

**PROJECT: Underground Railroad Freedom Quilt (Examples below)**



**Freedom Quilt Blocks**



**What's the BIG IDEA?/Why am I learning this:**

Art Standards: (grade 5-8 ) Anchor Standard 10: Synthesize and relate knowledge and personal experiences to make art. Act on creative ideas to connect personal experiences and knowledge to visually represent what people see, know, feel and imagine. **Anchor Standard 11:** Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding. Reason effectively to understand the role of art as an essential aspect of history, society, culture and human experience.

**Underground Railroad background information**

Prior to 1860, Americans captured and enslaved about four million black people from Africa. Slavery came about because Americans needed workers to do the difficult labor on the sprawling plantations that stretched across the south, and because slave-traders saw an opportunity to make a great deal of money buying and selling slaves. From the beginning, slaves tried to escape from owners. But attempting an escape, or helping someone else to escape, was dangerous and could result in severe punishment or death. The underground railroad is the name for the secret route fugitives took to escape to freedom. It was so named because fugitives who traveled on it just seemed to vanish as if traveling underground. It was, of course, not a real railroad, but rather a series of safe hiding places called "stations".

Researchers recently learned that an underground railroad quilt code existed to guide fugitives to freedom. Because it was illegal in slave-holding states to teach slaves to read, slaves could not communicate with each other in writing. But, because slaves of all backgrounds shared a verbal history of storytelling along with a knowledge of material weaving, they discovered that they were able to communicate messages in the stitches, patterns, designs, colors and fabrics of quilts. To memorize the code, researchers believe that fugitives used a sampler quilt, with blocks arranged in order of the code. The patterns told slaves how to get ready to escape, what to do on the trip, and where to go. Once stitched, the coded quilts were put on porches of slave cabins, acting as secret maps for slaves.

**Your Assignment: Design a Underground Railroad Freedom Quilt. How you will do this:**

- Step 1.** Read the background information about the Underground Railroad above.
- Step 2.** Look at the different quilt pattern designs and meanings on the next page.
- Step 3:** Decide on which code patterns you will use and write down the directions for the slave runner to follow. You will write this out in paragraph form. Use between 4 and 9 different patterns.
- Step 4.** On a blank sheet of paper, divide the paper into 9 equal squares that are at least 2 in x 2 in square. In each square draw one of the quilt designs- you can repeat designs. (See next page for example)
- Step 5.** Remember to color your quilt pieces. Step 6: Turn in your quilt photo and paragraph of the instructions for the slave runner.

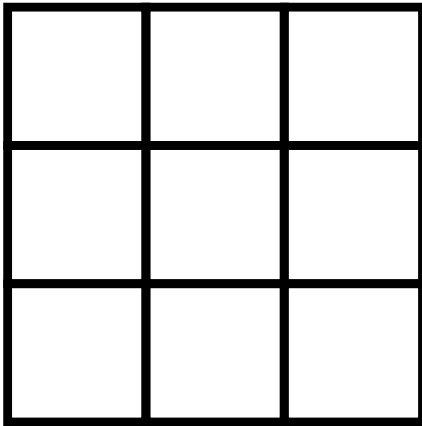
**If you have material at home and would like to cut it and glue it on the paper, that is great (optional)**

**Materials: Quilt block pattern sheet, paper, pencil, coloring tools, (material in place of coloring-optional)**

**How to turn in: Take a photograph of your artwork and turn in via Google Classroom OR if you don't have access to Google Classroom, email it to Mrs. McCormick: [jmccormick@kent.k12.md.us](mailto:jmccormick@kent.k12.md.us)**

Really Good Stuff® Activity Guide

**Underground Railroad Quilt Guide**



**What your blank quilt will look like**

**QUILT PATTERNS & THEIR MEANINGS**

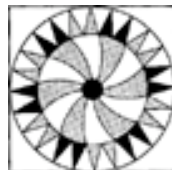
**Monkey Wrench**

This meant the slaves were to gather all the tools they might need on the journey to freedom. Tools meant: something with which to build shelters, compasses for determining direction, or tools to serve as weapons for defending themselves.



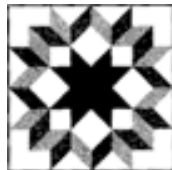
**Wagon Wheel**

This was the second pattern to be displayed, which signaled the slaves to pack all the things that would go in a wagon or that would be used during their journey. This was a signal for the slaves to think about what essentials they needed to survive the trip.



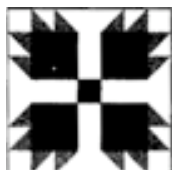
**Carpenter's Wheel  
(Wagon Wheel variation)**

This pattern would have particular significance to slaves skilled in a craft—such as carpentry. (Other such patterns might be: an Anvil, Circular Saw, Square and Compass.) It was also a symbol to “steal away”—a visual equivalent to the popular spiritual “Steal Away”, which many slaves knew and sang. The pattern told slaves to “run with faith” to the west—northwest territories.



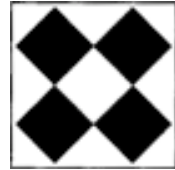
**Bear's Paw**

It's believed that this pattern was sometimes used to help fugitives follow the path of the bear, and to identify landmarks on the edge of the plantation.



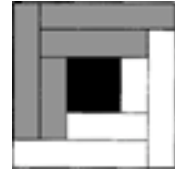
**Crossroads**

Once through the mountains, slaves were to travel to the crossroads. The main crossroad was Cleveland, Ohio. Any quilt hung before this one would have given directions to Ohio.



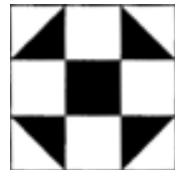
**Log Cabin**

This pattern was used to let the slaves know where safe houses were. People who helped the Underground Railroad may have identified themselves as friends to slaves on the run by tracing this pattern in dirt as a signal. This quilt told slaves to look for this symbol on their journey to freedom. It was also a symbol to set up a “home” in a free state.



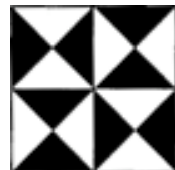
**Shoofly**

Little is known about this pattern. It is believed that Shoofly refers to an actual person who might have aided escaping slaves.



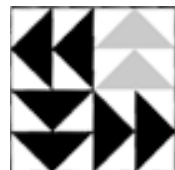
**Bow Ties**

Slaves' clothes were often tattered and easy to spot. This pattern meant that someone would bring the slave nice clothes to help them blend in with the free blacks.



**Flying Geese**

This pattern told the slaves to follow migrating geese north towards Canada and to freedom. This pattern was used as directions as well as the best season for slaves to escape. Geese fly north in the spring and summer. Flying geese pointed to the direction, north, for the slaves to move. Also, geese would have to stop at waterways along their journey in order to rest and eat. Slaves were to take their cues on direction, timing and behavior from the migrating geese.



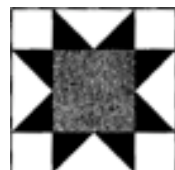
**Drunkard's Path**

This was a clear warning for the slaves to move in a staggering fashion so as to elude any following slave hunters. It was suggested that slaves even double back to elude their pursuers.



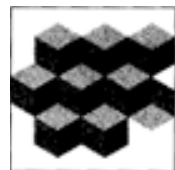
**North Star (Evening Star/Star)**

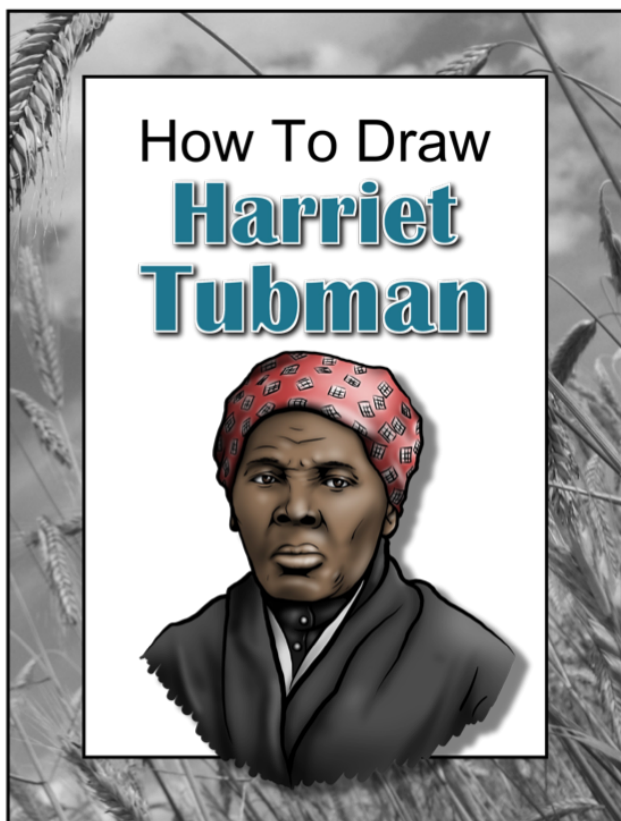
This instructed the slaves to follow the North Star to Canada and to freedom.



**Tumbling Blocks (Boxes)**

This signaled to the slaves—by the number of boxes and knots—the time to “box up” all one's belongings in preparation to escape.



PROJECT: Harriet Tubman Drawing Tutorial

**What's the BIG IDEA?/Why am I learning this:**

Art Standards: (grade 5-8 ) Anchor

**Standard 2:** Organize and develop artistic ideas and work. Develop and experiment in the creation and design of artworks.

**Anchor Standard 4:** Analyze, interpret, and select artistic work for presentation. Make judgments and decisions to justify which works of art express ideas about self, other people, places and events that will be meaningful in presentations.

Harriet Tubman background

**Who Was Harriet Tubman?** Born into slavery in Maryland, Harriet Tubman escaped to freedom in the North in 1849 to become the most famous "conductor" on the Underground Railroad. Tubman risked her life to lead hundreds of family members and other slaves from the plantation system to freedom on this elaborate secret network of safe houses. A leading abolitionist before the American Civil War, Tubman also helped the Union Army during the war, working as a spy among other roles. After the Civil War ended, Tubman dedicated her life to helping impoverished former slaves and the elderly.

**Your Assignment: Draw Harriet Tubman in a step by step tutorial** Since you have been learning about Abolitionists like Frederick Douglass and Harriet Tubman in Social Studies, I thought it would be a fun project to draw one of them and practice drawing a portrait. We don't usually draw from tutorials with step by step instructions because everyone draws differently and adds features as they are comfortable. This is what makes your art unique and truly YOU.

Step by step instructions are fun though sometimes because as long as you are looking closely at the example, you'll have a really successful drawing. Drawing the lines and erasing are a very normal part of the process when following step by step instructions. You may make a lot of mistakes before you are happy with the outcome. That's just part of the drawing process. Please take a look at the following 3 tutorial pages OR look at this link of the same thing. [https://drive.google.com/file/d/1R4gWsdvT\\_KfeaBqGa7Mfl1QeoN8tpcB/view?usp=sharing](https://drive.google.com/file/d/1R4gWsdvT_KfeaBqGa7Mfl1QeoN8tpcB/view?usp=sharing)

**How you will do this:**

**Step 1:** Get a piece of paper to draw on and follow the step by step instructions.

**This will most likely take you 60 minutes to complete it well.**

**Step 2:** Add some color or value to your drawing to make it look even more real and 3-D.

**Step 3:** Take a photo and send in to Google Classroom.

**Materials:** paper, pencil, eraser, step by step pages or link to step by step document, coloring tools (optional)

**How to turn in:** Take a photograph of your artwork and turn in via Google Classroom OR if you don't have access to Google Classroom, email it to Mrs. McCormick: [jmccormick@kent.k12.md.us](mailto:jmccormick@kent.k12.md.us)



### Step 1:

Sketch a circle for the head. Add the jaw line to the bottom of the circle.



### Step 2:

Draw a horizontal line and a vertical line on the head. These will be guides for the eyes and nose. Add the bottoms of the ears and the "V" shape for the neck.

### Tip:

Sketch lightly in pencil so it is easy to erase later.



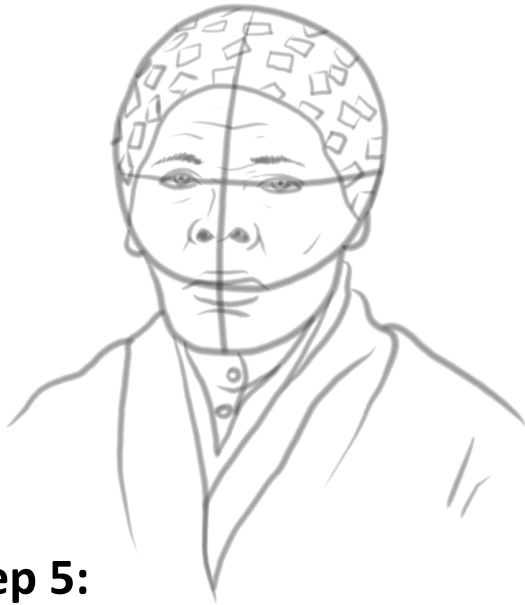
### Step 3:

Draw the eyes, eye brows and nose. Notice the eyes are on the horizontal line and the vertical line passes through the center of the nose. Add some small lines below the eyes for wrinkles.



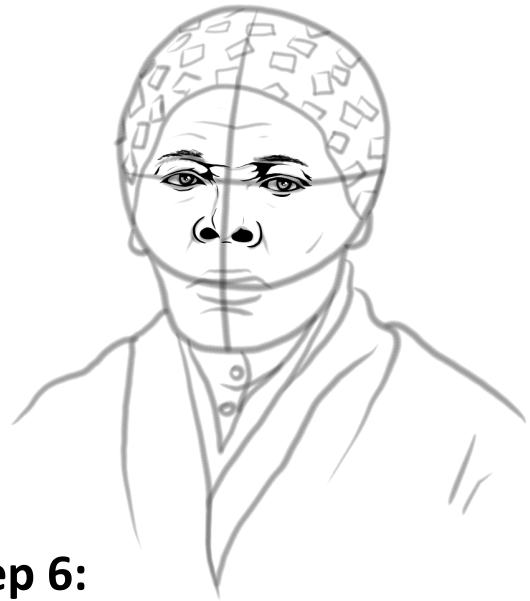
### Step 4:

Draw the mouth, lips and the head wrap. Add little boxes to the head wrap to make a design. Add lines on the forehead for wrinkles, a line on the right for the cheek and a line below the lower lip to define the chin.



**Step 5:**

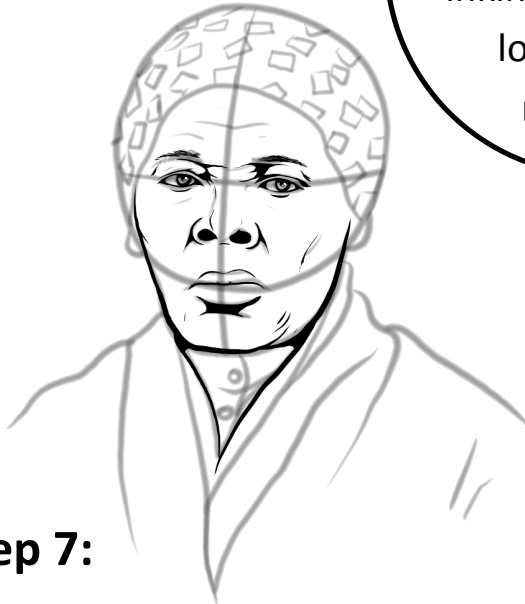
Draw the buttons on the collar and the lines of the clothing.



**Step 6:**

Ink the eyes, eye brows and nose. Add lines around the eyes for the eyelids and wrinkles.

**Tip:**  
Take your time inking. You can no longer erase mistakes!



**Step 7:**

Add the mouth, lips, jaw line and neck line. Draw the cheek line and lines on the sides of the nose extending downward for smile lines. Darken the area below the lower lip for shadow.



**Step 8:**

Draw the head wrap and the little blocks design. Draw the ears and the details inside the right ear. Draw the wrinkles on the forehead.

### Step 9:

Draw the buttons on the collar and the lines of the clothing.



### Step 10:

Erase the pencil to reveal your finished drawing of Harriet Tubman!

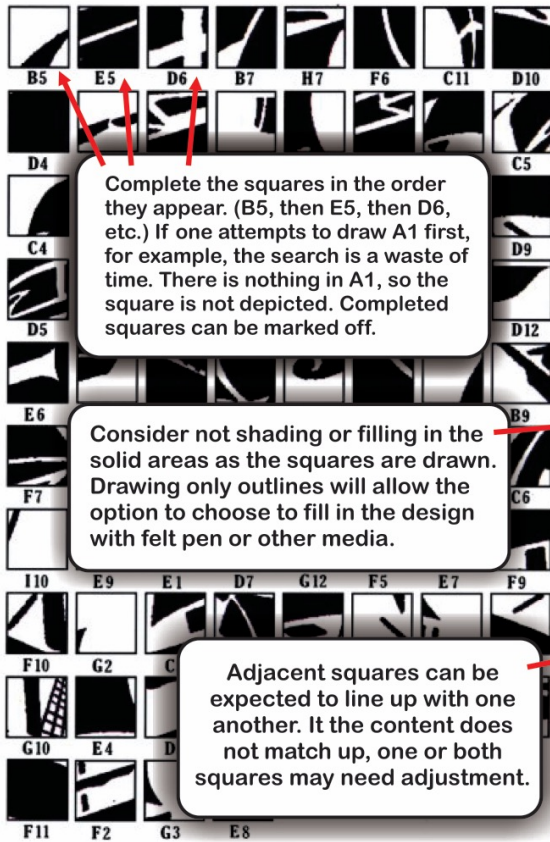


**What's the BIG IDEA?/Why am I learning this:**

**Art Standards: (grade 5-8) Anchor Standard 7: Perceive and analyze artistic artwork.** Analyze components in visual imagery that convey messages and compare personal interpretations.

## Mystery Grid

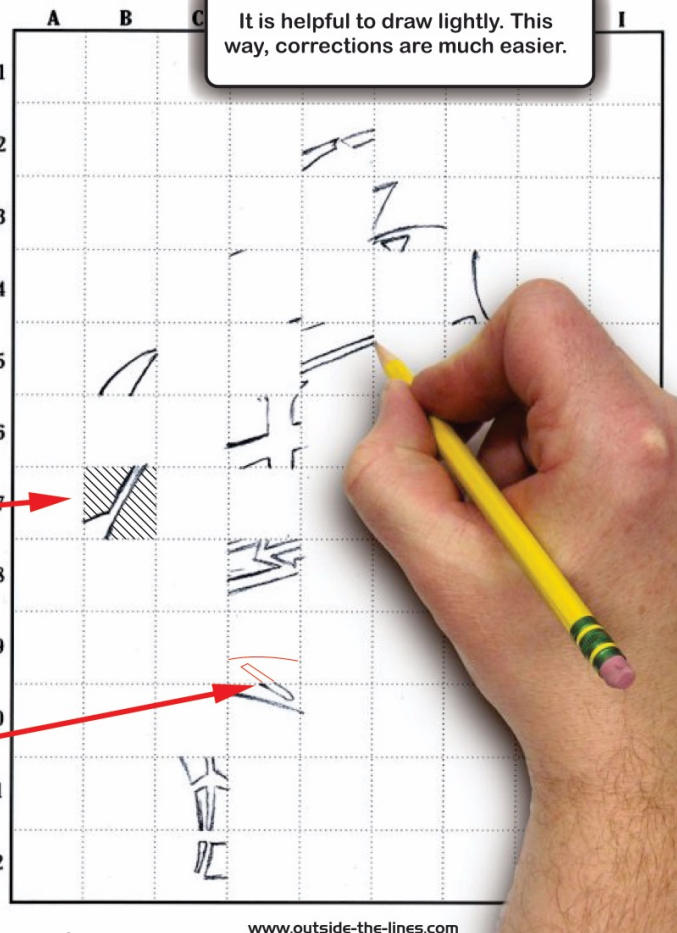
Draw the individual squares in the appropriate spaces to reassemble the image.



Complete the squares in the order they appear. (B5, then E5, then D6, etc.) If one attempts to draw A1 first, for example, the search is a waste of time. There is nothing in A1, so the square is not depicted. Completed squares can be marked off.

Consider not shading or filling in the solid areas as the squares are drawn. Drawing only outlines will allow the option to choose to fill in the design with felt pen or other media.

Adjacent squares can be expected to line up with one another. If the content does not match up, one or both squares may need adjustment.



www.outside-the-lines.com

### **Your Assignment: Draw the Mystery Drawing from the secret grid**

This is a mystery drawing and I'm super excited for you to try it. You will not know what the final outcome will be unless you follow the directions. Usually when you are drawing on a grid you look at a picture with a grid on it and then look at each square and then draw what's in each square on a separate piece of grid paper.

For the mystery drawing you have a page that has grid coordinates and images with labels that have numbers and letters. You also have a separate piece of labeled grid paper that you will need to print out and do the drawing on.






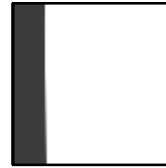















































**How will I do this: Step 1:** Print out the blank grid piece of paper. If you don't have a printer, use a piece of paper and a ruler to make your own grid on copy paper. **Step 2:** Look at the mystery grid page with the black/white images on them. Draw each of the images in the boxes on the blank piece of grid paper. Follow the order from the top left of the mystery grid page to the bottom right in order to keep the drawing a mystery. **See the above photo if you are having trouble understanding these directions.** **Step 3:** Take a photo of your completed mystery grid drawing when you are done with your name at the top.

**Materials: paper, pencil, printer (ruler optional)**

**How to turn in:** Take a photograph of your artwork and turn in via Google Classroom OR if you don't have access to Google Classroom, email it to Mrs. McCormick: [jmccormick@kent.k12.md.us](mailto:jmccormick@kent.k12.md.us)

# Mystery Grid

Create a 8x10 grid on a separate paper. Letter across the top A-H. Number down the side 1-10. Ideally, the grid will be erased later so avoid drawing dark. Reassemble the scrambled image using the coordinates beneath each square.

						
<b>E5</b>	<b>E6</b>	<b>F1</b>	<b>B7</b>	<b>A10</b>	<b>G9</b>	<b>H2</b>
						
<b>F8</b>	<b>G2</b>	<b>D7</b>	<b>E9</b>	<b>H1</b>	<b>B3</b>	<b>C9</b>
						
<b>E7</b>	<b>F6</b>	<b>G4</b>	<b>E2</b>	<b>C6</b>	<b>D8</b>	<b>G5</b>
						
<b>F10</b>	<b>C8</b>	<b>F3</b>	<b>B4</b>	<b>D3</b>	<b>G10</b>	<b>B9</b>
						
<b>G1</b>	<b>F4</b>	<b>B6</b>	<b>G8</b>	<b>C5</b>	<b>H4</b>	<b>F2</b>
						
<b>G7</b>	<b>C7</b>	<b>E8</b>	<b>H3</b>	<b>A9</b>	<b>E4</b>	<b>D2</b>
						
<b>F5</b>	<b>B10</b>	<b>G6</b>	<b>E3</b>	<b>G3</b>	<b>D6</b>	<b>B5</b>
						
<b>F9</b>	<b>D4</b>	<b>E10</b>	<b>B8</b>	<b>F7</b>		





Please use the grid from the following page and match the letter and number coordinates.

**A                  B                  C                  D                  E                  F                  G                  H**

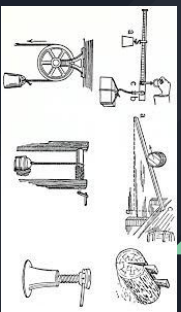
<b>1</b>								
<b>2</b>								
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<b>7</b>								
<b>8</b>								
<b>9</b>								
<b>10</b>								

# Computer Skills Work for Weeks 4/27, 5/4, & 5/11 (Must have Computer with Internet Access!!!!)



- **Week of 4/27:** We will be starting Photoshop this week! We will be using their free online version which can be found at [www.photopea.com](http://www.photopea.com). For this first week, we will be learnign the basics of importing a picture, and using the **Clone Stamp Tool**. At which point we will save our work and upload it to our classroom. From here on out we shouldn't be sending emails to Mr. King. A tutorial video on how to do this will be uploaded on Monday, no later then noon. I will be discussing how to do certain things while I demo photopea. Also, if you get stuck, during my office hours Tuesdays and Thursdays from 1pm-2pm, I can help you live using Zoom!
- **Week of 5/4:** This week we will be doing a black and white and color blend on Photopea! It's a neat affect that offers more control than your regular phone apps! Same as before, I will upload a tutorial that Monday, and be available to help during Open Office Hours.
- **Week of 5/4:** This week we will be making our own money It requires taking parts from 2 pictures and blending. Same as before, I will upload a tutorial that Monday, and be available to help during Open Office Hours.

# Simple Machines & Mechanical Advantage



- An Exploration of the different Simple machines
- How they Work
  - How to Calculate M.A

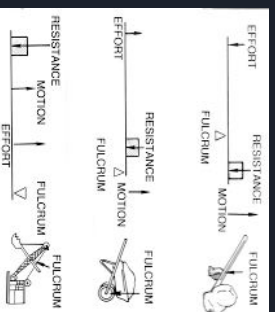
## Learning Objectives

- 1) Identify the different types of Simple Machines
- 2) Pre Calculate a Simple Machine's Ideal Mechanical Advantage (IMA)
- 3) Follow Plans to create models of Simple Machines to test Actual Mechanical Advantage
- 4) Create a Complex Machine that uses 3 Simple Machines to Move a Large Load



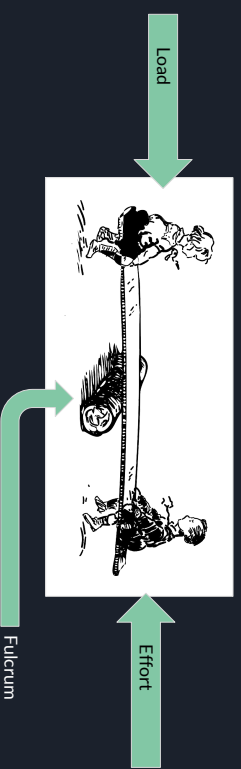
## Day 1 Starts Here

- The Lever Contents:
- Exploring the Lever
    - Classes 1, 2, & 3
  - Understanding Load, Effort, & Fulcrum
  - Identifying the Load Distance and Effort Distance
  - Calculating Ideal Mechanical Advantage
  - Calculating Actual Mechanical Advantage



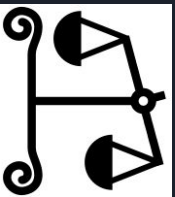
## What is a Lever?

- A lever simply put, is a way of moving a load utilizing effort and a pivot point called the Fulcrum.
- The placement of the fulcrum decides your mechanical advantage
- An easy way to think about this, is the teeter-totter on the playground.



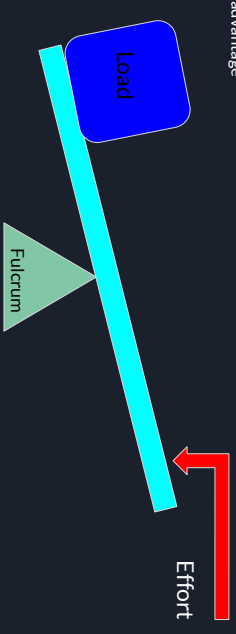
## Different Classes of Levers

- What can change about a Lever is the Order of the components.
- The easiest way to figure out what class of Lever you're using is to see which component is in the middle.
- Depending on the Order, you are always trading between Distance of Power, you can't get energy for free!



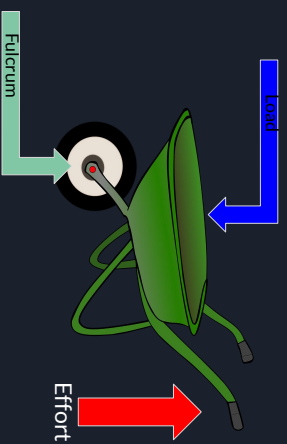
## Class 1 Lever

- Class 1 Levers always have the Fulcrum in the Middle.
- You can change where it is between the load and the effort to change your mechanical advantage



## Class 2 Lever

- A Class 2 Lever has your Load in the middle
- An easy Example of this, is a garden wheelbarrow.



## Class 3 Lever

- A Class 3 lever has the Effort in the middle
- An easy example of a Class 3 Lever is the Stapler



## Ideal Mechanical Advantage (IMA) Vs. Actual Mechanical Advantage (AMA)

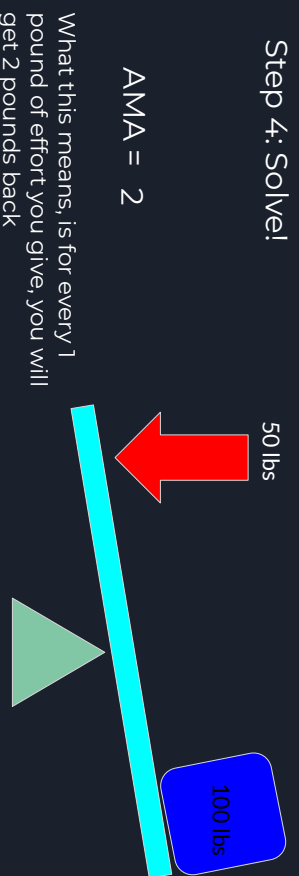
- Ideal Mechanical Advantage is the Bonus Multiplier that a simple machine gives to your effort, based on PERFECT conditions
  - Ideal Mechanical Advantage is Calculated using DISTANCES
- Actual Mechanical Advantage is the determined Bonus Multiplier after a Simple machine has been tested in REAL WORLD conditions.
  - Actual Mechanical Advantage is Calculated using WEIGHTS
- Actual Mechanical Advantage can only be equal to or less than Ideal, but never greater.

## Calculating AMA

- The formula for AMA is your Load weight divided by your Effort Weight.
- The AMA Formula is the same for EVERY simple machine!

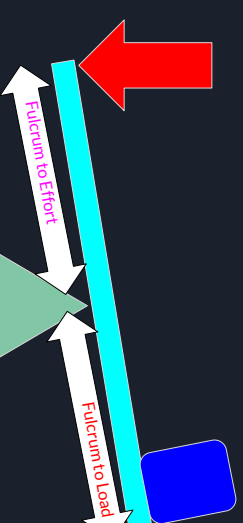
$$\text{AMA} = \frac{\text{Load}}{\text{Effort}}$$

Let's Do One Together... What Mechanical Advantage is being displayed in the Picture?



Calculating IMA  $\text{IMA} = \frac{\text{Fulcrum to Effort}}{\text{Fulcrum to Load}}$

- IMA is calculated using data gathered by measuring the DISTANCE from Fulcrum to Load and Fulcrum to Effort.
- The Formula for IMA is Distance from Fulcrum to Effort Divided by Distance from Fulcrum to Load

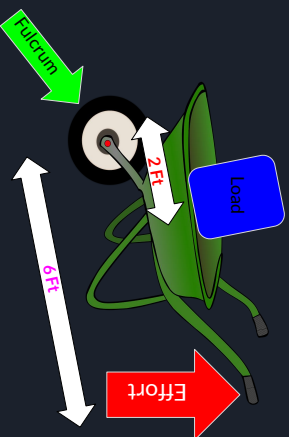


Let's Calculate the IMA of a class 2 Lever  
Together based off the picture!

Step 4: Solve!

$$\text{IMA} = 3$$

This means that for every 1 pound you put into effort, you get 3 pounds in your load!!!



## Day 1 Stop

Congrats on finishing the slides for Day 1 of Simple Machines!

At this point you will start working on the activity sheet for Levers, along with working on building the Models using the Simple Machines Kit.



## Day 2 Starts Here: Ramps

Ramp Contents:

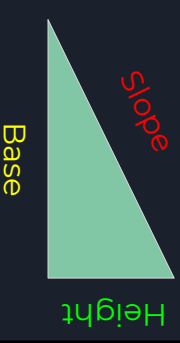
- Identifying the Parts of the Ramp
- Explaining ramps in Society
- Calculating IMA of a Ramp
- Calculating the AMA of a ramp (Review)



## Parts of a Ramp

The Ramp has 3 major parts to them

- 1) **Slope:** This is the inclined plane part of the ramp. In math it is what is called "The Hypotenuse". It is ALWAYS the longest side of a ramp and a right triangle!
- 2) **Height:** This is how high the ramp will go once your load reaches the end of the slope.
- 3) **Base:** This is how much room the ramp takes up on the ground.



## Why Ramps Work

Ramps work on the principle of Trading off Distance for Power.

Think about it this way. If you wanted to lift a 200 lb Refrigerator 5 feet up, Without help you would have to pick all 200 lbs off it up 5 ft straight up.

With a Ramp though, you might only need to push it up using 50 lbs, but you would need to push it 20 ft instead of the 5 ft.

You made the object lighter, but you know have to increase your distance.

This is why they are so important in our community with Wheelchair's. Ramps make it so people don't have to work as hard to get up into a building!



## Let's Do One Together!

### Step 4: Solve!!!

$$\text{IMA} = 6$$

This means that for every pound you can push, it would become 6 pounds using this ramp!  
So if you could only push 25 pounds, with this ramp you could push a 150 pound object!



## Calculating IMA of a Ramp

The Formula for Calculating IMA of a ramp is...

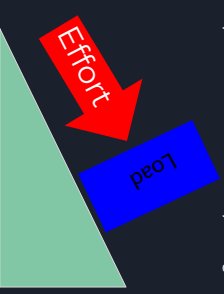
$$\text{IMA} = \frac{\text{Slope}}{\text{Height}}$$



## AMA on a Ramp

- Remember, calculating AMA is the same for ALL Simple Machines! But in case you forgot revisit Slide #11

$$\text{AMA} = \frac{\text{Load}}{\text{Effort}}$$



## Day 2 Stop!!!

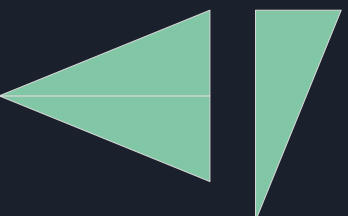
Congrats on finishing the Slides for Day 2 Ramps!

At this point you may do the activity and Labs assigned for Ramps!



## Wedges and Ramps are Totes BFF's!

- A wedge and a Ramp aren't that different from each other. Consider the Ramp to the right.
- Now turn the ramp 90 degrees...
- Now add a 2nd Ramp...
- Now put them together, and you've made a Wedge!!



## Day 3: Wedges

Wedge Content

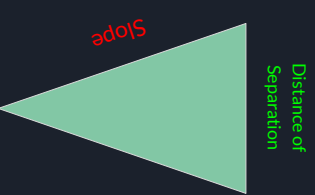
- Exploring the Relationship between wedges and Ramps
- Wedges in Society
- Calculating IMA of a Wedge
- AMA of a Wedge



## Identifying the parts of a Wedge

A Wedge has 2 Major Parts to it:

- 1) **Slope:** This is the angled edge of the Wedge that will be driven down into an object.
- 2) **Distance of Separation:** This is the part of the Wedge that you will apply your effort to, usually by hitting it with a hammer or mallet. It is also the distance you want to split the object apart!





## Wedges in Society

- Wedges are maybe the most common simple machine that people use everyday, and almost never consider it!
- Think about when you sit down to eat dinner. You probably have a fork, spoon, and knife. The knife and fork both use Wedges to help you cut and pierce food easier.
- Even on humans, we have 4 teeth called our Canine Teeth, they are a tooth that is wedge shaped to help us rip and tear meat. That's why herbivores (Plant eating animals) don't have K-9 Teeth! CRAZY!!!

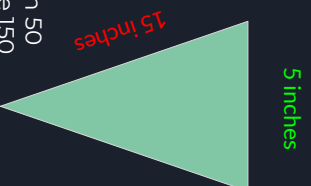


You know the Deal, Let's Do one Together!

Step 4: Solve!

$$\text{IMA} = 3$$

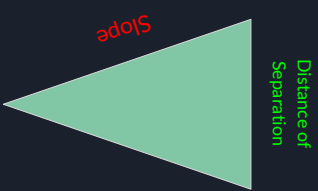
This means if you hit the 5 Inch Side of this Wedge with 50 pounds of force, the Point on the other end would have 150 Pounds of Force!!!



## Calculating the IMA of a Wedge

The formula for calculating the IMA of a Wedge is...

$$\text{IMA} = \frac{\text{Slope}}{\text{Distance of Separation}}$$



DAY 3 Wedge: Stop

And that's all she wrote on Wedges!!!!

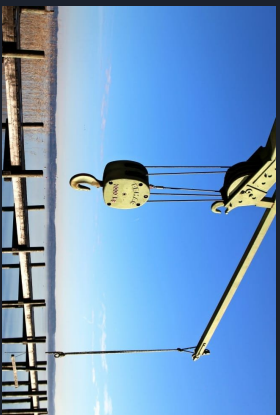
At this point you may start working on the activity and the Lab!



## Day 4: Rope and Pulley

Rope and Pulley Content:

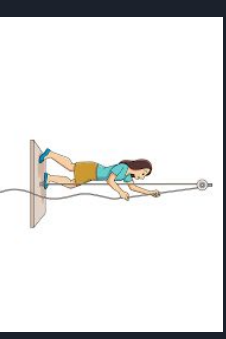
- Rope and Pulley Info
- Rope and Pulley in Society
- Calculating Lift Distance
- Calculating IMA



## What Makes the Rope and Pulley Special?

- Pulleys are unique among Simple Machines, because of their compact design, they are a real space saver
- A single pulley with a rope actually provides NO Mechanical Advantage, what it does do is provide a **change in directional force**. This means you can lift an object up, by pulling your end of the rope down.

- The Pulley System this woman is using gives NO Mechanical Advantage!
- If she wants to lift herself, she will need to pull equal to her full weight.
- It DOES make it so she can pull down on the rope in order to lift herself up. This is called a **Change of Directional Force**



## Pulleys in Society

- As mentioned before Pulleys are special because of their compact design, meaning when you don't have much space they are your best choice.
- This is why they are so popular on boats and ships. Space is limited on them, so if you need to create mechanical advantage, they are the best choice.
- A When 2 pulleys are used together, it becomes what's called a **Block and Tackle** system



Here in Maryland where we have a large boating community, this is a very common thing to see on a boat.



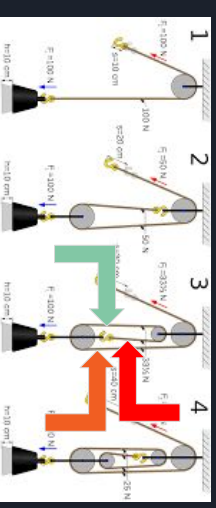
## Calculating a Pulley Systems IMA

- There actually is no "Math" for calculating a pulley systems IMA. Instead what you do is Count the number of rope segments used in the system.
- However make sure you DON'T include the Rope you pull on

Let's Count the rope segments on #3:

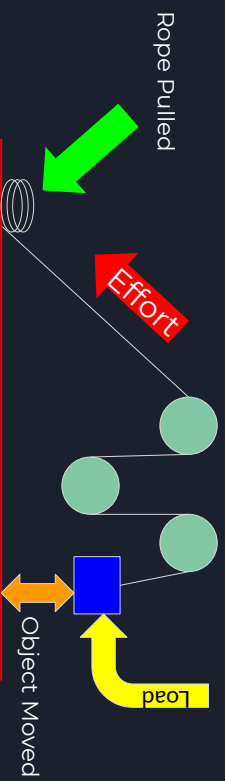
There are 3 Rope segments, notice we didn't include the part of the rope we pull on.

So this Pulley has an IMA of 3!



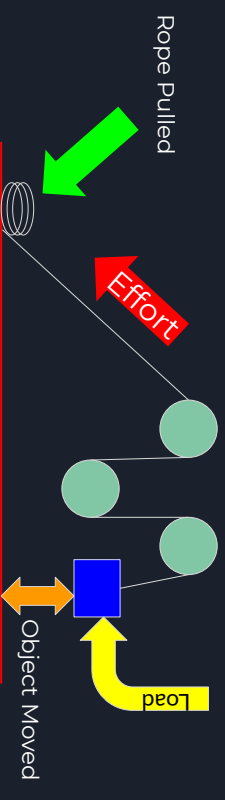
## Let's Not Forget the Rope

- As you saw from the last slide, in order to increase IMA, you need to wrap the rope around the Pulley. So, you are going to need a lot of rope!
- Also, remember Simple Machines work off of **Trade Offs**. In Order to lift heavy items with less effort, you will need to pull more rope, and the object won't move as much.



## Calculating Rope

Rope Pulled = IMA x Object Moved  
or  
Object Moved = Rope Pulled / IMA



## Let's Do One Together

How Much Rope needs to be pulled to move the object **30 ft**?

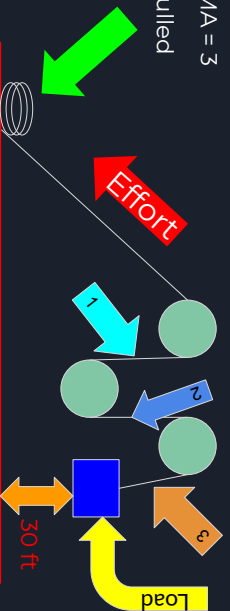
This means you would need to Pull 90 feet of Rope in order to lift your Object 30 Feet off the ground

Step 4: Solve!

Rope Pull = 90 feet

IMA = 3

Rope Pulled



## Let's try it the other way!

How far will we our object move, if we pulled **150 feet** of Rope

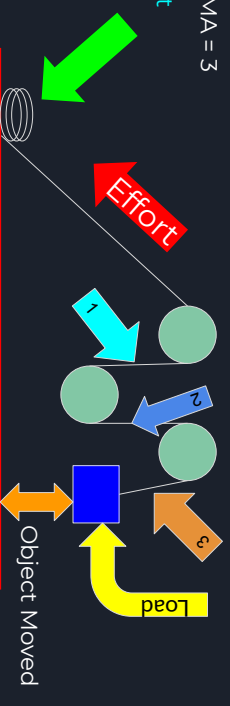
This means that if we pulled 150 feet of rope on this Pulley system, our object would be lifted up 50 feet!

Step 4: Solve

Object Moved = 50 Feet

IMA = 3

150 feet



## Day 4: Pulleys Finished

If you have any questions on Pulleys Still, Let me know. Otherwise, you may start working on the activity and lab!



## Wheel and Axle in Society

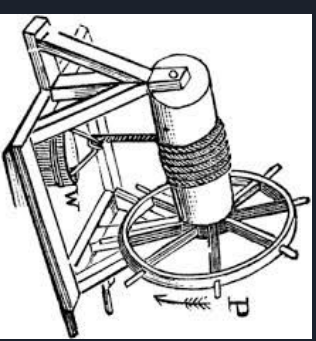
- Like the Wedge, the Wheel and Axle (W&A) is so common, you might not even realize how many you use in a day
- The basic idea is that a large wheel is attached to a small axle. You turn the big wheel (which is easy) but in return you have to travel a longer distance.
- Think about riding a bike, when you go uphill and you want it easier to peddle, you use a larger sized gear. But on Flat areas you move to a harder smaller gear.



## Day 5: Wheel & Axle

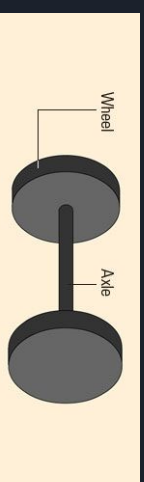
### Wheel & Axle Content

- Wheel & Axle in Society
- Identifying the Parts of the Wheel and Axle
- Special Vocab for Wheel and Axle
- Calculating IMA



## Parts of the W&A

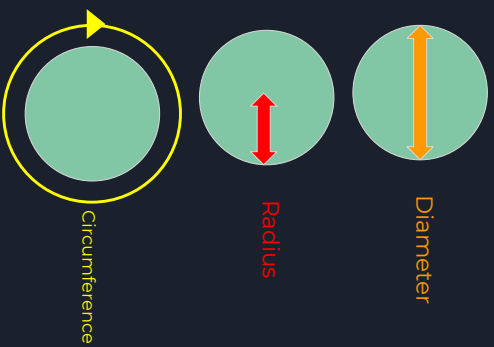
- Wheel: The part of the System which you apply your effort to when you want to use this simple machine.
- Axle: The part of the system that your load is attached to.



## Important Vocabulary to Know!

When Dealing with Wheels and Axles, you need to know these common terms...

- **Diameter:** The Distance from one edge of a circle to the other while passing through the center
  - The bigger the difference between the Wheels Diameter and the Axles Diameter, the greater the IMA.
- **Radius:** The Distance From the Center of a circle to the Edge
- **Circumference:** The distance to travel around the edge of a Circle



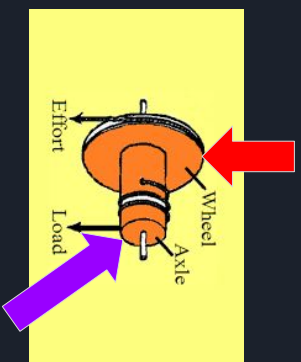
## Let's Do One Together

Diameter = 15 in

### Step 4: Solve

This means with 10 pounds of effort turning the wheel, you could lift a 30 pound object attached to the axle!

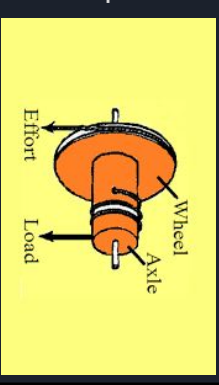
$$\text{IMA} = 3$$



## IMA for a Wheel and Axle

The Formula for WAA is...

$$\text{IMA} = \frac{\text{Diameter of Wheel}}{\text{Diameter of Axle}}$$



## Day 5 WAA Done!

Congrats on Finishing 5 Different Simple Machines. You way now start working on your Lab and activity! Be ready for Tomorrow! You will be building a Complex Machine that uses multiple Simple Machines tied together. This is how we achieve amazing feats of strength!



# Levers Homework

Answer each question to the best of your ability. Feel free to use calculators, scrap paper, and slides to help you.

\* Required

1. Email address \*

---

2. Name: \*

---

3. What are the 3 sub classes of Levers, and briefly describe how they are different then each other \* 3 points

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---

4. What does IMA stand for, and what information does it use to solve for it \* 2 points

---

5. What does AMA stand for, and what information does it use to solve for it \* 2 points

---

6. Why might IMA and AMA not match perfectly in a real life scenario? \* 1 point

---

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---

---

7. A crowbar would be classified as what type of lever? \* 1 point

*Mark only one oval.*

- Class 1
- Class 2
- Class 3
- Class 4

8. Using a Broom uses the motion of what type of Lever? \* 1 point

*Mark only one oval.*

- Class 1
- Class 2
- Class 3
- Class 4

9. A wheelbarrow is an example of what type of Lever?

1 point

*Mark only one oval.*

Class 1

Class 2

Class 3

Class 4

10. Brad wants wants to lift a rock out of his lawn that weighs 600 lbs., he can push with 150 lbs worth of effort. What is the AMA that Brad needs to produce to lift the rock? \*

1 point

---

11. Now that Brad knows his AMA needed, he goes and gets a 25 Foot metal bar to help him. Where should he place the fulcrum to produce the needed AMA? (Hint: use 2 numbers, example 10 ft, fulcrum, 15 ft \*)

1 point

---

12. Natalie is bringing in Firewood in a 5 ft wheelbarrow. She can only lift 40 lbs though. What is the heavies load of wood she can bring in? \*

1 point

---

13. Ace is going fishing with his 8 foot rod. When he holds his rod, he has 1 hand at the bottom and the other 12 inches above it. He just caught a fish this is pulling with 20 pounds of force. How hard does Ace have to lift to pull this fish in, so he can eat this fish. \*

1 point

---



# Ramps Homework

\* Required

1. Email address \*

---

2. Name \*

---

3. What 2 parts of a ramp dictate the the Mechanical Advantage? \*

2 points

---

4. What math formula would we use if you need to find slope, and only knew your height and ground distance? \*

1 point

---

5. If you needed to push a 1,250 lbs object using only 125 lbs worth of effort, how much MA would you need? \*

1 point

---

6. Declan built a ramp that has a slope length of 23 feet, and it is 6 feet tall. What MA does his ramp offer him? \*

1 point

---

7. Megan has to push a stage prop up on to the stage that is 5 feet of the ground. The prop weighs 675 lbs, and she can push for 100 lbs. How long is the slope of the ramp she needs \*
- 2 points

---

8. Shields is building a ramp at the VA hospital. She wants it to be possible to push 750 lbs using only 75 lbs of effort. The front door to the VA is 7 feet from the sidewalk. How much room is she going to need ON THE GROUND? \*
- 3 points

---

9. Light has built a ramp that has a slope 7 feet and is 4 feet tall, How much space does it take up on the ground? \*
- 2 points

---

10. How much Effort would Ellie need to push a 2,000 lb object up a ramp that has a 19 foot base and is 7 feet tall? \*
- 3 points

---

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This content is neither created nor endorsed by Google.

Google Forms

# Wedge HW

Answer each question to the best of your knowledge. Note these are reviewed by me so don't trust the score you get back!

\* Required

1. Email address \*

---

2. Name \*

---

3. To calculate the Mechanical Advantage of a wedge, what 2 pieces of information do you need? \* 2 points

---

4. What are 2 everyday items you use that utilize the Mechanical Advantage of a Wedge? \* 2 points

---

5. Which type of angle increases your mechanical advantage of a wedge \* 1 point

*Mark only one oval.*

- Obtuse Angle
- Acute Angle
- Right Angle
- Equilateral Angle

6. A wedge has Slope length of 5 inches and a back end of 3. What is its MA? \* 1 point

---

7. Jared owns 2 wedges. the 1st has a slope of 9in and a back end of 4in. The 2nd has a slope length of 15in and a back end of 5in. Which one would Jared use to get the most return on his Effort? \* 2 points

---

8. Brooke has a Wedge that has a slope Length of 22 inches, and a back end of 7 inches. She can swing with the force of 85 lbs. What's the hardest resistance object she can cut? \* 2 points

---

9.

---

10. Cody is cutting wood that has a splinting resistance of 800 lbs, he can hit with 180 lbs worth of force. However, Cody's aim isn't so awesome, so he has a back end on his wedge that is 11 inches. What is his wedges slope length? \* 2 points

---

11. Tae has a wedge that has a slope of 11 inches and a back end of 3. Tae can also swing for 75 lbs. Jack has a Wedge that is 9 inches of slope, and 5 inches on the back. He can swing for 145 lbs. Who can split the harder object? \* 3 points

---

# **KCMS Band Students**

**Please continue to practice in your books and use your logs to keep track of your progress.**

**Please send an audio recording of you playing one of the pieces each week. You can upload it to Google classroom or e-mail to me @ lfrison@kent.k12.md.us**

**Please disregard the previous directions for Smart Music. This will be much more efficient.**

**Google Classroom Codes for Band**

**6th Grade - 5stttw7i**

**7th Grade - fpzvpff**

**8th Grade - ckuxqir**

# General Music Classes for Periods 2(8<sup>th</sup>), 5 (6<sup>th</sup>) and 7 (7<sup>th</sup>)

WEEK #4 Due 5/8/20

Combine all note and rest values to complete the following rhythmic equations:

Examples:  $\text{♪} + \text{♪} = 1 \frac{1}{2}$   
 $\text{♩.} + \text{♪♪} = 4 \frac{1}{2}$

Rhythmic Values:  $\text{♪} = \frac{1}{2}$        $\text{♩} = \frac{1}{2}$   
 $\text{♪♪} = 1$        $\text{♪♪♪} = 1 \frac{1}{2}$   
 $\text{♪♪♪♪} = 2$

1.  $\text{♪} + \text{♩} + \text{♪} + \text{♩.} =$

9.  $\text{♪♪} + \text{♩} + \text{♩.} + \text{♩} =$

2.  $\text{♪♪} + \text{♩.} + \text{♩} + \text{♩} =$

10.  $\text{♩} + \text{♩} + \text{♩} + \text{♪} =$

3.  $\text{♪} + \text{♩} + \text{♪} + \text{♩.} =$

11.  $\text{♪♪} + \text{♩} + \text{♩} + \text{♩.} =$

4.  $\text{♪} + \text{♩} + \text{♩} + \text{♪} =$

12.  $\text{♩} + \text{♩} + \text{♪} + \text{♪} =$

5.  $\text{♩} + \text{♩.} + \text{♩} + \text{♪} =$

13.  $\text{♪♪♪} + \text{♪} + \text{♩} =$

6.  $\text{♩.} + \text{♩} + \text{♪} + \text{♩} =$

14.  $\text{♪} + \text{♩} + \text{♪♪} =$

7.  $\text{♩} + \text{♩} + \text{♪} + \text{♩} =$


15.  $\text{♩} + \text{♪♪} + \text{♩.} + \text{♩} =$

8.  $\text{♩} + \text{♩} + \text{♪} + \text{♩} =$

16.  $\text{♩} + \text{♪} + \text{♪♪} + \text{♩.} =$

# Musical Words - Bass Clef I

Each group of notes spells a word.  
Write the word that each group spells.

Example   
B E D

1 

— — —

2 

— — —

3 

— — —

4 

— — —

5 

— — —

6 

— — —

7 

— — —

8 

— — —

9 

— — —

10 

— — —

11 

— — —

12 

— — —

13 

— — —

14 

— — —

15 

— — —

16 

— — —

17 

— — —

18 

— — —


# Musical Words - Bass Clef I

Each group of notes spells a word.  
Write the word that each group spells.

Example   
B E D

1 

— — —

2 

— — —

3 

— — —

4 

— — —

5 

— — —

6 

— — —

7 

— — —

8 

— — —

9 

— — —

10 

— — —

11 

— — —

12 

— — —

13 

— — —

14 

— — —

15 

— — —

16 

— — —

17 

— — —

18 

— — —



## There's No Town Like Motown

Already by the end of the 1950s, the hard-driving rock-and-roll style was evolving into a gentler style known as *soft rock*. This style was represented by such singers as Frankie Avalon, Paul Anka, Neil Sedaka, and Bobby Vinton. Because popular music was moving in this direction, a record producer named Barry Gordy, Jr., created a new record company called Motown Records. It was given this name because it was located in Detroit, the motor capital of the United States.

Barry Gordy, Jr., was a chrome trimmer at the Ford assembly plant who wrote songs on the side. He was convinced by friends to start his own record company. Out of this first company came another company that he called Motown. It was the first and largest recording company owned and operated entirely by African-Americans. It became the most important recording label for black artists for many years.

The particular style of music that Motown Records developed and produced was a combination of gospel music prevalent in predominantly black churches and the earlier style of rhythm and blues. These two styles combined with some of the smoother vocal styles of the soft rock singers mentioned above, thus creating a new style of singing that was made popular by such performers as The Supremes, The Temptations, Gladys Knight and the Pips, and Stevie Wonder. Groups such as Gladys Knight and the Pips and The Supremes incorporated elements of choreography (planned dance steps and movements) in their live performances, which have remained notable characteristics of the Motown style. In the late '60s and early '70s, a family of musicians known as the Jackson Five was promoted by Motown Records and became famous. When the family group broke up, Michael Jackson went solo, becoming a renowned performer in the '80s and '90s.

Motown Records and many other record producing companies like it continue to be influential forces in the development of the music we hear today. They are constantly in search of the next star and newer and fresher styles. This is how singers like Ray Charles and the Jackson Five got started. These groups and many others would not have achieved the popularity and level of success that they did had it not been for the forward-thinking producer Barry Gordy and his establishment of Motown Records.



The Supremes

Name \_\_\_\_\_

Date \_\_\_\_\_

## Questions for Consideration

1. By the end of the 1950s, what was the hard-driving rock-and-roll style evolving into?

2. What singers represented this new style?

3. What was the name of the record producer who set up a record company in Detroit?

4. What was the name of the new record company he created?

5. What styles were combined to create the new Motown style?

6. Who were some of the performers of this new style?

7. What was an important element in their live performances?

8. What was the name of the family of musicians that was promoted by Motown Records and became very popular?

9. What continue to be influential forces in the development of music?

10. What are record producing companies constantly in search of?



HEALTH EDUCATION 4/27

Q4- WEEKS 4,5,6 A day, B day, C day

MR. ISEMAN

DUE DATE: MAY 22

### Habit 3- Put First Things First

Habit three reminds us about priorities. Sometimes, our priorities can get a little out of whack with the hustle and bustle of daily life. A pandemic like Covid-19 can sometimes remind us what is most important in life. With more time at home, your priorities may have changed recently. Please answer the following 3 questions in complete sentences.

- 1 How is your daily routine different than normal?
- 2 How have the routines of your family members changed?
- 3 What have you had more time to do that you really enjoy?

### Habit 4-Think Win-Win

This unique situation may provide opportunities to work together or help others in ways you never thought of. There are always people who are willing to help. Please choose ONE of the following options below and complete.

Option One- Share your personal story of how you have experienced people working together, sharing and supporting one another in recent days/weeks.

Option Two- Find social media stories in which other people have shared how they are caring for and supporting one another. Retell what you read/heard in your own words. Be sure to tell me the source of your story,



Name:

**PE Teacher(CIRCLE): Farragher or Miller**

**DUE DATE: 5/15**

**Create your own Fitness Routine**

**Directions:** Create your own Fitness routine workout using the chart below. Once you've created it, do! If you're up for a challenge complete your Fitness Routine 3 days a week. A Fitness Routine is a work out incorporating different exercises strengthening different muscles.

Google: Fitness Routine for middle schoolers (for a hint, or two ☺)

Here is an example of a partial workout to try:

1. Push-Ups- 20 reps- 3 Sets
2. Curl-Ups- 20 reps- 3 Sets
3. Jumping Jacks- 50 reps- 3 Sets
4. Bicep Curls- 10 reps- 3 Sets

	<b>Pick eight exercises and list below:</b>	<b>Document how many Sets/Reps you did for the exercise</b>
1		
2		
3		
4		
5		
6		
7		
8		

What did you think? Choose all that apply

- This was fun!
- I think I could improve.
- I think I did a good job.
- It was challenging

Reflect on the day: (on the back of this paper is great, **DO NOT ANSWER HERE**).

1. How are you feeling about being out of school because of the coronavirus? Be sure to explain why you are feeling a certain way.
2. Why is exercise so important during this time? What are the benefits besides the physical changes it does to your body?



Name:

Due: Friday, May 22nd, 2020.

Date:

**Research:** Illusions are present in many areas of our life. Research the three main types of illusions. List the three types and give an example of each. ***After, complete your Tabata exercise sequence from last week's work packet.***

**Explain:** How can graphing be used in sports? Explain in a paragraph. ***Do 10 or more push-ups after.***

**Detail:** What is the difference between rational and irrational numbers? Define each term and describe the difference. ***Do 10-20 bicep curls or modified bicep curls with an object of your choice.***

**Investigate:** Think about a popular Native American speech you may be learning about in social studies. Write a short summary about the author's purpose and summarize the speech. ***Get some fresh air! Walk/run/jog for 20 or minutes a day.***

**Reflection:** Did you like this assignment? Why or why not? How would you change this assignment to make it better?



Name: \_\_\_\_\_

Due: **Friday, May 8th, 2020.**

**Instructions:** For one week, each student must keep a log of his/her daily physical activity.

The student must engage in at least 45 minutes of physical activity for a minimum of five days.

Students can use the exercises posted on google classroom by Mr. Miller & Mrs. Farragher - **check around 1:30 each day!!**

**\*Students must answer reflection questions to receive full credit\***

**Each daily log should include the following:**

1. Date, time and length of activities
2. A brief description of the activity.

<u>Schedule</u>	<u>Date</u>	<u>Activity 1</u>	<u>Activity 2</u>	<u>Total Time Spent</u>
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				

**Reflection Questions:**

1. Which was your most active day and why?
2. How do you feel after exercising/moving your body? Mentally and Physically?
3. If we were back in OUR GYM what would your activity of choice be and why?
4. What do you miss most about our gym after exercising on your own this week?