Name _____

4th Grade Modified ELA Remote Learning Packet

Week 16

Dear Educator,

My signature is proof that I have reviewed my scholar's work and supported him to the best of my ability to complete all assignments.

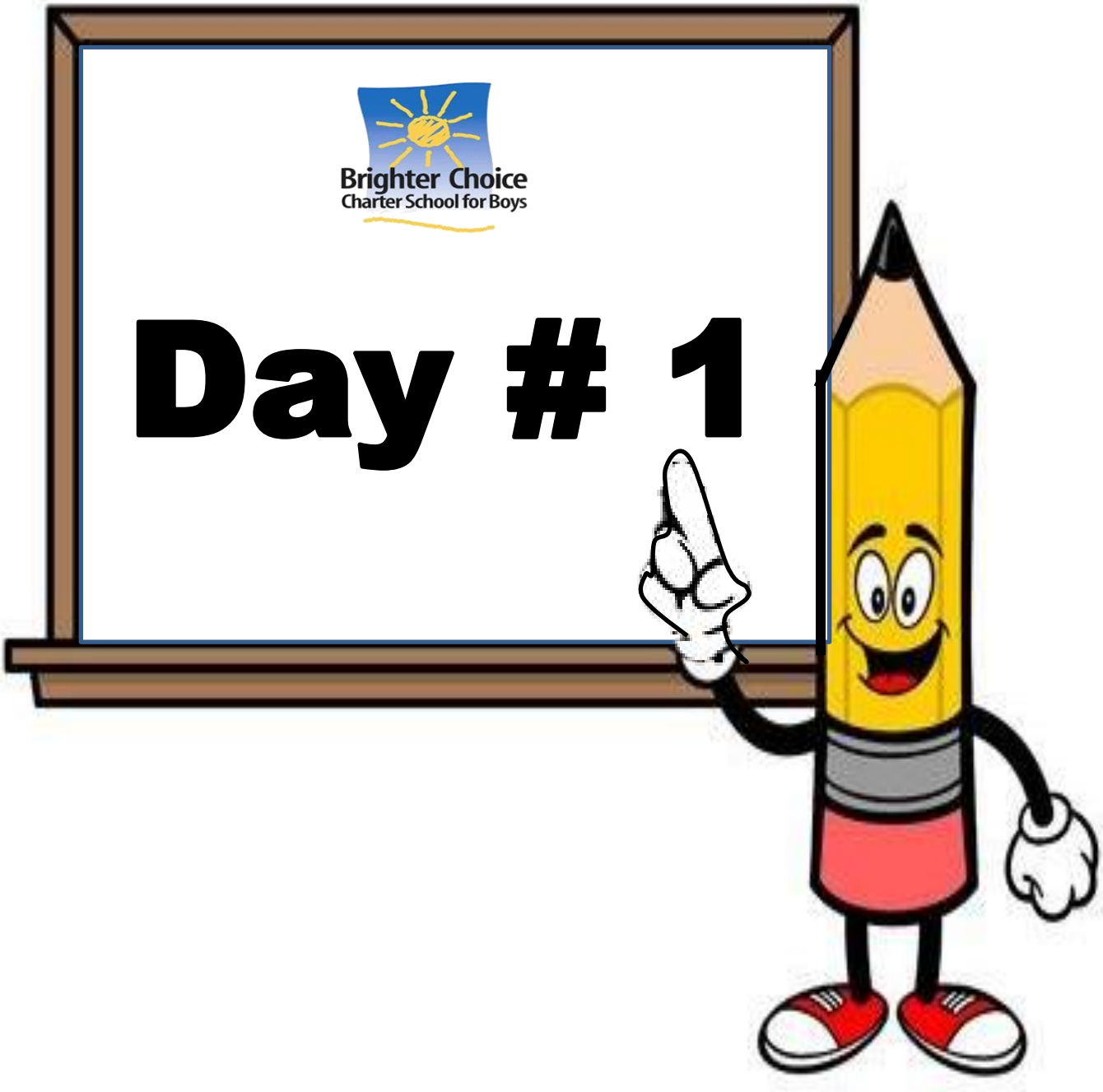
_____ _____

(Parent Signature) (Date)

Parents please note that all academic packets are also available on our website at www.brighterchoice.org under the heading "Remote Learning." All academic packet assignments are mandatory and must be completed by all scholars.

Brighter Choice
Charter School for Boys

Day # 1



Name:_____ Week 16 Day 1 Date: _____

BCCS-B Hampton Howard Morehouse

Week 16 Day 1 Notes, Simple Machines

Do Now

What is a simple machine?

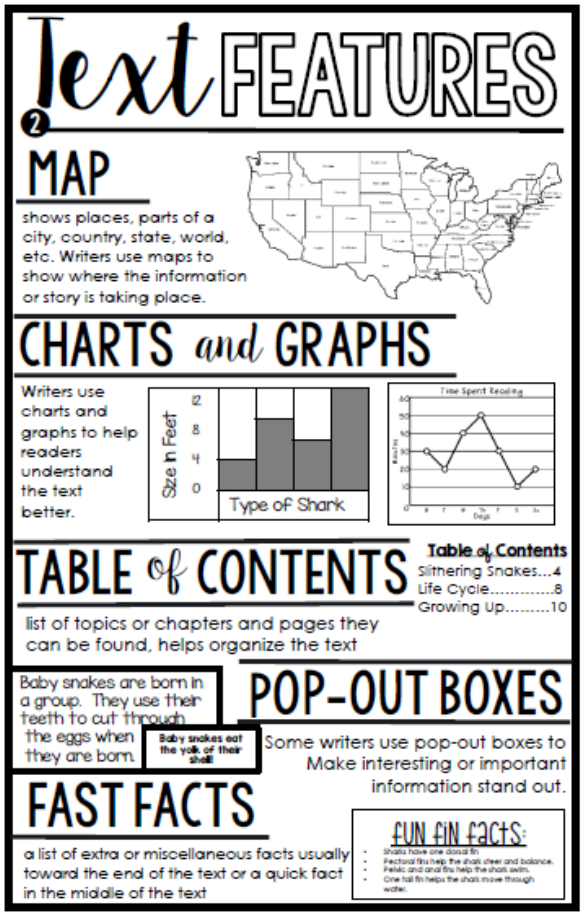
A simple machine is _____

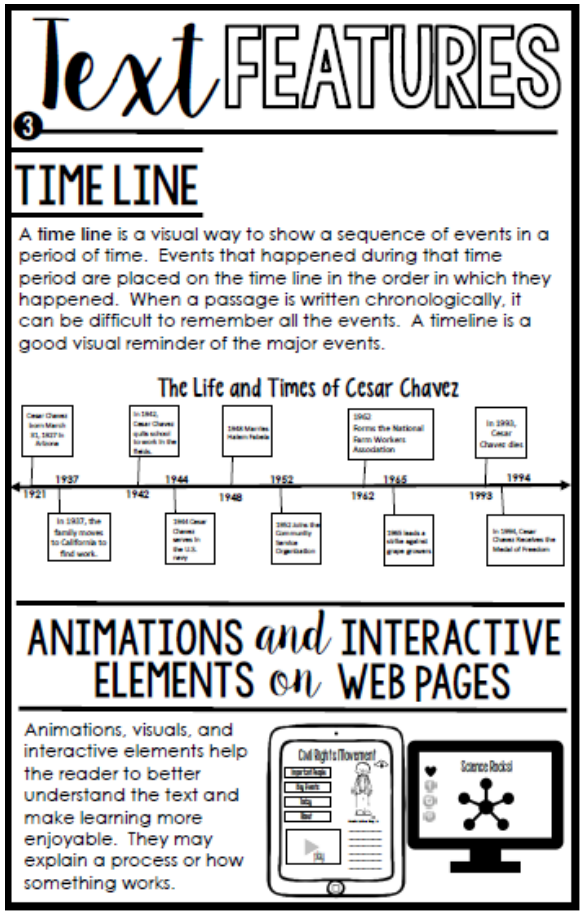
_____

_____

Standard	**RI 4.7** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
LEQ	How does visual information contribute to your overall understanding of the text?
Objective	I can explain how text features contribute to my overall understanding of a text.
Assignment to Submit	Exit Ticket (Google Form on Google Classroom)

Input: Notes on Content/Vocabulary/Anchor Chart





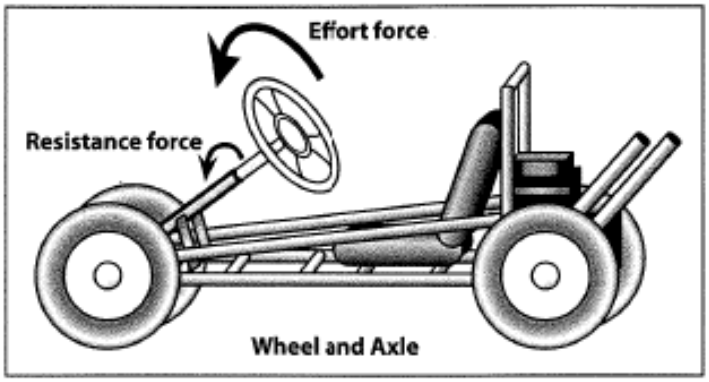
wheel and axle	A simple machine with a wheel and a cylindrical shaft joined to the wheel. It is a simple machine used for _____force.
compound machine	When _____ or more simple machines work together to perform one task.
gears	_____ wheels and axles.

CFU: Skill Activity: Text Features via online presentation

Application: 3 Reads of Text: *Wheels and Axles*

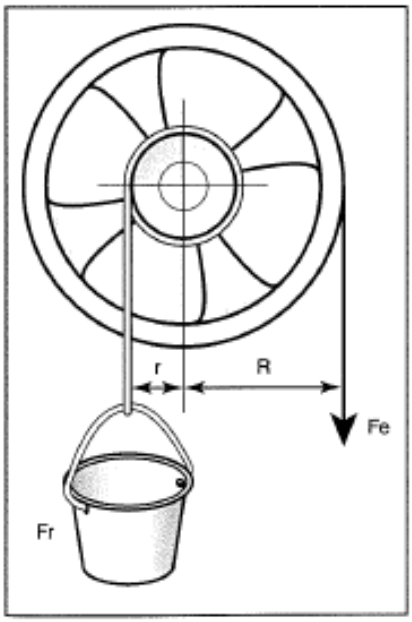
Unit 5: Wheels and Axles
Student Information

A **wheel and axle** is a wheel or crank rigidly attached to an axle. Examples of a wheel and axle include a playground merry-go-round, a screwdriver, a hand drill, a wrench, a faucet, and a steering wheel.



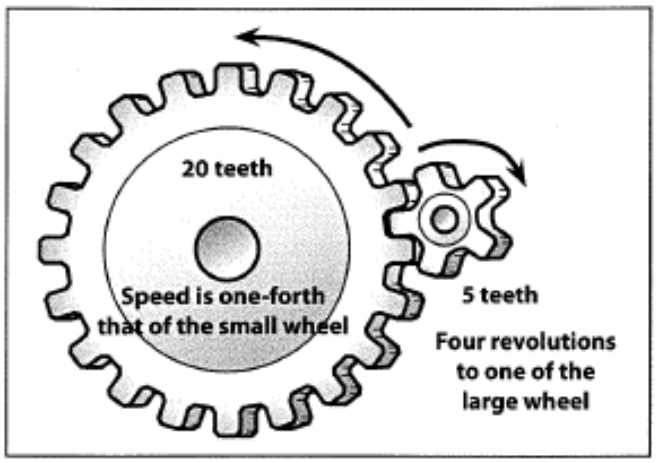
The wheel and axle is another form of a lever. The bar is changed into a circle moving around a fulcrum. In the example pictured here, the steering wheel (wheel) is rigidly attached to the steering wheel column (axle). The radius of the steering wheel represents one lever and the radius of the steering wheel column represents a second lever. Hence, we have two wheels of unequal diameter, fastened so they turn together. In the steering wheel assembly, the effort force is applied to the steering wheel, and the steering wheel column represents the resistance force. Ideal mechanical advantage is equal to the diameter of the wheel (D) divided by the diameter of the axle (d). **IMA = D/d**.

A **winch system** is an example of a wheel and axle. The wheel portion of the system is represented by a crank, and the axle is represented by the cylinder-shaped body. The relative size of the crank or handle in a winch system will determine the mechanical advantage. A wishing well is an example of a device that uses a winch to draw water.



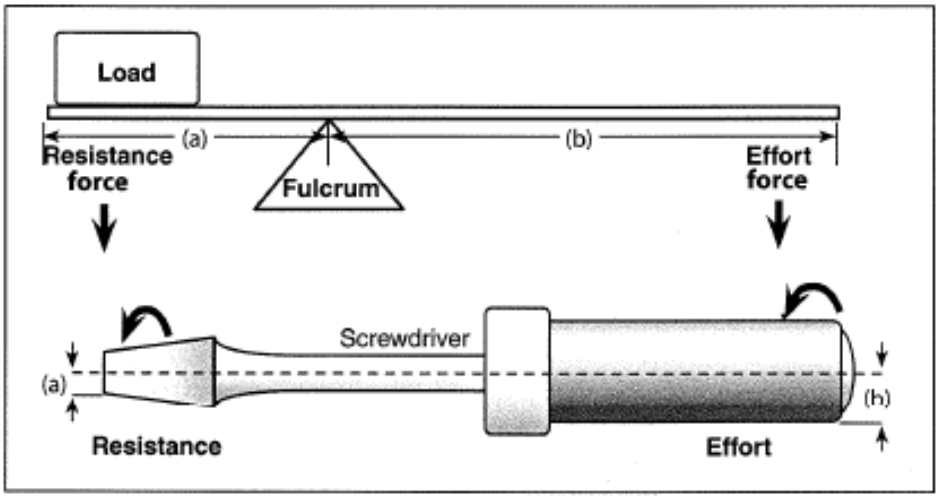
In the diagram at left, we have two wheels of unequal diameter, fastened so they turn together about the same axis. In one revolution, the effort force **(Fe)** moves a distance equal to the circumference **(C)** of the wheel. At the same time, the resistance force **(Fr)** will travel a distance equal to the circumference **(c)** of the axle. The **Ideal Mechanical Advantage** or **IMA = C/c or D/d or R/r. D** equals diameter, and **r** equals radius. Hence, if the radius of the wheel is 8 cm, and the radius of the axle is 2 cm, then the IMA = 4.

r = radius of the axle
R = radius of the wheel
Fe = Force of the effort
Fr = Force of the resistance



Gears are toothed wheels and axles. Like all other machines, the gears can change the direction in which force is applied, or it can increase or decrease the force or distance over which force is applied. Gears need to work in pairs—a combination of two simple machines working together. When two or more simple machines work together to perform one task, it becomes a **compound machine**.

The screwdriver is a wheel and axle, since the handle is larger and represents the wheel that turns the shaft (axle) of the screwdriver. It is also important to note that the wheel is fixed to the axle and turns it directly. The **mechanical advantage** comes from the differential between the radius of the screwdriver handle and the radius of the screwdriver shaft. The force you apply in turning the handle of the screwdriver is traveling a much greater distance than the shaft and is, therefore, helping you do work.



If you can visualize the simple first-class lever and think of the rigid bar of the lever rotating around a point called the fulcrum, you have the basic idea for explaining how a wheel and axle works. If, in your first-class lever, you have the fulcrum closer to the resistance, the lever is helping you do work and giving you a mechanical advantage. In our example, the radius of the central shaft of the screwdriver [(a) in the diagram] is analogous to the distance from the fulcrum to the resistance in the first-class lever. The radius of the screwdriver handle [(b) in the diagram] is analogous to the distance from the fulcrum to the effort in the first-class lever. The fulcrum in the screwdriver is represented by the central axis. Note: the effort and resistance are affected through rotation of the screwdriver.

Wheels and Axles- Comprehension Check

Matching

_____ 1. wheel and axle	a. toothed wheels and axles
_____ 2. Fe	b. force of the resistance
_____ 3. compound machine	c. force of the effort
_____ 4. gears	d. a wheel or crank rigidly attached to an axle
_____ 5. Fr	e. two or more simple machines working together to perform one task

Fill in the Blanks

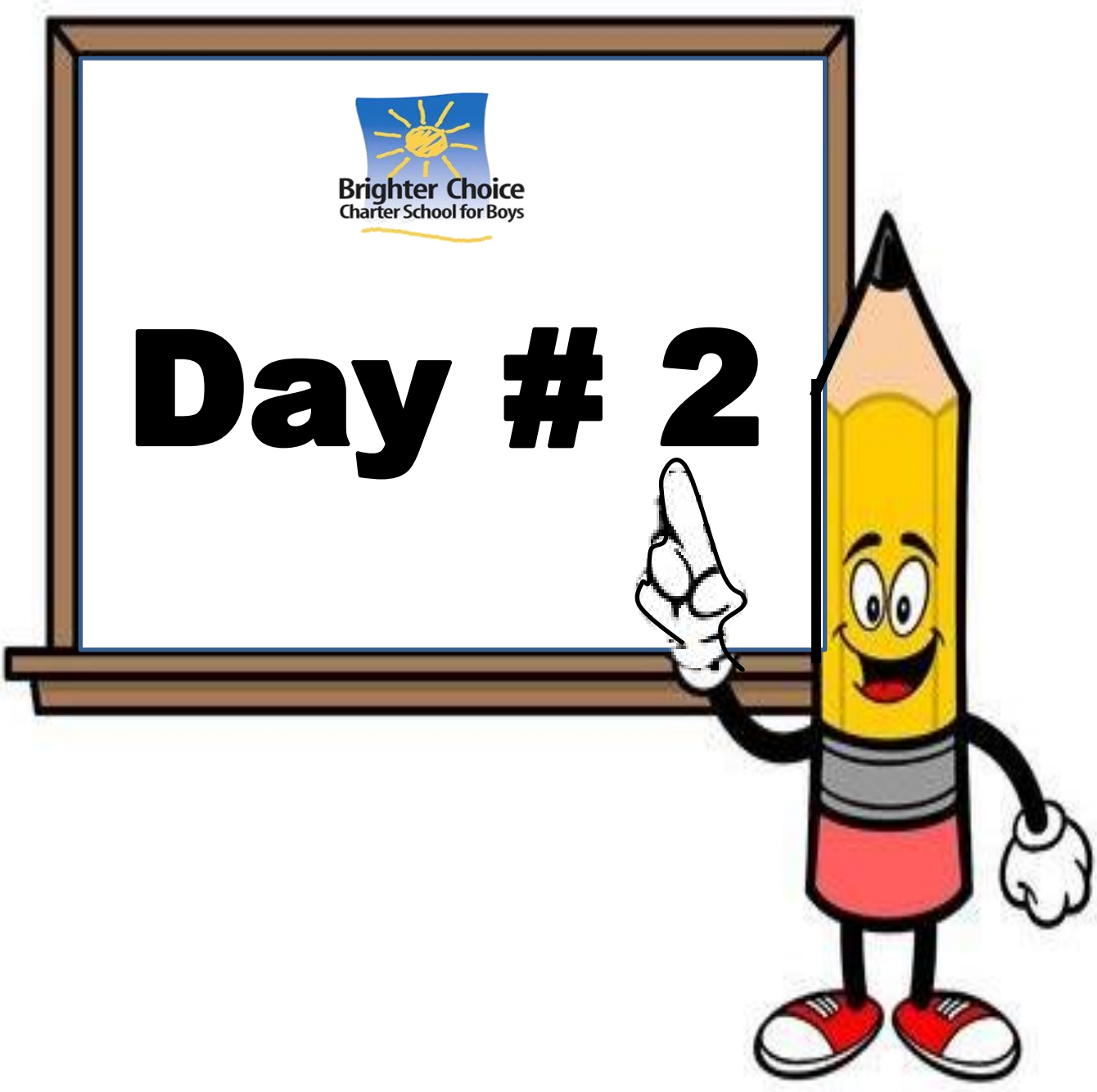
6. The force you apply in turning the handle of the screwdriver is traveling a much greater distance than the _____ and is, therefore, helping you do work.
7. Gears need to work in pairs—a combination of two _____ machines working together.
8. The _____ _____ comes from the differential between the radius of the screwdriver handle and the radius of the screwdriver shaft.
9. A winch system is an example of a _____ and _____.
10. The wheel and axle is another form of a _____.

Multiple Choice

11. Which of the following is NOT an example of a wheel and axle?
    a. steering wheel b. merry-go-round
    c. escalator d. screwdriver

12. Which of the following is an example of a winch?
    a. hand drill b. steering wheel
    c. wishing well d. merry-go-round

13. Which of the following is an example of a wheel and axle?
    a. crowbar b. wedge
    c. screwdriver d. chisel


Brighter Choice
Charter School for Boys
Day # 2

Name:_____ Week 16 Day 2 Date: _____

BCCS-B Hampton Howard Morehouse

Week 16 Day 2 Notes, Simple Machines

Do Now

Name 3 of the 6 simple machines:

1. _____
2. _____
3. _____

Standard	**RI 4.7** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
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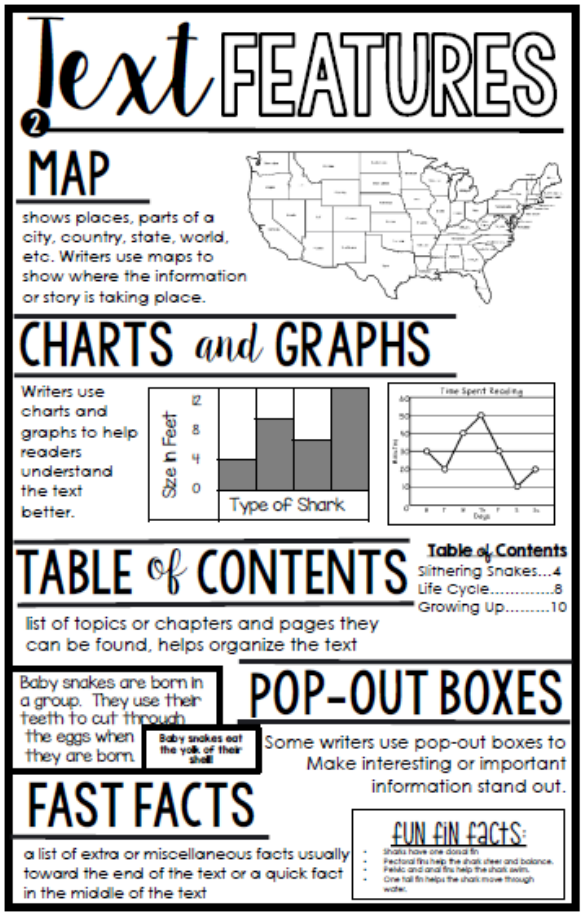
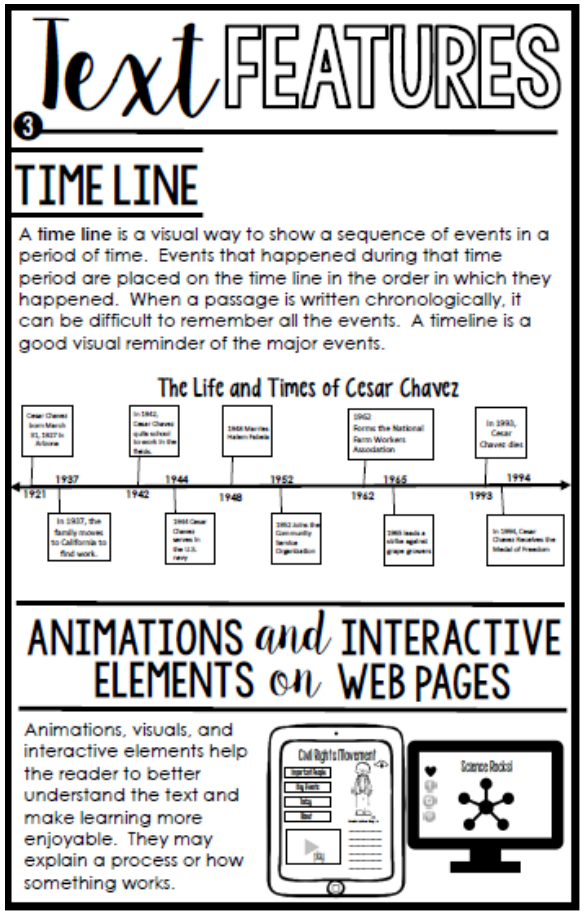




single fixed pulley	Load moves _____ and force goes down.
pulley	kind of lever that can change direction to _____things.
moveable pulley	Set up so that the force and _____ move the same direction.

CFU: Skill Activity: Text Features via online presentation

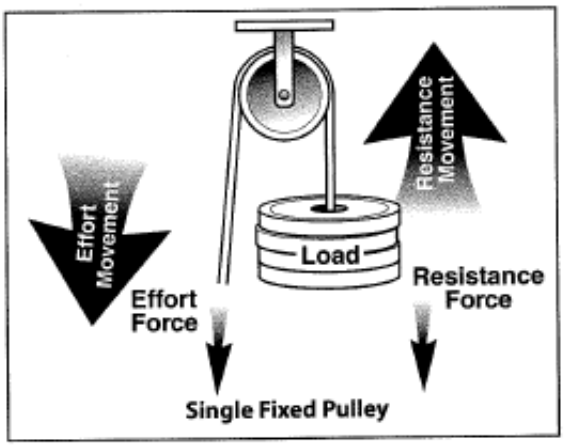
Application: 3 Reads of Text: *Pulleys*

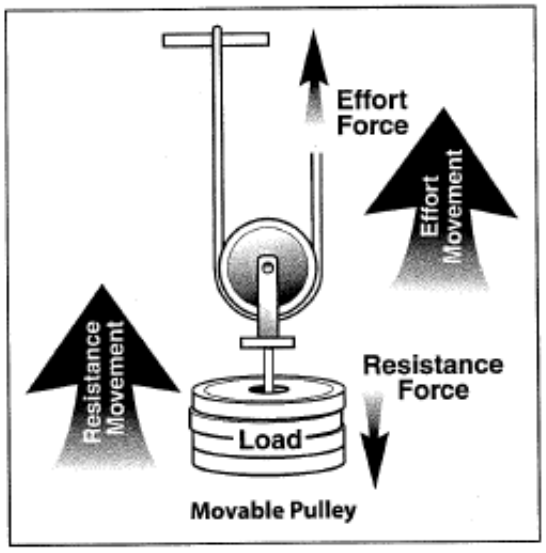
Unit 6: Pulleys
Student Information

A **pulley** is a kind of lever that can change the direction of force and/or multiply force. As shown in the diagrams, the effort force and effort movement are in the same direction. The resistance force is in the direction of gravity, and the resistance motion is in the opposite direction.

Pulleys can be set up in three different ways: a single fixed pulley, a movable pulley, or a block and tackle.

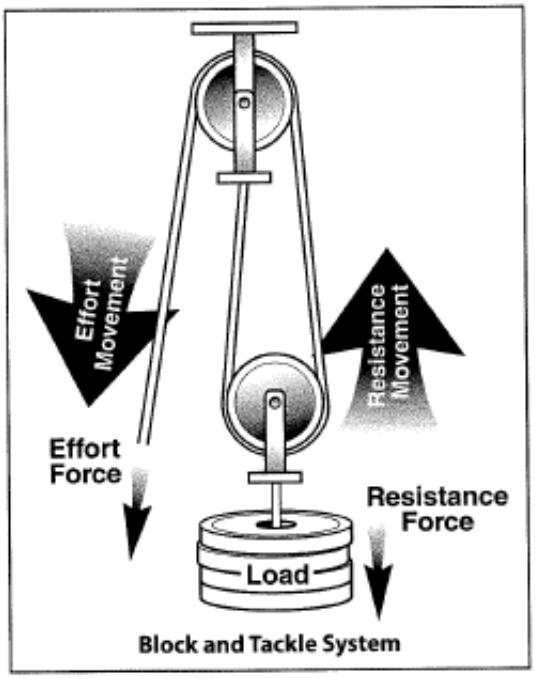
A **single fixed pulley** behaves like a first-class lever with the fulcrum (axis of the pulley) between the force and the load. The load moves up as the force goes down. This type of pulley only changes the direction of the force.





A **movable pulley** is set up so the force and load move in the same direction. A moveable pulley resembles a second-class lever. The fulcrum is at the end of the lever where the supporting rope touches the pulley. The load is suspended from the pulley between the fulcrum and the force. The force in this type of pulley is multiplied.

In a **block and tackle system**, pulleys can change the direction of a force and multiply the force. The block and tackle system consists of a fixed and a movable pulley. In a block and tackle system, the effort force moves downward as the load moves up. The number of lines determines how much the force is amplified.



Pulleys- Comprehension Check

Matching

_____ 1.	single fixed pulley	a.	set up so the force and load move in the same direction
_____ 2.	pulley	b.	consists of a fixed and a movable pulley
_____ 3.	number of lines	c.	has the fulcrum (axis of the pulley) between the force and the load
_____ 4.	block and tackle	d.	determines how much the force is amplified
_____ 5.	movable pulley	e.	a kind of lever that can change the direction of force and/or multiply force

Fill in the Blanks

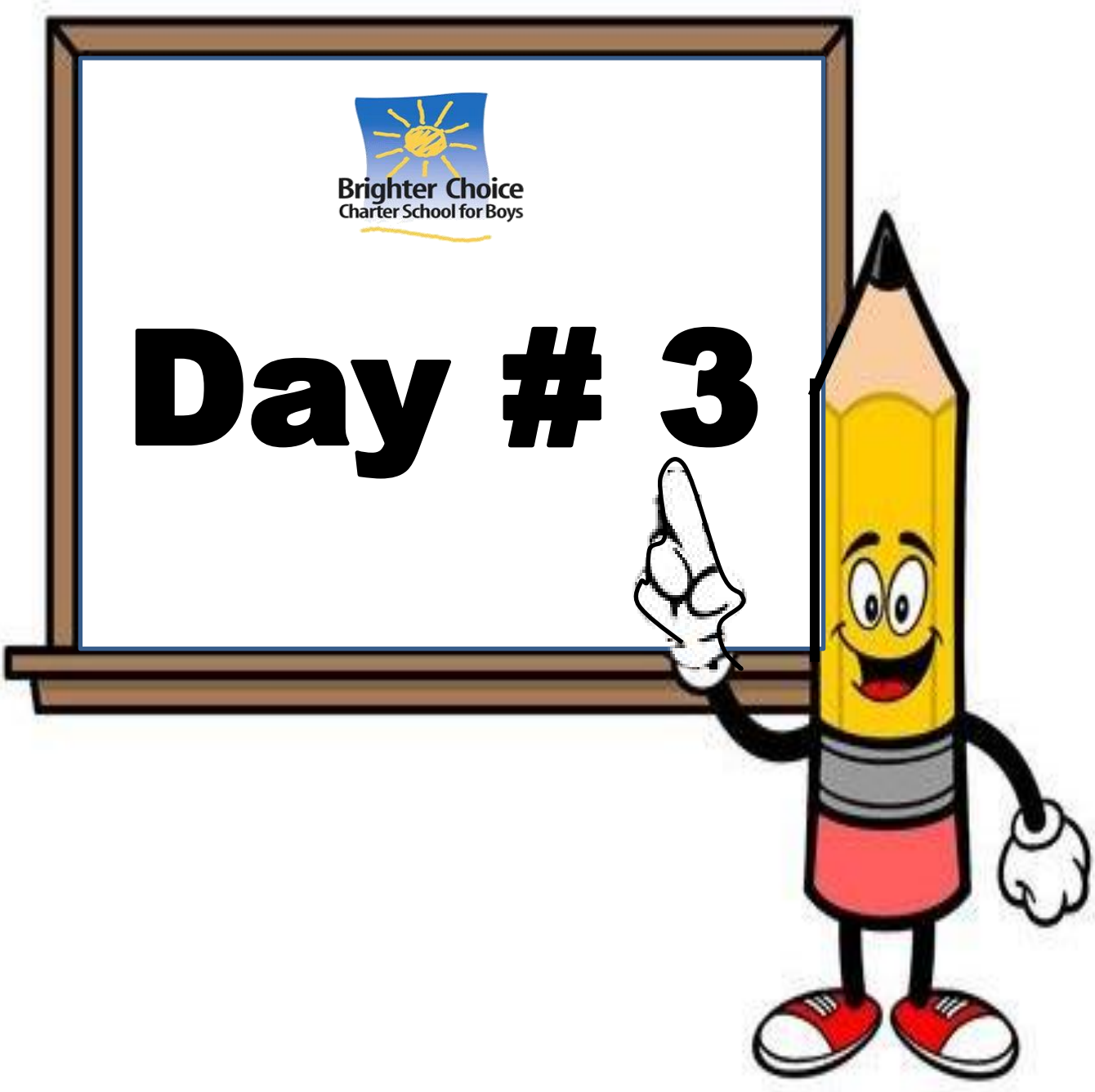
6. _____ can be set up in three different ways: a single fixed pulley, a movable pulley, or a block and tackle.
7. In a pulley system, the effort _____ and effort _____ are in the same direction.
8. In a block and tackle system, the effort force moves _____ as the load moves _____.
9. With the pulley system, the resistance _____ is in the direction of gravity, and the resistance _____ is in the opposite direction.
10. With a movable pulley, the _____ is at the end of the lever where the supporting rope touches the pulley.

Multiple Choice

11. What does a movable pulley resemble?
    a. a second-class lever b. a first-class lever
    c. a third-class lever d. a fourth-class lever

12. What does a single fixed pulley behave like?
    a. a fourth-class lever b. a third-class lever
    c. a second-class lever d. a first-class lever

13. This type of pulley only changes the direction of the force.
    a. single fixed pulley b. block and tackle system
    c. movable pulley d. second-class lever


Brighter Choice
Charter School for Boys
Day # 3

Name:_____ Week 16 Day 3 Date: _____

BCCS-B Hampton Howard Morehouse

Week 16 Day 3 Notes, Simple Machines

Do Now

What does a pulley do?

_____

_____

_____

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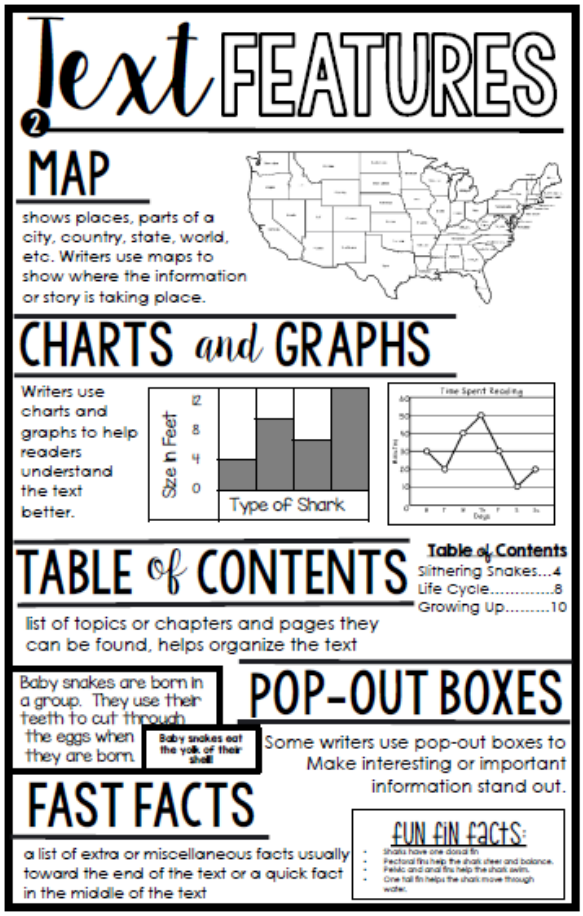
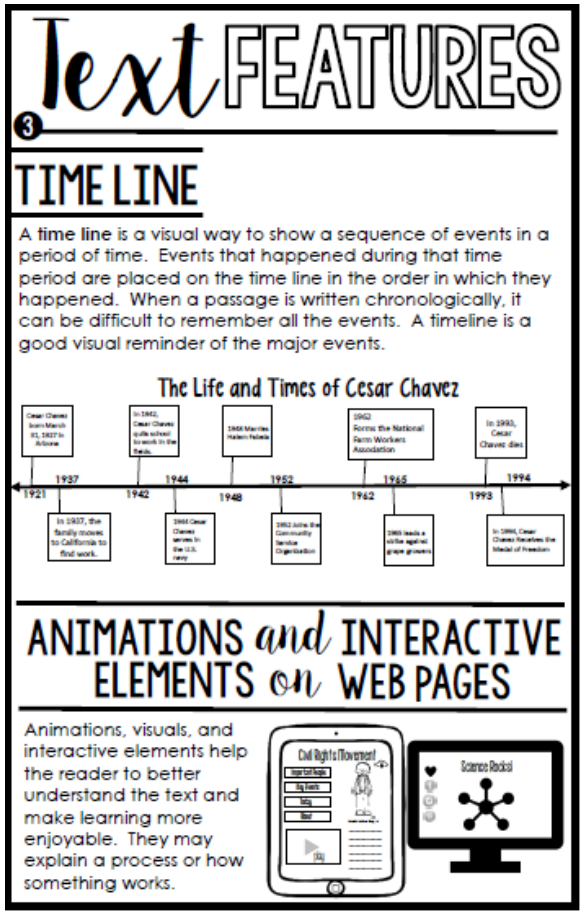




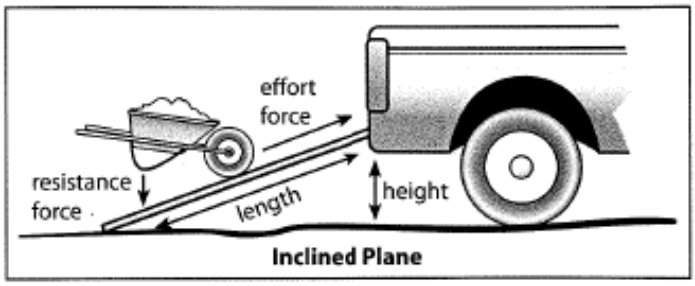
inclined plane	Flat _____ surface that objects can be rolled or slid to a higher level.
ramp	Spreads the _____ over a larger distance so it takes less work to lift an objection.
wedge	Two _____ _____ put back to back.
friction	Force that _____ motion.
screw or bolt	Inclined plane _____ around a central point.

CFU: Skill Activity: Text Features via online presentation

Application: 3 Reads of Text: *Inclined Planes*

Unit 9: Inclined Planes
Student Information

One group of simple machines is the inclined plane family. An **inclined plane** is a flat, sloping surface over which objects may be rolled or slid to a higher level. It is a simple machine that reduces the force required to move an object over a vertical distance or height. It allows a person to exert less force to move an object; however, the total amount of work is not reduced, since the force is spread over a longer distance. Think of it this way: it's easier to climb a set of stairs to get to a second floor than it is to scale a wall or climb a rope straight up. The **Ideal Mechanical Advantage (IMA)** for the inclined plane is equal to the length of the slope divided by the height of the plane or **IMA= l/h**.



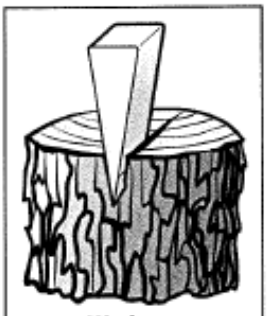
Inclined Plane

Friction is a force that resists motion. It can reduce the amount of work that can be done with a given force. Friction is an important consideration in sliding or rolling an object up a ramp or inclined plane. The longer and more gradual the slope of the inclined plane, the less force is needed to move an object up the slope. Note that as the slope decreases, the friction increases between the object being moved up the slope and the surface of the inclined plane. There are two ways to vary the slope of an inclined plane: you can either increase or decrease the length or the height of the inclined plane. Ideally, the work required to lift an object directly is the same as the work required to move an object up an inclined plane.

Inclined planes can be divided into three different types: the ramp, the wedge, and the screw or bolt.

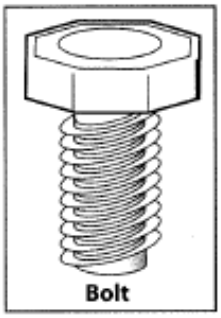
A **ramp** spreads the force over a longer distance, so it takes less force to lift an object. As shown in the diagram above, the effort force and effort movement are in the same direction. The resistance force is in the direction of gravity, and the resistance motion is in the opposite direction. Examples are stairs, escalators, handicap ramps, and skateboard ramps.


Ramp


Wedge

A **wedge** is two inclined planes put back-to-back. Like the ramp, the wedge spreads the force needed to move the load over a longer distance. Examples are a knife, an ax, the point of a needle, a nail, and scissor blades.

A **bolt or screw** is an inclined plane wrapped around a central point or a winding inclined plane. Examples of winding inclined planes are a spiral staircase, drill bit threads, wood screw threads, bolts, and pigtail curves in the mountains. The wood screw and drill bit are compound machines because the threads are inclined planes, but there is a wedge on the points.


Bolt

Inclined Planes- Comprehension Check

Matching

_____ 1.	ramp	a.	a flat, sloping surface over which objects may be rolled or slid to a higher level
_____ 2.	inclined plane	b.	two inclined planes put back-to-back
_____ 3.	wedge	c.	an inclined plane wrapped around a central point or a winding inclined plane
_____ 4.	friction	d.	spreads force over a longer distance
_____ 5.	screw or bolt	e.	force that resists motion

Fill in the Blanks

6. An inclined plane is a _____ _____ that reduces the force required to move an object over a vertical distance or height.
7. Friction is an important consideration in sliding or rolling an object up a _____ or inclined plane.
8. The resistance force is in the direction of _____, and the resistance motion is in the opposite direction.
9. Like the ramp, the _____ spreads the force needed to move the load over a longer distance.
10. The wood screw and drill bit are _____ _____ because the threads are inclined planes, but there is a wedge on the points.

Multiple Choice

11. Which of the following is NOT an example of a bolt or screw?
    a. pigtail curve in the mountains
    b. drill bit threads
    c. escalator
    d. wood screw

12. Which of the following is NOT an example of a wedge?
    a. point of a needle
    b. knife
    c. ax
    d. stairs

13. Which of the following is NOT an example of a ramp?
    a. nail
    b. stairs
    c. handicap ramp
    d. escalator


Brighter Choice
Charter School for Boys
Day # 4

Name:_____ Week 16 Day 4 Date: _____

BCCS-B Hampton Howard Morehouse

Week 16 Day 4 Notes, Simple Machines

Do Now

Name 3 of the 6 simple machines:

1. _____
2. _____
3. _____

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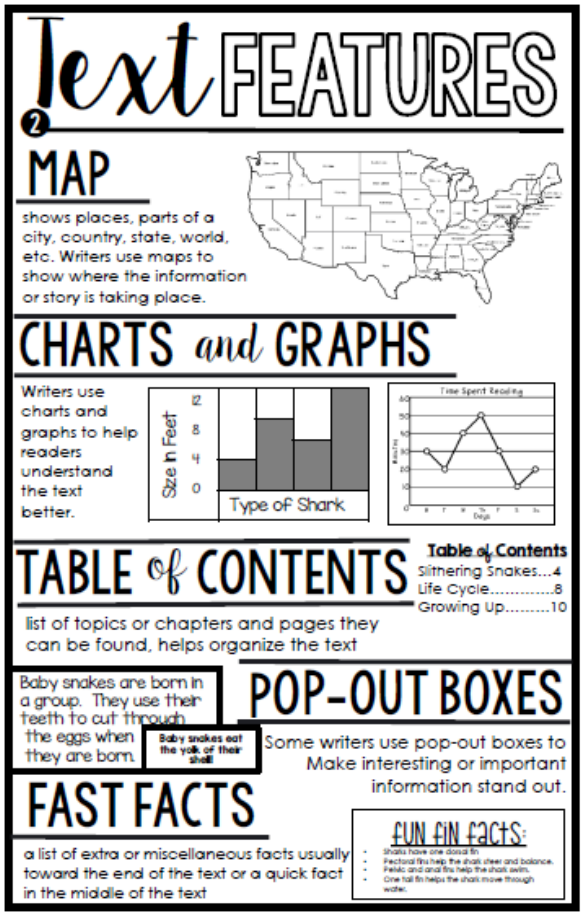
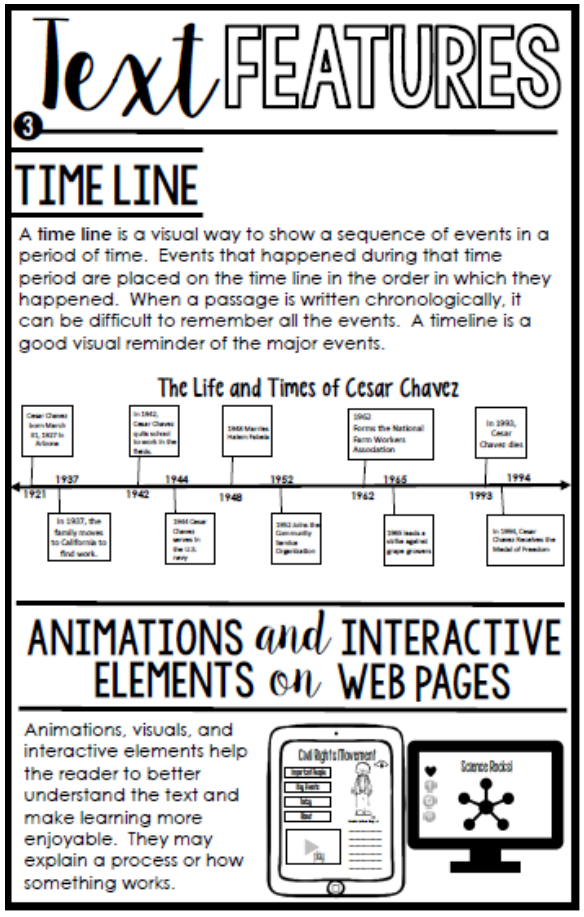




inclined plane	Flat _____ surface that objects can be rolled or slid to a higher level.
wedge	Two _____ _____ put back to back.

CFU: Skill Activity: Text Features via online presentation

Application: 3 Reads of Text: *Wedges*

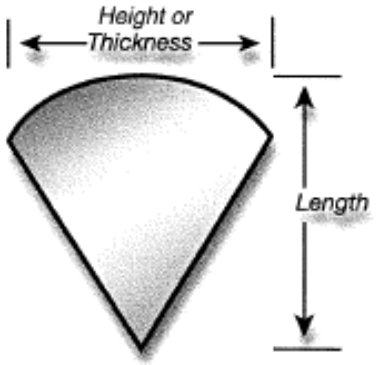
Unit 10: Wedges
Student Information

A **wedge** is the name of any object with at least one slanting side, ending in a sharp edge, which cuts material apart. The wedge is a modification of the inclined plane. Like the ramp, the wedge spreads the force needed to move the load over a longer distance. The wedge is actually a kind of mobile inclined plane. The sharper the edge of the wedge, the less effort force is needed to overcome resistance. A **double wedge** (shown at the left) is two inclined planes put back-to-back.

The zipper used on clothing has a slider that includes an upper triangular wedge for opening the zipper and two lower wedges that close the teeth of the zipper. Examples of wedges include knives, axes, needles, nails, and chisels.

There are two major differences between inclined planes and wedges. (1) An inclined plane remains stationary, while the wedge moves. (2) The effort force is applied parallel to the slope of an inclined plane, while the effort force is applied to the vertical edge (height) of the wedge.

The **ideal mechanical advantage (IMA)** of a wedge is determined by dividing the length of the incline by the width of the wedge at its thickest point. The wedge with the longest incline relative to its width at the thickest part will require the least force to separate or split something. The Ideal Mechanical Advantage (IMA) for the inclined plane is equal to the length of the slope divided by the height of the plane or **IMA = l/h**.



Wedges- Comprehension Check

Matching

_____ 1.	inclined plane	a.	the name of any object with at least one slanting side, ending in a sharp edge, which cuts material apart
_____ 2.	wedge	b.	example of a wedge
_____ 3.	nail	c.	remains stationary
_____ 4.	ideal mechanical advantage	d.	two inclined planes put back-to-back
_____ 5.	double wedge	e.	determined by dividing the length of the incline by the width of the wedge at its thickest point

Fill in the Blanks

6. The wedge is a modification of the _____ _____.
7. There are two major _____ between inclined planes and wedges.
8. The sharper the edge of the wedge, the less effort force is needed to overcome _____.
9. The effort force is applied _____ to the slope of an inclined plane, while the effort force is applied to the _____ edge (height) of the wedge.
10. The zipper used on clothing has a slider that includes an upper triangular wedge for _____ the zipper and two lower _____ that close the teeth of the zipper.

Multiple Choice

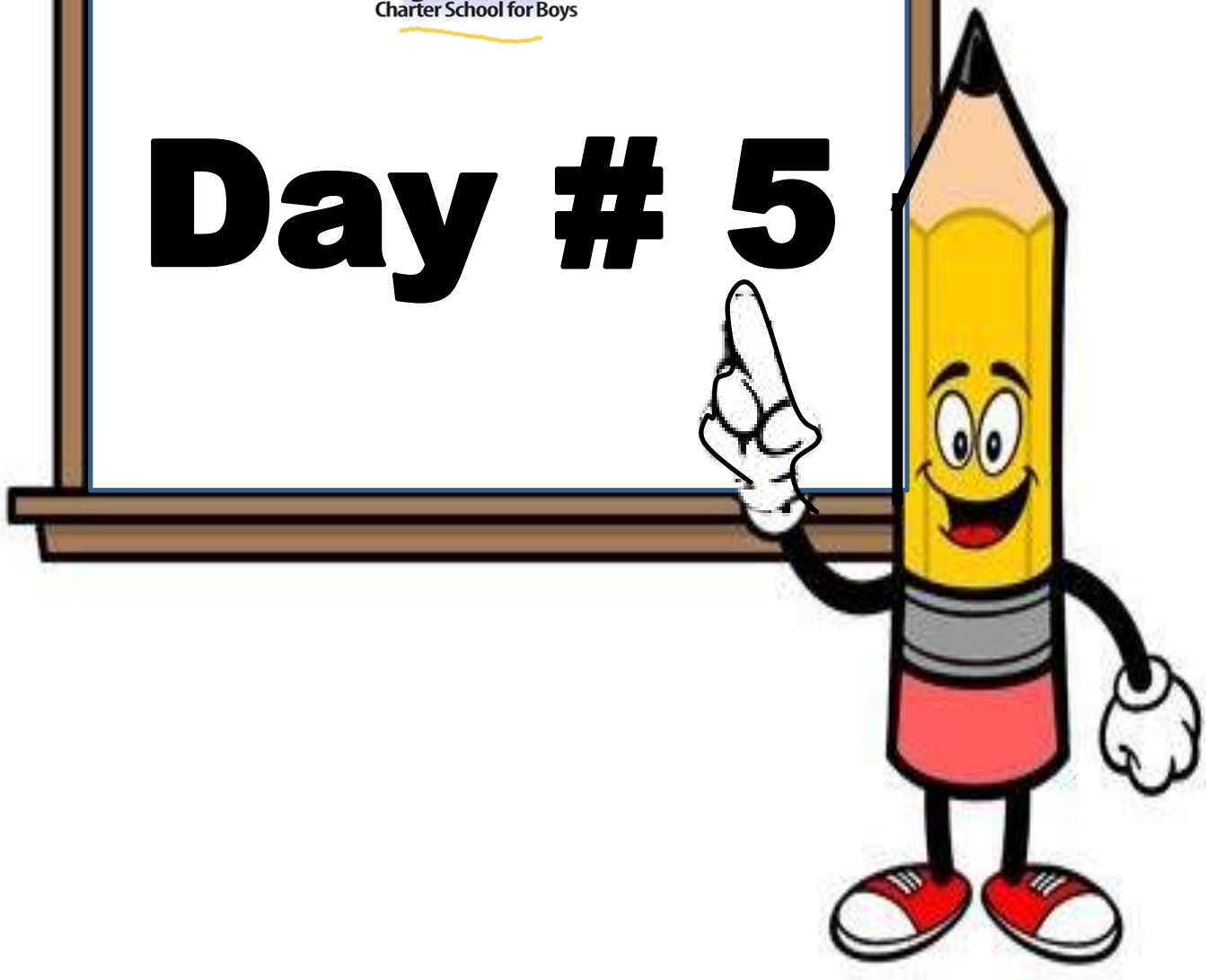
11. Which of the following is NOT an example of a wedge?
    a. nail
    b. knife
    c. escalator
    d. ax

12. What does IMA stand for?
    a. Ideas Make Advantage
    b. Ideal Money Advantage
    c. Ideal Machine Advantage
    d. Ideal Mechanical Advantage

13. Which of the following is an example of a modified inclined plane?
    a. lever
    b. wheel and axle
    c. wedge
    d. ramp

Brighter Choice
Charter School for Boys

Day # 5



Name:_____ Week 16 Day 5 Date: _____

BCCS-B Hampton Howard Morehouse

Week 16 Day 5 Notes, Simple Machines

Do Now

What does a wedge do?

_____

_____

_____

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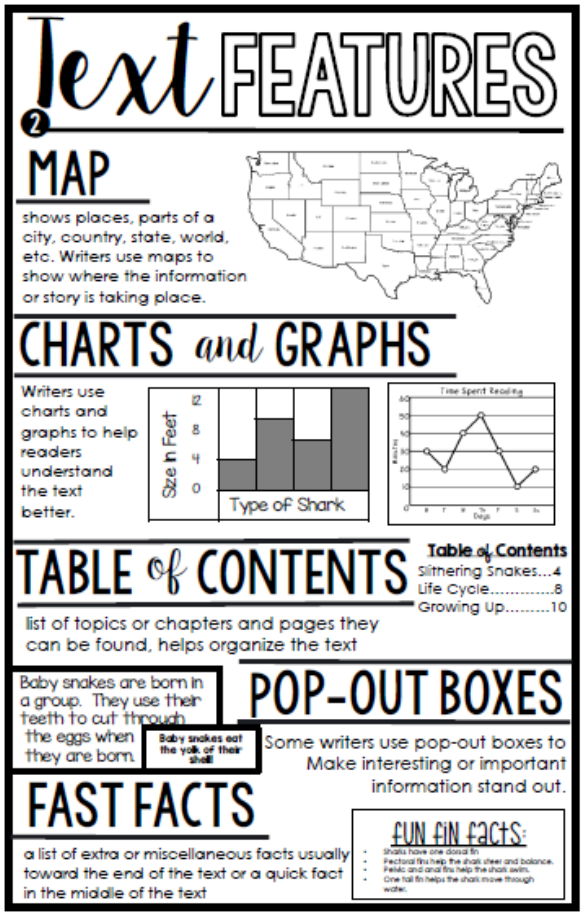
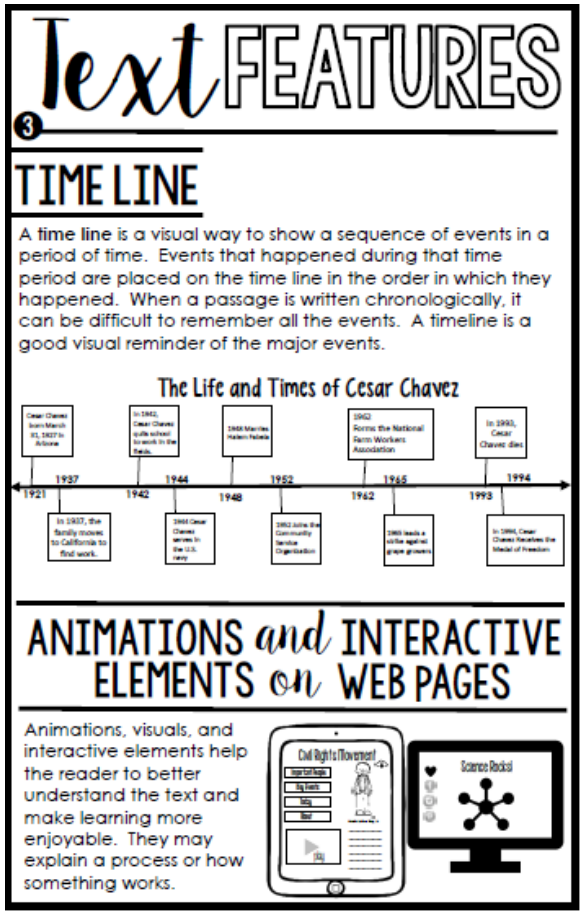
Input: Notes on Content/Vocabulary/Anchor Chart





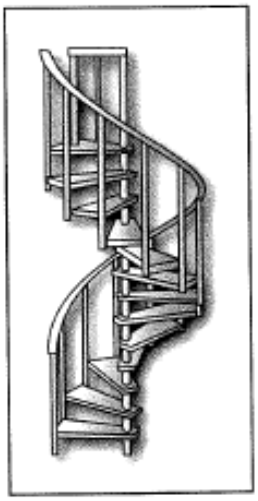
screw	
compound machine	When _____ or more simple machines work together to perform one task.

CFU: Skill Activity: Text Features via online presentation

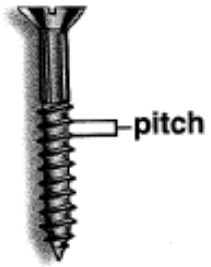
Application: 3 Reads of Text: *Screws*

Unit 11: Screws
Student Information

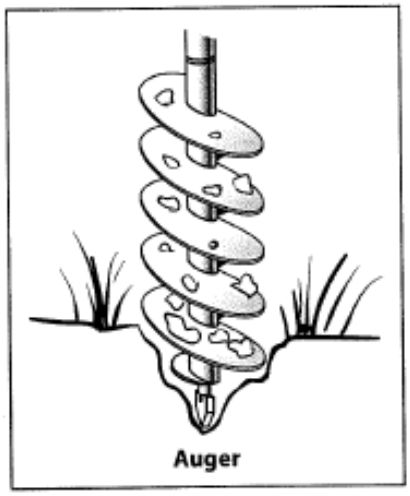
A screw is another simple machine. It is used to hold things together. A **screw** is an inclined plane wrapped around a cylinder or central point. In other words, it is a winding inclined plane. On screws, the line formed by the inclined plane is called a **thread**, or twisted inclined plane.



The **inclined plane** is a sloping, flat or plane surface over which objects may be rolled or lifted to higher elevations. As a staircase is an example of an inclined plane, the spiral staircase is an example of a screw. A screw achieves similar goals to an inclined plane in a smaller space. An example is the comparison of a conventional staircase to a spiral staircase. Both may achieve that same goal of providing access to a second floor; however, in the case of the spiral staircase, this is achieved with smaller floor space. Examples of inclined planes in the form of screws include the threads on drill bits, wood screw threads, bolts, spiral staircases, and augers.



As in the inclined plane, a screw is a simple machine that reduces the force required to move an object over a vertical distance or height. The distance between the threads is called the **pitch** of the screw. If a screw is represented by a bolt, then the effort is applied at one end by attaching a wrench and turning the bolt. Effort may also be applied to the handle of a screwdriver set in a groove in the head of a screw. As the effort force makes one complete circle, the head and axis of the bolt or screw make one complete turn, and the resistance force moves a distance equal to the pitch in the screw. Friction is a very important consideration when looking at the mechanical advantage of the screw.


Auger

Ideal mechanical advantage (IMA) for a screw is found by considering the following. If **r** is the length of the lever arm upon which effort force **(Fe)** acts, then, for one revolution, distance equals **2πr**, and the resistance moves the distance **d**, which is the pitch of the screw. **IMA = 2πr/d**.

A **compound machine** is two or more simple machines working together. The wood screw, drill bit, and auger are compound machines because the threads are inclined planes, but there is also a wedge on the points.

Screws- Comprehension Check

Matching

_____ 1.	inclined plane	a.	distance between the threads
_____ 2.	Fe	b.	two or more simple machines working together
_____ 3.	screw	c.	effort force
_____ 4.	pitch	d.	sloping, flat or plane surface over which objects may be rolled or lifted to higher elevations
_____ 5.	compound machine	e.	an inclined plane wrapped around a cylinder or central point, or a winding inclined plane

Fill in the Blanks

6. As a staircase is an example of an _____ _____, the spiral staircase is an example of a _____.
7. On screws, the line formed by the inclined plane is called a _____.
8. A screw achieves similar goals to an inclined plane in a smaller _____.
9. The wood screw, drill bit, and auger are _____ _____ because the threads are inclined planes, but there is also a wedge on the points.
10. A screw is a simple machine that reduces the _____ required to move an object over a _____ distance or height.

Multiple Choice

11. Which of the following is NOT an example of an inclined plane in the form of a screw?
    a. auger
    b. bolt
    c. wood screw
    d. knife

12. What kind of machine is a screw that does not have a point on the end?
    a. compound machine
    b. complex machine
    c. simple machine
    d. belt-driven machine

13. What is another name for the thread on a screw?
    a. twisted inclined plane
    b. wedge
    c. spiral lever
    d. inclined plane

Name _____

4th Grade Modified ELA Remote Learning Packet

Week 17

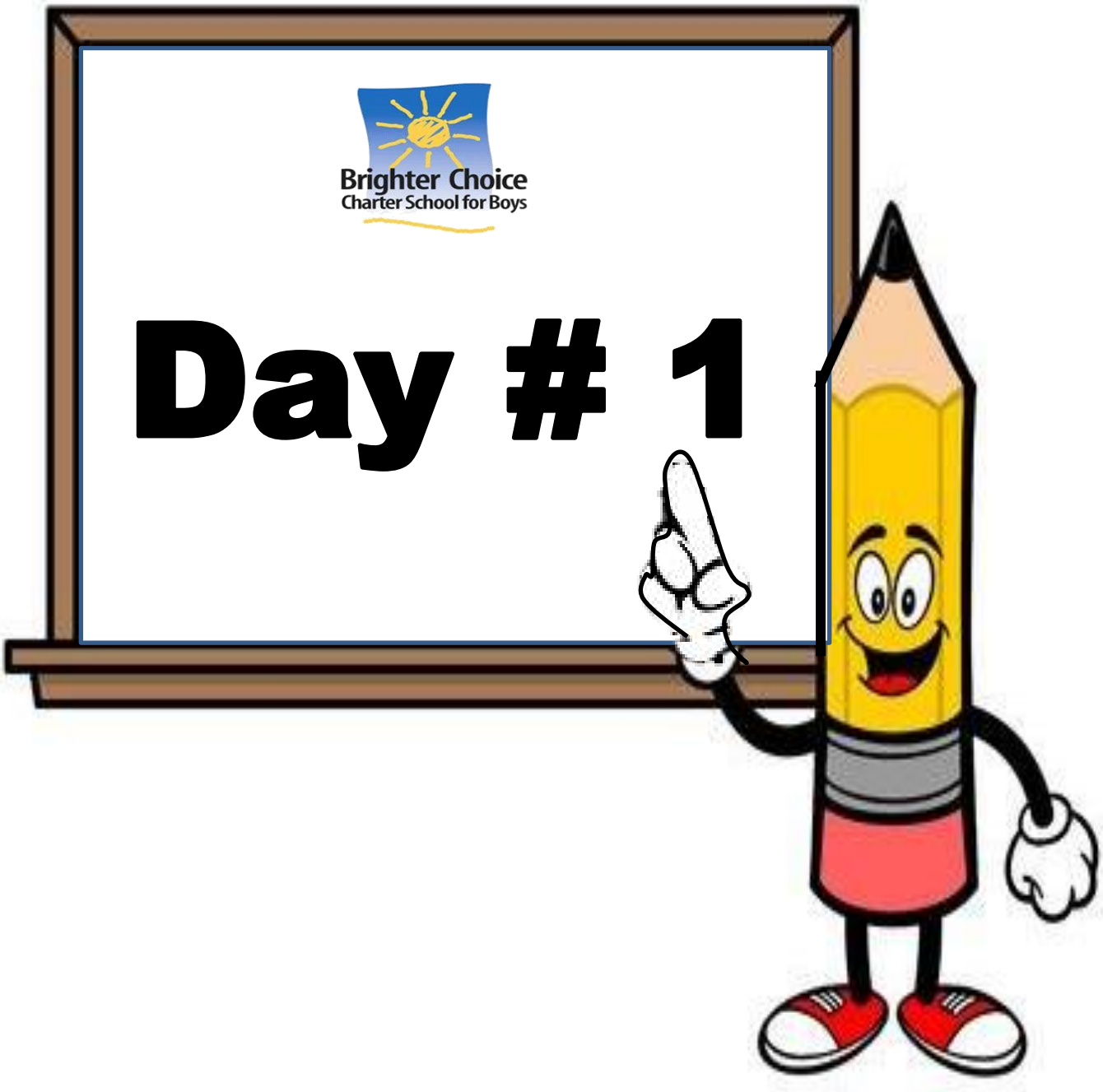
Dear Educator,

My signature is proof that I have reviewed my scholar's work and supported him to the best of my ability to complete all assignments.

_____ _____

(Parent Signature) (Date)

Parents please note that all academic packets are also available on our website at www.brighterchoice.org under the heading "Remote Learning." All academic packet assignments are mandatory and must be completed by all scholars.


Brighter Choice
Charter School for Boys
Day # 1

Name:_____ [Type a quote from the document or the summary of an interesting point. You can position the text box anywhere in the document. Use the Drawing Tools tab to change the formatting of the pull quote text box.]

_____ Week 17 Day 1 Date: _____

BCCS-B Hampton Howard Morehouse

Week 17 Day 1 Notes, Text Based MC and Writing

Do Now

Should you refer back to the text when you are answering questions? Why or why not?

_____

_____

_____

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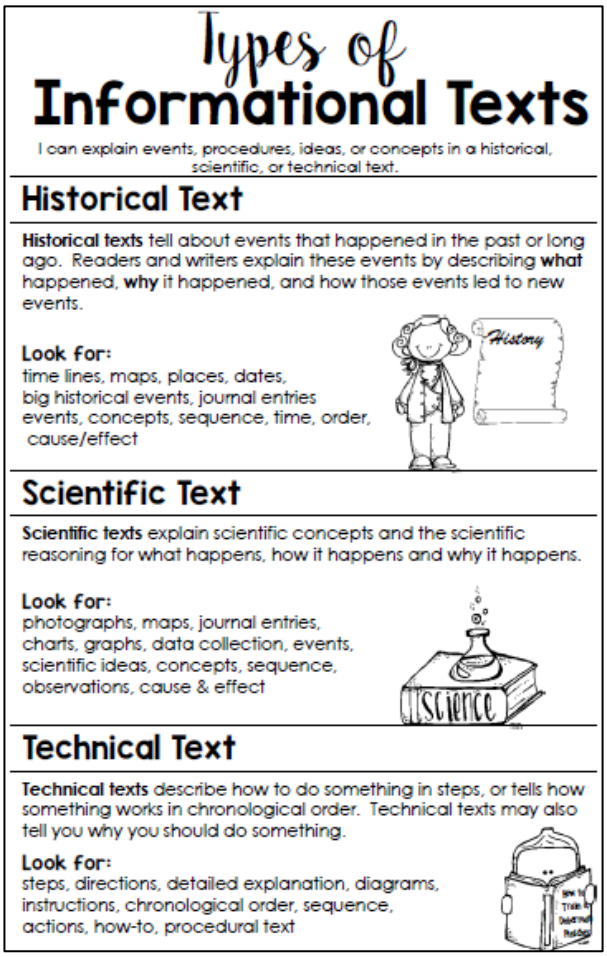

Types of Informational Texts

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handler	A person who _____ with, or handles, an animal
impaired	_____ or less able

CFU: Skill Activity: Text Evidence via online presentation

Application: 3 Reads of Text: *Animals Helping Humans*

Animals Helping Humans

Service animals provide safety and stability for people with disabilities. In the United States, the Americans with Disabilities Service Act (ADA) protects the people who use these animals. By law, these animals are allowed into any privately owned business that provides services to the general public. This means the animals are allowed into restaurants, libraries, and even movie theaters. Wherever the person needs to go, the animal can go, too.

The ADA defines a service animal as "any dog individually trained to provide assistance to an individual with a disability." Dogs are common service animals because they can be easily trained to perform a wide variety of tasks. The ADA also lists miniature horses as service animals. Monkeys and certain types of birds are called assistance animals. These animals are not pets. They work hard to help their owners, or handlers, and to keep them safe.

Guide animals are trained to help people who are blind or visually impaired. The animal's job is to help its handler move around safely. These animals help their handlers move through crowded buildings or cross busy streets. They can open doors or alert their handlers to obstacles, such as overhangs or parking meters. The guide animal must pay attention to what is happening all around its handler at all times.

A guide horse helping its visually impaired handler.

Guide animals also help their handlers use different forms of transportation. Guide horses are small enough to ride in buses

and in some cars with their handlers. These animals often wear special shoes for walking on surfaces that might cause them to lose their balance or hurt their feet.

Hearing animals are trained to help people who are deaf or hearing impaired. These animals can tell the difference between a telephone ringing and a smoke alarm going off. They also recognize emergency sirens or knocks on doors. A hearing animal can even be trained to listen for its handler's name. The animal alerts the handler when it hears these sounds by gently pawing or nudging him or her. Then the animal will lead its handler to the sound.

Other general service animals are trained to help people who have a disability that is not related to sight or sound. For example, people who cannot walk or use their arms or hands use service animals to help them walk steadily or to pull their wheelchair. A service dog can pick up things its handler has dropped. In public places, a service dog is trained to bark if its handler needs help. The dog will find someone to help, and then lead that person to the handler.

A service dog with its handler.

Some service animals are called "laptop dogs." Laptop dogs must be small and able to jump up onto counters. The dog will retrieve what the handler needs, and then jump with the item onto its handler's lap. Many animals that provide assistance spend most of their lives with their handlers. They not only provide companionship, but they also help their handlers live better lives. The special bond between animal and handler is like no other.

Read and answer each question.

1. Which of these would not be considered a service dog?
   - Ⓐ a guide dog
   - Ⓑ a pet dog
   - Ⓒ a hearing dog

2. Who can bring a service dog into a restaurant?
   - Ⓐ a person who has a disability
   - Ⓑ the owner of the restaurant
   - Ⓒ any member of the general public

3. Which task would be best for a hearing animal to perform?
   - Ⓐ picking up a dropped book
   - Ⓑ going to a movie theater with its handler
   - Ⓒ alerting its handler that someone is at the door

4. Some service animals are called "laptop dogs" because they ____.
   - Ⓐ are small enough to jump onto a lap
   - Ⓑ like to sit on their handlers' laps all day
   - Ⓒ sit on their handlers' laps at restaurants

Brighter Choice
Charter School for Boys

Day # 2

Name:_____ Week 17 Day 2 Date: _____

BCCS-B Hampton Howard Morehouse

Week 17 Day 2 Notes, Text Based MC and Writing

Do Now

What is evidence?

_____

_____

_____

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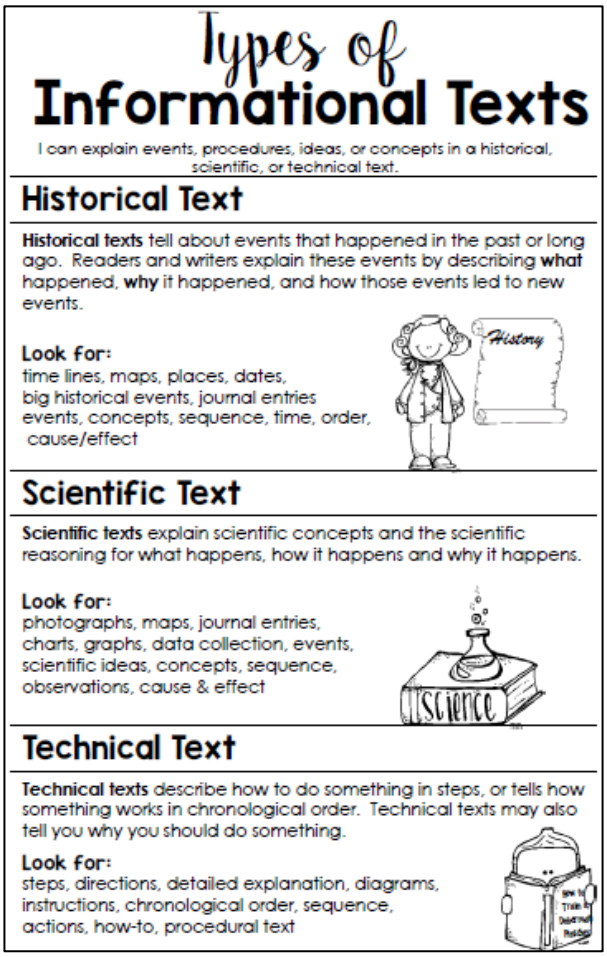

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ferment	to _____ chemically
pods	Oval or _____ part of a plant that contains seeds
pulp	a soft, squishy _____ found inside fruit or pods

CFU: Skill Activity: Text Evidence via online presentation

Application: 3 Reads of Text: *The Chocolate Process*

The Chocolate Process

One of the most delicious foods in the world is chocolate. It's easy to walk to the corner store and find chocolate bars, sauces, or cookies. But where does all of this chocolate come from? It grows on trees—cacao trees. The trees that produce this tasty treat need a lot of water and warmth to grow, so they are found mostly in Africa and Central America and on the Caribbean Islands. You can't simply pluck chocolate candy off the branches, however. There are many steps that chocolate has to go through to get from the tree into your belly.

Chocolate begins its life as seeds in football-shaped cacao pods. They grow straight out of the tree trunk or dangle from its branches. Each cacao tree can produce nearly 2,000 pods each year. There are about 30 cacao beans in each pod, and the beans are extremely bitter. The pods also contain soft, white pulp that tastes both sweet and tart. People have eaten the pulp for hundreds of years. They've also made it into drinks such as hot cocoa.

Cacao pods on a tree

Open cacao pod

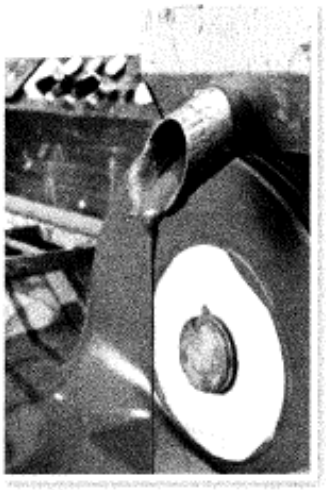
Workers on cacao farms harvest ripe cacao pods twice a year. They use machetes to cut the pods off the trees and open them by hand. The beans are put into pits or bins where they are covered for many days. As the beans ferment, their bitter taste becomes sweeter. Then the beans are dried for several more days and are finally ready to be sent to the factory.

Cacao beans drying

At the chocolate factory, workers sort and weigh the beans. Then they are roasted in giant ovens, which makes the flavor stronger. After roasting is completed, workers crack open the bean shells and then throw the shells away. The parts that are left after this process are called nibs. You can eat nibs, but they are still fairly bitter.

Next, the nibs are ground up into a thick paste called chocolate liquor. This is the unsweetened chocolate that is used in baking. To make the kind of chocolate that is used in candy bars, other ingredients must be added. Workers mix the unsweetened chocolate with specific amounts of sugar, vanilla, milk, and cocoa butter (which is a fatty, yellow, solid material) to make it taste sweet. Chocolate liquor is pressed in a big machine that separates the paste into cocoa powder and cocoa butter. Cocoa powder is used in chocolate milk and for baking. Cocoa butter is added back into chocolate liquor to make candy.

After all of these steps, the chocolate mixture tastes pretty good. But it's still not very smooth or creamy. To make it even more delicious, workers put the mixture through a series of steel rollers. This breaks down the milk, cocoa, and sugar. Then the chocolate goes through a machine called a conch, which blends the chocolate even more. Now the chocolate has a silky texture and a sweeter taste. Most chocolate will be conched for a few hours, but sometimes conching goes on for days.



Chocolate pouring out of a conch machine

Finally, the chocolate is heated and cooled several times. This gives the chocolate a shiny look. Then the chocolate is ready for consumption. Workers pour it into different kinds of containers and wrappers. Then it makes the journey to your favorite corner store. The long journey from beans to bars has been a success!

Read and answer each question.

1. Cacao beans grow inside of ____.
   - Ⓐ nibs
   - Ⓑ pods
   - Ⓒ tree branches

2. You would not want to eat fresh cacao beans because they ____.
   - Ⓐ are only used for baking
   - Ⓑ are thrown away at the factory
   - Ⓒ are very bitter tasting

3. Why do workers allow cacao beans to ferment?
   - Ⓐ to give them a sweeter taste
   - Ⓑ to extract cocoa butter
   - Ⓒ to make sure the beans are ripe

4. At the factory, the workers make a thick, unsweetened chocolate paste known as ____.
   - Ⓐ conch paste
   - Ⓑ chocolate liquor
   - Ⓒ white pulp


Brighter Choice
Charter School for Boys
Day # 3

Name:_____ Week 17 Day 3 Date: _____

BCCS-B Hampton Howard Morehouse

Week 17 Day 3 Notes, Text Based MC and Writing

Do Now

What strategies do we use on multiple choice questions? Explain.

We use the strategy of _____

_____

_____

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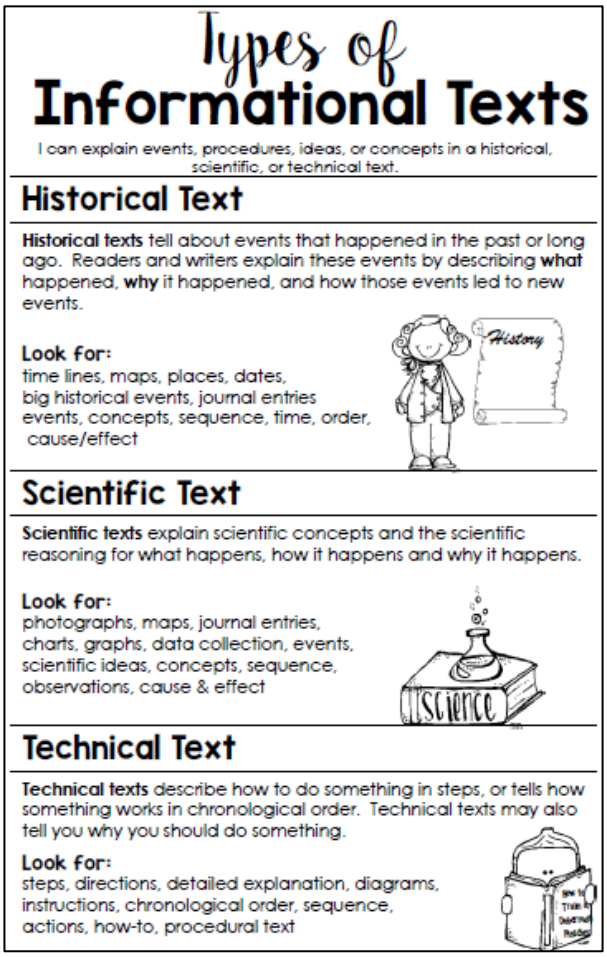

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boundary	The _____ of an area that separate it from another area
earthquake	An event in which the earth _____ or moves for a period of seconds or minutes.
interact	To come in _____ with.
mantle	The hot, _____ _____ that is located in between the Earth's crust and core

CFU: Skill Activity: Text Evidence via online presentation

Application: 3 Reads of Text: *California's Big Shakes*

California's Big Shakes

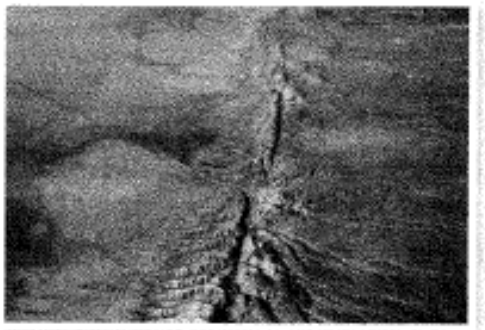
Earth's crust is made up of tectonic plates, or solid sections of rock, that float and slide on Earth's mantle. A few different things can happen when these plates interact. One plate can slide underneath or against another plate, or some plates can push each other upward. These types of movements can cause the creation of ridges on the ocean floor or mountain chains on land. All of these movements create faults, or large breaks, in the Earth's crust. If you live along a fault line, it's usually just a matter of time before you experience an earthquake.

The San Andreas Fault is in western California. It is more than 800 miles (1,287.48 km) long and 10 miles (16 km) deep. It extends from north of San Francisco southward past San Bernardino. This fault is the boundary of two of Earth's tectonic plates: the Pacific Plate on the west and the North American Plate on the east.

These two plates creep at the slow rate of a few inches a year. They have moved 350 total miles (563.27 km) in the past 20 million years. Most of their movement is slow, continuous, and does not cause any earthquakes that can be felt. At other points along the fault, the rocks of the plates get caught on one another as they slide. For 100 or more years at a time, these "locked" sections do not move at all.

Eventually, the plates have to move to release all of that pressure, and Earth's crust snaps into a new position. This sudden "faulting" causes vibrations that are felt as earthquakes. The first vibration waves produce a "thud." The next set of waves make the ground roll and sway.

The San Andreas Fault can easily be seen from the air. Streams make sudden right turns when they cross the fault line. In some spots, the ground looks different on one side of the fault than on the other. If you look carefully, you can often see fences, roads, and rows of trees that have been moved by earthquakes in the past.



San Andreas Fault aerial view

California has experienced many earthquakes, but the largest one happened in San Francisco in 1906. The quake knocked down buildings, broke power lines, and overturned wood stoves. Huge fires spread quickly throughout the wooden structures of the city. More than 700 people died in the disaster, and thousands more were left homeless. Much of San Francisco had to be rebuilt from scratch.

San Francisco Earthquake of 1906

Despite the danger, people continue to travel, live, and do business within the San Andreas Fault zone. Today, we know how to construct buildings that are less likely to collapse or burn in earthquakes. We know which kinds of soil are safe to build on. We even have instruments that help us predict when and where earthquakes might occur. Today's Californians are far more prepared for "big shakes" than they have ever been before.

Read and answer each question.

1. Breaks in the Earth's crust are called ____.
   - Ⓐ faults
   - Ⓑ plates
   - Ⓒ ridges

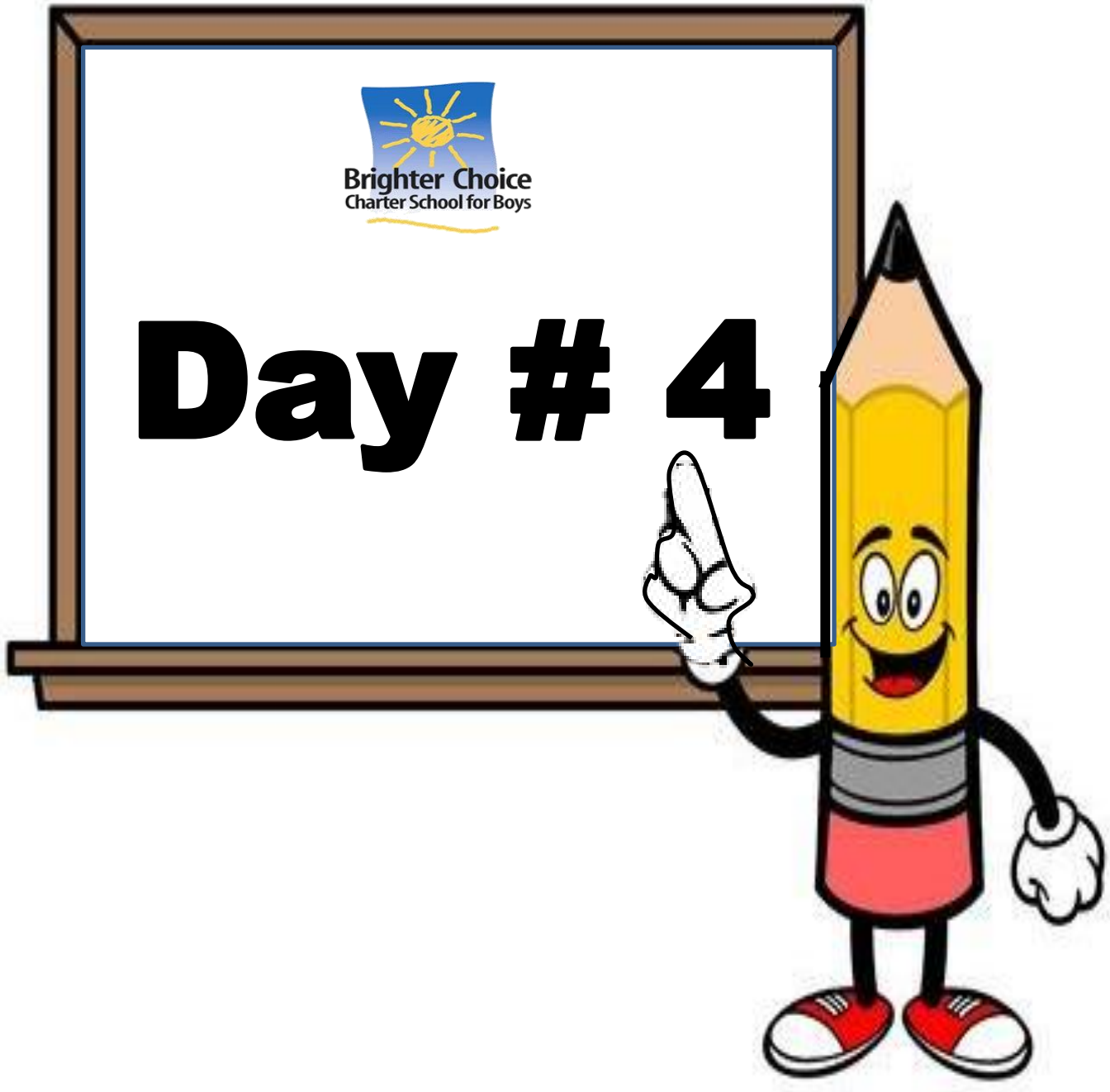
2. The majority of the movement along the San Andreas Fault ____.
   - Ⓐ causes gigantic earthquakes
   - Ⓑ isn't felt by people in the area
   - Ⓒ moves southward past San Bernardino

3. What is the first set of waves during an earthquake felt as?
   - Ⓐ a shake
   - Ⓑ a thud
   - Ⓒ a wave

4. Which of the following can cause a massive earthquake?
   - Ⓐ the slow and continuous movement of two plates
   - Ⓑ building roads or structures along a fault line
   - Ⓒ one plate sliding underneath another plate

Brighter Choice
Charter School for Boys

Day # 4



Name:_____ Week 17 Day 4 Date: _____

BCCS-B Hampton Howard Morehouse

Week 17 Day 4 Notes, Text Based MC and Writing

Do Now

What strategy do we use for our short response questions?

We use the strategy of _____

_____

_____

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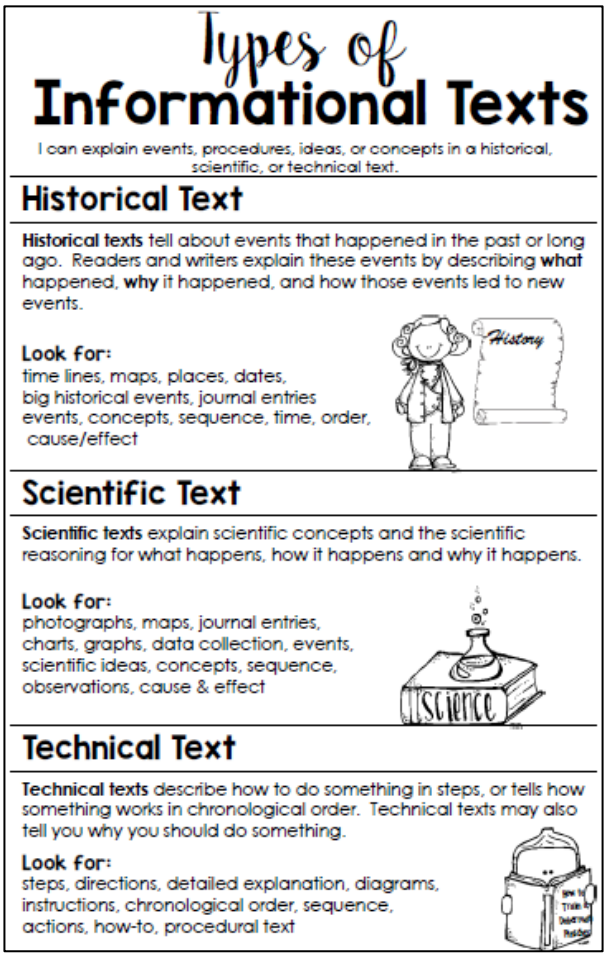

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thrive	To live _____; to be healthy and strong
range	A variety or an _____ between certain limits
navigate	To move from one place to another; to _____ or _____ ones course

CFU: Skill Activity: Text Evidence via online presentation

Application: 3 Reads of Text: *Seeing with Sounds*

Seeing with Sounds

Most living things gather a lot of information from the sounds they hear. A loud crack of thunder usually means rain is on the way. A knock at the door means someone is there to see you. Both animals and humans are warned to "stay back" by a rattlesnake's rattle. You might be surprised if you tried to add up all of the sounds you hear in just one day—or even just one hour.

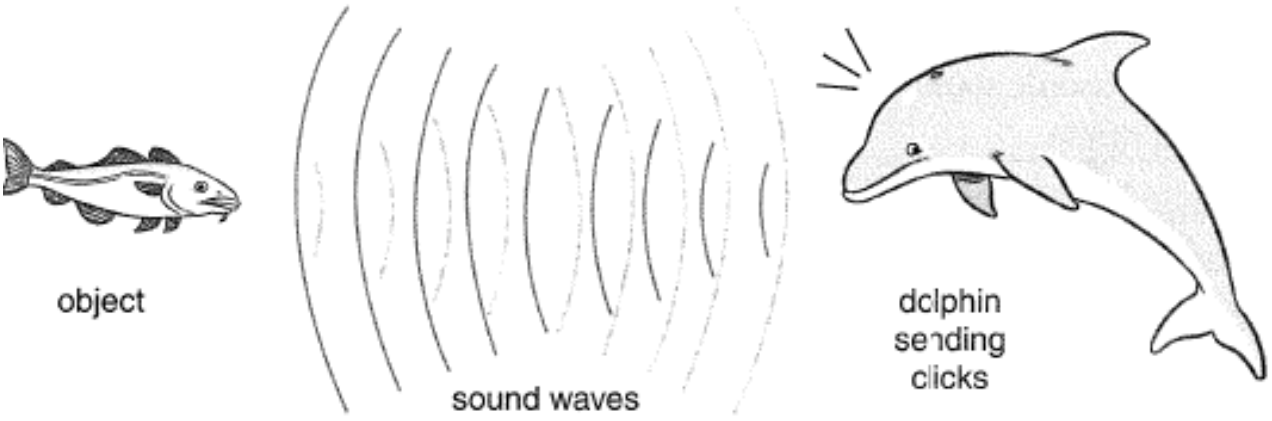
Objects make sounds by vibrating, or moving quickly back and forth. These vibrations produce sound waves that move just like ripples moving outward in water. Loud sounds can produce echoes. If you shout in a gymnasium, you will hear an echo after your sound waves hit the walls, floor, and ceiling and then bounce back to you.

The highness or lowness of a sound is called the pitch. The faster an object vibrates, the higher the pitch of the sound. The slower an object vibrates, the lower the pitch of the sound. Humans can hear a large range of pitches, but some are too high or too low for us to hear. A sound with a pitch higher than we can hear is called ultrasonic sound. Many animals such as dogs and mice can hear these sounds. Some of these animals rely on their unique hearing abilities to navigate or gather food in total darkness.

Bats can hear higher sounds than any other animal. A bat makes its own noises by sending out high-pitched squeaks. After the bat squeaks, it waits for the sound to bounce off an insect. The bat can tell how far away the insect is by paying attention to how long it takes for its echo to return. In fact, an echo allows a bat to tell the size, position, and speed of an insect. This process of finding objects by sending out and receiving sounds is called echolocation. Bats use this process to find other foods such as fruits or flower nectars. They also are able to "see in the dark" around corners and in dark caves.

Bats come out to hunt at night, so they need to use their squeaks in order to stay healthy.

Dolphins use echolocation to find food underwater and to avoid obstacles. They make clicking sounds through their foreheads. A dolphin can send out as many as 2,000 ultrasonic clicks each second. These sound waves strike objects in their path and bounce back to the dolphin. The echo is picked up by the dolphin's lower jaw and sent to its ears and brain. Like bats, dolphins can judge how far away their food is by the length of time it takes for an echo to reach them. A dolphin's echolocation is so sensitive that it can "hear" small fish from 600 feet (182.88 m) away. This amazing ability is just one of the reasons dolphins are able to thrive in the world's vast oceans.



Sound waves strike objects in their path and bounce back to the dolphin.

Read and answer each question.

1. An object that is moving quickly back and forth is ____.
   Ⓐ pitching
   Ⓑ vibrating
   Ⓒ echolocating

2. Ultrasonic sounds are sounds that ____.
   Ⓐ are either very quiet or very loud
   Ⓑ can easily be heard by every kind of animal
   Ⓒ are higher in pitch than what humans can hear

3. If you shout in an empty room and hear a response, you are hearing ____.
   Ⓐ an echo
   Ⓑ ultrasonic sound
   Ⓒ a ripple

4. Which of the following can a bat <u>not</u> learn from using echolocation on an insect?
   Ⓐ the insect's color
   Ⓑ the insect's size
   Ⓒ the insect's speed


Brighter Choice
Charter School for Boys
Day # 5

Name:_____ Week 17 Day 5 Date: _____

BCCS-B Hampton Howard Morehouse

Week 17 Day 5 Notes, Text Based MC and Writing

Do Now

Why should we refer back to the text when answering questions?

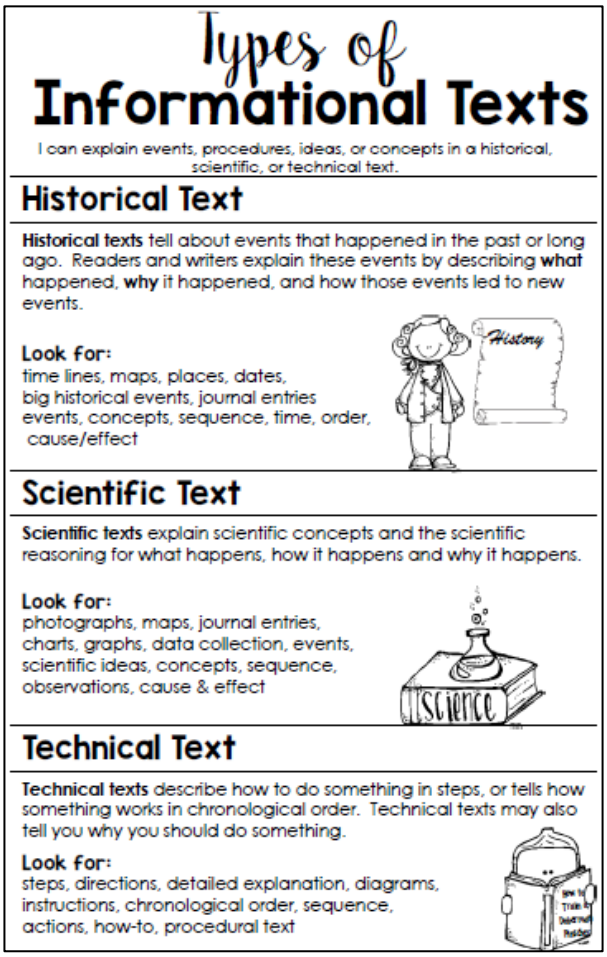
We should refer back to the text when answering questions _____

_____

_____

Standard	**RI 4.7** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
LEQ	How does visual information contribute to your overall understanding of the text?
Objective	I can explain how text features contribute to my overall understanding of a text.
Assignment to Submit	Exit Ticket (Google Form on Google Classroom)

Input: Notes on Content/Vocabulary/Anchor Chart



Types of Informational Texts

I can explain events, procedures, ideas, or concepts in a historical, scientific, or technical text.

Historical Text

Historical texts tell about events that happened in the past or long ago. Readers and writers explain these events by describing **what** happened, **why** it happened, and how those events led to new events.

Look for:
time lines, maps, places, dates, big historical events, journal entries events, concepts, sequence, time, order, cause/effect

Scientific Text

Scientific texts explain scientific concepts and the scientific reasoning for what happens, how it happens and why it happens.

Look for:
photographs, maps, journal entries, charts, graphs, data collection, events, scientific ideas, concepts, sequence, observations, cause & effect

Technical Text

Technical texts describe how to do something in steps, or tells how something works in chronological order. Technical texts may also tell you why you should do something.

Look for:
steps, directions, detailed explanation, diagrams, instructions, chronological order, sequence, actions, how-to, procedural text

disposable	Something is used _____ and then thrown away
garbology	The study of what people use and what they _____ away
landfills	Large, special areas for the long term storage of _____
archaeologist	A person who studies the art, _____, and structures of people from the past
civilizations	Group of _____ who live and work together

CFU: Skill Activity: Text Evidence via online presentation

Application: 3 Reads of Text: *Study of Garbage*

The Study of Garbage

As long as there have been people, there has been garbage. Today, most trash consists of food wrappers and newspapers, but hundreds of years ago, garbage included chips from stone tools and broken clay pots. About 40 years ago, an archaeologist named Dr. William Rathje was teaching at the University of Arizona. He knew garbage was used to learn about past civilizations, so why not study modern garbage to learn about life in the present?

In 1973, Dr. Rathje's class did a project about garbage. The subject of garbology turned out to be really interesting. Over the years, Dr. Rathje and other garbologists have sorted through over 250,000 pounds (113,400 kg) of garbage. The assorted trash came from landfills, garbage trucks, and people's homes.

Garbologists thought they'd find the landfills overflowing with modern fast-food packages. They also thought there would be a lot of disposable diapers and plastics. But there was much less than they expected. They found a lot of garbage from construction projects, and over 50 percent of the trash was paper. The team found newspapers dating back to the 1930s.

Garbologists also discovered a lot of food waste. There were several 15-year-old hot dogs and 20-year-old bread rolls! The researchers determined that families were wasting 10 to 15 percent of their food. Garbologists concluded that most people were doing a good job of recycling plastics and soda cans, but they weren't recycling as much paper. People also weren't recycling old clothes and cleaning supplies.

Whether it is a broken clay pot or a candy wrapper, garbage has helped scientists learn a lot about how people live. Archaeologists use garbage to peek into the past, and garbologists use garbage to paint a picture of the present. Dr. Rathje doesn't think our present picture is too bad. He recognizes that there are more people in the world today, which means there is also more trash. But he does believe we can make a difference by continuing to recycle and by paying more attention to what we buy.

You can help control how much garbage is created by only buying the amount of food you *know* you will eat. It also helps to choose things with less paper and plastic packaging. And it is better to repair old items than to buy new ones. All of these actions make less waste and use fewer resources. By controlling how much garbage you make today, you can create a better world for people in the future. Next time you take out the garbage, stop for a moment. Ask yourself this question: *Is this **really** garbage?*

Trash Timeline

10,000 B.C.

Towns appear. So does waste. It's mostly broken stone tools, wood ash, and bones.

500 B.C.

The first landfill is built near Athens, Greece.

0

A.D. 1850

Pioneers leave wagon wheels, furniture, and other items along the way to the West.

A.D. 1916

Coal is used to heat homes and to power trains and factories. About 80% of waste in cities is coal ash.

A.D. 1986

A landfill in New York becomes the largest city landfill in the world. It is big enough to be seen from space.

TODAY

The average American throws away 4 pounds of garbage every day.

Read and answer each question.

1. Garbage from ancient civilizations has included ____.
   Ⓐ food wrappers
   Ⓑ clay pots
   Ⓒ plastics

2. Dr. William Rathje and his students studied trash found in ____.
   Ⓐ archaeological digs
   Ⓑ the University of Arizona
   Ⓒ landfills

3. Which of the following was found the most often by Dr. Rathje and the garbologists?
   Ⓐ paper
   Ⓑ disposable diapers
   Ⓒ cleaning supplies

4. Which of these do people recycle the most?
   Ⓐ old clothes
   Ⓑ soda cans
   Ⓒ paper