Learning Packet #3

The information contained in this packet covers teaching and learning standards that would have been addressed during 4th quarter. The assignments will not be collected or graded. If you need help or would like feedback on the assignments or projects within this packet, please contact your teachers.

Important End of Year Student Responsibilities

- Scheduling for 2020-2021 School year –
    - 7th grade, please make sure you have completed registration for next year. Please contact Ms. Grace for additional information. cgrace@aurorar8.org or contact on the counseling office at (417) 678-3360. If you do not turn in your registration form, your elective classes will be selected for you. Once class the roster is completed with the master schedule, schedule changes will be limited.
    - 8th grade, you should have completed your registration during 3rd quarter. If you have any questions, please contact the high school counselors.
- Student item pick up and school provided material return.

  Thursday, May 14th – 3:00 – 6:00 pm

  Saturday, May 16th - 9:00 – 12:00 pm
    - Student materials will be removed from lockers and returned to students during the days and times listed above.
    - If your locker has a lock and you did not provide the combination or extra key to the office, please send a message to Mr. Boettler with the combination or to set up a time to drop off a key. If the combination or key is not provided, the lock will have to be cut to be removed.
    - Students will need to submit their school provided Ipad, return school provided musical instruments, textbooks, and library books.
    - Parents and / or students will need to prepared to pay lunch bills, Ipad use, repair, or part replacement fee and / or any additional encumbrances or charges.
- May 19, 2020 – Last official day of school for the 2019-2020 school year.

Note from Nurse Peggy Stone

Students enrolled in the 8th grade are required by the State of Mo and the Aurora R-8 School District to have the TdaP and the Meningococcal vaccines. On or before August 24, 2020, send the record of these shots to the AJH School at 500 West Olive Street or fax to 417-313-1058. To the attention of school nurse, Peggy Stone.

If you have any concerns, questions, or needs please email me at bboettler@aurorar8.org or send a message through the facebook page.

Name: _____

7th Grade Reading Hr.: ____

"An American Childhood"
by Annie Dillard

CLIMAX:

Falling Action

Rising Action

EXPOSITION

Characters:

Setting:

- Time
- Place:

RESOLUTION

CONFLICT/PROBLEM:

from An American Childhood

Annie Dillard

Some boys taught me to play football. This was fine sport. You thought up a new strategy for every play and whispered it to the others. You went out for a pass, fooling everyone. Best, you got to throw yourself mightily at someone's running legs. Either you brought him down or you hit the ground flat out on your chin, with your arms empty before you. It was all or nothing. If you hesitated in fear, you would miss and get hurt: you would take a hard fall while the kid got away, or you would get kicked in the face while the kid got away. But if you flung yourself wholeheartedly at the back of his knees—if you gathered and joined body and soul and pointed them diving fearlessly—then you likely wouldn't get hurt, and you'd stop the ball. Your fate, and your team's score, depended on your concentration and courage. Nothing girls did could compare with it.

Boys welcomed me at baseball, too, for I had, through enthusiastic practice, what was weirdly known as a boy's arm. In winter, in the snow, there was neither baseball nor football, so the boys and I threw snowballs at passing cars. I got in trouble throwing snowballs and have seldom been happier since.

On one weekday morning after Christmas, six inches of new snow had just fallen. We were standing up to our boot tops in snow on a front yard on trafficked Reynolds Street, waiting for cars. The cars traveled Reynolds Street slowly and evenly; they were targets all but wrapped in red ribbons, cream puffs. We couldn't miss.

I was seven; the boys were eight, nine, and ten. The oldest two Fahey boys were there—Mikey and Peter—polite blond boys who lived near me on Lloyd Street, and who already had four brothers and sisters. My parents approved Mikey and Peter Fahey. Chickie McBride was there, a tough kid, and Billy Paul and Mackie Kean too, from across Reynolds, where the boys grew up dark and furious, grew up skinny, knowing, and skilled. We had all drifted from our houses that morning looking for action and had found it here on Reynolds Street.

It was cloudy but cold. The cars' tires laid behind them on the snowy street a complex trail of beige chunks like crenellated castle walls. I had stepped on some earlier; they squeaked. We could have wished for more traffic. When a car came, we all popped it one. In the intervals between cars we reverted to the natural solitude of children.

I started making an ice ball—a perfect ice ball, from perfectly white snow, perfectly spherical, and squeezed perfectly translucent so no snow remained all the way through. (The Fahey boys and I considered it unfair actually to throw an ice ball at somebody, but it had been known to happen.)

I had just embarked on the ice-ball project when we heard tire chains come clanking from afar. A black Buick was moving toward us down the street. We all spread out, banged together some regular snowballs, took aim, and, when the Buick drew nigh, fired.

A soft snowball hit the driver's windshield right before the driver's face. It made a smashed star with a hump in the middle.

Often, of course, we hit our target, but this time, the only time in all of life, the car pulled over and stopped. Its wide black door opened; a man got out of it, running. He didn't even close the car door.

He ran after us, and we ran away from him, up the snowy Reynolds sidewalk. At the corner, I looked back; incredibly, he was still after us. He was in city clothes: a suit and tie, street shoes. Any normal adult would have quit, having sprung us into flight and made his point. This man was gaining on us. He was a thin man, all action. All of a sudden, we were running for our lives.

Wordless, we split up. We were on our turf; we could lose ourselves in the neighborhood backyards, everyone for himself. I paused and considered. Everyone had vanished except Mikey Fahey, who was just rounding the corner of a yellow brick house. Poor Mikey, I trailed him. The driver of the Buick sensibly picked the two of us to follow. The man apparently had all day.

He chased Mikey and me around the yellow house and up a backyard path we knew by heart: under a low tree, up a bank, through a hedge, down some snowy steps, and across the grocery store's delivery driveway. We smashed through a gap in another hedge, entered a scruffy backyard and ran around its back porch and tight between houses to Edgerton Avenue; we ran across Edgerton to an alley and up our own sliding woodpile to the Halls' front yard; he kept coming. We ran up Lloyd Street and wound through mazy backyards toward the steep hilltop at Willard and Lang.

He chased us silently, block after block. He chased us silently over picket fences, through thorny hedges, between houses, around garbage cans, and across streets. Every time I glanced back, choking for breath, I expected he would have quit. He must have been as breathless as we were. His jacket strained over his body. It was an immense discovery, pounding into my hot head with every sliding, joyous step, that this ordinary adult evidently knew what I thought only children who trained at football knew: that you have to fling yourself at what you're doing, you have to point yourself, forget yourself, aim, dive.

Mikey and I had nowhere to go, in our own neighborhood or out of it, but away from this man who was chasing us. He impelled us forward; we compelled him to follow our route. The air was cold; every breath tore my throat. We kept running, block after block; we kept improvising, backyard after backyard, running a frantic course and choosing it simultaneously, failing always to find small places or hard places to slow him down, and discovering always, exhilarated, dismayed, that only bare speed could save us—for he would never give up, this man—and we were losing speed.

He chased us through the backyard labyrinths of ten blocks before he caught us by our jackets. He caught us, and we all stopped.

We three stood staggering, half blinded, coughing, in an obscure hilltop backyard: a man in his twenties, a boy, a girl. He had released our jackets, our pursuer, our captor, our hero: he knew we weren't going anywhere. We all played by the rules. Mikey and I unzipped our jackets. I pulled off my sopping mittens. Our tracks multiplied in the backyard's new snow. We had been breaking new snow all morning. We didn't look at each other. I was cherishing my excitement. The man's lower pants legs were wet; his cuffs were full of snow, and there was a prow of snow beneath them on his shoes and socks. Some trees bordered the little flat backyard, some messy winter trees. There was no one around: a clearing in a grove, and we the only players.

It was a long time before he could speak. I had some difficulty at first recalling why we were there. My lips felt swollen; I couldn't see out of the sides of my eyes; I kept coughing.

"You stupid kids," he began perfunctorily.

We listened perfunctorily indeed, if we listened at all, for the chewing out was redundant, a mere formality, and beside the point. The point was that he had chased us passionately without giving up, and so he had caught us. Now he came down to earth. I wanted the glory to last forever.

But how could the glory have lasted forever? We could have run through every backyard in North America until we got to Panama. But when he trapped us at the lip of the Panama Canal, what precisely could he have done to prolong the drama of the chase and cap its glory? I brooded about this for the next few years. He could only have fried Mikey Fahey and me in boiling oil, say, or dismembered us piecemeal, or staked us to anthills. None of which I really wanted, and none of which any adult was likely to do, even in the spirit of fun. He could only chew us out there in the Panamanian jungle, after months or years of exalting pursuit. He could only begin, "You stupid kids," and continue in his ordinary Pittsburgh accent with his normal righteous anger and the usual common sense.

If in that snowy backyard the driver of the black Buick had cut off our heads, Mikey's and mine, I would have died happy, for nothing has required so much of me since as being chased all over Pittsburgh in the middle of winter—running terrified, exhausted—by this sainted, skinny, furious redheaded man who wished to have a word with us. I don't know how he found his way back to his car.

Debate

Does Chocolate Milk Belong in the Cafeteria?

Should Chestnut Valley School District take this sweet treat off the menu? Two students make their case to the superintendent. YOU decide who makes the stronger argument.

YES

Don't take our favorite drink away.

Dear Ms. Fox,

You recently announced that our school district might stop serving chocolate milk in our cafeterias. I thought it might be helpful to hear the **perspective** of a student—and chocolate-milk lover—on this important issue.

After **extensive** research, I've learned that chocolate milk has many health benefits for kids like me. Although it may seem like just a tasty treat, it's actually filled with **nutrients**, including calcium and vitamin D. Calcium is especially good for kids my age because we are still growing, and calcium helps build healthy bones. In addition, chocolate milk contains protein and healthy fats that keep kids full and focused throughout the day.

Of course, regular milk provides those same benefits—as do other foods like spinach and nuts—and with less sugar. But let's be honest: Banning chocolate milk doesn't mean kids will choose something healthier instead. A study by Cornell University found that chocolate-milk bans can lead to kids drinking less milk overall. And when have you ever heard a kid say, "There's no chocolate milk? In that case, I'll have some spinach, please!" What would probably happen is that we'd drink more soda or sweetened fruit drinks, which are just as sugary (if not more) but don't have the same health benefits.

Here's another problem: food waste. When schools in Los Angeles began serving only plain milk in 2011, tons of milk—and money—was wasted. Hardly anyone drank the plain milk, and much of it ended up in the trash. For this reason, L.A. schools put chocolate milk back on the menu in 2018.

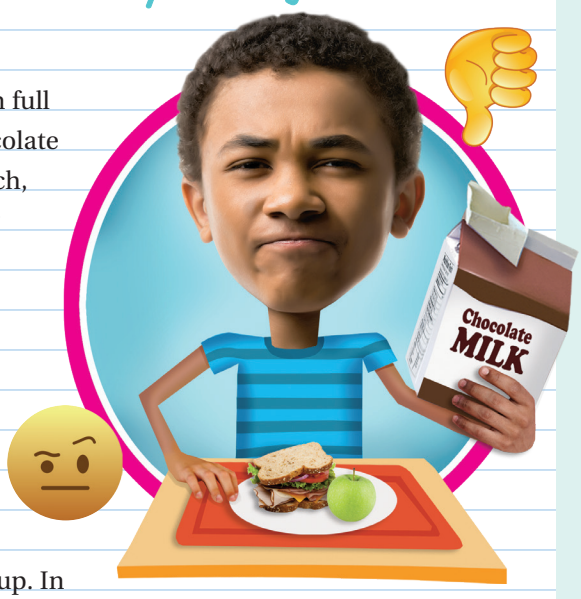
Chocolate milk clearly deserves a place in our cafeteria. I hope that you will take my points into consideration as you make your decision.

Sincerely,
Lizzy Brewer

Illustration by Tom Garrett; Shutterstock.com (All Images)

NO

Sorry, chocolate milk. It's time for you to go.



Dear Ms. Fox,

I am writing to you to tell you that as a student, I am in full support of a chocolate milk ban in our district. I like chocolate milk as much as the next kid. But according to my research, the sad truth is that we shouldn't be drinking it every day at school.

Why? It's loaded with sugar. One small carton contains about 1.5 teaspoons of **added sugar**. The American Heart Association advises kids to **consume** less than 3 to 4 teaspoons of added sugar per day. Do you see where I'm going with this? One small carton of chocolate milk at lunch is HALF your day's added sugar!

All that sugar in chocolate milk, plus the sugar in the snacks many of us eat throughout the day, can really add up. In the long term, a diet high in sugar can make you more likely to develop certain diseases, including obesity and heart disease. In the short term? Too much sugar gives you a rush of energy and then makes you tired—which means you're falling asleep by sixth period.

It's true that chocolate milk contains calcium and protein, but is chocolate milk really the best source of these nutrients? Many experts say no. Ann Cooper, the director of food services in a Colorado school district, said in an interview with *The Washington Post*: "Trying to get students to consume calcium by drinking chocolate milk is like getting them to eat apples by serving them apple pie." When you think about it that way, serving chocolate milk at school seems silly, right?

Plenty of other foods—fish, leafy greens, almonds—provide the calcium and protein that kids need. There is also, of course, regular milk. Fans of chocolate milk claim that taking away the chocolate option leads to kids drinking less milk overall, but that isn't always the case. In 2018, San Francisco tested a chocolate milk ban in five different schools and did not experience a dip in milk **consumption** at any of them.

I know that those in favor of chocolate milk say that it's healthier than soda or juice, but think about it: Is that a good reason to keep it around?

Thank you for considering my opinion,

Michael Wilson

Scavenger Hunt

Directions

1. Underline the **central idea**, or **central claim.**

2. Star two pieces of **supporting evidence.**

YOU decide: Who makes the stronger argument?

SCHOLASTIC SCOPE

Analyzing Arguments-HL
DEBATE: "Does Chocolate Milk Belong in the Cafeteria?" pages 22-23
April 2020

Name: _____ **Date:** _____

Scavenger Hunt

Directions: Fill in the boxes below to explore how the writers of the letters in "Does Chocolate Milk Belong in the Cafeteria?" develop their arguments. We filled in some information for you.

	Lizzy Brewer	**Michael Wilson**
line(s) that expresses the central idea, or central claim	"Chocolate milk clearly deserves a place in our cafeteria."	
two pieces of evidence that support the central idea, or central claim	**1.** **2.**	**1.** **2.**
line(s) that expresses the counterargument		"It's true that chocolate milk contains calcium and protein . . ."
line(s) that contains the rebuttal to the counterargument		

Name: _____ **Date:** _____

Write an Argument Essay

Directions: Read "Does Chocolate Milk Belong in the Cafeteria?" Complete the scavenger hunt on page 23. Then follow the steps below.

STEP 1: DECIDE WHAT YOU THINK

Does chocolate milk belong in school?

Consider what you read in the article, as well as your own viewpoints.
Check the box next to the point of view you will argue in your essay.
Or write your own opinion in the space provided.

☐ **Yes!** Chocolate milk belongs in school. ☐ **No!** Chocolate milk doesn't belong in school.

☐ _____

_____

STEP 2: GATHER SUPPORT FOR YOUR OPINION

Which details from the letters support your opinion? What other information supports your opinion?
List at least three supporting details on the lines below.

Here's an example: If you think chocolate milk does belong in school, one of your supporting details might be that it's filled with important nutrients for kids, including calcium and vitamin D.

1. _____

_____

2. _____

_____

3. _____

_____

STEP 3: ACKNOWLEDGE THE OTHER SIDE

If you think chocolate milk DOES belong in school, summarize the strongest arguments against allowing chocolate milk in school that Michael presents in his letter. If you think chocolate DOES NOT belong in school, summarize the strongest arguments in favor of keeping chocolate milk on the menu that Lizzy presents in her letter.

STEP 4: CRAFT YOUR THESIS (CENTRAL CLAIM)

The thesis is where you tell readers what your essay is going to be about. The thesis should be a clear, strong statement of the opinion you gave in Step 1. The rest of your essay will support this thesis.

Your thesis:

STEP 5: WRITE YOUR HOOK

The beginning of your essay is called the hook because it "hooks" your readers' attention. The hook should relate to the topic of your essay, but it can take many forms. It can be:

1. **An anecdote** (a very short story)**:** Describe sitting down for lunch at your school. Does your meal include chocolate milk?
2. **A surprising fact:** Find a fact that will raise your readers' eyebrows. Several surprising facts are included in the article. You can also do some research to find one that is not included in the article.
3. **A rhetorical question** (a question to which you don't expect an answer)**:** Ask your readers a question that reflects your point of view. Here's one way you could structure your question: *"Is chocolate milk really _____?"*
4. **A quote:** Find a thought-provoking quote that relates to the topic of your essay.

Choose one of the ideas above, or use your own idea, and write a hook on the lines provided.

Your hook:

NAME _____ DATE _____ PERIOD _____

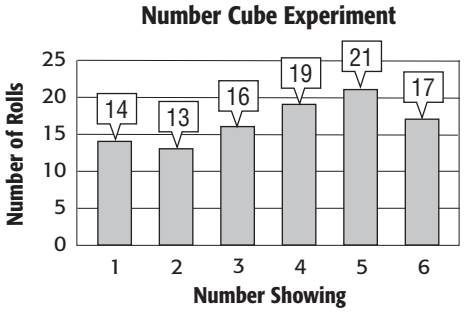
Lesson 2 Reteach

Theoretical and Experimental Probability

Experimental probability is found using frequencies obtained in an experiment or game. **Theoretical probability** is the expected probability of an event occurring.

Example 1

The graph shows the results of an experiment in which a number cube was rolled 100 times. Find the experimental probability of rolling a 3 for this experiment. Then compare it to the theoretical probability.



$$P(3) = \frac{\text{number of times 3 occurs}}{\text{number of possible outcomes}}$$
$$= \frac{16}{100} \text{ or } \frac{4}{25}$$

The experimental probability of rolling a 3 is $\frac{4}{25}$, which is close to its theoretical probability of $\frac{1}{6}$.

Example 2

In a telephone poll, 225 people were asked for whom they planned to vote in the race for mayor. What is the experimental probability of Juarez getting a vote from a person selected at random?

Candidates	Number of People
Juarez	75
Davis	67
Abramson	83

Of the 225 people polled, 75 planned to vote for Juarez.

So, the experimental probability is $\frac{75}{225}$ or $\frac{1}{3}$.

Example 3

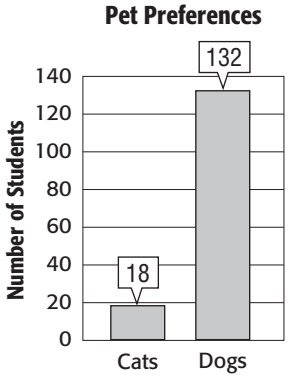
Suppose 5,700 people vote in the election. How many can be expected to vote for Juarez?

$\frac{1}{3} \cdot 5{,}700 = 1{,}900$

About 1,900 will vote for Juarez.

Exercises

1. **PETS** Use the graph of a survey of 150 students asked whether they prefer cats or dogs.



   a. What is the experimental probability of a student preferring dogs?

   b. Suppose 100 students were surveyed. How many can be expected to prefer dogs?

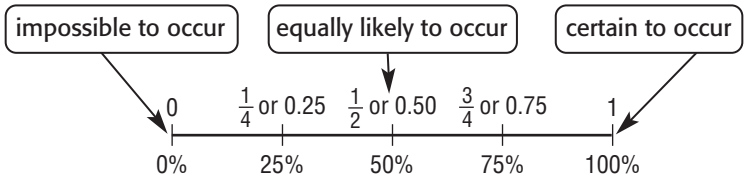
   c. Suppose 300 students were surveyed. How many can be expected to prefer cats?

NAME _____ DATE _____ PERIOD _____

Lesson 1 Reteach

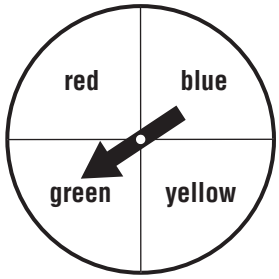
Probability of Simple Events

When tossing a coin, there are two possible **outcomes**, heads and tails. Suppose you are looking for heads. If the coin lands on heads, this would be a favorable outcome. The chance that some event will happen (in this case, getting heads) is called **probability**. You can use a ratio to find probability. The probability of an event is a number from 0 to 1, including 0 and 1. The closer a probability is to 1, the more likely it is to happen.



Example 1

There are four equally likely outcomes on the spinner. Find the probability of spinning green or blue.



$$P(\text{green or blue}) = \frac{\text{number of favorable outcomes}}{\text{number of total outcomes}}$$

$$= \frac{2}{4} \text{ or } \frac{1}{2}$$

The probability of landing on green or blue is $\frac{1}{2}$, 0.50, or 50%.

Complementary events are two events in which either one or the other must happen, but both cannot happen at the same time. The sum of the probabilities of complementary events is 1.

Example 2

There is a 25% chance that Sam will win a prize. What is the probability that Sam will not win a prize?

$$\begin{aligned} P(\text{win}) + P(\text{not win}) &= 1 \\ 0.25 + P(\text{not win}) &= 1 \\ -0.25 \qquad\qquad &= -0.25 \\ \hline P(\text{not win}) &= 0.75 \end{aligned}$$

So, the probability that Sam won't win a prize is 0.75, 75%, or $\frac{3}{4}$.

Exercises

1. There is a 90% chance that it will rain. What is the probability that it will not rain?

One pen is chosen without looking from a bag that has 3 blue pens, 6 red, and 3 green. Find the probability of each event. Write each answer as a fraction, a decimal, and a percent.

2. P(green)

3. P(blue or red)

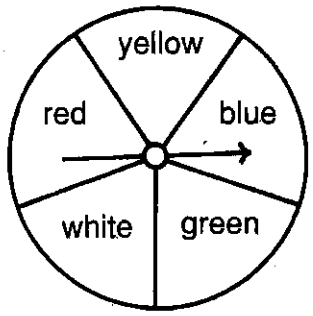
4. P(*not* red)

Why Did the King's Birthday Celebration Last So Long?

Do each exercise and find your answer in the Code Key. Notice the letter under it. Write this letter in the box containing the exercise number.

Code Key	$\frac{1}{100}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$	$\frac{4}{5}$	1	$\frac{4}{13}$	$\frac{5}{13}$	$\frac{2}{7}$	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{7}{8}$
	R	T	S	N	I	K	P	E	W	Y	H	A	L	G

I. Find each probability if you spin the spinner once.



(1) P(red)

(2) P(green)

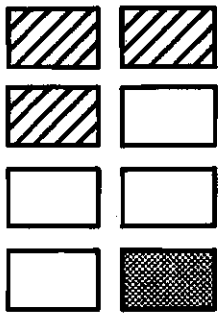
(3) P(blue or white)

(4) P(not yellow)

(5) P(not red)

(6) P(blue or red or yellow)

II. Find each probability if you choose one card at random.



(7) P(striped)

(8) P(white)

(9) P(shaded)

(10) P(white or shaded)

(11) P(striped or white)

(12) P(striped or shaded)

(13) P(not striped)

(14) P(not white)

(15) P(striped or white or shaded)

III. Solve.

(16) What is the probability of guessing the correct answer to a multiple choice question if there are 5 choices?

(17) What is the probability of guessing the correct answer to a true-false question?

(18) What is the probability that your birthday will fall on Saturday or Sunday?

(19) What is the probability of winning a raffle if 500 tickets are sold and you buy 5 of them?

(20) A class of 25 students has 15 girls and 10 boys. If one student is chosen at random, what is the probability it is a girl?

(21) There are 26 letters in the alphabet. What is the probability that a letter chosen at random is in the word MATHEMATICS?

5	1	18	8	3	14	6	17	13	10	15	20	4	11	7	16	21	12	19	2	9

Measures of Central Tendency and Representative Samples

Standards

7.SP.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

6.SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Name:_____ Measures of Central Tendency

Choose the survey that would be least biased, then calculate the mean, median, mode, and range. Then scan the QR code to check your answers.

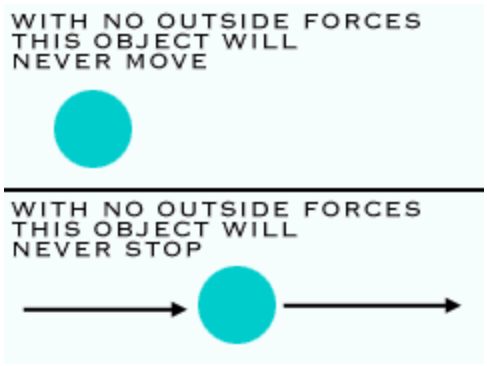
The school librarian wants to know how many books her students read each month. She surveyed the first twenty students who entered the library. 1, 4, 2, 3, 6, 1, 2, 1, 3, 2, 3, 6, 5, 3, 1, 4, 8, 6, 1, 1 Mean_____ Median_____ Mode_____ Range_____	The school librarian wants to know how many books her students read each month. She surveyed a random selection of students from each grade. 3, 4, 5, 8, 1, 2, 2, 4, 5, 1, 2, 6, 4, 2, 3, 1, 1, 2, 3, 1 Mean_____ Median_____ Mode_____ Range_____
A radio DJ wanted to know what how long his listeners tuned into his show. He asked his listeners to call in with the number of minutes they listened to the show. 30, 40, 18, 22, 64, 33, 21, 48, 31, 27, 25, 13, 10, 13, 20 Mean_____ Median_____ Mode_____ Range_____	A radio DJ wanted to know what how long his listeners tuned into his show. He emailed a survey to all the listeners on the stations email list. 33, 42, 18, 12, 64, 31, 11, 48, 21, 27, 14, 13, 19, 20, 8 Mean_____ Median_____ Mode_____ Range_____
A store owner was doing research on women's shoe sizes. She surveyed every third woman who entered her store. 7, 5, 6.5, 8, 9, 7.5, 10.5, 10, 7, 8, 9, 8, 8.5, 9, 7.5, 10, 9 Mean_____ Median_____ Mode_____ Range_____	A store owner was doing research on women's shoe sizes. She surveyed all teenage girls who entered her store. 9, 5, 6.5, 8, 9, 9.5, 10.5, 11, 7, 8, 7, 8, 5.5, 9, 7.5, 10, 8 Mean_____ Median_____ Mode_____ Range_____

Epic games wants to research the ages of people playing the game Fortnite. The company surveys all its top ranked players. 13, 35, 18, 23, 15, 29, 22, 14, 24, 32, 18, 20, 17, 27, 12 Mean_____ Median_____ Mode_____ Range_____	Epic games wants to research the ages of people playing the game Fortnite. The company sends a survey to all its players. 15, 33, 18, 23, 16, 29, 21, 13, 24, 20, 18, 26, 17, 19 Mean_____ Median_____ Mode_____ Range_____
A cable company wanted to do research on customer satisfaction. They developed a rating scale of 1 - 10, 1 being very displeased and 10 being very happy with the service. The company included the survey in all the bills sent out that month. 6, 4, 7, 2, 5, 6, 4, 9, 1, 6, 8, 4, 10, 5, 7, 8, 3, 5, 8, 6, 9, 7 Mean_____ Median_____ Mode_____ Range_____	A cable company wanted to do research on customer satisfaction. They developed a rating scale of 1 - 10, 1 being very displeased and 10 being very happy with the service. The company gave the survey to all customers who went into the office. 1, 3, 8, 4, 7, 6, 4, 9, 1, 7, 5, 5, 10, 7, 7, 8, 3, 5, 8, 7, 9 Mean_____ Median_____ Mode_____ Range_____
Caleb is doing research on the hourly wage of fast food workers in his town. He goes to several different fast food chains in the town and surveys a sample of the employees. $9.25, $12, $10.50, $9.25, $9, $11, $10.50, $9.50, $12 Mean_____ Median_____ Mode_____ Range_____	Caleb is doing research on the hourly wage of fast food workers in his town. He goes to McDonald's and surveys all the employees. $9, $11, $10.25, $9.25, $9, $10, $11.50, $9.75, $10 Mean_____ Median_____ Mode_____ Range_____

Newton's Laws of Motion

There was this fellow in England named **Sir Isaac Newton**. A little bit stuffy, bad hair, but quite an intelligent guy. He worked on developing **calculus** and **physics** at the same time. During his work, he came up with the three basic ideas that are applied to the physics of most **motion** (NOT **modern physics**). The ideas have been tested and verified so many times over the years, that scientists now call them **Newton's Three Laws of Motion**.

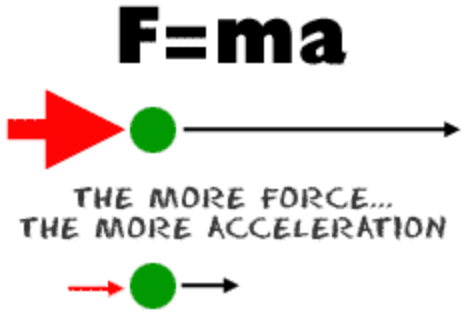
First Law



The first law says that an object at **rest** tends to stay at rest, and an object in **motion** tends to stay in motion, with the same direction and **speed**. Motion (or lack of motion) cannot change without an unbalanced **force** acting. If nothing is happening to you, and nothing does happen, you will never go anywhere. If you're going in a specific direction, unless something happens to you, you will always go in that direction. Forever.

You can see good examples of this idea when you see video footage of **astronauts**. Have you ever noticed that their tools float? They can just place them in space and they stay in one place. There is no interfering force to cause this situation to change. The same is true when they throw objects for the camera. Those objects move in a straight line. If they threw something when doing a spacewalk, that object would continue moving in the same direction and with the same speed unless interfered with; for example, if a planet's **gravity** pulled on it (Note: This is a really really simple way of describing a big idea. You will learn all the real details - and math - when you start taking more advanced classes in physics.)

Second Law



The second law says that the **acceleration** of an object produced by a net (total) applied force is directly related to the **magnitude** of the force, the same direction as the force, and inversely related to the mass of the object (inverse is a value that is one over another number... the inverse of 2 is 1/2). The second law shows that if you exert the same force on two objects of different mass, you will get different accelerations (changes in motion). The effect (acceleration) on the smaller mass will be greater (more noticeable). The effect of a 10 newton force on a baseball would be much greater than that same force acting on a truck. The difference in effect (acceleration) is entirely due to the difference in their masses.

Third Law

The third law says that for every action (force) there is an equal and opposite reaction (force). Forces are found in pairs. Think about the time you sit in a chair. Your body exerts a force downward and that chair needs to exert an equal force upward or the chair will collapse. It's an issue of symmetry. Acting forces encounter other forces in the opposite direction. There's also the example of shooting a cannonball. When the cannonball is fired through the air (by the explosion), the cannon is pushed backward. The force pushing the ball out was equal to the force pushing the cannon back, but the effect on the cannon is less noticeable because it has a much larger mass. That example is similar to the kick when a gun fires a bullet forward.

1. In your own words, describe Newton’s First Law of Motion.

2. Create a demonstration that shows the First Law of Motion. (Ideas- A.Take a cup (small) and place an index card or playing card over the top. Place a penny or coin on the center of the card. Flick the card sideways. What happens to the coin? B. Pull a tablecloth out from under unbreakable items. C. Start running until someone tells you to stop. Did you stop immediately?)

3. How does your demonstration fit Newton's First Law?

4. In your own words, describe Newton's Second Law of Motion.

5. Create a demonstration that shows the Second Law of Motion. (Ideas- A. Take a rolling toy or skateboard and place an object (washer, etc.) on top of it. Roll the toy into a wall or other object. What happens to the object on top? B. Create a sideway collision with 2 rolling toys. What happens? C. Roll a ball across the room. Have someone put their foot in front of the ball. What happens?)

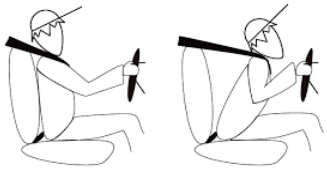
6. How does your demonstration fit Newton's Second Law of Motion?

7. In your own words, describe Newton's Third Law of Motion.

8. Create a demonstration that shows the Third Law of Motion. (Ideas- A. Stand on a skateboard. Step off to the front or back. What happens to the skateboard. B. Blow up a balloon. Let it go. What happens to the balloon? Create a head on collision with 2 rolling toys. What happens to each toy?

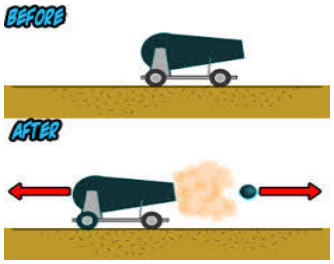
9. How does your demonstration fit the Third Law of Motion?

Interpreting the laws: Label each of the following images below as being examples of the 1st, 2nd, and 3rd laws. Then explain your answer.



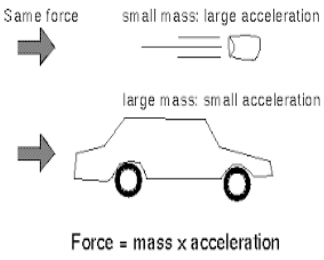
1st law, 2nd law, 3rd law
Explanation: _____
_____
_____
_____

Car stops suddenly

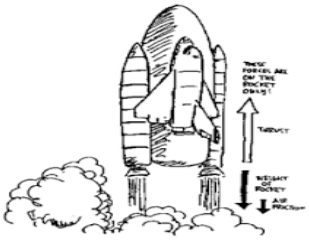


1st law, 2nd law, 3rd law
Explanation: _____
_____
_____
_____
_____

Cannon is driven back when fired



1st law, 2nd law, 3rd law
Explanation: _____
_____
_____
_____
_____



1st law, 2nd law, 3rd law Explanation:

_____

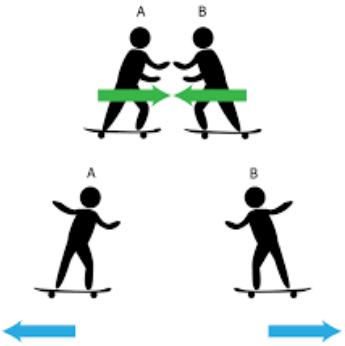
_____

_____

_____

_____

The spaceship's thrusters have to accelerate the mass in order to overcome the force of gravity



1st law, 2nd law, 3rd law

Explanation:_____

_____

_____

_____

_____

2 people on skateboards go in opposite directions when pushing

1st law, 2nd law, 3rd law

Explanation: _____

_____

_____

_____

_____

Guy will stay asleep/ motionless until alarm goes off

4

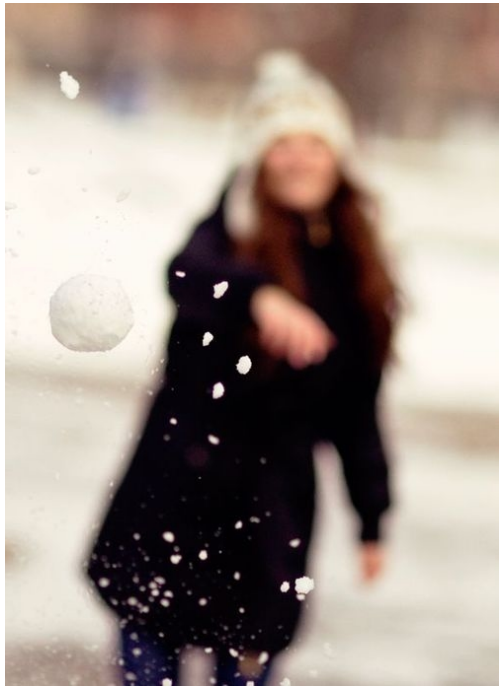
What is the effect of the last sentence?

5

What was Annie Dillard's purpose in writing this short story?

"An American Childhood"

The Chase



by Annie Dillard

1

Why does Dillard open her story with the discussion of football? In what way does the game of football serve as a metaphor in the story? (See paragraph 13)

2

Identify the two rapid transitions in paragraph two. Do they contribute or detract from the story?

3

Why does the author interrupt the story of the chase with an "immense discovery" in paragraph 13. Does this interruption weaken the narrative?

Ten Questions On The Civil War

Directions: Answer the following ten questions on a separate sheet of paper.

1. Who was the president of the United States during the Civil War?

2. Who was the vice president of the United States during the Civil War?

3. Who was the president of the Confederate States?

4. Who was the commander of the army of the Confederate States?

5. Which had control of the greater number of states, the Confederate States or the United States?

6. Who was the commander of the United States during the Civil War?

7. Who was the vice president of the Confederate States?

8. During this time, where was the capital of the United States?

9. During this time, where was the capital of the Confederate States?

10. How many more people did the United States have over the Confederate States?

Directions: Research and complete the following information about the American Civil War Conflict.

Cause(s): _____

_____

Spark: _____

_____

Turning Point Battles: _____

_____

Heroes: _____

_____

Strategy of Opposing Sides: _____

_____

Costs: _____

_____

Deaths: _____

_____

Money: _____

_____

End Result(s): _____

_____