Cohen Middle School
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Name: _____ **Date: November 19, 2019**___

Math:	Math: Ratios & Equivalent Ratios nb 51 & 52 hmwk 2sided wksht
Social Studies:	- **Final Day of Minecraft** **HW: Land of the Dead**
ELA:	Daily Warm Up for Draft/Revising Conflict Narrative
Science	① Read "The Force is With You" ② Answer all questions on the graphic organizer. ③ HW = "Soccer + Physics" Article ④ Study Vocab - FORCE TEST FRIDAY
Computer Apps/ Technology	

A **ratio** is an ordered pair of non-negative numbers, which are not both zero. They compare quantities.

They can be written as... 2 green 3 pink

1. With a division bar! $\frac{2}{3}$
2. With a **colon** : 2:3
3. With the word "**to**", "**for every**", or "**out of every**" Ratio of 2 to 3

used flipchart w/ balloons

The **order** of the numbers is **important** to the meaning of the ratio.

Switching the numbers changes the relationship.

The description of the ratio relationship tells us the correct **order** for the **numbers** in the ratio.

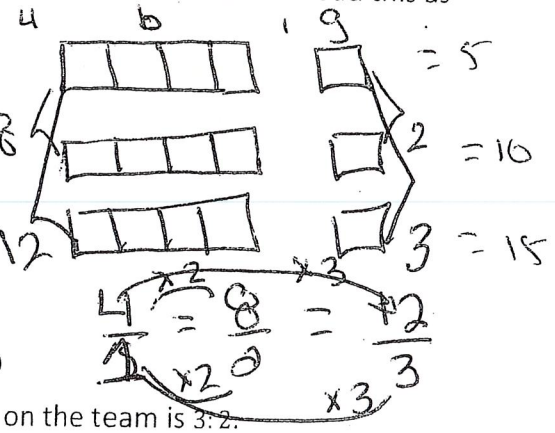
TYPES OF RATIOS:

1. Part to Part 3 pink : 4 purple
2. Part to Whole $\frac{3 \text{ pink}}{25 \text{ total balloons}}$

Example 1 The coed soccer team has **four** times as many *boys* on it as it has *girls*. We say the ratio of the number of *boys* to the number of *girls* on the team is 4:1. We read this as "**four to one.**"

9/13 Thurs.

# boys	# girls	Total # players
4	1	5
8	2	10
12	3	15



Suppose the ratio of number of boys to number of girls on the team is 3:2.

# boys	# girls	Total # players
3	2	5

$\frac{3}{2} = \frac{\quad}{\quad}$

REDUCING RATIOS

REDUCING RATIOS is like reducing fractions.

$$\frac{12}{18}$$

Reduce all your ratios to simplest form *(ratio value).* Keep dividing until there are no more common factors.

EQUIVALENT RATIOS

EQUAL RATIOS HAVE THE SAME VALUE (NAME THE SAME RELATIONSHIP)

HOW DO WE KNOW THEY ARE EQUAL?

THEY HAVE THE SAME _____

THEY HAVE THE SAME _____

THEY HAVE EQUAL _____

Homework

Ratio Wording Name:

Back Side

Solve each problem.

Ex) For every 8 green apples in an orchard there were 4 red apples. What is the ratio of green apples to red apples?

1) During the class election the ratio of votes for Rachel to votes for Mike was 7:9. For every _____ votes Rachel got Mike got _____.

2) For every 3 games at the fair there are 8 rides. What is the ratio of rides to games?

3) For every 7 Wii games Katie owned she had 6 PS3 games. What is her ratio of Wii games to PS3 games?

4) At the thift store for every 7 short sleeve shirts there were 2 long sleeve shirts. What is the ratio of long sleeve shirts to short sleeve shirts?

5) At the movie theater the ratio of small popcorns sold to large popcorns sold was 2:6. For every _____ large popcorns sold there are _____ small popcorns sold.

Reduce each ratio to its lowest form.

Ex) 10 : 5 2 : 1

1) 50 : 70 _____

2) 36 : 16 _____

3) 30 : 70 _____

4) 24 : 21 _____

5) 20 : 8 _____

6) 50 : 90 _____

7) 32 : 8 _____

8) 20 : 70 _____

Determine which statement or statements are true. If none write 'none'.

1) nails used = 2 , bird houses built = 7

A. For every 2 bird houses built there were 7 nails used

B. The ratio of bird houses built to nails used was 7:2

C. For every 7 nails used there were 2 bird houses built

D. For every 2 nails used there were 7 bird houses built

2) green apples = 2 , red apples = 8

A. The ratio of red apples to green apples is 2:8

B. For every 2 red apples there are 8 green apples

C. For every 8 green apples there are 2 red apples

D. The ratio of green apples to red apples is 2:8

3) pushups = 6 , sit-ups = 2

A. For every 6 pushups done there were 2 sit-ups done

B. For every 2 pushups done there were 6 sit-ups done

C. For every 2 sit-ups done there were 6 pushups done

D. The ratio of sit-ups done to pushups done is 6:2

4) large popcorns = 4 , small popcorns = 8

A. The ratio of small popcorns to large popcorns sold is 8:4

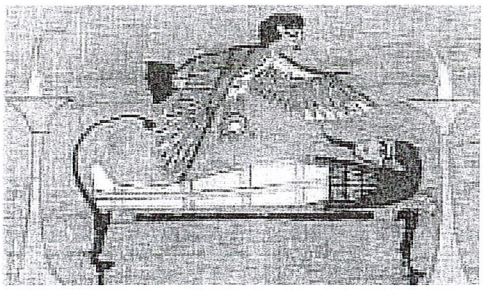
B. The ratio of large popcorns to small popcorns sold is 8:4

C. For every 4 small popcorns sold there are 8 large popcorns sold

D. The ratio of large popcorns to small popcorns sold is 4:8

Name: _____

The Land of the Dead



A long, long time ago, there was an Egyptian prince named Setna. He had a palace in the city of Thebes. One day, he and his son, Se-Osiris, stood in the window of their palace and watched two funerals passing by.

The first funeral must have been for a rich man. The family had the servants carrying the beautiful mummy case toward the Nile River. They loaded the case on a boat that would take the departed on his one last trip across the river. Since people at the time believed that the underworld for the dead was in the west, they always buried their loved ones on the western bank of the Nile. They also believed that every person had two spirits called the *ba* and the *ka*. The *ba* spirit was the person's personality. It looked like a bird with a human head. The *ka* spirit was the person's life force. It continued to live on after the person died. To be sustained, it required the same sort of necessities (such as food) the person had before he passed away.

Following the customs, the rich man's family prepared a lavish tomb for him on the western bank of the Nile. In it, there was everything he liked and used when he was still alive. The tomb was stuffed with food of every kind, expensive jewelry, fine linen clothes, furniture, and even board games! Priests were there to administer the ceremony. Professional mourners were also there to weep for him. All told, it was a grand funeral!

The second funeral was the exact opposite from the first one. It was for a poor man. His two sons carried the simple wooden case across the river. They buried it in a pit dug out in the desert. Other than the two sons, their wives, and the widow, nobody else was there to mourn for him.

Setna gave out a sigh. He said to his son, "Well, I hope that my fate will be that of the rich man and not of the poor fellow."

"On the contrary," replied Se-Osiris, "I pray that your fate will be that of the poor fellow and not of the rich man!"

Surprised and hurt, Setna exclaimed, "Son, how can you say that?"

"Come with me, and I will show you what I mean," said Se-Osiris. He took his father's hand and recited the words of power. Immediately, the *ba* spirits of Setna and Se-Osiris left their bodies and took the form of two birds. The pair spread their wings and flew west to the Duat. The Duat was where the Sun God, Ra, visited every night. It was also the land of the dead.

The *ba* spirits of Setna and Se-Osiris arrived just in time to see Ra pass through the gates of the Duat and enter the first division of the night. Ra was in a magnificent boat, called Mesektet. He was not alone, though. He

was with many other gods and goddesses, as well as the *ka* spirits of all those who had died that day. The boat, towed by gods using golden ropes, moved along the ghostly River of Death very slowly. It sailed through the second division of the night but made a brief stop in the third division of the night. All the *ka* spirits got out and proceeded to the Judgment Hall of Osiris. After unloading, the boat continued on its way through the nine other divisions of the night.

The Judgment Hall of Osiris was a scary place. Its ceiling was made of fire. Its walls were made of living snakes. It was, indeed, as horrifying as it was described in the Book of the Dead. The Book of the Dead was like a guidebook of the Duat. It was a must-read for the living people. It told them what to expect in the underworld. It had a detailed map. And it contained magic spells for warding off evil.

Osiris, lord of the Duat, looked like a mummy as his body was wrapped in linen bandages. He sat on the throne in the Judgment Hall of Osiris. Behind him stood his wife, Isis, and her sister, Nepthys.

One *ka* spirit came forward. It belonged to the rich man whose funeral Setna and Se-Osiris had witnessed earlier. The rich man's *ka* spirit pleaded his case and said that he had never done anything improper. He claimed that he was a good man, always doing good deeds. After the declaration was over, Anubis, the jackal-headed God of Mummification, stepped forward and took the heart out of the rich man's *ka* spirit. He walked over to a large pair of scales. He placed the Feather of Truth in one pan and the heart in the other. Right away, the pan carrying the heart dragged down the scale. The rich man's *ka* spirit lied, for his sins outweighed the truth!

Upon seeing that, Ammut -- a god with a crocodile head, a lion body, and a hippo rump -- leapt from the floor and devoured the heart at a blink of eye! Thoth, the ibis-headed God of Wisdom and the rumored author of the Book of the Dead, recorded the final judgment. The verdict was cruel. The rich man's *ka* spirit would be cast into darkness to live with the monster Apophis in the pits of fire forever!

After the ordeal was over, the next *ka* spirit came forward. It belonged to the poor man whose funeral Setna and Se-Osiris had also witnessed earlier. Anubis placed the heart in the scale. Again, the balance tipped. But instead of going down, the pan carrying the heart rose higher and higher. The poor man's *ka* spirit did not lie, for he had committed no sin! Upon seeing that, the panel of forty-two judges cried out, "This man was as pure as he claimed. The eternal bread of Osiris shall be given to him!"

Horus, Osiris' son, led the poor man's *ka* spirit before Osiris. Osiris congratulated him and welcomed him to live in the paradise, Field of Reeds.

The *ba* spirit of Se-Osiris said, "Papa, now you know why I wished your fate to be that of the poor man and not of the rich man." The *ba* spirit of Setna nodded. He could not agree more!

After lingering for a while longer, the two *ba* spirits once again spread their wings and flew back. They

Name: _____

re-entered their bodies just in time to greet the sunrise and welcome a new day dawning over Egypt.

The Land of the Dead

Questions

_____ 1. According to this legend, who ruled the Duat?

A. Osiris
B. Ra
C. Isis
D. Se-Osiris

_____ 2. Which of the following gods was NOT present in the Judgment Hall of Osiris?

A. Ammut
B. Thoth
C. Apophis
D. Anubis

_____ 3. According to this legend, how many judges were there in the Judgment Hall of Osiris?

A. 24
B. 36
C. 42
D. 58

_____ 4. The poor man was allowed to live in paradise because _____.

A. The Feather of Truth weighed more than his heart.
B. His heart weighed more than the Feather of Truth.

_____ 5. Who in the Judgment Hall of Osiris recorded every *ka* spirit's judgment?

A. Osiris
B. Anubis
C. Ammut
D. Thoth

_____ 6. Ammut had a lion head, a crocodile body, and a hippo rump.

A. True
B. False

_____ 7. How many divisions of the night were there in the Duat?

A. Twenty
B. Nine
C. Twelve
D. Three

_____ 8. According to this legend, what did the *ba* spirit look like?

A. A hippo with a jackal head
B. A lion with a crocodile head
C. A snake with a turtle head
D. A bird with a human head

Name: _____

_____ 9. According to this legend, where did the rich man's family bury him?

A. South of the Nile
B. East of the Nile
C. North of the Nile
D. West of the Nile

_____ 10. The rich man was sent to live in the pits of fire because _____.

A. His heart weighed more than the Feather of Truth.
B. The Feather of Truth weighed more than his heart.

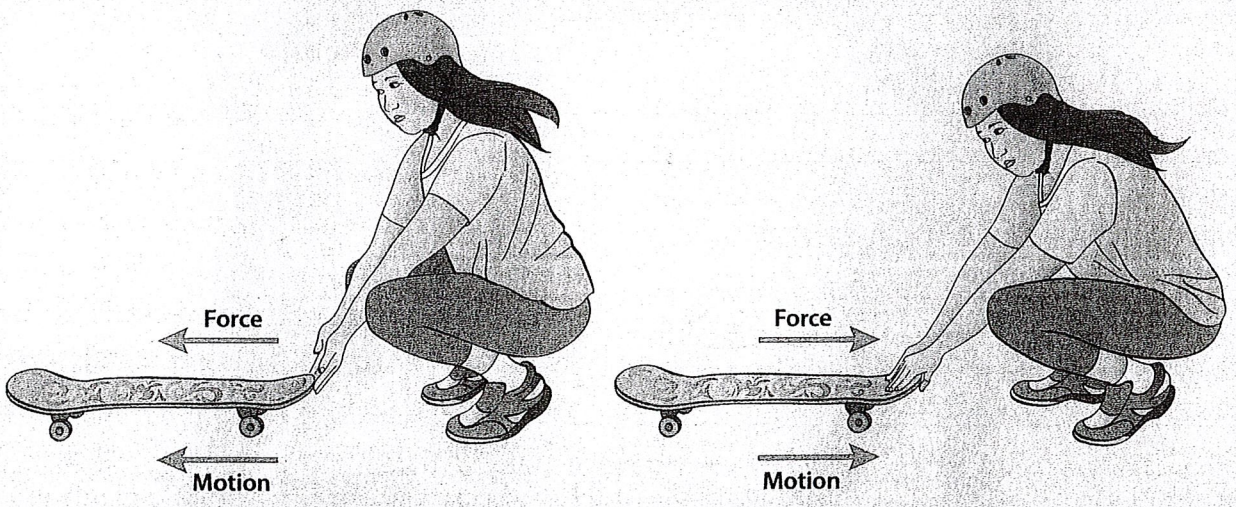
Science 6 11/19/19

The Force Is with You

The skater stands at the edge of the half pipe, ready to push off. That first push is the force that sets her and the skateboard in motion.

If a skateboard is sitting still on a level sidewalk, it cannot move by itself. The skateboard will move only when a **force** acts upon it. Pushes and pulls are forces. Forces make things move.

Pushes and Pulls



As the skateboarder pushes and pulls her board, the red arrows show force and the blue arrows show motion. In both cases, the board moves in the same direction as the force.

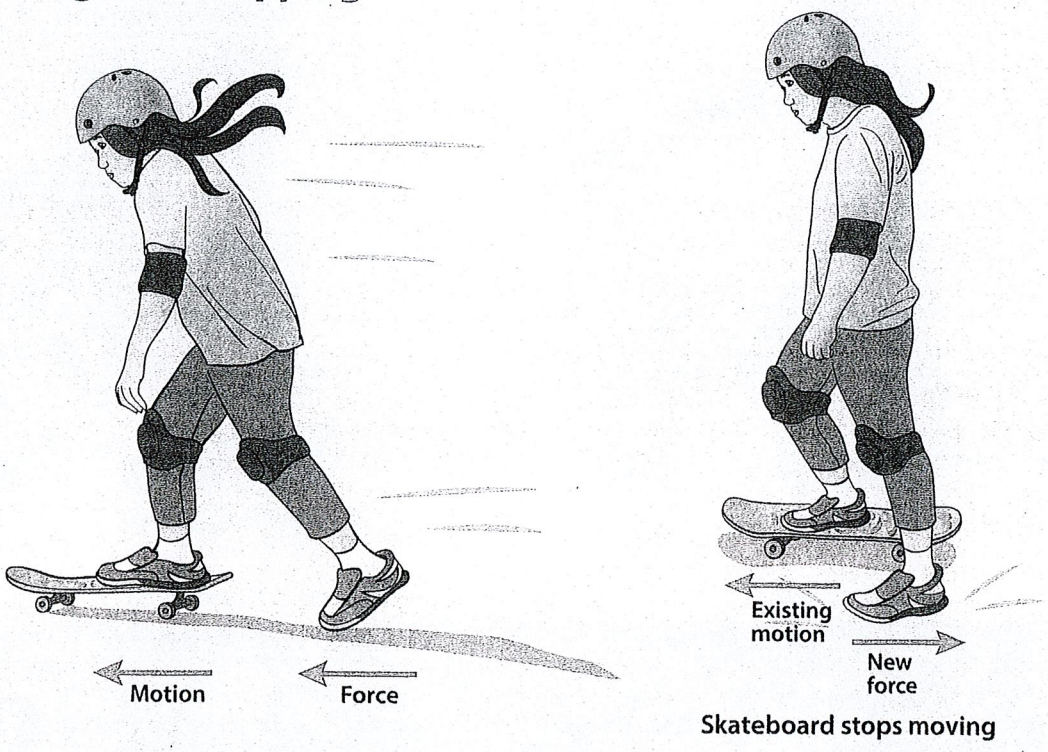
Force: An Interaction

In order to start moving, the girl must apply a force. A push is a force. If she wants her skateboard to go faster, she could apply additional force with another push. But no push exists without something doing the pushing and something to push on. A force is an **interaction** between objects. A force can happen only when one object pushes or pulls on another object.

Which objects interact to get the skateboard moving? The girl pushes on the ground and also pushes the skateboard forward. The girl and skateboard form one part of the system because they move together. When the girl pushes against the ground with one foot, the girl and skateboard start to move in the direction she applies the force. Imagine if there were no ground for the girl to push against. Without an object to push against, there would be no force to drive her forward.

What if the skateboard starts rolling too fast? How can the skateboarder stop it? If she applies a force opposite the direction of the motion, she can slow or stop the board.

Starting and Stopping



When the skateboarder applies a force (red arrows) against the ground, she can change the motion (blue arrows) of the board.

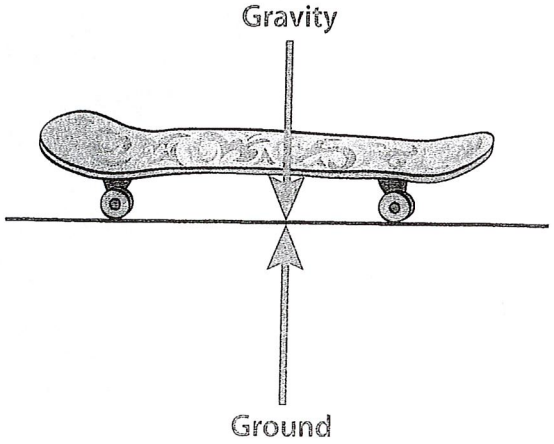
With both feet on her board, this skateboarder is not pushing off the ground. But an invisible force will help her down the ramp. What is that force?

An Invisible Force

When you let go of the skateboard at the top of a slope, it begins to roll downhill. Nobody is pushing or pulling it, yet it is moving. The invisible force being applied to the skateboard is **gravity**.

Gravity is a force of attraction between any two objects. The more massive the object, the greater the gravitational force. The skateboard is one object. Earth is the other object. The planet is massive, so it pulls strongly on all other objects, including the skateboard. It pulls the skateboard toward the center of Earth and down the slope.

When the skateboard is sitting on flat ground, you might not notice the force of gravity, but it is still acting on the board. Two forces are working on the skateboard. Gravity is pulling down on the skateboard, and the ground is pushing up on it. These two forces acting on the skateboard are equal, but in opposite directions. That means the forces are balanced. When forces are balanced, an object's motion does not change.

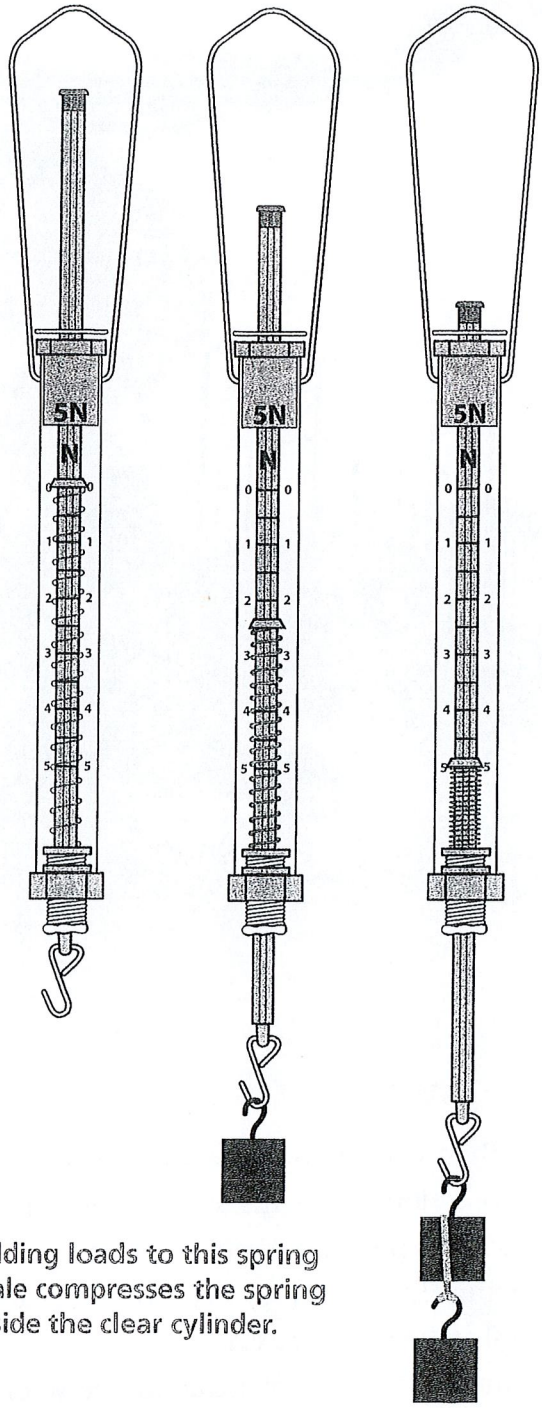


Measuring Force

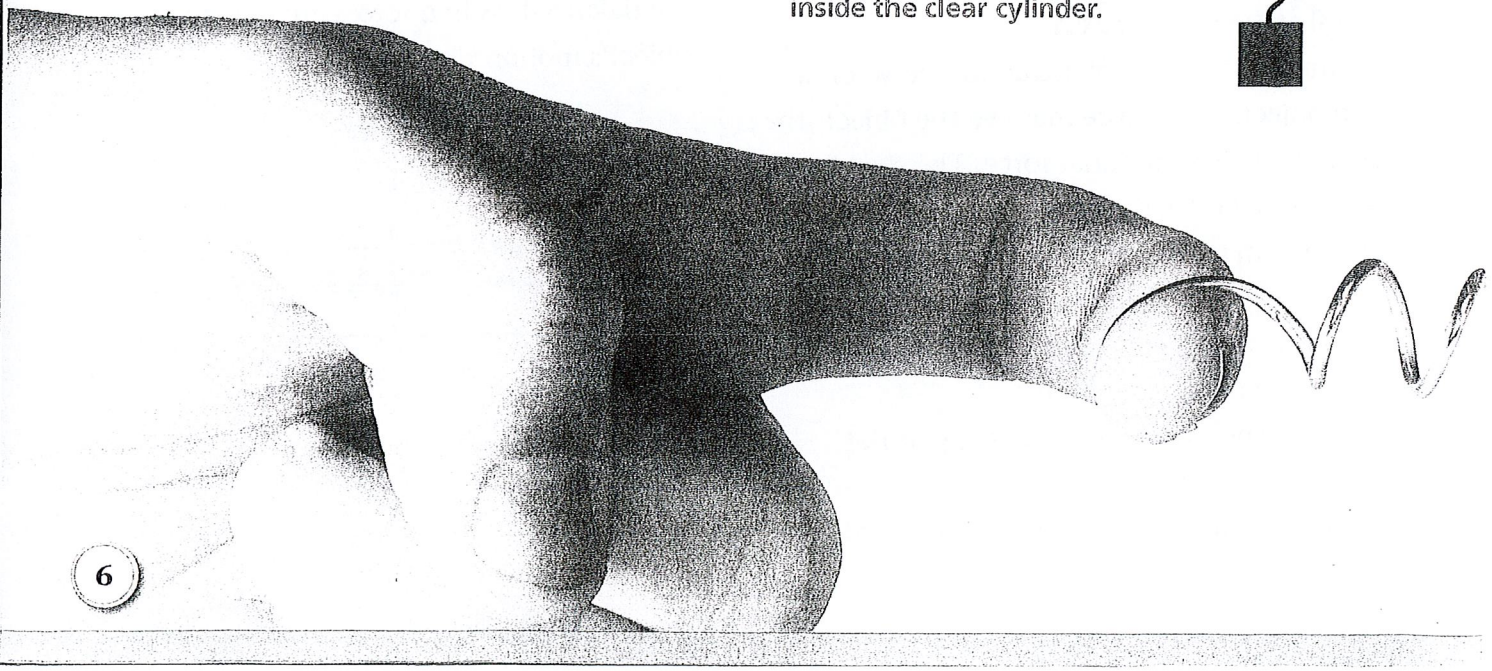
A common unit of force is the **newton (N)**, named after Sir Isaac Newton (1643–1727). A **spring scale** is a simple piece of technology designed to measure force. The spring is made of tough steel wire wound in a coil. The spring is mounted in a clear cylinder. When you pull down on the hook at the bottom or push down on the top of the central **shaft**, the spring **compresses**. When you add a load to the hook, the force of gravity acting on the load's mass pulls the spring down. The downward force of gravity on a mass is its **weight**. Adding mass, which increases the weight, pulls the hook down further.

Did You Know?

Newton was one of the greatest scientific minds of all time. He experimented with objects in motion. Based on his experiments, Newton used math to describe the movement of objects within the solar system, including comets and Earth's tides.



Adding loads to this spring scale compresses the spring inside the clear cylinder.



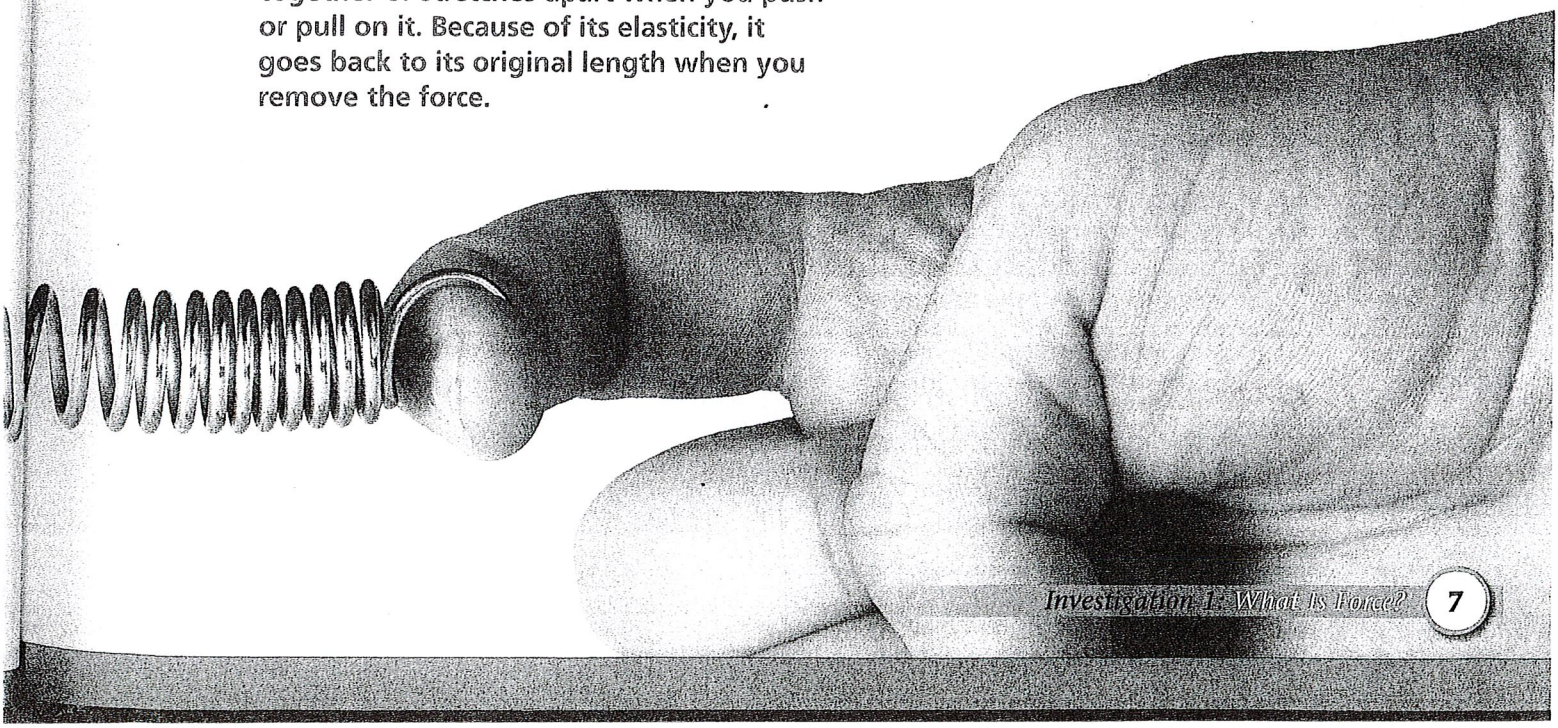
If you compress a spring in your hand, you can feel the force of the metal pushing back toward its original position. As the weight of the load compresses the scale's spring, the spring exerts more force upward. When the spring exerts an upward force equal to the load's weight, the hook does not drop any lower. The force of gravity pulling the mass down equals the force of the spring pulling the mass up.

A 100-gram (g) mass exerts a force of 1 N when pulled by the force of gravity on the surface of Earth. The spring scale is marked in 10 g intervals on one side for measuring mass and 0.1 N intervals on the other side for measuring force.

Think Questions

1. **What are the objects interacting in these actions?**
   - **A bicycle moves.**
   - **You throw a ball straight up in the air.**
2. **Look at the diagram with the spring scales. What is the force in newtons on each load?**
3. **What is the difference between mass and weight?**
4. **Do you know of any other invisible forces besides gravity?**

A spring is a spiral of metal that squeezes together or stretches apart when you push or pull on it. Because of its elasticity, it goes back to its original length when you remove the force.



First/Last NAME: _____ Date: 11/19/19 Period: **2 3 5 6 7**

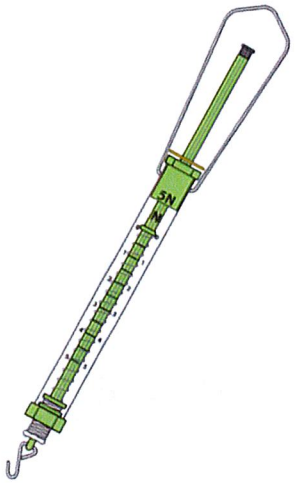
Directions: Actively read, think, and respond in writing to the text. Think about forces and provide explanations, summaries, and examples within the organizer below. Use neat handwriting along with specific evidence. Quality matters.

The Force Is with You

The skater stands at the edge of the half pipe, ready to push off. That first push is the force that sets her and the skateboard in motion.

(Pages 2-7)

Read and Think (Key Concept)	Evidence	Respond Explanation / Examples
Relate to the pictures / captions.	Page 3, 4, 5	The (skateboarder) reminds me of...
Force: An interaction • **Explain force** • Describe the interactions needed to make the skateboard (or soccer ball) move	Pages 3-4	**Force** is..._____ **Force** is an _____ between _____. In my life, an example of an interaction is when I (play/do) _____ _____ _____
An invisible force Fill in the definition: **Gravity** is the force of _____ between any _____ objects.	Page 5	Do you know of any other invisible forces besides gravity? **YES / NO** (if yes, what is it? _____) **Draw and label a picture that shows the invisible force.**

Measuring Force: **Key Concepts** A. Newton(N) B. Spring scale C. Compresses D. Weight	Page 6	**Match the concept with it's definition** _____ A simple piece of technology designed to measure force. _____ the downward force of gravity on a mass _____ forced (pushed) into a smaller space; (when the mass pulls the spring down, it is being ___) _____ A common unit of force (N)
	Page 6	**How does a spring scale work? (Draw) and label** **Look at the diagram on page 6. What is the force, in newtons on each load?** **A.** **B.** **C.**
Summarize:	Pgs. 3-7	**List three main concepts you learned from "The Force is with You."** _____ _____ _____ _____ _____ _____ _____

Name: _____Science HW Date Due: Wed. 11/20/19

Read Works Article "**How Soccer Can Help Us Understand Physics**"

Directions:

1. Read the article so you will better understand Newton's 1st Law of Motion
2. Read each question carefully and **underline** text evidence, where required
3. Place the Q# __ (question number) next to the underlined evidence
4. Use complete sentences and neat handwriting

How Soccer Can Help Us Understand Physics

by ReadWorks

Sports provide a great way to understand some concepts in physics. Physics, after all, is the study of matter, motion, force, and energy. And since sports like soccer, swimming and cycling involve bodies moving through space, they can help us understand how the principles of physics work.

Imagine that you're looking at a soccer ball on a grassy field. If you do nothing to the ball, it will stay motionless on the grass. If you kick the ball, it will roll along the grass before coming to rest again. Pretty simple, right?

For thousands of years, though, people thought that objects like this soccer ball come to rest because they have a natural tendency to stop. It took a famous physicist by the name of Sir Isaac Newton, who lived in the 1600s, to prove that this was not exactly correct.

Newton suggested that objects like the soccer ball have a natural tendency to keep moving. The only reason they stop, he believed, is because an unbalanced force acts on them. By an unbalanced force, Newton meant the force applied to the soccer ball by its environment. When kicked, the surface of the ball travels over the grass, creating friction. The taller the grass, and the rougher the surface of the ball, the more friction is created. And the more friction that exists between the ball and the grass, the less it will travel after being kicked.

Now, imagine that there is no grass. Instead, the ball is resting on a frozen lake. When you kick the ball on the ice, the ball will go much farther than it would have on the grass. This is because ice provides a lot less friction than the grass.

Even so, ice does cause some friction. The ball's interaction with the frozen water crystals on the surface of the lake eventually causes it to come to rest again. But now imagine that instead of ice, the ball is in a place where there's no friction at all. The ball is floating in a vacuum. If you remove friction entirely, kicking the soccer ball would cause it to keep going and going at the same speed, until some force caused it to slow down and stop.

To paraphrase Sir Isaac Newton, a soccer ball on the grass will stay where it is unless acted on by a force. Similarly, once you kick the ball, it will remain in motion unless acted on by force. This, in so many words, is known as *Newton's First Law of Motion.*

The same principles apply for other sports. Take swimming. Olympic swimmers are in a constant battle with the force of water. Water slows them down. To increase their speed, swimmers often shave their entire bodies, reducing the amount of friction caused by hair. Since a swimming contest can be won or lost by a tenth of a second, anything they can do to remove friction will help—even if it means ridding their bodies of hair.

Recently, Olympic swimmers took to wearing full-body suits in the water, which made swimmers sleeker and reduced underwater friction. Swimmers wearing these suits began to break world records. They started winning all the races. Soon enough, Olympic officials, realizing that these suits posed an unfair advantage, banned the use of suits in Olympic competition. Swimmers had to fall back on their own, hairless skin.

The situation for professional cyclists is slightly different. Unlike the swimmer, who battles the water, the cyclist is confronted with forces from other sources that seek to slow him or her down: the force of the road and the force of the air. Like professional swimmers, pro cyclists are known to shave their body hair, to reduce the amount of friction caused by the wind. But the loss of body hair represents only a tiny reduction in surface friction compared to, say, wearing spandex shorts instead of baggy shorts with pockets that fill up with air as you ride.

To reduce friction and increase speed, cyclists adopt all kinds of techniques. They wear aerodynamic helmets. They crouch low over their bikes. They wear shirts and shorts that cling closely to their skin, preventing air from slipping inside and slowing them down. However, little can be done about the tires' interaction with the pavement. As in the case of the soccer ball, a bicycle wheel will eventually stop spinning if no force acts upon it to keep it moving. The rougher the road, the sooner that bike wheels will come to a stop.

What really matters when trying to kick a ball, swim a lap, or bicycle a 5-mile race are the forces of physics. Without them, every time you kicked a soccer ball, the ball would keep going, forever.

Word Work / (Quiz Practice) Write the correct word next to the definition.

Physics	**Force**	**Friction**

1. An (unbalanced) force acting between surfaces in contact, that acts to resist motion is _____
2. An interaction between objects; a push or pull _____
3. The study of matter, motion, force, and energy _____
4. To act on, or be acted on by one or more objects _____
5. The common unit for measuring force (N) _____

Question Set

6. Once it is in motion, what does an object like a soccer ball have a *natural tendency* to do?
    a. It has a natural tendency to keep moving
    b. It has a natural tendency to stop
    c. It has a natural tendency to change direction
    d. It has a natural tendency to slow down

Underline Question evidence in the text

7. Sir Isaac Newton was a famous
    a. Soccer player
    b. Physicist
    c. Biologist
    d. Environment

Underline Question evidence in the text

8. What does the author explain in this passage?
    a. The author explains the force of friction, using different kinds of music as examples
    b. The author explains the sport of soccer, using examples of current teams and players
    c. The author explains the idea of motion, using different sports as examples

9. **Friction** can be described as *an unbalanced force acting on an object in order to resist motion*. List two specific examples of friction described in the article.

Underline Question evidence in the text

_____

_____

_____

_____

10. Summarize Newton's 1st Law of Motion (¶ #7)and then give a specific example as it relates to an activity / sport you enjoy

_____

_____

_____

_____

Force & Motion Notebook #1 Vocabulary

Word	Definition
Force	An interaction between objects; a push or pull
Gravity	The force of attraction between any two objects
Interaction	To act on, or be acted upon by one or more objects
Newton (N)	The common unit for measuring for force (metric system)
Spring Scale	A simple piece of technology designed to measure force.
Weight	The downward force of gravity on a mass
Mass	The amount of matter "stuff" in an object
Friction	A force acting between surfaces in contact, that acts to resist motion

S T U D Y the words/definitions above

SCIENCE QUIZ FRIDAY, November 22, 2019