7th GRADE

NTI PACKET #11-15

Dear 7th Grade Maroon Parents & Guardians/ Students,

We can't thank you enough for the support, encouragement, and communication from all parents/guardians and students. We, as teachers, can't express how much we miss our students and how we are here for you all whenever you need us. Please feel free to reach out as we charter new territory with NTI Packets #11-15.

NTI PACKETS #11-15

These NTI packets will be a little different because EVERY packet is a little bit of each subject. Every NTI Day will have math, language arts, science, and social studies. There will be new content for every subject. We are providing students with notes and information inside of the NTI Pcaket. We are also providing great technology resources students can use to assist with their learning of new content.

TEACHER COMMUNICATION- MAROON

We want to highly encourage email during NTI Days. Students can use their google log in and log into google mail to communicate with their teachers.

- Language Arts/ Miranda Johnson- miranda.johnson@harrison.kyschools.us
- Math/ Melinda Persinger- melinda.persinger@harrison.kyschools.us
- Science/ Jaime Chapman- jaime.chapman@harrison.kyschools.us
- Social Studies/ Whitney Criswell- whitney.criswell@harrison.kyschools.us
- Special Education/Taylor Hill- taylor.hill@harrison.kyschools.us

Students can also use the Remind 101 App to communicate to teachers. You can send a text to 81010 and text "@7mharrison" to be added to the Remind 101 reminders. If you download the free app, you can send text messages to teachers for communication. You can also call Harrison County Middle School at (859) 234-7124

TEACHER COMMUNICATION- GOLD

We want to highly encourage email during NTI Days. Students can use their google log in and log into google mail to communicate with their teachers.

- Language Arts/ Carla Fuller- carla.walker@harrison.kyschools.us
- Math/ Roni Long- roni.long@harrison.kyschools.us
- Science/ Jean Jones- jean.jones@harrison.kyschools.us
- Social Studies/ Jenny Hyatt- jenny.hyatt@harrison.kyschools.us
- Special Education/Carline Ford- carline.ford@harrison.kyschools.us

"WE MISS YOU!"- From: ALL 7th Grade Teachers

NASP

NATIONAL ASSOCIATION OF
School Psychologists

NASN

National Association of School Nurses

February 29, 2020

Talking to Children About COVID-19 (Coronavirus)
A Parent Resource

A new type of coronavirus, abbreviated COVID-19, is causing an outbreak of respiratory (lung) disease. It was first detected in China and has now been detected internationally. While the immediate health risk in the United States is low, it is important to plan for any possible outbreaks if the risk level increases in the future.

Concern over this new virus can make children and families anxious. While we don't know where and to what extent the disease may spread here in the United States, we do know that it is contagious, that the severity of illness can vary from individual to individual, and that there are steps we can take to prevent the spread of infection. Acknowledging some level of concern, without panicking, is appropriate and can result in taking actions that reduce the risk of illness. Helping children cope with anxiety requires providing accurate prevention information and facts without causing undue alarm.

It is very important to remember that children look to adults for guidance on how to react to stressful events. If parents seem overly worried, children's anxiety may rise. Parents should reassure children that health and school officials are working hard to ensure that people throughout the country stay healthy. However, children also need factual, age appropriate information about the potential seriousness of disease risk and concrete instruction about how to avoid infections and spread of disease. Teaching children positive preventive measures, talking with them about their fears, and giving them a sense of some control over their risk of infection can help reduce anxiety.

Specific Guidelines

Remain calm and reassuring.

- Children will react to and follow your verbal and nonverbal reactions.
- What you say and do about COVID-19, current prevention efforts, and related events can either increase or decrease your children's anxiety.
- If true, emphasize to your children that they and your family are fine.
- Remind them that you and the adults at their school are there to keep them safe and healthy.
- Let your children talk about their feelings and help reframe their concerns into the appropriate perspective.

Make yourself available.

- Children may need extra attention from you and may want to talk about their concerns, fears, and questions.
- It is important that they know they have someone who will listen to them; make time for them.
- Tell them you love them and give them plenty of affection.

Avoid excessive blaming.

- When tensions are high, sometimes we try to blame someone.
- It is important to avoid stereotyping any one group of people as responsible for the virus.
- Bullying or negative comments made toward others should be stopped and reported to the school.
- Be aware of any comments that other adults are having around your family. You may have to explain what comments mean if they are different than the values that you have at home.

Monitor television viewing and social media.

- Limit television viewing or access to information on the Internet and through social media. Try to avoid watching or listening to information that might be upsetting when your children are present.
- Speak to your child about how many stories about COVID-19 on the Internet may be based on rumors and inaccurate information.
- Talk to your child about factual information of this disease—this can help reduce anxiety.
- Constantly watching updates on the status of COVID-19 can increase anxiety—avoid this.
- Be aware that developmentally inappropriate information (i.e., information designed for adults) can cause anxiety or confusion, particularly in young children.
- Engage your child in games or other interesting activities instead.

Maintain a normal routine to the extent possible.

- Keep to a regular schedule, as this can be reassuring and promotes physical health.
- Encourage your children to keep up with their schoolwork and extracurricular activities, but don't push them if they seem overwhelmed.

Be honest and accurate.

- In the absence of factual information, children often imagine situations far worse than reality.
- Don't ignore their concerns, but rather explain that at the present moment very few people in this country are sick with COVID-19.
- Children can be told this disease is thought to be spread between people who are in close contact with one another—when an infected person coughs or sneezes.
- It is also thought it can be spread when you touch an infected surface or object, which is why it is so important to protect yourself.
- For additional factual information contact your school nurse, ask your doctor, or check the https://www.cdc.gov/coronavirus/2019-ncov/index.html website.

Know the symptoms of COVID-19.

- The CDC believes these symptoms appear in a few days after being exposed to someone with the disease or as long as 14 days after exposure:
  - Fever
  - Cough
  - Shortness for breath
- For some people the symptoms are like having a cold; for others they are quite severe or even life threatening. In either case it is important to check with your child's healthcare provider (or yours) and follow instructions about staying home or away from public spaces to prevent the spread of the virus.

Review and model basic hygiene and healthy lifestyle practices for protection.

- Encourage your child to practice every day good hygiene—simple steps to prevent spread of illness:
  - Wash hands multiple times a day for at least 20 seconds (singing Twinkle, Twinkle Little Star slowly takes about 20 seconds).
  - Cover their mouths with a tissue when they sneeze or cough and throw away the tissue immediately, or sneeze or cough into the bend of their elbow. Do not share food or drinks.

community leaders to prevent germs from spreading.

- Upper middle school and high school students are able to discuss the issue in a more in-depth (adult-like) fashion and can be referred directly to appropriate sources of COVID-19 facts. Provide honest, accurate, and factual information about the current status of COVID-19. Having such knowledge can help them feel a sense of control.

Suggested Points to Emphasize When Talking to Children

- Adults at home and school are taking care of your health and safety. If you have concerns, please talk to an adult you trust.
- Not everyone will get the coronavirus (COVID-19) disease. School and health officials are being especially careful to make sure as few people as possible get sick.
- It is important that all students treat each other with respect and not jump to conclusions about who may or may not have COVID-19.
- There are things you can do to stay health and avoid spreading the disease:
  - Avoid close contact with people who are sick.
  - Stay home when you are sick.
  - Cover your cough or sneeze into your elbow or a tissue, then throw the tissue in the trash.
  - Avoid touching your eyes, nose, and mouth.
  - Wash hands often with soap and water (20 seconds).
  - If you don't have soap, use hand sanitizer (60–95% alcohol based).
  - Clean and disinfect frequently touched objects and surfaces using a regular household cleaning spray or wipe.

Additional Resources

Talking With Children: Tips for Caregivers, Parents, and Teachers During Infectious Disease Outbreaks, https://store.samhsa.gov/product/Talking-With-Children-Tips-for-Caregivers-Parents-and-Teachers-During-Infectious-Disease-Outbreaks/SMA14-4886

Coping With Stress During Infectious Disease Outbreaks, https://store.samhsa.gov/product/Coping-with-Stress-During-Infectious-Disease-Outbreaks/sma14-4885

Centers for Disease Control and Prevention, Coronavirus Disease 2019 (COVID-19), https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

Handwashing and Hand Sanitizer Use at Home, at Play, and Out and About, https://www.cdc.gov/handwashing/pdf/hand-sanitizer-factsheet.pdf

For more information related to schools and physical and mental health, visit www.nasponline.org and www.nasn.org.

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Coping With Stress During Infectious Disease Outbreaks, https://store.samhsa.gov/product/Coping-with-Stress-During-Infectious-Disease-Outbreaks/sma14-4885

Centers for Disease Control and Prevention, Coronavirus Disease 2019 (COVID-19), https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

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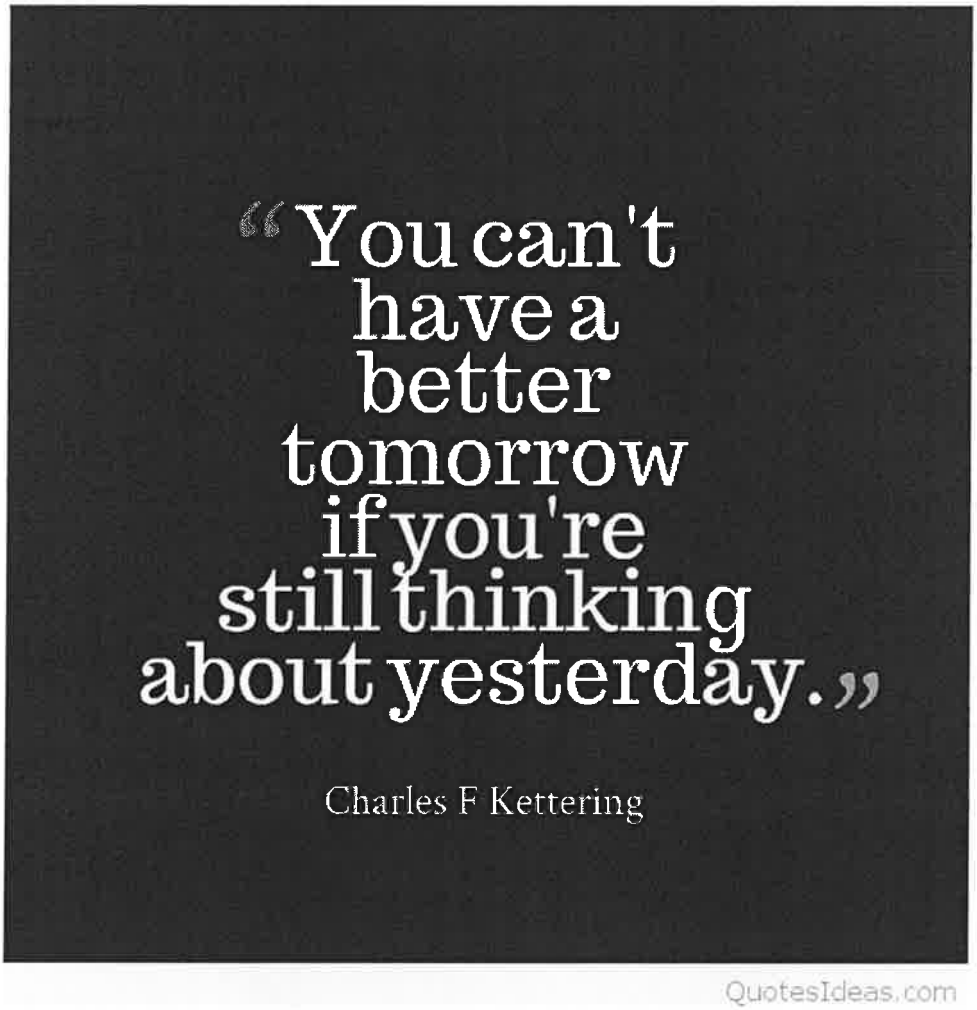
Name (First & Last):_____

Team: MAROON OR GOLD

Homeroom Teacher:_____

NTI #11



Work hard. Be nice. Extend grace. Show mercy. Be humble.

NTI Days 11 - 20 MATH 7th Grade Maroon and Gold

Hello our darling students!

During the next few weeks you are going to be learning about probability, the study of chance, the likelihood of an event happening. I'm sure the likelihood of you being bored over this long break is definitely certain!

You will consider the theoretical (what should happen) and the experimental probability (what actually happens) of flipping coins, picking cards from a deck, rolling dice, spinning spinners and more.

This content is pretty new to you but we have included some guided practice questions that you can follow. Also, if at any time you become stuck, we encourage you to reach out and contact us. You can call, email, respoind on Remind101. We are here to help!

Also, you can check out the following sites:

Random Dice Tossing Generator
https://www.random.org/dice/?num=2

Math Dude - Sample Space (5:23)
https://www.youtube.com/watch?v=8jfd1BgnDi0

Mash Up Math - Tree Diagrams (5:35)
https://www.youtube.com/watch?v=1Ch0wb4MAS8

Counting Principle by Shmoop (3:20)
https://www.youtube.com/watch?v=5CQw8KsfipA

Anywhere Math - Probability (8:08)
https://www.youtube.com/watch?v=eFM5twmpu_c&t=41s

Math Antics - Basic Probability
https://www.youtube.com/watch?v=KzfWUEJjG18&t=3s

Math Dude - Basic Probability (11:28)
https://www.youtube.com/watch?v=w1ahelETNu8

Basic Probability by Shmoop
https://www.youtube.com/watch?v=Q7SLNDaM51M

(Keep going ☺)

Anywhere Math - Independent/Dependent Events (11:03)
https://www.youtube.com/watch?v=jos1yBC_L8E

Mr. Van Houdt - Theoretical vs Experimental Probability (7:14)
https://www.youtube.com/watch?v=LilZjRifJ-I

Here is how the days will be laid out:

Day 11 - I can find all the possible outcomes for a sample space by listing the outcomes, creating a tree diagram, or using the fundamental counting principle.

Day 12 - I can understand that the probability of an event is a number between 0 and 1 and explain the likelihood of that event.

Days 13 & 14 - I can find the probability of simple events.

Day 15 - I can understand the difference between theoretical and experimental probability.

Day 16 - I can approximate the probability of an event by collecting data(population) and predict the approximate relative frequency.

Day 17 - I can find the probability of independent events.

Day 18 - I can find the probability of dependent events.

Days 19 & 20 - By selecting an activity of my choice I can demonstrate my knowledge of probability.

We certainly miss you! Contact us if you need us.

Mrs. Persinger and Mrs. Long

Day 11

POSSIBLE OUTCOMES FOR A SAMPLE SPACE

Vocabulary

experiment: an activity, such as tossing a number cube or tossing a coin or spinning a spinner

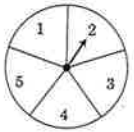
outcome: a result of an experiment

random experiment: an experiment in which each possible outcome is equally likely

sample space: the set of all possible outcomes of an experiment

Day 11

During the summer, Jesse works for a company that sets up neighborhood carnivals. One of the carnival games uses a spinner which players spin for prizes. What are all the possible **outcomes** when Jesse spins the arrow?



The spinner's arrow can stop on any of the numbers:

1 or 2 or 3 or 4 or 5

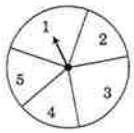
So, there are five possible outcomes.

You can write the **sample space** of the game by putting brackets around the set of all possible outcomes as shown below:

{1, 2, 3, 4, 5}

This spinner game is an **experiment**. It is called a **random experiment** because each possible outcome is *equally likely* to happen. This is because the spinner is not weighted and the sections of the spinner are equal in size and shape.

The spinner below has the same sample space as the one above.

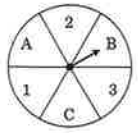


{1, 2, 3, 4, 5}

However, because the sections are different sizes, it is *more likely* that the spinner's arrow would stop on 1 or 3. Therefore, this spinner game would *not* be a random experiment.

Guided Practice

1. Sometimes Jesse uses the spinner shown below.



   a. List all the possible outcomes for the spinner.
   1 or A or 2 or B or 3 or C

   b. Write the sample space for the spinner. { 1 2 3 A B C }

   c. Are all outcomes equally likely to occur? yes

   d. Would this be a random experiment? yes

2. In one carnival game, players toss a number cube to win prizes. The sides of the number cube are numbered 1 to 6.

   a. List all the possible outcomes. 1 2 3 4 5 6

   b. Write the sample space. 1 2 3 4 5 6

   c. Would this be a random experiment? Why or why not?
   yes because each # is equally likely to happen.

3. In another carnival game, a player picks a card out of a hat. The 20 cards in the hat are numbered from 1 to 20.

   a. The sample space is 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

   b. How many possible outcomes are there? 20

   c. Imagine that the player knows that the number 3, 4, and 5 cards have bent corners. Would this be a random experiment? Why or why not? No because the players would be able to identify the bent corners.

Exercises

Write the sample space for each experiment.

4. Tossing a coin _____

5. Picking an *e* from all the vowels of the alphabet _____

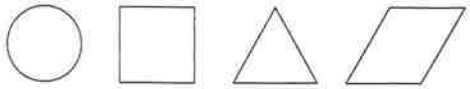
6. Picking an even number from all the whole numbers 1 to 8 _____

7. Spinning the spinner below _____

8. Picking the colors of a traffic signal _____

9. Choosing your color when playing checkers _____

10. Tossing a ring onto one of the shapes below _____



11. Choosing one of four directions on a compass _____

12. Choosing any letter from the word PROBABILITY _____

13. Would Exercise 12 describe a random experiment? Is there an equal likelihood of picking any letter? Explain.

_____

_____

Application

14. A cleaning crew manager randomly assigns new staff members to cleaning jobs. The jobs are: *vacuum halls, vacuum offices, dust offices, empty wastebaskets,* and *wash windows.*

    a. What is the sample space?

    _____

    b. How many possible jobs (outcomes) are there for each new staff member? _____

MORE COMPLEX SAMPLE SPACES

Tanisha has a summer job helping a designer at a department store. She is working on a display of summer wear. There are 2 colors of shorts: blue and red, and 3 colors of shirts: gold, purple, and green. How many different possible combinations of shirts and shorts can Tanisha use in the display?

She makes an organized list of the possible combinations to find out.

Blue shorts, gold shirt

Blue shorts, purple shirt

Blue shorts, green shirt

Red shorts, gold shirt

Red shorts, purple shirt

Red shorts, green shirt

Tanisha can now see that there are 6 possible outcomes in the sample space.

Notice that she organized the list by writing all the blue shorts with shirts combinations first and then repeating for the red shorts combinations.

Guided Practice

1. Zachary and Teresa flip coins. Zachary flips a quarter and Teresa flips a dime.

    a. What are the possible outcomes when Zachary flips the quarter?

    heads, *tails*

    b. What are the possible outcomes when Teresa flips the dime?

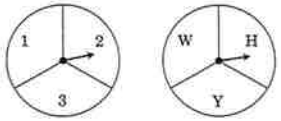
    heads, tails

c. What are all the possible combinations? Complete the chart below.

quarter heads, dime heads
quarter heads, dime tails
quarter tails, dime tails
quarter tails, dime heads

you try

2. Ernesto is playing a board game with the two spinners shown below.



a. List all the possible outcomes for the first spinner.

_____, _____, _____

b. List all the possible outcomes for the second spinner.

_____, _____, _____

c. Use the chart below to show all the possible outcomes when spinning both spinners.

1 W		

d. How many possible outcomes are there altogether? _____

TREE DIAGRAMS

Vocabulary

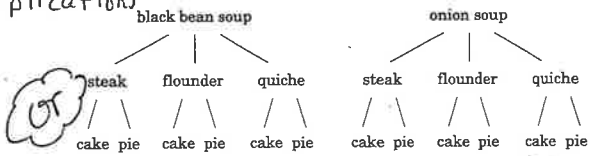
tree diagram: a diagram that shows all possible outcomes for an experiment

Fundamental Counting principle: a way to find the number of outcomes in a probability problem (uses multiplication)

At Petra's Restaurant, there is a special deal on Tuesday nights. For a low price, a customer can have a three-course dinner with the following choices: 1) black bean soup or onion soup, 2) steak, flounder, or quiche, and 3) cake or pie. How many different meal combinations are possible?

To determine all the possible meal combinations, Petra made a **tree diagram**.

Tuesday Night Menu Choices



black bean soup
- steak
  - cake
  - pie
- flounder
  - cake
  - pie
- quiche
  - cake
  - pie

To use the diagram, start from the top of each "tree." Follow each branch to find every possible meal. Make a list.

1. black bean soup, steak, and cake
2. black bean soup, steak, and pie
3. black bean soup, flounder, and cake
4. black bean soup, flounder, and pie
5. black bean soup, quiche, and cake
6. black bean soup, quiche, and pie
7. onion soup, steak, and cake
8. onion soup, steak, and pie
9. onion soup, flounder, and cake
10. onion soup, flounder, and pie

onion soup
- steak
  - cake
  - pie
- flounder
  - cake
  - pie
- quiche
  - cake
  - pie

2 soups × 3 meats × 2 desserts = 12 outcomes

Fundamental Counting Principle

11. onion soup, quiche, and cake

12. onion soup, quiche, and pie

There are 12 different meal combinations available at Petra's Restaurant on Tuesday nights.

To find the probability of any combination, divide a specific menu by the total possibilities.

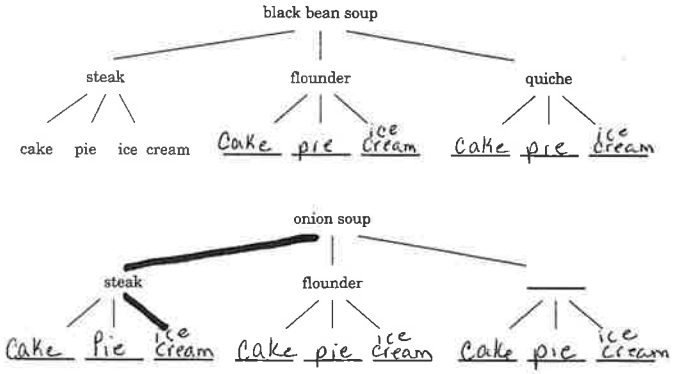
P(black bean soup, flounder, pie) = $\frac{1}{12}$

Guided Practice

1. The new chef has suggested that Petra's Restaurant offer a choice of three desserts: cake, pie, or ice cream.

   a. Complete this tree diagram to show all possible meal combinations.

NEW Tuesday Night Menu Choices



   b. Count each branch in the bottom rows of both tree diagrams to find out how many meal combinations are now possible.

18 = 2 × 3 × 3
outcomes soup meat desserts

   c. To find the probability of any given menu, divide the number of ways to choose that specific menu by the total number of menus.

P(onion soup, steak, ice cream) = $\frac{1}{18}$

Exercises

Use the Fundamental Counting Principle and

Draw a tree diagram for each experiment. Count how many possible combinations or outcomes there are in each case.

2. Flipping two coins _____ outcomes

3. Flipping three coins _____ outcomes

Use the tree diagrams from Exercises 1 to 3 to find the probabilities for the following outcomes.

4. P(1 head and 1 tail) when flipping two coins _____

5. P(3 heads) when flipping three coins _____

6. P(2 heads and 1 tail) when flipping three coins _____

LEARNING

7. At Thurgood Marshall Middle School, the physical education classes are sponsoring a series of sports-related activities.

   - Students can choose from the following activities: 100-yard dash, javelin throw, bicycle race, standing broad jump, and pole vault.
   - The students can take a written test about physical fitness in English, Spanish, or Vietnamese.
   - Students can choose to have the student teacher or the master teacher evaluate their overall performances.

   a. Make a tree diagram to determine the possible combinations of events, testing, and evaluation options.

   b. If students are given a choice of an oral or written test, how many combinations of events, testing, and evaluation options are possible?

7th Grade Days 11-15 Social Studies
NTI Assignments

Days 11-15

You will be learning about the geography, development, and impact of ancient civilizations in the Americas. Each day you will practice historical thinking skills as you investigate the Maya, Inca, and Aztec cultures.

Day 11: You will complete the MesoAmerica Map activity to develop an understanding of the location of these civilizations. Use the maps attached (pages 290-291) to locate and label the features on the instruction page.

Day 12: Today you will review how geographic features (landforms and bodies of water) influence civilizations. Read chapter 1.1 (pages 460-461) and answer the three "Review and Assess" questions located at the bottom of page 461. You may answer these on notebook paper.

Day 13: Use the readings on the Aztecs, Mayans, and Incas to complete the "Early Civilizations Graphic Organizer". This is a good chance to practice reading strategies, such as Close Reading, 3-5 Gist, skimming/scanning, or underlining key information in text.

Day 14: Explore the "1.2 History Through Objects- Peruvian Gold" handout. Use the sources and information to answer Field Journal questions #1-3. Remember to think like a historian, use complete sentences with restatements, and cite examples from the text where necessary.

Day 15: Continue to analyze the "History Through Objects- Peruvian Gold" and read section 2.3 "Uncovering Maya Murals". Today you should answer Field Journal questions #4-5. Number 4 asks you to write a letter. You will complete this question on notebook paper.

Additional Resources to enhance your learning:

*Check Mrs. Criswell's Google Classroom or Class Website (https://sites.google.com/harrison.kyschools.us/criswell/) for additional resources throughout the next couple of weeks.

You can access BrainPop videos on each civilization on Mrs. Criswell's Google Classroom or by the links below.
Use the following login information:
Username: hcmscolts
Password: harrison20

Video 1- https://www.brainpop.com/socialstudies/ancientcultures/azteccivilization/

Video 2- https://www.brainpop.com/socialstudies/ancientcultures/mayacivilization/
Video 3- https://www.brainpop.com/socialstudies/ancientcultures/incacivilization/

Interactive Map of Early Civilizations in the Americas-
http://www.eduplace.com/kids/socsci/ca/books/bkf3/imaps/AC_09_285_amcivilization/AC_09_285_amcivilization.html

Maya-

1. Video with fascinating facts about the Maya- https://www.youtube.com/watch?v=3odJDGKPPTU
2. Video about the Mayan sacred ball game- https://vimeo.com/88365226

Digital Interactives with facts about the cultures of the ancient American peoples.
https://carlos.emory.edu/htdocs/ODYSSEY/AA/aafront.htm

Learn more about these three ancient civilizations with this interactive presentation-
https://www.sutori.com/story/aztec-inca-maya--mD55p7qumfe14PpZVvE2kgK1

Instruction Page

Mesoamerica Map

Directions: Neatness counts!

1. Locate and label the following bodies of water and shade them BLUE:

Pacific Ocean

Amazon River

Atlantic Ocean

Caribbean Sea

Gulf of Mexico

2. Locate and label the following physical geographic features (for mountains, use ^^^^):

Andes Mountains

Yucatan Peninsula

(Shade Red)

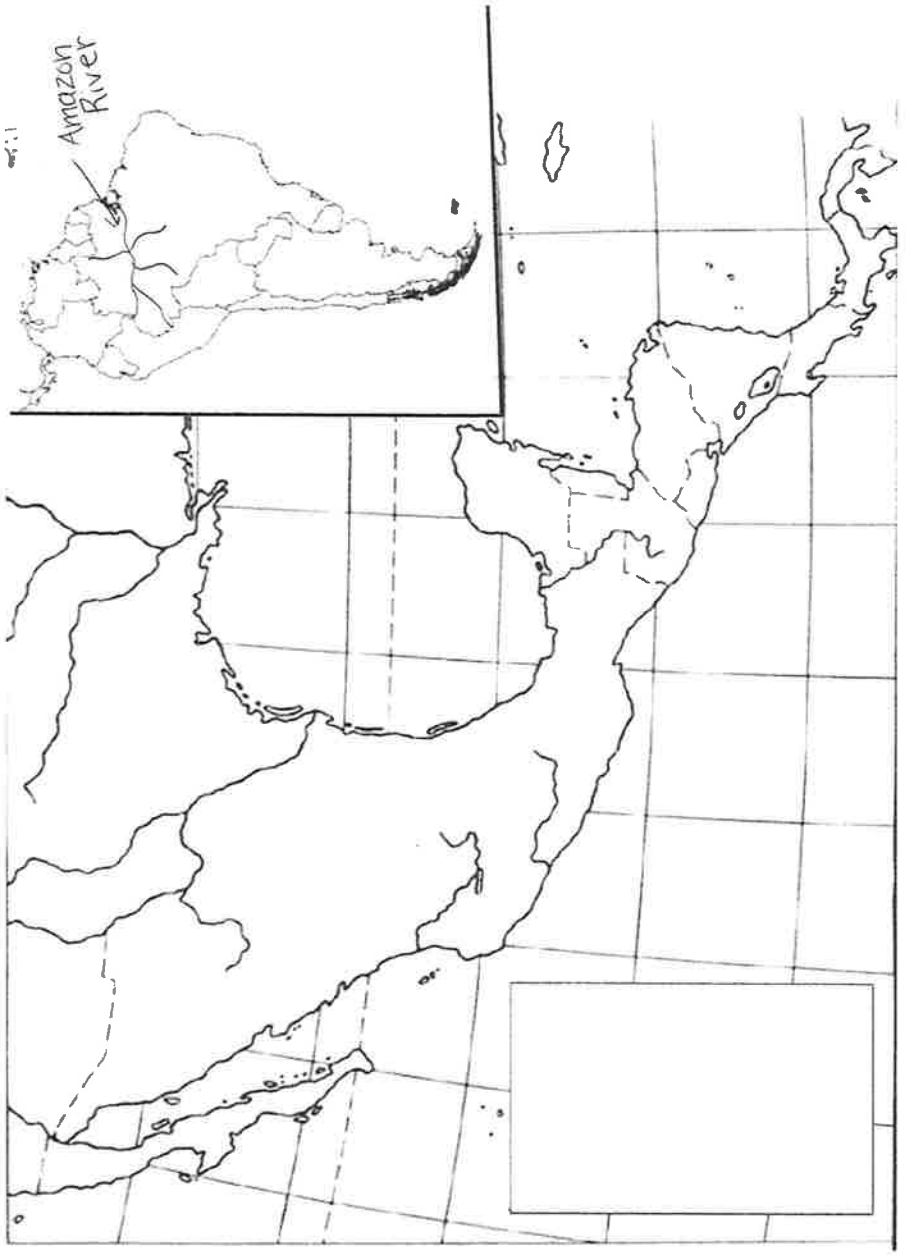
3. Locate and draw in the following civilizations using the assigned colors:

Maya (Purple)

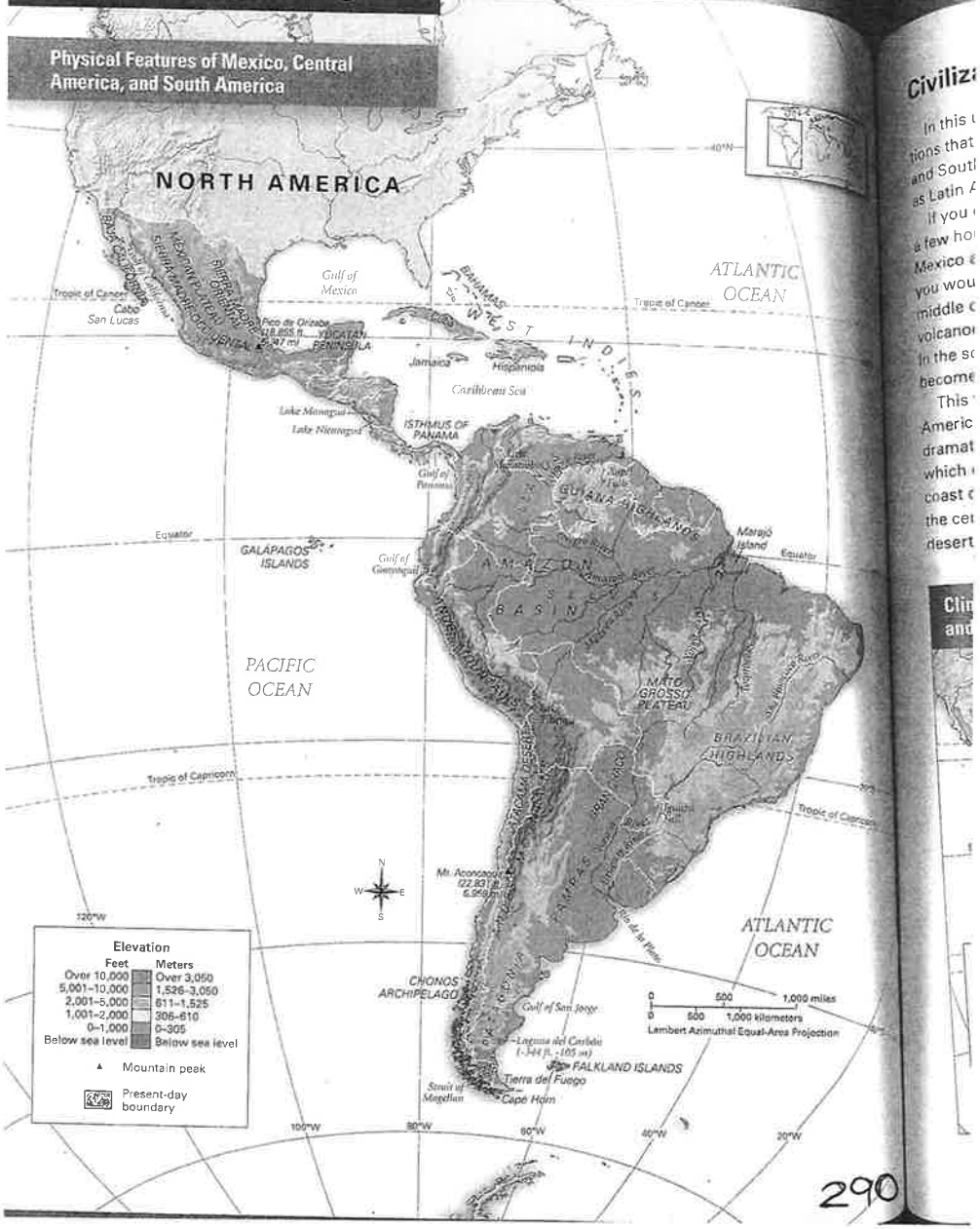
Aztec (Yellow)

Inca (Brown)

4. Create a Key on the front for #'s 2 & 3.



Physical Features of Mexico, Central America, and South America



Civilizations of the Americas

In this unit, you will learn about the civilizations that developed in Mexico, Central America, and South America. This region is also known as Latin America.

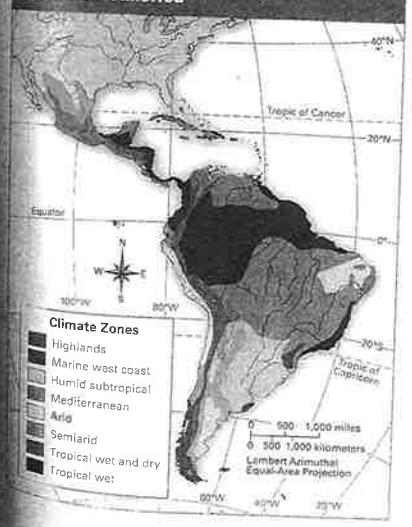
If you could fly over this entire region in just a few hours, what would you see? Beginning in Mexico and Central America, and flying south, you would see mostly rugged mountains. In the middle of the country, these highlands include volcanoes and vast farmlands that span for miles. In the southernmost part of this region, the land becomes very narrow, only 30 miles wide.

This thin land bridge leads into South America. From your plane, you would see a dramatic mountain range called the Andes, which extends along nearly the entire western coast of South America. East of the Andes, in the central part of the continent, are rainforests, deserts, and grasslands. You would glimpse rivers like the Amazon, the longest river in South America, flowing through the rainforests. As you complete your flight, you would cross over the pointy tip of South America, a flat area that rises from the Atlantic to the Andes.

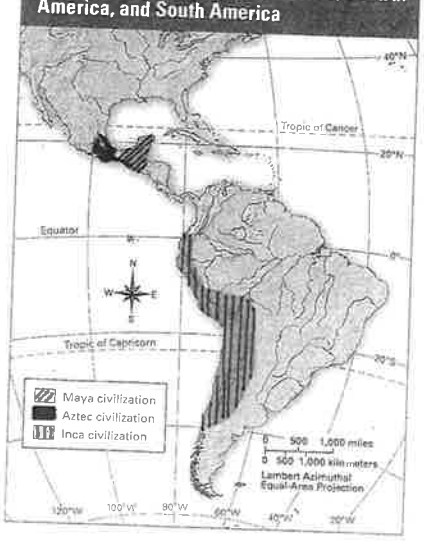
Mexico, Central America, and South America were home to several advanced early civilizations. In the Andes, a group known as the Incas developed the largest empire in the Americas. To connect their huge mountain empire, they constructed roads and bridges across deep ravines and raging rivers.

Two groups of people lived in Mexico and Central America: the Maya and the Aztecs. The Maya survived by learning to grow food in the hills, swamps, and forests they inhabited. The Aztecs also used their natural resources and developed an elaborate system of canals by which they traded with distant lands. You will begin your exploration of these early civilizations with the Maya.

Climate Zones of Mexico, Central America, and South America



Major Early Civilizations of Mexico, Central America, and South America



7th Grade Science Resources for NTI

7th Grade Science Students,

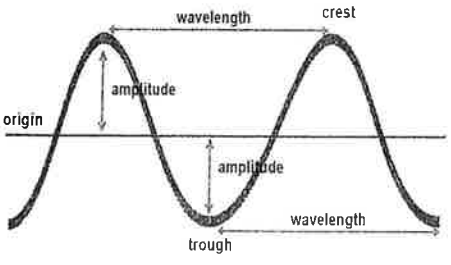
We have made you a "playlist" of videos you can use as a resource for our new Unit of Waves. Mrs. Jones and Ms. Chapman will be posting their own video to further explain Waves. This unit of Waves includes parts of waves, amplitude (energy of a wave), light waves, sound waves, and the behavior of waves. We look forward to this unit, and we hope this "playlist" will help your understanding of Waves. WE MISS YOU ALL SO MUCH! We hope to see you very soon!

YOUTUBE VIDEOS:

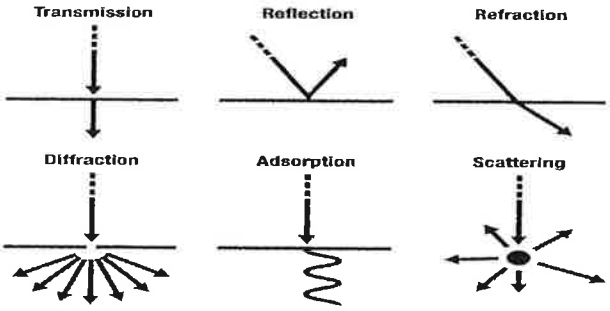
Directions- Please go to youtube, and type in the titles of each video.

- "Anatomy of a Wave"
  - https://www.youtube.com/watch?v=ke7RUj3IJZs
- " Wave Motion | Waves | Physics | FuseSchool"
  - https://www.youtube.com/watch?v=CVsdXKO9xlk
- "Wave Behaviour | Waves | Physics | FuseSchool"
  - https://www.youtube.com/watch?v=BL2MtP7j-xk
- "Light Is Waves: Crash Course Physics #39"
  - https://www.youtube.com/watch?v=IRBfpBPELmE
- "Sound: Crash Course Physics #18"
  - https://www.youtube.com/watch?v=qV4IR9EWGIY

DIAGRAMS:



(PARTS OF A WAVE)



(BEHAVIOR OF WAVES)

Please contact Mrs. Jones (jean.jones@harrison.kyschools.us) or Ms. Chapman (jaime.chapman@harrison.kyschools.us) if you have any questions or concerns.

Waves, Sound, and Light

Section 1 Waves

Underlined words and phrases are to be filled in by students on the Note-taking Worksheet.

A. Waves carry energy, not matter.

1. A wave is a disturbance that moves through matter or space.
2. Mechanical waves can travel only through matter. Electromagnetic waves can travel either through matter or through empty space.
3. A transverse wave causes particles in matter to move back and forth at right angles to the direction in which the wave travels.
4. High points in a transverse wave are called crests. Low points are called troughs.
5. A compressional wave causes particles in matter to move back and forth along the same direction in which the wave travels.
6. The places in a compressional wave in which the coils are squeezed together are called compressions. The places in the wave in which the coils are spread apart are called rarefactions.
7. The three types of seismic waves are compressional, transverse, and rolling.
8. Electromagnetic waves are transverse waves. Electromagnetic waves contain electric and magnetic parts that vibrate perpendicular to the direction that the wave travels.

B. The properties of waves depend on the vibrations that produce the waves.

1. The distance between one point on a wave and the nearest point moving the same speed and direction is the **wavelength**. The wavelength of a transverse wave is the distance between two adjacent crests or two adjacent troughs. The wavelength of a compressional wave is the distance between two adjacent compressions or rarefactions.
2. The **frequency** of a wave is the number of wavelengths that pass by a point each second. For a transverse wave, the frequency of a wave is the number of crests or troughs that pass a point each second. For a compressional wave, frequency is the number of compressions or rarefactions that pass a point each second.
3. Frequency is measured in units of **hertz** (Hz).
4. The speed of a wave depends on the medium in which the wave travels. The speed of a wave can be found using this equation: $v = \lambda f$.

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C. Waves can reflect (bounce off a surface), refract (change direction), or diffract (bend around an obstacle).

1. The **law of reflection** states that the angle that the incoming wave makes with the normal equals the angle that the outgoing wave makes with the normal. A line that makes an angle of 90 degrees with a surface is called the normal to the surface.
2. **Refraction** is the change in direction of a wave when it travels from one material to another.
3. **Diffraction** is the bending of waves around an object. The amount of diffraction depends on the size of the obstacle the wave encounters.

DISCUSSION QUESTION:
What are three types of waves that transport energy? *transverse waves, compressional waves, and electromagnetic waves*

Section 2 Sound Waves

A. A sound wave is a compressional wave.

1. A vibrating drum head produces a compression each time it moves upward and a rarefaction each time it moves downward.
2. Sound waves cannot travel through empty space because they need particles to transport energy.

B. Sound waves travel faster through solids.

C. The amount of energy that a wave carries past a certain area each second is the intensity of the sound.

1. Sound waves with greater amplitude also have a greater intensity. The intensity of sound waves is measure in units of decibels (dB).

D. Pitch is the human perception of the frequency of sound.

1. Sounds with low frequencies have a low pitch and sounds with high frequencies have high pitch.

E. The human ear can be divided into three parts. The outer ear is the sound collector. The middle ear is the sound amplifier. The inner ear is the sound interpreter.

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Content Outline for Teaching (continued)

F. Repeated echoes are called reverberation.

1. Echolocation is the process of locating objects by bouncing sounds off them.

DISCUSSION QUESTION:
How does a guitar string create a compressional wave? *The guitar string vibrates and produces compressions and rarefactions in the air particles surrounding the string.*

Section 3 Light

A. Electromagnetic waves are waves that travel through matter or through empty space

B. Light waves are composed of two parts—an electric part and a magnetic part.

1. The intensity of waves is a measure of the amount of energy the waves carry. For light waves, the intensity determines the brightness of the light.

C. The electromagnetic spectrum is the complete range of electromagnetic wave frequencies and wavelengths.

1. The waves that carry radio and television signals to your home are radio waves.
2. Infrared waves have wavelengths between one thousandth and 700 billionths of a meter.
3. All warm bodies emit infrared waves.
4. The range of electromagnetic waves between 700 and 400 billionths of a meter is the range of waves that we see. These waves are known as visible light.
5. Electromagnetic waves with wavelengths between about 0.4 millionths and ten billionths of a meter are ultraviolet waves. These waves cause sunburn.
6. The electromagnetic waves with the highest energy, highest frequency, and shortest wavelengths are X-rays and gamma rays.
7. Light waves enter your eye through the cornea and lens and then are focused on the retina.
8. You see color when light waves are reflected off an object or emitted by an object.

DISCUSSION QUESTION:
Why is it important to humans that the atmosphere block most of the ultraviolet waves from the Sun? *Ultraviolet waves can cause sunburn. In some instances, excessive exposure to ultraviolet waves can permanently damage skin and even cause skin cancer.*

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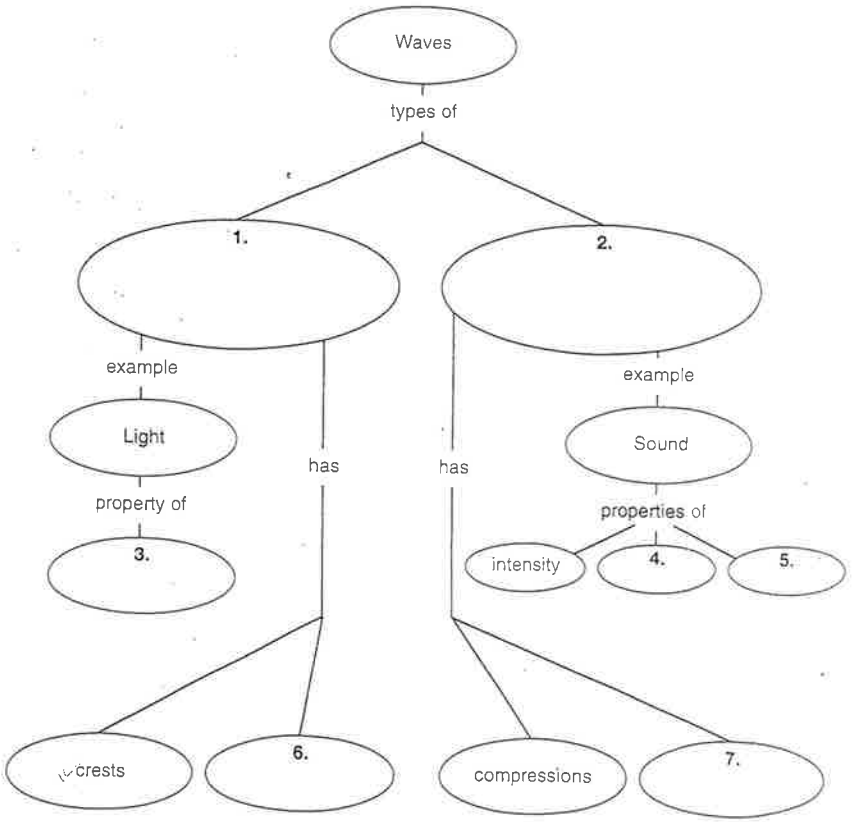
Directed Reading for Content Mastery

Overview
Waves, Sound, and Light

Directions: *Complete the concept map using the terms in the list below.*

compressional **transverse** **intensity**
rarefactions **troughs** **pitch**
reverberation



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SECTION 1 Enrichment

Waves

Materials
pie plate
water
drinking glass
pencil

Procedure
1. Pour water into the pie plate. Fill the pie plate half full.
2. Using the pencil, gently tap the water in the plate to create waves.
3. Put a drinking glass in the center of the pie plate. Put water into the glass if it is not heavy enough to stay upright.
4. Using the pencil, gently tap the water in the pie plate to create waves.

Data and Observations
1. Describe the waves created in step 2.

_____

_____

2. Describe the waves in step 4?

_____

_____

Conclude and Apply
1. What type of mechanical waves did you create?

_____

_____

2. What was the matter that carried the wave?

_____

_____

3. What happened to the waves when they reached the glass?

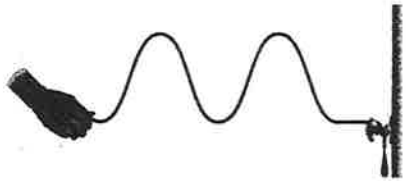
_____

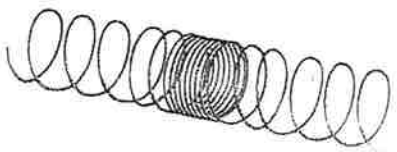
_____

SECTION 1 Reinforcement

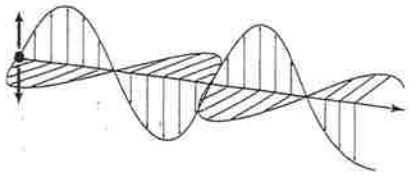
Waves

Directions: *On the line below each diagram, write the type of wave that is shown in the diagram.*





1. _____ 2. _____



3. _____

Directions: *Answer the following questions on the lines provided.*

4. What is refraction? _____

_____

5. What is reflection? _____

_____

6. What is diffraction? _____

_____

7. What is the mathematical relationship between frequency, wavelength, and wave speed?

_____

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Ms. Johnson/ Mrs. Fuller
Days 11-15
Reading
NTI Assignments

Days 11-15

You will be reading the nonfiction piece: **"The Girl Who Lived Forever."** This is the story of how Anne Frank became an important historical figure as well as a writer. Using this text, you will build vocabulary, review important nonfiction elements, write an objective summary, review text structures, and complete an assessment. Support resources will be attached to assist you in completing these tasks. If your teacher utilizes Google Classroom *(Fuller does not)*, you may also use this to look for additional support resources. **READING COUNTS WILL NOW BE EXTRA CREDIT. TO EARN THIS EXTRA CREDIT, STUDENTS MUST PICK UP READING LOGS AT HCMS OR ACCESS THESE ON MS. JOHNSON'S GOOGLE CLASSROOM. EMAIL YOUR TEACHER IF YOU HAVE QUESTIONS!**

If you have any questions, you can contact your teachers the following ways:

1. Call HCMS 234-7123
2. Email-
miranda.johnson@harrison.kyschools.us or carla.walker@harrison.kyschools.us
3. Text-
Ms. Johnson can be reached via text on M-F between 9am-3pm. (859) 954-8635.
Mrs. Fuller can be reached via text on M-F between 9am-3pm. (859) 588-1288.

We would like to remind you of the importance of completing these assignments. NTI packets are REQUIRED, and will make up a large of your grade for the final grading period. Once again, due to the fact that students may not have access to a book, any reading that is completed in addition to their NTI packets will now be considered **EXTRA CREDIT**, as we understand the difficulty at this time. If your student elects to participate in this extra credit assignment, hard copies of the reading log will be available in the front lobby at HCMS. If your teacher utilizes Google Classroom, you will also be able to access an electronic copy of the reading log. Please do not hesitate to ask for our help! We miss our students, and we hope you are doing well!

Day 11:
Complete the ***Before Reading*** section of the **Read, Think, Explain** page of your packet.

Locate and complete the **Vocabulary/Vocabulary Practice** page in your packet.

10-15 minutes of reading

SCHOLASTIC SCOPE

Name: _____ **Date:** _____

Read, Think, Explain
Identifying Nonfiction Elements

Use this activity sheet with "The Girl Who Lived Forever." See *Scope*'s "Glossary of Nonfiction Terms" and "Glossary of Literary Terms" for definitions of the words that appear in bold.

Before Reading
Text Features, Inference

1. Study the photographs on pages 4-5 and read the **headline** and **subheading** of the article. Describe the pictures. What do you notice about the image in the background?

2. Examine the images on pages 6-7. What do they show?

3. Examine the images on pages 8-10. What do they show?

4. Read the **subheadings** throughout the article. Based on your preview of the article, write one sentence predicting what the article will be mainly about.

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Name: _____ Date: _____

Vocabulary:

"The Girl Who Lived Forever"

Directions: Read the following definitions and example sentences.

1. **emaciated** (ih-MAY-see-ay-ted) *adjective*; abnormally thin; wasted away
   - ***example:*** My cat Jasper became emaciated after his hip surgery, but he made a full recovery and is now strong and healthy.

2. **genocide** (JEN-uh-sahyd) *noun*; the killing of large numbers of people belonging to a particular religious, racial, political, or cultural group
   - ***example:*** The memorial was created to honor and remember the victims of the genocide.

3. **ingrained** (in-GREYND) *adjective*; deeply fixed or embedded so as to be difficult to change (usually used to describe an attitude, belief, or habit)
   - ***example:*** Sam wants to get over his phobia of snakes, but the fear is deeply ingrained. Even a photo of a snake terrifies him.

4. **liberate** (LIB-uh-reyt) *verb*; to set free
   - ***example***: After I liberated our hamster, Niblet, from her cage, she spent the entire afternoon running around the room.

5. **provision** (pruh-VIZH-uhn) *noun*; 1. the act of providing something, usually arranged beforehand; preparation; 2. a supply of materials, such as food (usually used as a plural)
   - ***example 1***: My mom met with the neighbors about the provision of food and services after the coming hurricane.
   - ***example 2***: Squirrels keep provisions of nuts in their burrows to get them through the winter.

6. **ransack** (RAN-sack) *verb*; to search wildly for something, especially in a way that causes disorder and damage
   - ***example***: I ransacked my room looking for my keys; now it looks like a tornado swept through it.

7. **regime** (ruh-ZHEEM) *noun*; 1. a method or period of rule, such as by a government or an administration; 2. a system or planned way of doing things
   - ***example 1:*** Under the new regime, all residents must recycle.
   - ***example 2:*** Phil is serious about getting in shape. His personal trainer put him on a tough regime of exercise and healthy eating and Phil is totally following it.

8. **scapegoat** (SKEYP-goht) *noun*; a person or group unfairly made to take the blame for something
   - ***example:*** My sister lost her phone, but somehow I became the scapegoat for her carelessness.

Vocabulary Acquisition
NONFICTION: "The Girl Who Lived Forever," pages 4-10
April 2015

Vocabulary Practice:

"The Girl Who Lived Forever"

Directions: Choose a word from the Word Bank that has the same, or nearly the same, meaning as the boldface word in each sentence. Write the words on the lines provided.

Word Bank			
emaciated	genocide	ingrained	liberate
provisions	ransack	regime	scapegoat

1. The burglars **scoured** the house looking for valuables. _____
2. Do you have **supplies** for the camping trip? _____
3. His body was **very thin** from the long illness. _____
4. My doctor put me on a strict nutrition **plan**. _____
5. Thousands had been killed in the **massacre**. _____

Directions: In each row, place an X on the word that does not belong.

6. free	ensnare	liberate	release
7. implanted	deep-rooted	superficial	ingrained
8. organize	search	rummage	ransack

Directions: Write two sentences. In each, use at least one of the vocabulary words listed on pages 1 and 2 of this activity (including the ones you chose).

9. _____
_____
_____

10. _____
_____
_____

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NARRATIVE NONFICTION reads like fiction—but it's all true

The Girl Who Lived Forever

She was murdered by the Nazis during a time of evil and hatred. But her diary survived. This is the story of how ANNE FRANK became one of the most important writers in history.

BY KRISTIN LEWIS

This is Anne's diary. She named her diary Kitty and wrote each entry as a letter.

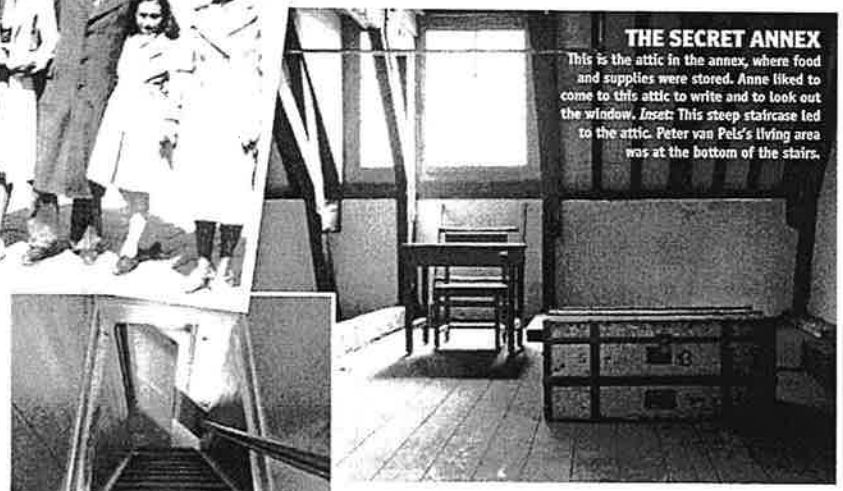
AS YOU READ, THINK ABOUT: How did writing in her diary help Anne?

It was just past dawn, and 13-year-old Anne Frank was hurrying down the street with her parents. The day was warm and muggy. But in spite of the summer heat, Anne was wearing two vests, three pairs of pants, a dress, a skirt, a jacket, a scarf, two pairs of stockings, a cap, and a coat.

Sweat rolled down Anne's face as she struggled to keep up with her parents. She felt foolish wearing so many clothes—but she kept that to herself. This was a life-or-death moment for her and her family, and Anne knew it.

It was July 6, 1942, in Amsterdam, a city in the Netherlands. Because they were Jewish, the Franks were in grave danger. They had made the daring decision to go into hiding, to disappear without a trace.

The Frank family, left to right: Margot, Otto, Anne, and Edith (1941)



THE SECRET ANNEX
This is the attic in the annex, where food and supplies were stored. Anne liked to come to this attic to write and to look out the window. *Inset:* This steep staircase led to the attic. Peter van Pels's living area was at the bottom of the stairs.

SRANGER, KYODO/THE GRANGER COLLECTION (ALL IMAGES)

Despite their terror, Anne and her family had to pretend that they were simply a family out for a stroll. They had to wear all their clothing because carrying suitcases would make people suspicious.

If anyone discovered what they were doing, they could be arrested and killed.

A Terrifying Regime

Though Anne lived more than 70 years ago, she was not so different from you and your friends. She dreamed about going to Hollywood and decorated her room with posters of glamorous movie stars. She worried about boys and dreaded math.

But this ordinary girl had been swept into one of the most extraordinarily evil chapters in human history.

Anne lived during the time of Adolf Hitler and his Nazi Party, one of the most horrific **regimes** the world has ever seen. Hitler's rise to power started before Anne was born. After Germany lost World War I in 1918, its economy fell apart. Jobs became scarce. Anger and bitterness swept the country.

Hitler, a rising politician, offered Germany a **scapegoat**: Jewish people. Hitler said that Jewish people were to blame for Germany's problems. He believed that Jews did not deserve to live.

Anti-Semitism—prejudice against Jewish people—had been **ingrained** in European culture for centuries. Jewish people had different customs and beliefs that many viewed with suspicion and contempt. Hitler fanned the flames of these age-old prejudices until they exploded into violent hatred.

The Franks had lived peacefully in Germany for generations. With Hitler in power, however, life had become dangerous. When Anne was 4, her father, Otto Frank, decided to move the family to Amsterdam. Far away from Germany, the Dutch city of beautiful winding streets and canals seemed like a good choice. The family had every reason to believe that they would be safe.

And for the first six years, they were. Otto's business flourished. (He owned a company that made pectin, an ingredient in jelly.) Anne and her older sister, Margot, made many friends at school. Hitler and his Nazis seemed like faraway monsters.

Invasion!

Then, in May 1940, Nazi forces invaded the Netherlands. And life for Jews like the Franks became more frightening than even the darkest of horror tales.

Adolf Hitler

NAZI-OCCUPIED EUROPE 1942

BETTMANN/CORBIS (ADOLF HITLER); JIM MCMAHON/MAPMAN® (MAP)

The Nazis began passing laws to isolate Jewish people and remove them from daily life. Anne and Margot were expelled from their school. All Jewish people were banned from buses, trains, and cars. They couldn't go swimming or to the movies. All Jews had to wear yellow stars so the Nazis could easily target them. They couldn't be outside after 8 p.m.

Then Jewish people started to vanish. Later there would be whispers about places called concentration camps, where the Nazis were murdering Jews. Many, including many Jews themselves, refused to believe that even the Nazis could be so evil.

But Anne's parents, especially her father, Otto, had no doubt that staying in Amsterdam would mean certain death for the family. By 1942, Jewish people were not allowed to travel; even if they could, safer countries like the U.S. and England were allowing in only a very small number of Jewish people. The Germans had taken control of so much of Europe that for hundreds of miles there was no place a Jewish person could go without the risk of being killed.

The Franks were trapped.

So Anne's father came up with another idea.

They would hide.

The main building of

THE HELPERS
(left to right) Miep Gies, Victor Kugler, Bep Voskuijl, and Johannes Kleiman protected everyone in the annex. Miep grew especially close to Anne. All four helpers survived the war. They were among thousands who risked their lives to help Jewish people in Nazi-occupied Europe.

ANNE FRANK FONDS BASEL/GETTY IMAGES (ALL IMAGES)

Otto's pectin business contained offices and a warehouse. Behind it was a smaller building—an annex—that could be reached only from inside. It seemed the perfect place for the Franks to hide until the war was over. Four of Otto's employees—Victor Kugler, Miep Gies, Johannes Kleiman, and Bep Voskuijl—agreed to help, despite the huge risk. Assisting Jewish people was against the law, punishable with prison—and worse.

It was to the annex that the Franks, dressed in all their clothing, were fleeing that hot July morning in 1942.

Moving In Secret

Anne had no idea that her father and some of his workers had spent months preparing for her family to go into hiding. They had stocked the annex with cans of food, dishes, bedding, and other necessities. Otto had even brought some of Anne's movie posters from her old bedroom.

A week after the Franks arrived, they were joined by Otto's business partner, Hermann van Pels, along with van Pels's wife, Auguste, and their 15-year-old son, Peter. A dentist named Fritz Pfeffer came a few months later. In total, eight people hid in the annex. It was a small maze of rooms, stairs, and hallways that might have been comfortable for one small family.

Business in the warehouse, meanwhile, went on as usual; other than the four helpers, the employees had no idea that eight people were hiding a few feet away. Anne and the others in the annex spoke in whispers and tiptoed around—they didn't dare flush a toilet or open a window, even on the hottest days. The smallest noise—a cough, a laugh, a dropped dish—could give them away. The SS, the Nazi's ruthless military guards, gave cash rewards to anyone who turned in a Jew.

Fragile Hope

Living in such close quarters was a challenge, especially for the energetic Anne, who longed to run outside and feel the sun on her face. Her sole comfort was her diary, her most prized possession. It was only on the pages of her diary that she could freely vent her feelings and frustrations. "I'm longing—so longing—for everything," Anne wrote in an entry. "To talk, for freedom, for

DEATH CAMP
This image was taken at Auschwitz, one of the most notorious concentration camps. During the Holocaust, the Nazis murdered an estimated 6 million Jews. They also targeted homosexuals, Gypsies, and those with physical and mental disabilities.

GALERIE BILDERWELT/HULTON ARCHIVE/GETTY IMAGES

friends, to be alone. And I do so long . . . to cry!"

And yet, life went on, and the residents of the secret annex fell into a routine. Every morning, they had breakfast at 7, before the warehouse opened for business. During the day, Margot, Peter, and Anne did schoolwork. (Anne loathed the math problems her father assigned her.) Lunch was served at 1:15, when the employees in the warehouse went home to eat. In the evenings, Anne and the others ate dinner gathered around the radio, eagerly listening to the daily news broadcasts from Britain.

When the helpers snuck into the annex with food and other **provisions**, they often brought grim news of the outside world. World War II was raging across Europe. Many of the Jewish families the Franks knew had been taken away by the Nazis. People were starving. Bombs were falling mere blocks away. Anne could often hear the rapid fire of shooting on the street outside the annex.

Yet there was always hope too. The Allies—Britain, the U.S., and the Soviet Union (today Russia)—were fighting against Hitler. The residents of the annex told each other it was only a matter of time before the Allies drove the Nazis out of the Netherlands, before they could leave the annex and be free.

But weeks of waiting turned into months.

And months turned into years.

"My Courage Is Reborn"

Anne would live in the secret annex for two long years. During that time, she recorded in sharp and often funny detail everything that went on—the modest dinners cobbled together from rotting potatoes, her fights with Auguste van Pels, the challenge of finding enough privacy to take a sponge bath. (The annex did not have a bathtub.)

In her beautiful, looping cursive, Anne wrote that she wanted to live forever, that she wanted her life to have meaning. She vowed to become a famous writer, with her first book to be based on her now overflowing diary. She began going back to old entries, revising and rewriting.

"I can shake off everything if I write," Anne wrote in April 1944. "My sorrows disappear, my courage is reborn."

Then came catastrophe.

Betrayed

In August 1944, Dutch police, led by an SS officer, forced their way into the annex and dragged everyone away at gunpoint. To this day, no one knows for certain who betrayed those living in the annex.

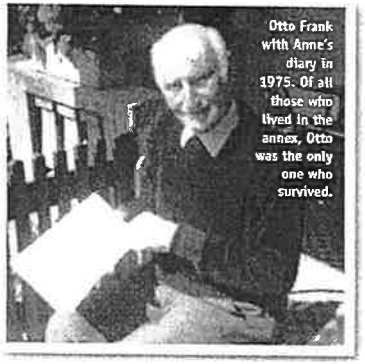
When the officers were gone, two of the helpers, Miep Gies and Bep Voskuijl, crept into the annex, their hearts heavy with fear and sadness. The officers had **ransacked** the place and stolen anything they thought held value. But they had left something precious behind. Strewn across the floor of the attic were the pages of Anne's diary. The women gathered them up. Miep told herself that she would keep them safe, locked away in her desk. She would return them to Anne after the war, when this nightmare was finally over.

Something Precious

Fighting in Europe would come to an end nine months later, in May 1945, when the Nazis were at last defeated. (World War II ended in September 1945.) By then, the Nazis had murdered an estimated 6 million Jews. This **genocide** came to be known as the Holocaust.

Otto Frank was rescued from a concentration camp called Auschwitz, in Poland. By then, he was gravely ill and **emaciated** from months of hard labor and starvation. He had no idea where his family was.

During his return to a battle-scarred Amsterdam, Otto learned that his wife had been killed at Auschwitz. But the whereabouts of Anne and Margot were unknown. For weeks, Otto held out hope that his daughters had survived.



Otto Frank with Anne's diary in 1975. Of all those who lived in the annex, Otto was the only one who survived.

Those hopes were crushed when he received news that Anne and Margot had both died of the disease typhus at the Bergen-Belsen concentration camp just weeks before it was **liberated**.

Otto went into his office and shut the door. In that moment, his time spent in the secret annex must have seemed like a lifetime ago.

Miep Gies knocked softly. She had something to give him, something precious: Anne's diary.

Miep told Otto that out of respect for Anne, she had not read a word of it. Now Anne's words belonged to him. Otto decided to honor Anne's wish, to share her words with the world.

First published in 1947, *The Diary of a Young Girl* has since been translated into some 70 languages and is one of the most-read books in the world.

"If God lets me live . . . I shall not remain insignificant," Anne wrote in April 1944, only a few months before the officers stormed the annex. "I shall work in the world for mankind."

Indeed she has. Her diary has given voice to those silenced by the Holocaust. She has inspired millions of people with her courage and honesty, and with her refusal to give up hope during one of history's darkest times.

In this way, Anne's wish came true.

Through her diary, Anne Frank lives forever. ✱

WRITING CONTEST

Your legacy is how you will be remembered and the contributions you make during your life. What is Anne Frank's legacy? Answer this question in a well-organized essay. Support your ideas with details from the article and video (optional). Send your essay to ANNE FRANK CONTEST. Five winners will each get a copy of *Once* by Morris Gleitzman. See page 2 for details.

GET THIS ACTIVITY ONLINE

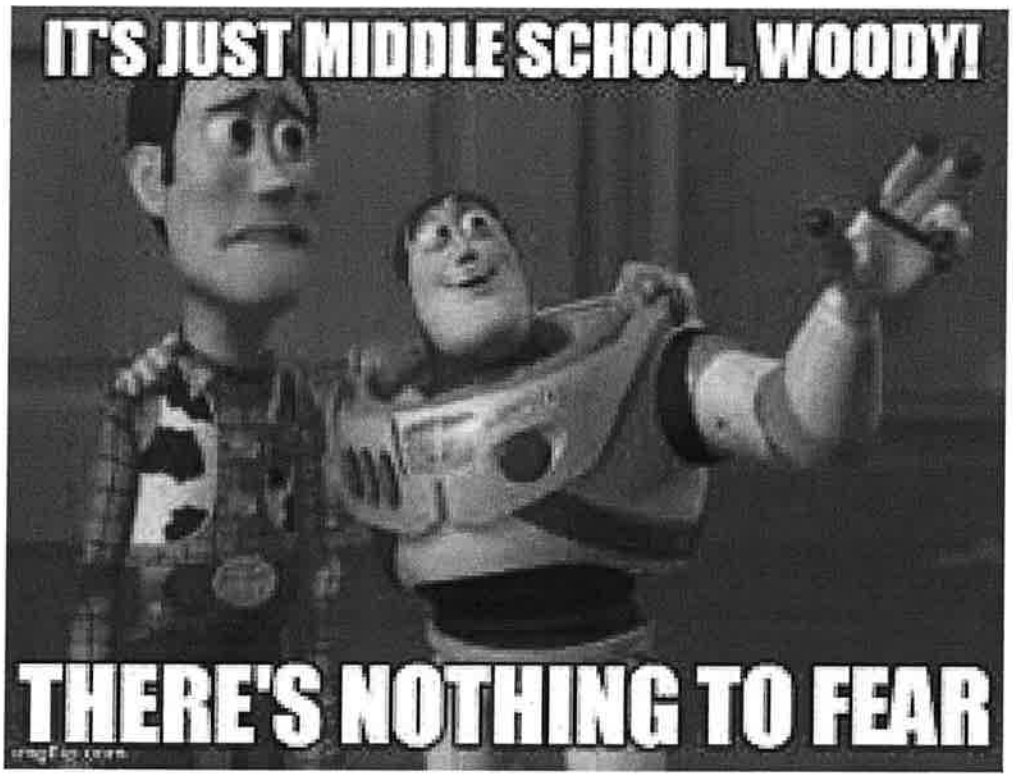
ANNE FRANK FONDS BASEL/GETTY IMAGES

Name (First & Last):_____

Team: MAROON OR GOLD

Homeroom Teacher:_____

NTI #12



Work hard. Be nice. Extend grace. Show mercy. Be humble.

Day 12 ★ NOTES ★

Probability	Outcome
A number (0 to 1) that measures the likelihood, or chance that an event will occur.	The possible result of an experiment.
Event	**Sample Space**
An experiment or a collection of outcomes. (ex: rolling an odd #).	The set of all possible outcomes.

Probability of an Event P(event) = $\frac{\#\text{ of favorable outcomes}}{\#\text{ of all outcomes possible}}$

Probabilities are expressed as a number between 0 and 1.

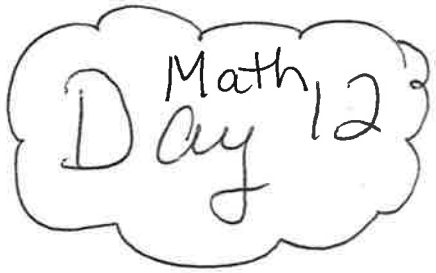
The closer the probability is to 1, the more likely the event will happen

The sum of all possible outcomes is 1 OR 100%

Describing Probabilities: Can be written as a fraction, decimal or percent

Determine the likelihood and find the probability for one roll of a fair number cube (1-6).

P(rolling a 2) $\frac{1}{6}$ unlikely	P(rolling an odd number) $\frac{3}{6}=\frac{1}{2}$ equally likely	P(rolling at least a 5) $\frac{2}{6}=\frac{1}{3}$ unlikely
P(rolling an integer) $\frac{6}{6}=1$ Certain	P(rolling less than 3) $\frac{2}{6}=\frac{1}{3}$ unlikely	P (rolling a negative number) $\frac{0}{6}$ impossible



I can understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of that event occurring. (7.SP.5)

Identify each event as impossible, not likely, equally likely, likely, or certain to happen.

	IMPOSSIBLE 0% Chance	NOT LIKELY	EQUALLY LIKELY 50% Chance	LIKELY	CERTAIN 100% Chance
EX: You will win the grand prize if you bought 2 of the 100 tickets sold.		X			
EX: Your teacher misses you. ☺					X
1. You will get a 5 when you roll a standard dice.					
2. It will snow here in July.					
3. You will pick a KING when you choose from a standard deck of playing cards.					
4. You will flip tails on a coin.					
5. A vowel will be picked when a letter is randomly selected from the word MATH.					
6. A purple M&M will be picked from a regular bag of M&M's.					
7. Audrey is shooting basketball and makes ⅕ of her shots. What is the likelihood she makes the next one.					

8. What does it mean for an event to be impossible? For an event to be certain?

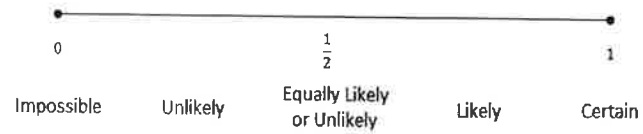
9. Give an example (not from the list) of an event that is impossible and an event that is certain.

10. What does it mean for an event to be as equally likely as it is unlikely? Give an example.

11. If something is predicted to happen 15% of the time, how would you categorize that event?

12.

Probability Scale



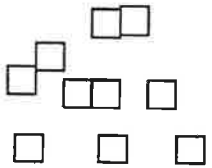
The numbers from 1 to 10 are written on small pieces of paper and placed in a bag. A piece of paper will be drawn from the bag.

a. A piece of paper with a 5 is drawn from the bag.
b. A piece of paper with an even number is drawn.
c. A piece of paper with a 12 is drawn.
d. A piece of paper with a number other than 1 is drawn.
e. A piece of paper with a number divisible by 5 is drawn.

13. A number cube is rolled one time. Which of the following is likely to occur? Select **two** answers.

a. Rolling a 3
b. Rolling a 3 or a 6
c. Rolling an even number
d. Rolling any number except 4
e. Rolling a number greater than 2

14. Color the squares below so that it would be likely but not certain to choose a blue square from the bag.



REFERENCES: Match Fishtank and Engage NY

9 PROBABILITY AND PERCENT

Vocabulary

likely: an event probably will occur

not likely: an event probably will not occur

Reminder

Percent means *per hundred*. You can write a percent as a fraction with a denominator of 100.

The Channel 8 weather forecaster reports a 25% chance of rain. Is it **likely** or **not likely** to rain?

Forecasters use the concepts of probability to make their predictions. A 25% chance of rain means rain is 25% likely to occur and 75% not likely.

To change a percent to a probability ratio, write the percent as a fraction.

$$25\% = \frac{25}{100} = \frac{1}{4}$$

$$75\% = \frac{75}{100} = \frac{3}{4}$$

The forecasters know that when weather conditions were similar in the past, it rained 1 out of 4 days and 3 out of 4 days it did not rain. Since $\frac{1}{4} < \frac{3}{4}$, the probability of having rain is less likely than the probability of not having rain.

Guided Practice

1. David hears on TV that there is an 80% chance of a blizzard starting after 2 A.M. What is the probability that there will be a blizzard?
   a. Change the percent to a fraction by writing it with a denominator of 100. $80\% = \frac{80}{100}$
   b. Simplify the fraction. $\frac{4}{5}$
   c. The probability of a blizzard is $\frac{4}{5}$.
   d. The probability of no blizzard is $\frac{1}{5}$.
   e. Is a blizzard likely or not likely? likely

Exercises

Write the probability as a ratio. Simplify if possible. Tell if the event is likely or not likely to occur.

2. A 60% chance of snow _____

3. A 45% chance of winning _____

4. A 20% chance of losing home

_____

5. A 50% chance of walking

_____

6. A 75% chance of making a free throw

_____

7. A 5% chance of a penalty

_____

8. A 30% chance of getting a hit

_____

9. A 12% chance of getting a cold

_____

Application

10. Three candidates are running for mayor in the town of Greenville. One week before the election, a survey of voters shows that 23% support Candidate A, 34% support Candidate B, and 41% support Candidate C. If the actual vote follows the survey results, what is the probability that each candidate will win?

    a. Candidate A: _____

    b. Candidate B: _____

    c. Candidate C: _____

    d. Should they all stay in the race for mayor? Explain your thinking.

    _____

    _____

    _____

11. A hurricane is traveling up the Eastern seaboard. There is a 60% chance that the storm still will be classified as a hurricane when it reaches Connecticut.

    a. Should residents consider leaving the Connecticut shore? _____

    b. The storm has a 10% chance of reaching Maine. Do you think authorities will urge residents to leave the Maine shore? _____

    c. What other factors might you think about when deciding whether to leave the area because of a possible hurricane?

    _____

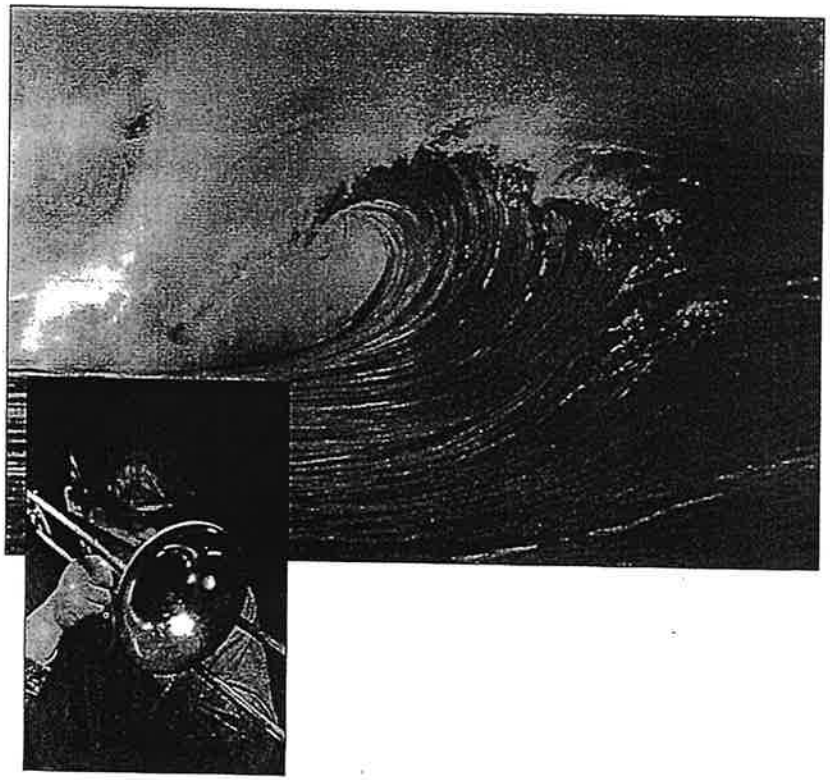
    _____

    _____

1 Section Focus Transparency Activity

Waves

Waves carry energy from one place to another. These examples show two types of waves—compression and transverse. Waves such as these need a medium to transfer energy.



1. What do the waves in this ocean scene and the sound coming from this instrument have in common?
2. What other things can you think of that share common properties with ocean waves and sound? What properties do they share?

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TRY AT HOME Mini LAB

Refraction of Light

Procedure

1. Fill a drinking glass about half full with drinking water.
2. Place a pencil in the glass. Describe the appearance of the pencil.
3. Slowly add water to the glass. Describe how the appearance of the pencil changes.

Observations

Analysis

1. How does the appearance of the pencil depend on the level of water in the glass?

2. Where do the light waves coming from the pencil change speed?

3. Infer how the appearance of the pencil and the change in speed of the light waves are related.

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Directed Reading for Content Mastery

Key Terms
Waves, Sound, and Light

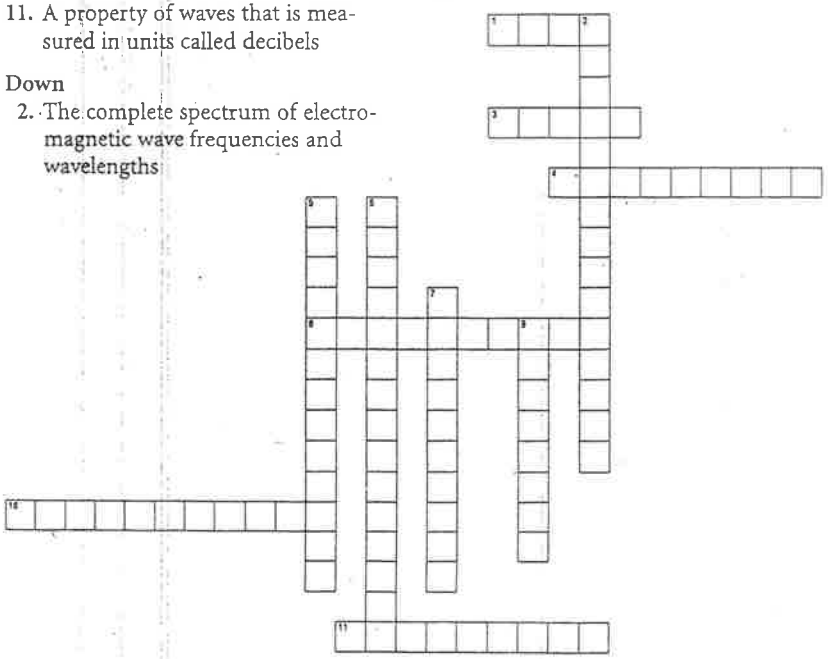
Directions: *Use the clues below to complete the crossword puzzle.*

Across

1. Carries energy from one place to another
3. How low or high a sound seems
4. The number of wavelengths that pass by a point each second
8. The change in direction of a wave when it travels from one medium to another
10. The bending of a light wave around an object
11. A property of waves that is measured in units called decibels

Down

2. The complete spectrum of electromagnetic wave frequencies and wavelengths
5. A series of compressions and rarefactions forms this wave
6. Describes the behavior of waves when they strike a surface
7. The distance between two adjacent crests or between two adjacent troughs
9. A type of wave that is emitted by all warm bodies



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Directed Reading for Content Mastery

Section 1 ▪ Waves
Section 2 ▪ Sound Waves

Directions: *Match the terms in Column I with the phrases in Column II. Write the letter of the correct phrase in the blank at the left.*

Column I	Column II
_____ 1. wave	a. measured in units called decibels
_____ 2. wavelength	b. change in direction of a wave when it travels from one material to another
_____ 3. frequency	c. transports energy from one place to another
_____ 4. refraction	d. how low or high a sound seems
_____ 5. diffraction	e. measured in units called Hertz
_____ 6. intensity	f. repeated echoes
_____ 7. pitch	g. bending of waves around objects
_____ 8. reverberation	h. the distance between one point on a wave and another one like it

9. What is the law of reflection?

10. Describe how a sound travels through air when a student taps his pencil on a desk.

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