

   a. 36

   b. 37

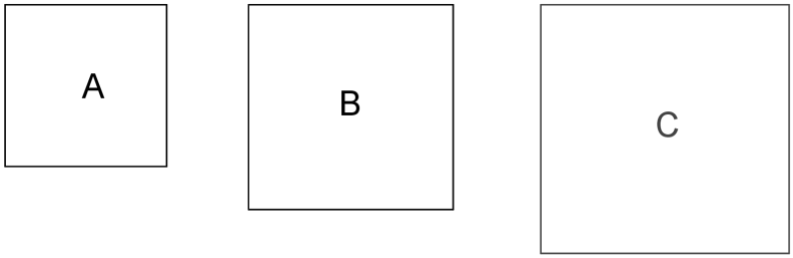
   c. $\frac{100}{9}$

   d. $\frac{2}{5}$

   e. 0.0001

   f. 0.11

3. Square A is smaller than Square B. Square B is smaller than Square C.

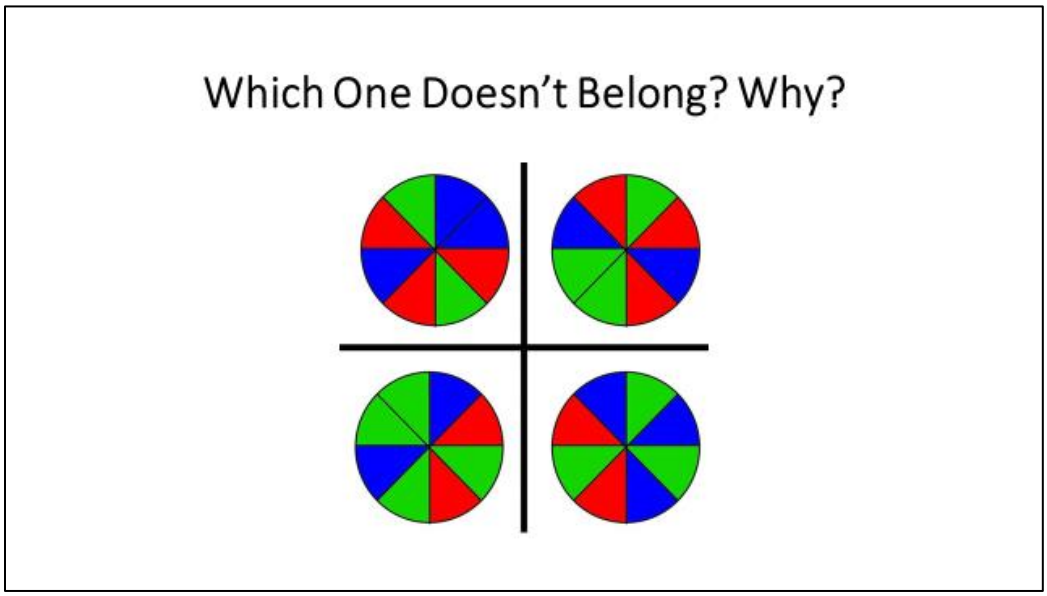


   The three squares' side lengths are $\sqrt{26}$, 4.2, and $\sqrt{11}$.

   What is the side length of Square A? Square B? Square C? Explain how you know.

IM1 (Middle School) – Week of May 18th

Probability Distributions



(Save this Problem Set until Thursday…. just printed here to save space when printing)

7. There are 250 students at South Lake Middle School. 125 enjoy swimming, 50 enjoy skateboarding, and 75 enjoy playing softball. Assuming that enjoyment of these activities is independent, what is the probability a student enjoys all three sports?

8. John has a bag of jellybeans. There are 100 beans in the bag. $\frac{1}{4}$ of the beans are cherry, $\frac{1}{4}$ of the beans are orange, $\frac{1}{4}$ of the beans are licorice, and $\frac{1}{4}$ of the beans are lemon. What is the probability that John will chose one of his favorite flavors, orange, or cherry?

9. A nationwide survey showed that only 4% of children liked eating lima beans. What is the probability that any two children will both like lima beans?

SIMPLE PROBABILITY

Outcome: Any possible or actual result of the action considered, such as rolling a 5 on a standard number cube or getting tails when flipping a coin.

Event: A desired (or successful) outcome or group of outcomes from an experiment, such as rolling an even number on a standard number cube.

Sample space: All possible outcomes of a situation. For example, the sample space for flipping a coin is heads and tails; rolling a standard number cube has six possible outcomes (1, 2, 3, 4, 5, and 6).

Probability: The likelihood that an event will occur. Probabilities may be written as fractions, decimals, or percents. An event that is guaranteed to happen has a probability of 1, or 100%. An event that has no chance of happening has a probability of 0, or 0%. Events that "might happen" have probabilities between 0 and 1 or between 0% and 100%. In general, the more likely an event is to happen, the greater its probability.

Experimental probability: The probability based on data collected in experiments.

$$\text{Experimental probability} = \frac{\text{number of successful outcomes in the experiment}}{\text{total number of outcomes in the experiment}}$$

Theoretical probability is a calculated probability based on the possible outcomes when they all have the same chance of occurring.

$$\text{Theoretical probability} = \frac{\text{number of successful outcomes (events)}}{\text{total number of possible outcomes}}$$

In the context of probability, "successful" usually means a desired or specified outcome (event), such as rolling a 2 on a number cube (probability of $\frac{1}{6}$). To calculate the probability of rolling a 2, first figure out how many possible outcomes there are. Since there are six faces on the number cube, the number of possible outcomes is 6. Of the six faces, only one of the faces has a 2 on it. Thus, to find the probability of rolling a 2, you would write:

$$P(2) = \frac{\text{number of ways to roll 2}}{\text{number of possible outcomes}} = \frac{1}{6} \text{ or } 0.1\overline{6} \text{ or approximately } 16.7\%.$$

Example 1

If you roll a fair, 6-sided number cube, what is $P(3)$, that is, the probability that you will roll a 3?

Because the six sides are equally likely to come up, and there is only one 3, $P(3) = \frac{1}{6}$.

Example 2

There are 12 marbles in a bag: 2 clear, 4 green, 5 yellow, and 1 blue. If one marble is chosen randomly from the bag, what is the probability that it will be yellow?

$$P(\text{yellow}) = \frac{5\text{ (yellow)}}{12\text{ (outcomes)}} = \frac{5}{12}$$

Example 3

Joe flipped a coin 50 times. When he recorded his tosses, his result was 30 heads and 20 tails. Joe's activity provided data to calculate experimental probability for flipping a coin.

a. What is the theoretical probability of Joe flipping heads?

The theoretical probability is 50% or $\frac{1}{2}$, because there are only two possibilities (heads and tails), and each is equally likely to occur.

b. What was the experimental probability of flipping a coin and getting heads based on Joe's activity?

The experimental probability is $\frac{30}{50}$, $\frac{3}{5}$, or 60%. These are the results Joe actually got when he flipped the coin.

Example 4

Decide whether these statements describe theoretical or experimental probabilities.

a. The chance of rolling a 6 on a fair die is $\frac{1}{6}$.

This probability is theoretical.

b. I rolled the die 12 times and 5 came up three times.

This probability is experimental.

c. There are 15 marbles in a bag; 5 blue, 6 yellow, and 4 green. The probability of getting a blue marble is $\frac{1}{3}$.

This probability is theoretical.

d. When Veronika pulled three marbles out of the bag she got 2 yellow and 1 blue, or $\frac{2}{3}$ yellow, $\frac{1}{3}$ blue.

This probability is experimental.

INDEPENDENT AND DEPENDENT EVENTS

Two events are **independent** if the outcome of one event does not affect the outcome of the other event. For example, if you draw a card from a standard deck of playing cards but replace it before you draw again, the outcomes of the two draws are independent.

Two events are **dependent** if the outcome of one event affects the outcome of the other event. For example, if you draw a card from a standard deck of playing cards and do not replace it for the next draw, the outcomes of the two draws are dependent.

Example 1

Juan pulled a red card from the deck of regular playing cards. This probability is $\frac{26}{52}$ or $\frac{1}{2}$. He puts the card back into the deck. Will his chance of pulling a red card next time change?

No, his chance of pulling a red card next time will not change, because he replaced the card. There are still 26 red cards out of 52. This is an example of an independent event; his pulling out and replacing a red card does not affect any subsequent selections from the deck.

Example 2

Brett has a bag of 30 multi-colored candies. 15 are red, 6 are blue, 5 are green, 2 are yellow, and 2 are brown. If he pulls out a yellow candy and eats it, does this change his probability of pulling any other candy from the bag?

Yes, this changes the probability, because he now has only 29 candies in the bag and only 1 yellow candy. Originally, his probability of yellow was $\frac{2}{30}$ or $\frac{1}{15}$; it is now $\frac{1}{29}$. Similarly, red was $\frac{15}{30}$ or $\frac{1}{2}$ and now is $\frac{15}{29}$, better than $\frac{1}{2}$. This is an example of a dependent event.

Problems

1. There are 24 crayons in a box: 5 black, 3 white, 7 red, 2 yellow, 3 blue, and 4 green. What is the probability of randomly choosing a green? Did you respond with an experimental or theoretical probability?

2. A spinner is divided into four equal sections numbered 2, 4, 6, and 8. What is the probability of spinning an 8?

3. A fair number cube marked 1, 2, 3, 4, 5, and 6 is rolled. Tyler tossed the cube 40 times, and noted that 26 times an even number showed. What is the experimental probability that an even number will be rolled? What is the theoretical probability?

4. Sara is at a picnic and reaches into an ice chest, without looking, to grab a can of soda. If there are 14 cans of orange, 12 cans of fruit punch, and 10 cans of cola, what is the probability that she takes a can of fruit punch? Did you respond with an experimental probability or a theoretical one?

5. A baseball batting average is the probability a baseball player hits the ball when batting. If a baseball player has a batting average of 266, it means the player's probability of getting of getting a hit is 0.266. Is a batting average an experimental probability or theoretical?

6. In 2011, 39 people died by being struck by lightning, and 241 people were injured. There were 310,000,000 people in the United States. What is the probability of being one of the people struck by lightning?

7. In a medical study, 107 people were given a new vitamin pill. If a participant got sick, they were removed from the study. Ten of the participants caught a common cold, 2 came down with the flu, 18 got sick to their stomach, and 77 never got sick. What was the probability of getting sick if you participated in this study? Did you respond with an experimental probability or a theoretical one?

8. Insurance companies use probabilities to determine the rate they will charge for an insurance policy. In a study of 300 people that had life insurance policies, an insurance company found that 111 people were over 80 years old when they died, 82 people died when they were between 70 and 80 years old, 52 died between 60 and 70 years old, and 55 died when they were younger than 60 years old. In this study what was the probability of dying younger than 70 years old? Did you respond with an experimental probability or a theoretical one?

Problems

Decide whether these events are independent or dependent events.

1. Flipping a coin, and then flipping it again.

2. Taking a black 7 out of a deck of cards and not returning it, then taking out another card.

3. Taking a red licorice from a bag and eating it, then taking out another piece of licorice.

COMPOUND EVENTS AND COUNTING METHODS

PROBABILITY OF COMPOUND EVENTS

Sometimes when you are finding a probability, you are interested in either of two outcomes taking place, but not both. For example, you may be interested in drawing a king or a queen from a deck of cards. At other times, you might be interested in one event followed by another event. For example, you might want to roll a one on a number cube and then roll a six. The probabilities of combinations of simple events are called **compound events**.

To find the probability of *either* one event *or* another event that has nothing in common with the first, you can find the probability of each event separately and then add their probabilities. Using the example of drawing a king or a queen from a deck of cards:

$$P(\text{king}) = \frac{4}{52} \text{ and } P(\text{queen}) = \frac{4}{52} \text{ so } P(\text{king or queen}) = \frac{4}{52} + \frac{4}{52} = \frac{8}{52} = \frac{2}{13}$$

For two independent events, to find the probability of *both* one *and* the other event occurring, you can find the probability of each event separately and then multiply their probabilities. Using the example of rolling a one followed by a six on a number cube:

$$P(1) = \frac{1}{6} \text{ and } P(6) = \frac{1}{6} \text{ so } P(1 \text{ then } 6) = \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$$

Note that you would carry out the same computation if you wanted to know the probability of rolling a one on a green cube, and a six on a red cube, if you rolled both of them at the same time.

Example 1

A spinner is divided into five equal sections numbered 1, 2, 3, 4, and 5. What is the probability of spinning *either* a 2 *or* a 5?

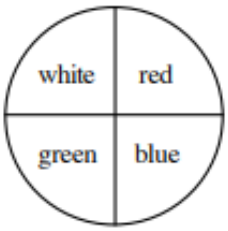
Step 1: Determine both probabilities: $P(2) = \frac{1}{5}$ and $P(5) = \frac{1}{5}$

Step 2: Since these are *either-or* compound events, add the fractions describing each probability: $\frac{1}{5} + \frac{1}{5} = \frac{2}{5}$

The probability of spinning a 2 or a 5 is $\frac{2}{5}$: $P(2 \text{ or } 5) = \frac{2}{5}$

Example 2

If each of the regions in each spinner at right is the same size, what is the probability of spinning each spinner and getting a green t-shirt?



Step 1: Determine both possibilities:
$P(\text{green}) = \frac{1}{4}$ and $P(\text{t-shirt}) = \frac{1}{3}$

Step 2: Since you are interested in the compound event of *both* green *and* a t-shirt, multiply both probabilities: $\frac{1}{4} \cdot \frac{1}{3} = \frac{1}{12}$

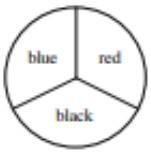
The probability of spinning a green t-shirt is $\frac{1}{12}$: $P(\text{green t-shirt}) = \frac{1}{12}$

Problems

Assume in each of the problems below that events are independent of each other.

1. One die, numbered 1, 2, 3, 4, 5, and 6, is rolled. What is the probability of rolling *either* a 1 *or* a 6?

2. Mary is playing a game in which she rolls one die and spins a spinner. What is the probability she will get *both* the 3 *and* black she needs to win the game?



3. A spinner is divided into eight equal sections. The sections are numbered 1, 2, 3, 4, 5, 6, 7, and 8. What is the probability of spinning a 2, 3, or a 4?

4. Patty has a box of 12 colored pencils. There are 2 blue, 1 black, 1 gray, 3 red, 2 green, 1 orange, 1 purple, and 1 yellow in the box. Patty closes her eyes and chooses one pencil. She is hoping to choose a green or a red. What is the probability she will get her wish?

5. Use the spinners at right to tell Paul what his chances are of getting the silver truck he wants.

6. On the way to school, the school bus must go through two traffic signals. The first light is green for 25 seconds out of each minute, and the second light is green for 35 seconds out of each minute. What is the probability that both lights will be green on the way to school?

Probability Distributions Practice Problems

4. The likelihood that Han makes a free throw in basketball is 60%. The likelihood that he makes a 3-point shot is 0.345. Which event is more likely, Han making a free throw or making a 3-point shot? Explain your reasoning.

5. There are 25 prime numbers between 1 and 100. There are 46 prime numbers between 1 and 200. Which situation is more likely? Explain your reasoning.

    F. A computer produces a random number between 1 and 100 that is prime.

    G. A computer produces a random number between 1 and 200 that is prime.

6. A carnival game has 160 rubber ducks floating in a pool. The person playing the game takes out one duck and looks at it.

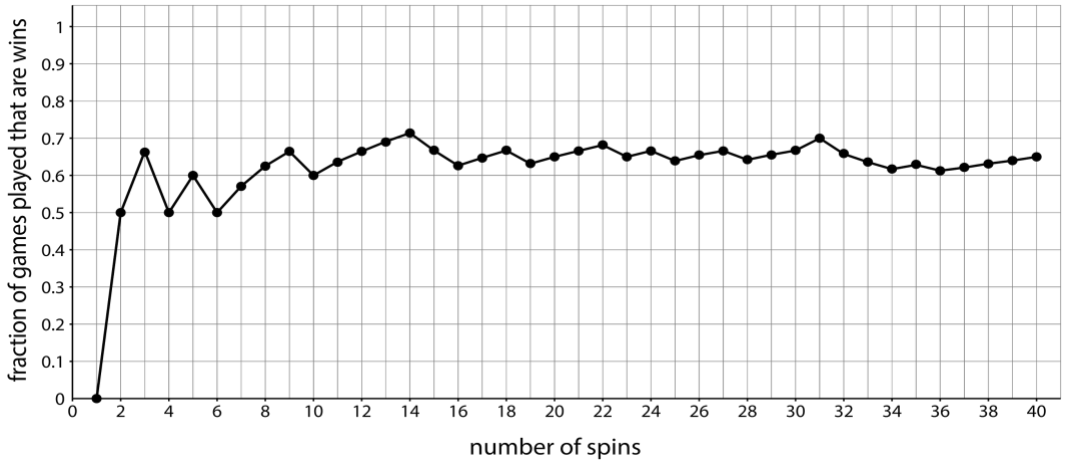
    g. If there's a red mark on the bottom of the duck, the person wins a small prize.

    h. If there's a blue mark on the bottom of the duck, the person wins a large prize.

    i. Many ducks do not have a mark.

    After 50 people have played the game, only 3 of them have won a small prize, and none of them have won a large prize. Estimate the number of the 160 ducks that you think have red marks on the bottom. Then estimate the number of ducks you think have blue marks. Explain your reasoning.

7. A spinner is spun 40 times for a game. Here is a graph showing the fraction of games that are wins under some conditions.



Estimate the probability of a spin winning this game based on the graph.

The Swiss found a way to save glacier from melting: Wrap it in a blanket

By Helena Bachmann, USA Today, adapted by Newsela staff on 03.26.18
Word Count **557**
Level **MAX**

Image 1. A Swiss flag floats on the Rhône Glacier. The glacier has been covered with insulating blankets that protect it from the sun. Photo from Fabrice Coffrini/AFP/Getty Images

The Rhône Glacier is a glacier in the Swiss Alps. It is getting dressed up in white blankets, and for a good cause: to protect it from further melting as a result of global warming.

Every spring for the past eight years, residents from the neighboring Obergoms area have trekked up the Swiss mountain. They have wrapped thermal blankets around parts of the glacier and the ice grotto carved inside it.

The surrounding villages depend on the Rhône's appeal — from its scenic trails to the spectacular ice cave — to boost the region's economy. So residents started to spread blankets over the most vulnerable parts of the glacier to keep its snowy cover intact.

This method prevents some of the snow and ice from thawing in the summer sun that has already wreaked damage to the Rhône and other glaciers.

"It reduces the melting by 50 percent to 70 percent," said David Volken, a Rhône glaciologist.

The 12,000-foot-high glacier is nestled in the southern part of the Swiss Alps. It feeds the Rhône River and Lake Geneva. And it has shrunk considerably over the past 150 years.

In the past decade alone, it lost an average of 33 feet of ice thickness, said Matthias Huss. He is head of the Swiss Glacier Monitoring Network. The melting water has formed a lake that is becoming larger every year.

That's why the most vulnerable parts of the glacier, especially the grotto inside it, are swaddled in blankets from spring until fall. The blankets are made of heavy-duty fleece material.

This process is not easy or cheap. The hauling and spreading of the tarpaulins takes several hours and costs thousands of dollars in material and manpower. The cost is paid mostly by local residents.

The effort is worth it.

"The blankets protect the underlying snow and ice from the sunlight. Another benefit is the thermal insulation they provide," Huss said. They don't entirely stop the melting process. However, Huss added, "these blankets are very useful in slowing down ice loss locally."

The large sheets of material mainly cover the area closest to the ice cave. It is a popular tourist attraction at 7,500 feet above sea level. In the winter, this sparkly blue tunnel stretches 348 feet in length. By the end of the summer, the length shrinks by about 12 inches.

That's why every May, a specially trained worker using a chainsaw re-carves the grotto to the original length. It is a laborious process that takes between three and four weeks, Volken said.

Even though blankets help preserve the grotto and some of the glacier, the area being covered is relatively small — about 5 acres. It "will never suffice to save a whole glacier," Huss said.

A few other glaciers in Switzerland are also blanketed during the summer months. Most are not, however, because they are too large. "This method will never be able to save our glaciers or to counteract the negative consequences of climate change," Huss said.

Scientists like Huss and Volken predict that by 2100, the Rhône, along with other Alpine glaciers, will practically disappear. They say only 10 percent of today's ice will remain.

For now at least, the blankets help the Rhône Glacier keep its cool under pressure.

British food design company creates world's first non-melting frozen pop

By Smithsonian.com, adapted by Newsela staff on 09.10.18
Word Count **678**
Level **830L**

Can a popsicle be made to last longer before it turns into a melty mess? A British design firm says yes. Photo by: iStock/Getty Images

Fall will officially start later this month. It's still hot in several places, though.

Many people like to eat popsicles when it's hot. However, you'd better eat it indoors, or you might end up with more of it melted down your sleeve than in your mouth.

Another idea is to try the world's first non-melting "ice lolly." That is the British term for "popsicle." The non-melting version was invented by the food design company Bompas & Parr in the United Kingdom.

Sam Bompas, the company's co-founder, says it has taken over a year to get the pop just right. It involved speaking to a group of science experts. Some of the scientists' ideas were not safe for food, he says. Balancing the ingredients is even more important than in a regular recipe so you can get the best flavor and product, he says.

Fruit Fibers Make Pops Last Longer

The key to the popsicles' heat tolerance is fruit fibers in the pop. The fibers lower the pops' ability to transfer heat. The result is that they melt more slowly than ordinary frozen treats. Bompas & Parr say the pops last hours longer than regular popsicles at the same temperature.

The popsicle idea came from pykrete, a frozen material made from sawdust and wood pieces in ice. Pykrete was created by British inventor Geoffrey Pyke. It is much stronger than regular ice and melts much more slowly.

The History Of Pykrete

Pyke saw pykrete as a perfect material for building huge boats during World War II. It would save on steel, he said, which was in high demand due to the war. Pykrete could be made more cheaply. British leader Winston Churchill liked the idea. The building of a secret model pykrete boat began on a lake in Alberta, Canada. The project went above its planned cost and was shut down.

Pykrete is still around. It occasionally pops up on TV shows like "MythBusters." The show's stars used it to build a boat, which fell apart in less than half an hour.

Wartime Ice Cream Stories

Pykrete is not the only interesting story in the history of frozen treats. The history of ice cream is a tale of creativity. Some of these stories are tied to wartime. During World War II, some pilots poured ice cream ingredients into their planes' parts. Then they flew to high altitudes to freeze the mixture. As the treat was too icy at first, they rigged small propellers to churn the ice cream as it flew. The name of the project was Operation Freeze.

Then, in 1945, the U.S. Navy spent $1 million turning a boat into a "floating ice cream parlor." The ship sailed around the Pacific Ocean supplying sailors with their favorite treat. Later, during the Korean War, the government made a statement insisting that soldiers get ice cream at least three times a week.

Frozen Treats Featured In Museum Exhibit

Bompas & Parr is introducing its non-melting popsicles at "SCOOP: A Wonderful Ice Cream World," an exhibit of the British Museum of Food. The exhibit shows the science and history of ice cream and other frozen desserts.

Visitors can walk through an ice cream "cloud" and see a collection of ice cream equipment. They will also have the chance to taste historically inspired flavors like cucumber. Guests also can experience ice creams of the future. There are fizzy and glow-in-the-dark versions.

This is just the latest food science creation from Bompas & Parr. It is known for wild products. The company has made everything from food molds of architectural wonders to flavored fireworks.

New Pops May One Day Be Sold At Store Near You

The non-melting pops can be made in any flavor. At the exhibit, Bompas & Parr will have an apple variety. If the early models are a success with visitors, the company hopes to make them to sell in supermarkets.

The popsicles taste like regular ice pops, Bompas says. However, due to the fruit, "you could describe them as a tad more chewy."

Claim, Evidence, Reasoning

Name: _____

Date: _____ Class: _____

Question: What is the phenomena or problem presented?
Claim: What is the answer or solution to this question?
Evidence 1: What information supports the claim? What is the source? **Evidence 2:** What information supports the claim? What is the source?
Reasoning: How does the evidence support the claim? What scientific concepts did you use to make sense of the evidence?

John Brown

Benchmark Standard	History 2b: Students will examine historical documents, artifacts, and other materials, and analyze them in terms of credibility, as well as the purpose, perspective, or point of view for which they were constructed.
Grade	8
Vocabulary / Key Concepts:	Insurrection; forfeit

~This is a Stanford History Education Group (SHEG) lesson, modified by CSD for use at home~

ACTIVITY 1:

Read and annotate the following information for Background Knowledge. Underline or highlight the key pieces of the text and take necessary notes on the key pieces:

Rising National Tensions:

Abolitionism:

- *Spread in North*
- ***Frederick Douglass**: runaway slave who became abolitionist leader*
- ***William Lloyd Garrison**: editor of abolitionist newspaper,* The Liberator
- ***Underground Railroad**: elaborate network of white abolitionists, free blacks and slaves (not only Harriet Tubman)*
- *Total number of fugitives assisted by the UGR 1830-1860 was between 70,000 and 100,000*

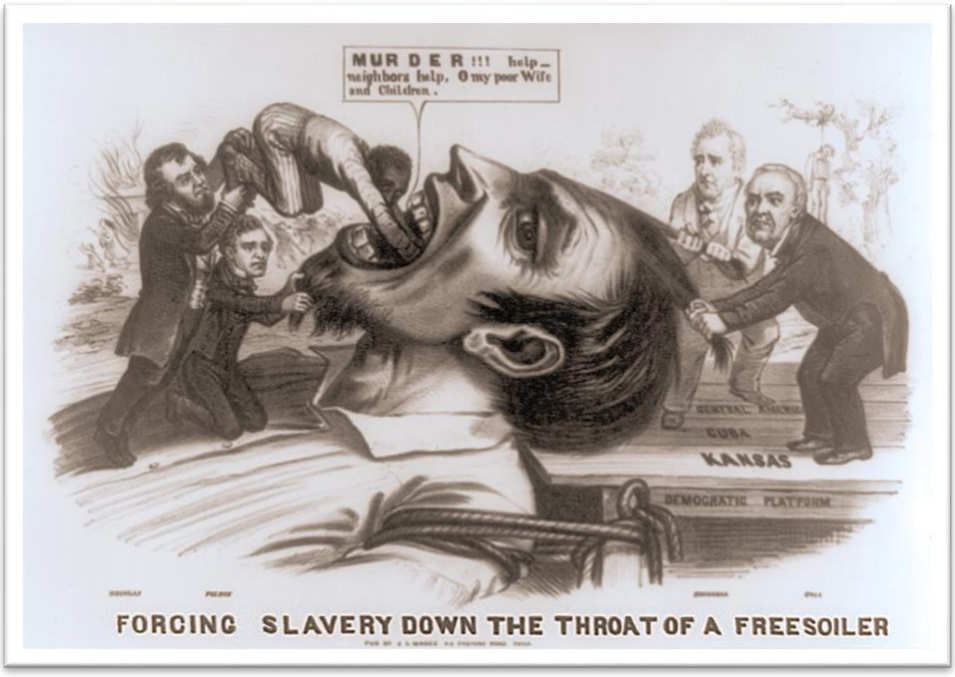
Compromise of 1850:

- *California wanted to be a free state*
- *The South had assumed it wouldn't be and was upset it was*
- *As a compromise, California would enter the Union as a free state with the condition that Utah and New Mexico would vote on slavery*
- ***Fugitive Slave Law** – meant to appease South, many Northerners felt it turned them into slave-catchers*

Kansas-Nebraska Act of 1854

- *Proposed by Stephen Douglas*
- *People in Nebraska Territory would vote on whether to have slavery or not (popular sovereignty).*
- *Sounded like a sound compromise, but it upset some anti-slavery forces*
- ***Freesoilers** (poor farmers who couldn't compete with slave-owners), and pro-slavery forces streamed in*
- *Mini civil war: "Bleeding Kansas"*

Political Cartoon, 1856



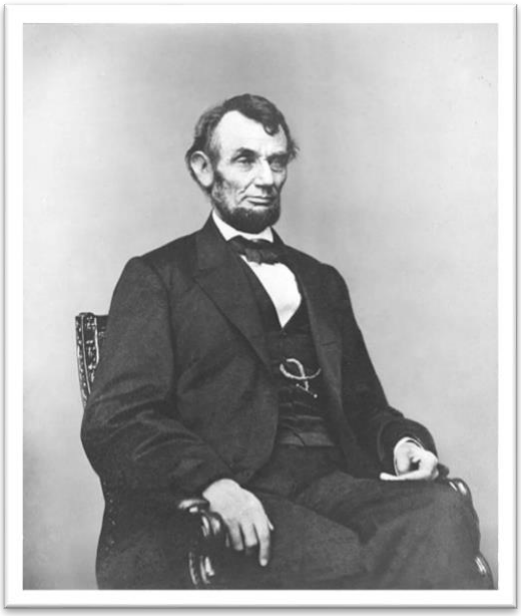
John Brown

- *Abolitionist*
- *Involved in the Underground Railroad*
- *Moved to Kansas to support the anti-slavery cause*
- *Responded to violence by pro-slavery men by organizing the murder of 5 proslavery settlers: Pottowatomie Creek Massacre*

John Brown's Raid on Harper's Ferry

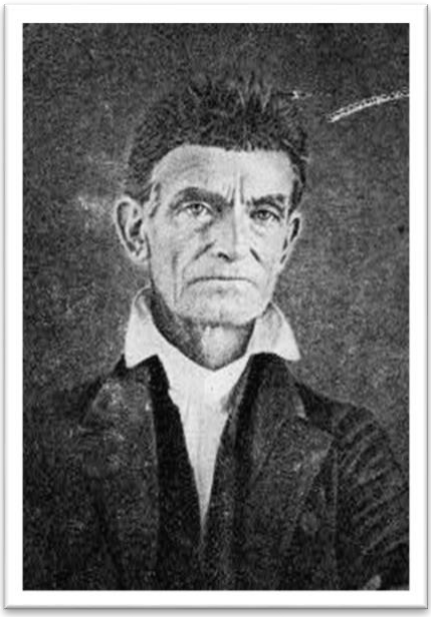
- *Brown planned a raid on a federal arsenal*
- *He wanted to distribute weapons to slaves*
- *Action failed. Brown and his men were mostly captured or killed within 36 hours*
- *Brown was ultimately hanged*

Abraham Lincoln called Brown a "misguided fanatic."



Abraham Lincoln

John Brown



CENTRAL HISTORICAL QUESTION: Was John Brown a "misguided fanatic"?

John Brown's raid shocked and polarized the country:

- In the NORTH: bells rang; many speeches condemning slavery; Brown considered a martyr
- In the SOUTH: slave owners horrified that the raid almost succeeded; more convinced that they can't live in the United States

ACTIVITY 2: Read and annotate the John Brown Timeline. Underline or highlight the key pieces of the text and take necessary notes on the key pieces.

1800	John Brown born in Connecticut.
1833	John Brown married his second wife, who took care of his five children and later bore him thirteen of her own. Finances got harder as he attempted to provide for his large family.
1837	November 7: John Brown vowed to end slavery when he learned that an abolitionist newspaperman was killed.
1842	John Brown went bankrupt. Lost almost everything.
1854	Kansas-Nebraska Act of 1854: Voters will decide if Nebraska Territory will be slave or free.
1855	John Brown followed his sons to Kansas as Free-Soilers.
1856	May 24: Brown went to nearby Pottawatomie Creek and directed his men in the murder of five proslavery settlers.
1859	October 16: John Brown attacked the armory at Harpers Ferry with 21 men (16 white, 5 black). Within 36 hours, they were almost all captured or killed. Two of John Brown's sons were killed.

	November 2: A Virginia jury found John Brown guilty of murder, treason, and inciting a slave insurrection. December 2: John Brown was hanged.
1860	November: Abraham Lincoln elected President.
1861	April 12: The South seceded, and the Civil War began.
1865	The Thirteenth Amendment to the Constitution abolished slavery.

ACTIVITY 3: Read Document A, then complete the Guiding Questions for Document A.
Document A: John Brown's Speech (Modified)

I have, may it please the court, a few words to say. In the first place, I deny everything but what I have all along admitted -- the design on my part to free the slaves. That was all I intended. I never did intend murder, or treason, or the destruction of property, or to excite or incite slaves to rebellion, or to make insurrection.

I have another objection: had I so interfered in behalf of the rich, the powerful, the intelligent, the so-called great, or in behalf of any of their friends . . . it would have been all right; and every man in this court would have deemed it an act worthy of reward rather than punishment.

I believe that to have done what I have done--on behalf of God's despised poor was not wrong, but right. Now, if it is deemed necessary that I should forfeit my life to further the end of justice, and mingle my blood further with the blood of my children and with the blood of millions in this slave country whose rights are disregarded by wicked, cruel, and unjust acts-- I say: so let it be done!

Vocabulary:
Insurrection: revolt.
Forfeit: give up

Source: This was John Brown's last speech. November 2, 1859.
DOCUMENT A GUIDING QUESTIONS:

1. John Brown delivered this speech on the last day of his trial, after hearing the jury pronounce him 'guilty.' He knew he would be sentenced to die. Given that context, what does this speech say about him as a person?
2. Based on this document, do you think John Brown was a "misguided fanatic"? Why or why not?

ACTIVITY 4: Read Document B, then complete the Guiding Questions for Document B.
Document B: Last Meeting Between Frederick Douglass and John Brown (Modified)

About three weeks before the raid on Harper's Ferry, John Brown wrote to me, informing me that before going forward he wanted to see me . . .

We sat down and talked over his plan to take over Harper's Ferry. I at once opposed the measure with all the arguments at my command. To me such a measure would be fatal to the work of the helping slaves escape [Underground Railroad]. It would be an attack upon the Federal government, and would turn the whole country against us.

Captain John Brown did not at all object to upsetting the nation; it seemed to him that something shocking was just what the nation needed. He thought that the capture of Harper's Ferry would serve as notice to the slaves that their friends had come, and as a trumpet to rally them.

Of course I was no match for him, but I told him, and these were my words, that all his arguments, and all his descriptions of the place, convinced me that he was going into a perfect steel-trap, and that once in he would never get out alive.

Source: In this passage, Frederick Douglass describes his last meeting with John Brown, about three weeks before the raid on Harper's Ferry. Douglass published this account in 1881 in The Life and Times of Frederick Douglass.

DOCUMENT B GUIDING QUESTIONS:

1. What are two reasons why Douglass opposed John Brown's plan to raid Harper's Ferry?
2. Douglass's account is written in 1881, twenty-two years after the raid. Do you trust his account? Why or why not?
3. Based on this document, do you think John Brown was a "misguided fanatic"? Why or why not?

ACTIVITY 5: Read Document C, then complete the Guiding Questions for Document C.

Document C: Letter to John Brown in Prison (Modified)

Massachusetts, Oct 26th, 1859

Dear Capt Brown,

You do not know me, but I have supported your struggles in Kansas, when that Territory became the battle-ground between slavery and freedom.

Believing in peace, I cannot sympathize with the method you chose to advance the cause of freedom. But I honor your generous intentions, I admire your courage, moral and physical, I respect you for your humanity, I sympathize with your cruel loss, your sufferings and your wrongs. In brief, I love you and bless you.

Thousands of hearts are throbbing with sympathy as warm as mine. I think of you night and day, bleeding in prison, surrounded by hostile faces, sustained only by trust in God, and your own strong heart. I long to nurse you, to speak to you sisterly words of sympathy and consolation. May God sustain you, and carry you through whatsoever may be in store for you!

Yours with heartfelt respect, sympathy, and affection.

L. Maria Child.

Source: The letter above was written to John Brown while he was in prison, awaiting trial.

DOCUMENT C GUIDING QUESTIONS:

1. What does this letter to John Brown tell you about L. Maria Child in regards to the cause? Explain.
2. Do you think there are others that feel the same at L. Maria Child? Explain why or why not.
3. Based on this document, do you think John Brown was a "misguided fanatic"? Why or why not?

ACTIVITY 6: Review Documents A, B, and C and complete the questions below:

1. Based on the Timeline and Document A, what kind of person would you say John Brown was?
2. Did the Douglass document change your opinion of John Brown? Why or why not?
3. Based on all three documents, do you think John Brown was a "misguided fanatic"? Explain why or why not? Use evidence from the Timeline and/or the documents to support your opinion.