Cohen Middle School
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Name: _____ **Date: December 10, 2019**____

Math: More Ratio Tables & Comparing

hmwk: last pag of packet & Ratio test Tues.

Social Studies:

- **Geography of India**

HW : Subcontinent WS/ Corrections due 12/16

ELA: Daily Warm-Up

Vocabulary.com

Independant Reading Vocabulary Practice

Science
1. Warm-up: Periodic Table Exploration (in class mini)
2. Pre-read "Magnetic Force" (Draw + Predict)
3. Read and find evidence pgs 19-22
4. FINISH NB Pgs 3, 4 if not done yesterday.

Computer Apps/ Technology

Name: _____

Date: _____

INDIA AND THE HIMALAYAS
www.mdowling.com

The Indian Subcontinent

The Indian subcontinent is a peninsula that juts southward from the rest of Asia like an enormous arrowhead. The Himalayan Mountains separate the subcontinent from the rest of Asia. While it is a distinct landmass, the Indian subcontinent is not large enough to be considered a continent.

The Indian subcontinent is part of a tectonic plate that has been moving for more than 200 million years. The plate was once attached to Africa, Australia and Antarctica, but it separated and began colliding with Asia 50 million years ago.

When the two landmasses met, the resulting collision created the Himalayas. Scientists expect the Himalayas to continuing rising for the next several million years. Many of the Himalayan mountains tower more than five miles above sea level, making the Himalayas the world's tallest mountain chain. Himalaya means "home of snow" because the tallest peaks of the Himalayas are always capped with snow.

The Himalayas include Mount Everest, the tallest mountain in the world. Everest rises 29,028 feet above sea level on the border between China and Nepal. No plant life grows near the mountain's peak due to powerful winds, extremely cold temperatures, and a lack of oxygen.

Many adventurous people attempt to climb Everest every year. Often their venture ends in sickness or death. Most people are unable to breathe 20,000 feet above sea level because there is not enough oxygen in the atmosphere. A person will suffer brain damage when they are unable to breathe. Clearly the peak of Mount Everest is a place for only the heartiest of people.

Fill in the Blanks

The Indian subcontinent has been a part of A_____ for the last 50 m_____ years. The s__b__o__i__ne__t is separated from the rest of A_____ by the massive H__m__l__y__n Mountains. Himalaya means "h_____ of snow" because the Himalaya's tallest p__a__s are always covered with s_____.

More than 500 people have reached the p_____ of Mount E_____, the tallest of the H_____. One Italian, Reinhold Messner, climbed the mountain twice without oxygen. This is a very dangerous feat because a person can suffer b_____ damage at that altitude. Everest expeditions have so far claimed over 100 lives, including 40 ethnic Sherpas who live in the H_____. Jon Krakauer wrote in his bestselling book, *Into Thin Air*, "Attempting to climb E_____ is a completely irrational act . . . As you ascend into [the] thin air, you discover that h_____ are not meant to be here." Eight people died on Krakauer's odyssey when a blizzard suddenly enveloped the upper reaches of Everest. The climb may only be undertaken with government permission. Even with o_____, strong w_____ and frigid t_____ make the p_____ of Mount Everest a place for only the heartiest of people.

Answer in complete sentences

*1. Explain why the top of Mount Everest has an unpleasant climate.

*2. In 1924, George Mallory was asked why he wanted to climb Mount Everest. He replied, "Because it is there." Why would someone risk his or her life to climb Mount Everest?

*This is a higher order learning question. Any reasonable answer will be graded as correct.

Magnetic Force

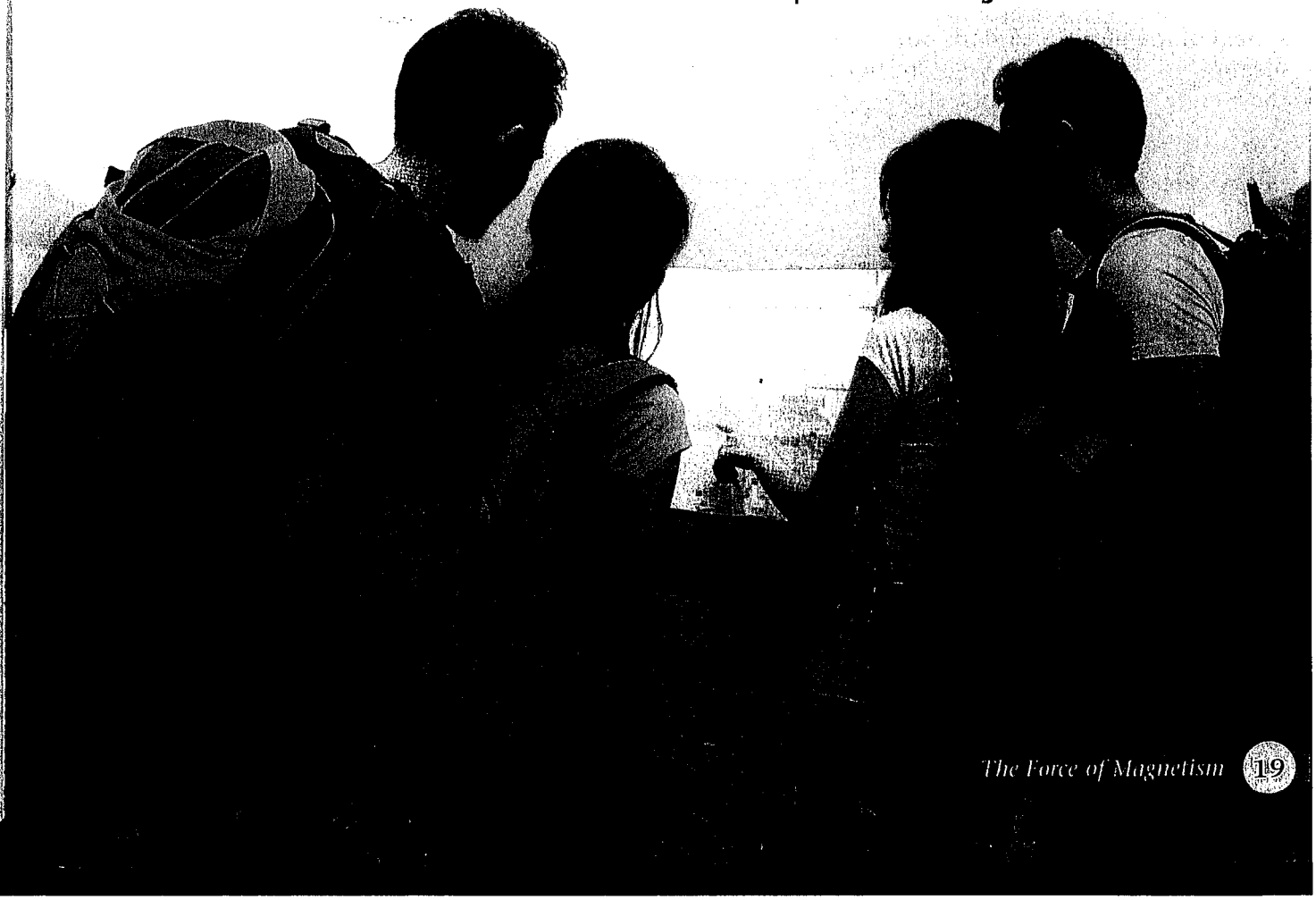
The sky is overcast with thick clouds. A storm is coming in. You and your friends have been trying to find your way back to the ranger station for an hour.

Whose idea was it to go off the trail? That clump of rocks looks awfully familiar. You're pretty sure you are going in circles. If only you had brought a **compass** to show which way is north!

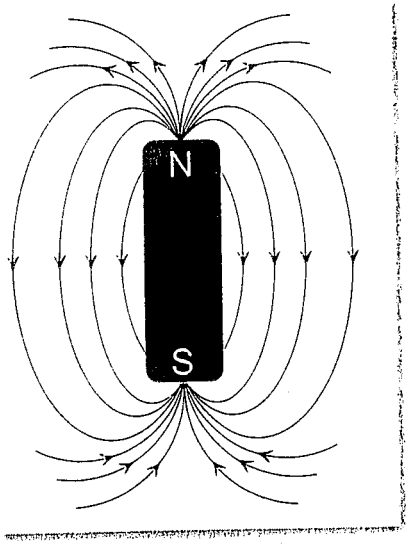
Fields of Force

When you are using a compass, the tiny magnet in the compass needle aligns with Earth's **magnetism** and helps you find your way. But closed in its plastic case, the needle never touches another magnet. How do magnets exert a force without touching?

Earth is a giant magnet with poles and a magnetic field that reaches far into space. A compass needle points north when it interacts with this planet-sized magnet.



It is similar to how a falling apple and Earth exert a force of gravity on each other. Both the apple and Earth have a gravitational force that extends from them because of their masses. It forms an invisible **gravitational field**. Like gravity, magnetism is another invisible force of nature. Magnetism extends out from a magnet into the surrounding space to form what is called a **magnetic field**.



A field of magnetism extends out from every magnet. The magnetic force is strongest near the magnet's north and south poles.

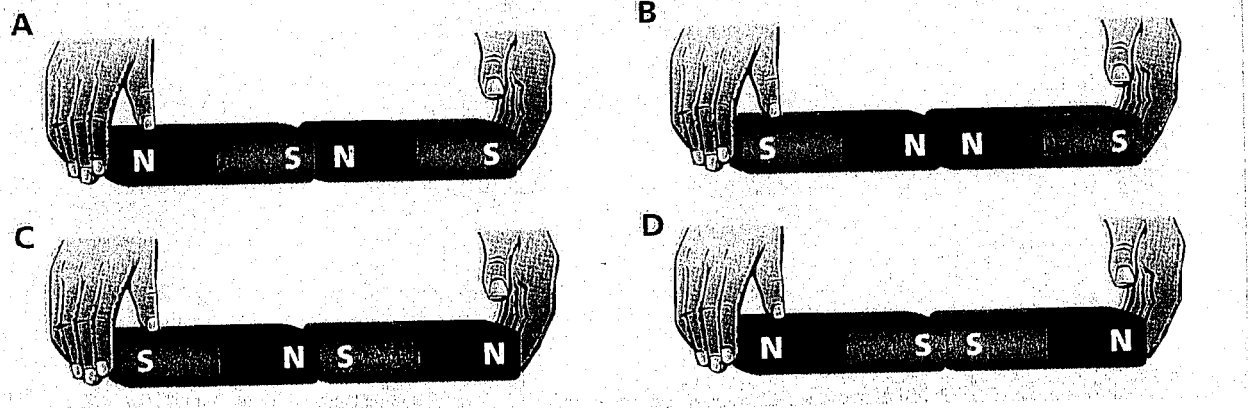
Force of Attraction or Repulsion

You feel magnetic force when you try to separate two magnets that are stuck together. You also feel magnetic force when you push two magnets together and they push away from each other. Magnetic force makes magnets act the ways they do.

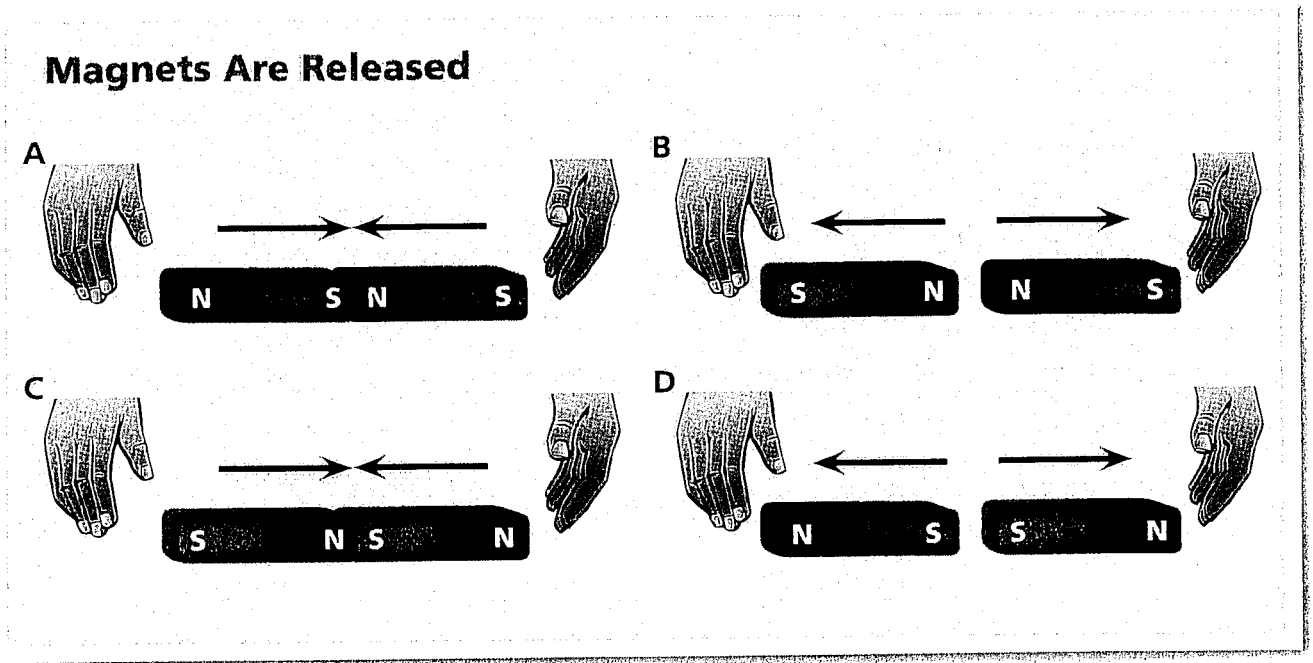
The magnets used in class are **permanent magnets**. They exhibit magnetic properties pretty much all the time. Every magnet has two different sides or ends called **poles**, the north pole and the south pole. A simple bar magnet has its two poles on opposite ends. A horseshoe magnet has a pole on each end of the horseshoe. The doughnut magnets you worked with have poles on the two flat sides.

What happens when you hold two magnets close to each other? They exert a force on each other, but will they **attract** or **repel**? It all depends on how the poles are oriented. Below are four pairs of bar magnets being held together. Which ones will push apart when they are released?

Magnets Held Together



These pairs of magnets are held together in different configurations. What will happen when they are released?



Observe how the magnets move when they are not held together. Opposite poles pull together, or attract, and like poles push apart, or repel.

The diagram above shows what happens when the magnets are released. Two general rules apply here. Can you figure out what the rules are?

The two pairs of magnets on the left attract each other. The two pairs of magnets on the right repel each other. Two north poles always repel each other. Two south poles always repel each other. We can state a general rule: like poles repel.

A north pole and a south pole always attract each other. It does not matter which magnet has the north pole and which has the south pole. We can state another general rule: opposite poles attract.

How Magnets Stick to Iron

If opposite poles attract, why does a magnet stick to a piece of iron, like an iron nail, that is not a permanent magnet? Remember that magnetism extends out from a magnet in an invisible area called a magnetic field. When a magnet comes close to a piece of iron, such as an iron nail, the magnetic field interacts with the iron in the nail. The nail becomes a **temporary magnet**. The end of the nail becomes one pole of a magnet. The magnet then sticks to the temporary magnet.

So magnets do not really stick to iron. Magnets stick to other magnets, even if they are temporary. The temporary magnetism in the iron is called **induced magnetism**. Induced magnetism happens only when a magnet is nearby.

Take Note

What are some examples of induced magnetism you observed in class?

Particle Properties

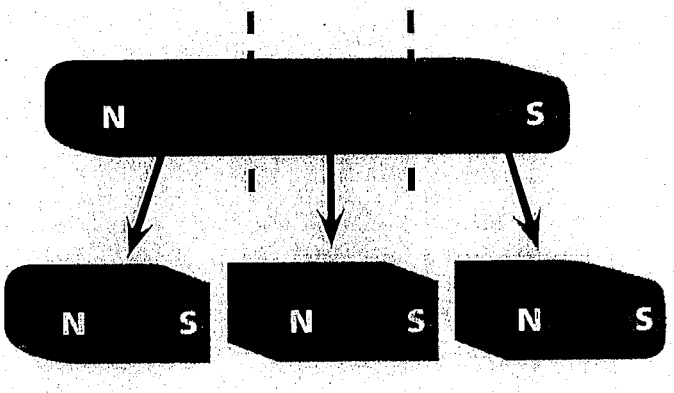
To understand why some materials have induced magnetism and others do not, we have to explore the properties of magnets at the **particle** level. That means at the level of atoms and molecules. We can start to think about particles by considering what happens when a bar magnet breaks. Do you have a magnet with just one pole?

No, both pieces still have a north pole and a south pole. The same is true for all other magnets. No matter how many pieces you cut a magnet into, each piece still has a north pole and a south pole.

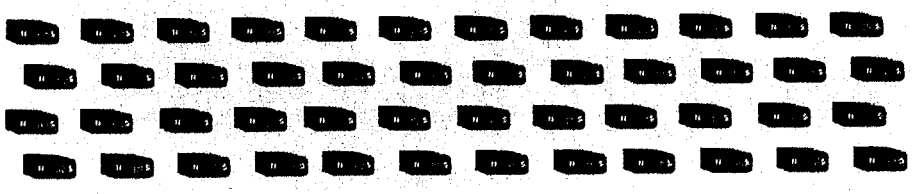
Each magnet piece has poles lined up the same way. If you did this a million million times, until you had the tiniest particle of the magnet that was still a magnet, you would see that each particle has poles lined up the same way.

This property defines a permanent magnet. Each particle has properties of magnetism. As

Magnets Cut Into Pieces



Cut a long bar magnet into three pieces. Each piece has a north pole and a south pole.



Particles of a permanent magnet (not shown to scale)

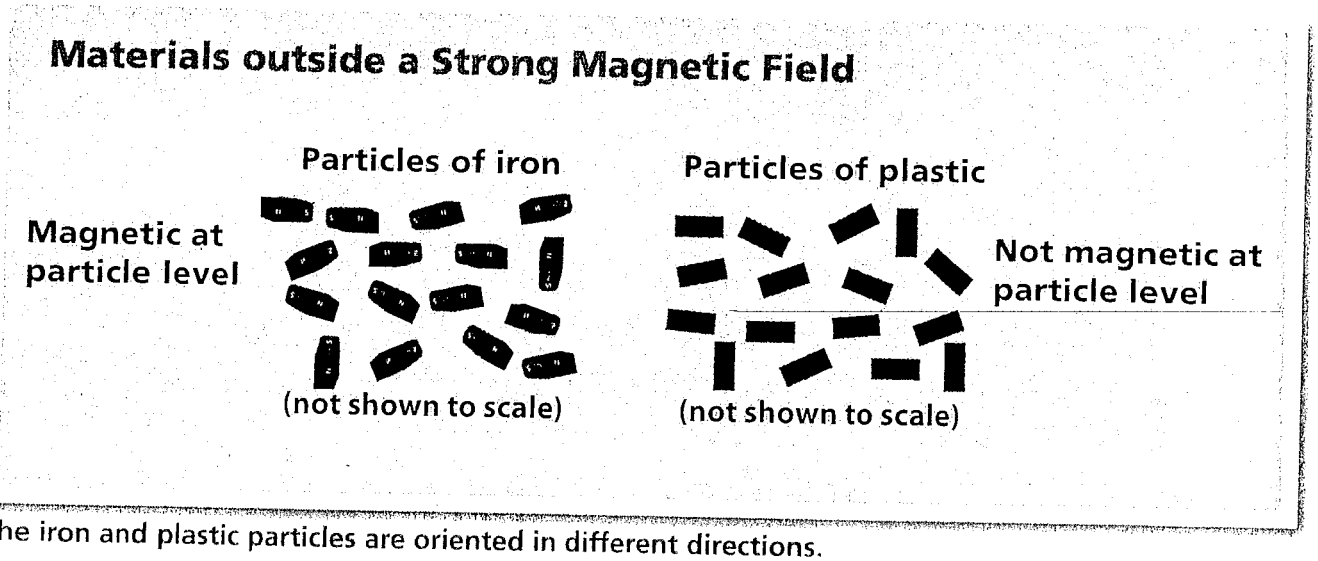
Even at the particle level, a magnet is still a magnet. Each atom of a magnet has a magnetic field and poles lined up in the same orientation.

the particles line up, each tiny magnetic field adds itself to form one big magnetic field.

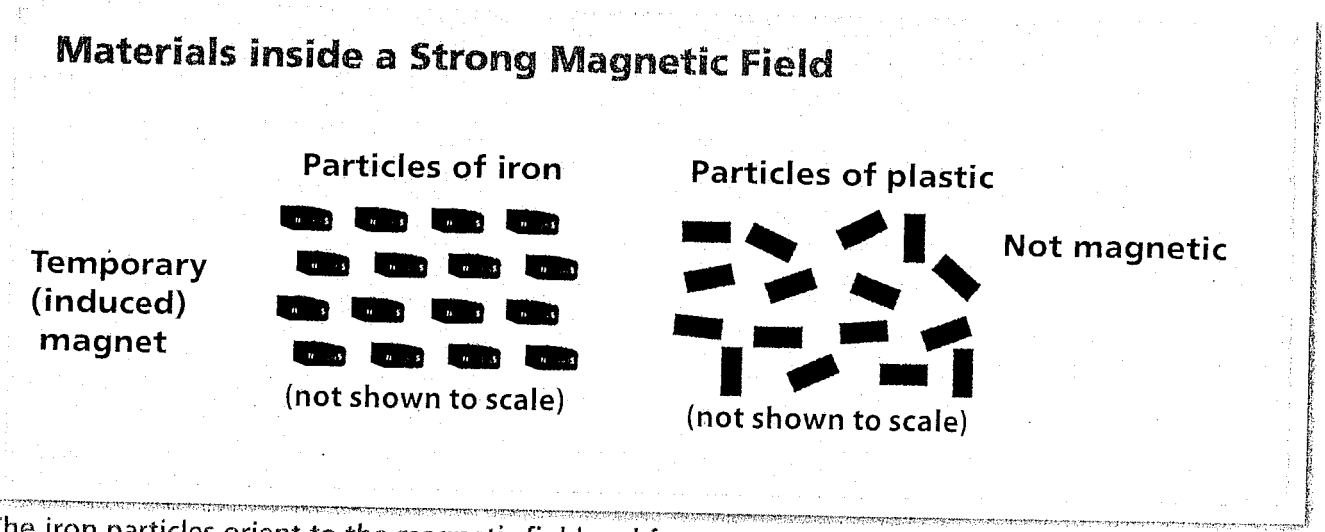
Nonmagnetic Materials

All nonmagnets can be split into two general categories, magnetic materials and nonmagnetic materials. Magnetic materials, such as the elements iron, nickel, and cobalt, have magnetic properties at the particle level. But the particles are not all aligned the same way. Those particles can line up when they are in a magnetic field. The materials become a temporary (induced) magnet.

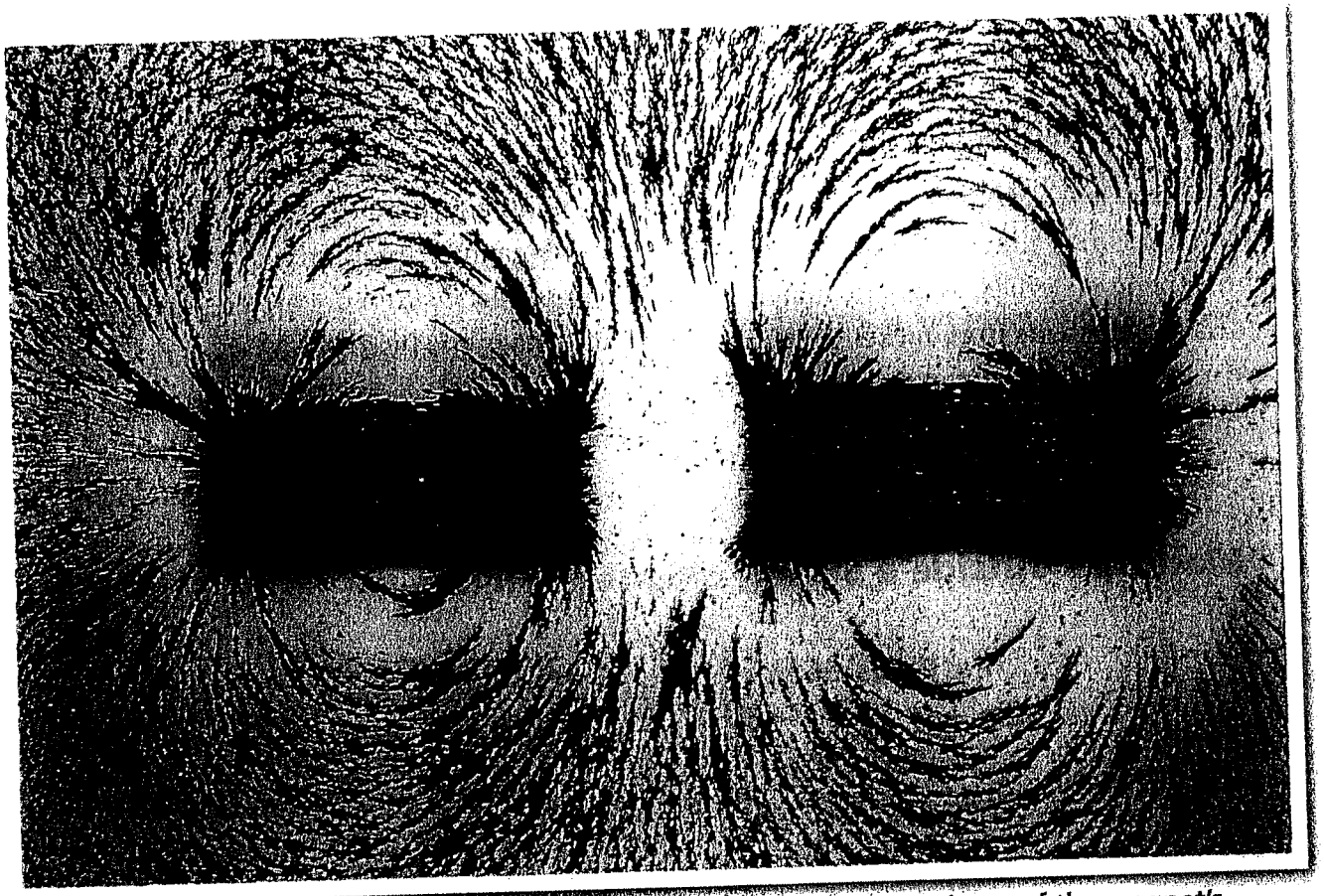
Nonmagnetic materials, like plastic, do not have magnetic properties at the particle level. Those particles are not affected when they are in a magnetic field.



The iron and plastic particles are oriented in different directions.



The iron particles orient to the magnetic field and form a temporary magnet. The plastic particles do not change.



Iron filings spread around a magnet will form a pattern that shows the shape of the magnet's magnetic field.

If you bring a strong magnetic field close to a magnetic material, the particles in the material will line up with the magnetic field. They create weak temporary magnets. Particles in the nonmagnetic materials will not line up. So even the strongest magnet cannot attract or repel a material like plastic or wood.

Think Questions

1. What rules determine whether magnets will attract or repel each other?
2. How can a magnet attract or repel another magnet even if they are not touching?
3. If you bring the south pole of a magnet close to the head of an iron nail, what changes will happen to the iron particles?

Name: _____ Date: Wednesday 12/10/19 Period **2 3 5 6 7**

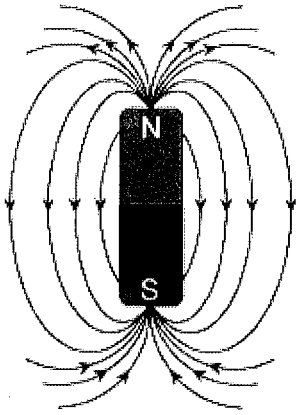
Read: "Magnetic Force" pages 19-22 only. Answer the Before you read first, and then find supporting evidence as you read each section. Be prepared to discuss this article on Wednesday in class.

1. **BEFORE:** What image do you see?
2. What do the N and the S represent?

_____

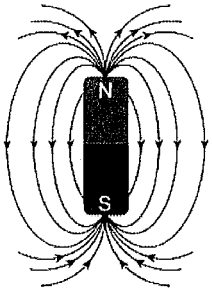
_____

_____



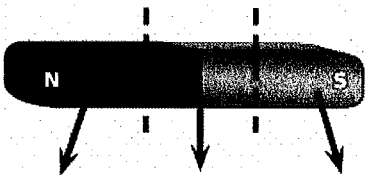
AFTER I READ...

"Magnetism *extends out from a and into the surrounding to form what is called The magnetic force is strongest near the magnet's and .*"



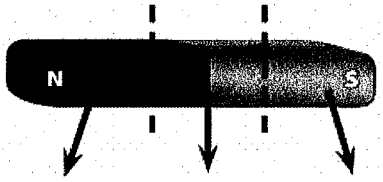
3. BEFORE I read...

Magnets Cut Into Pieces



AFTER I read...

Magnets Cut Into Pieces

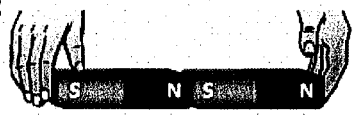


Magnets Held Together

A

B

C



D

These pairs of magnets are held together in different configurations. What will happen when they are released?

AFTER I read: **DRAW & LABEL what you** now know that When magnets are released (page 21),

Homework: Lessons 7, 9 & 10 Ratio Tables

Classwork

Name _____

1. You created a new playlist, and 100 of your friends listened to it and shared if they liked the new playlist or not. Nathan said the ratio of the number of people who liked the playlist to the number of people who did not like the playlist is 75: 25. Macie said that for every three people who liked the playlist, one person did not.

Do Nathan and Macie agree? Prove your answer using the values of the ratios.

Show your work:

Answer:_____

2. Ryan made a table to show how much blue and red paint he mixed to get the shade of purple he will use to paint the room. He wants to use the table to make larger and smaller batches of purple paint.

Blue	Red
12	3
20	5
28	7
36	9

a. What ratio was used to create this table? (ratio value) _____

b. How are the values in each **row** related to each other?_____

_____

c. How are the values in each **column** related to each other?_____

_____

3. A father and his young toddler are walking along the sidewalk. For every 3 steps the father takes, the son takes 5 steps just to keep up. What is the ratio of the number of steps the father takes to the number of steps the son takes?

Add labels to the columns of the table.

Place the ratio into the first row of data.

Add equivalent ratios to build a ratio table.

What can you say about the values of the ratios in the table?

Essential Question: How can you use ratio tables to compare ratios?

VOCABULARY

_____ - the way equivalent ratios in a ratio table are related by multiplication

EXAMPLE 1: THE MULTIPLICATIVE STRUCTURE OF A RATIO TABLE

Korin is making bracelets to sell at her family's yard sale. She uses 4 pieces of green string for every 3 pieces of yellow string to make each bracelet. She has 20 pieces of green string to use. How many pieces of yellow string doe she need? What if she had 60 pieces of green string?

You can make and use a ratio table to find the number of yellow strings Korin needs.

If Korin has 20 pieces of green string, she will need _____ pieces of yellow sting

If Korin has 60 pieces of green string, you do not need to extend the table all the way to 60 in order to find the number of yellow strings needed. Figure out what you would need to multiply 4 by to get to 60. Multiply that number by 3 to find the number of yellow strings needed.

3/4

	Green	Yellow	
	4	3	
x 2	8	6	x 2
x 3			x 3
x 4			x 4
x 5			x 5

4/3

* green is 4/3 yellow
* yellow is 3/4 green

If Korin had 60 pieces of green string, she will need _____ pieces of yellow string

EXAMPLE 2: USING RATIO TABLES TO COMPRE RATIOS

Carson and his grandma like to walk. Carson can walk 2 miles in 30 minutes. His grandma can walk 3 miles in 60 minutes. Who walks at a faster rate?

METHOD 1: Compare the ratios with the **same distances**. Here it is _____ miles.

Ratio Value? ___ : ___ ___ : ___

Carson	
[illegible]	[illegible]
2	30
4	60
6	90
8	120

Grandma	
[illegible]	[illegible]
3	60
6	120
9	180
12	240

_____ takes longer to walk the same distance, so _____ walks faster.

METHOD 2: Compare the ratios with the **same time**. Here it is _____ minutes.

Carson	
Distance (miles)	Time (minutes)
2	30
4	60
6	90
8	120

Grandma	
Distance (miles)	Time (minutes)
3	60
6	120
9	180
12	240

_____ walks a shorter distance in the same time, so _____ walks faster.

EXAMPLE 3: COMPARING PARTS AND TOTALS IN RATIO TABLES

Both Anna and Elsa use peaches and pears in their fruit salad. Anna uses 1 cup of peaches for every 3 cups of pears. Elsa uses 3 cups of peaches for every 5 cups of pears. Whose fruit salad has more peaches?

Ratio tables can be used to compare the amounts of peaches in the two fruit salads. You can look at the totals as well as the parts, so use ratio tables with 3 columns.

METHOD 1: Compare the peaches to pears ratios with the **same amount of peaches**.

Anna's Fruit Salad		
Peaches (cups)	Pears (cups)	Total cups
1	3	4
2	6	8
3	9	12
4	12	16

Elsa's Fruit Salad		
Peaches (cups)	Pears (cups)	Total cups
3	5	8
6	10	16
9	15	24
12	20	32

_____ fruit salad has more pears, so _____ fruit salad has more peaches.

METHOD 2: Compare the peaches to pears ratios with the **same total amount**.

Anna's Fruit Salad		
Peaches (cups)	Pears (cups)	Total cups
1	3	4
2	6	8
3	9	12
4	12	16

Elsa's Fruit Salad		
Peaches (cups)	Pears (cups)	Total cups
3	5	8
6	10	16
9	15	24
12	20	32

_____ fruit salad has less peaches, so _____ fruit salad has more peaches.

_____ has more peaches in her fruit salad

USE RATIO TABLES TO COMPARE RATIOS: GUIDED PRACTICE

1) Melissa uses 2 cups of raisins for every 3 cups of chocolate chips to make her famous cookies. Show how to complete the ratio table below. Then answer the questions.

a. Find the amount of raisins Melissa would use if she uses 12 cups of chocolate chips.

_____ raisins

b. If Melissa uses 24 cups of raisins, how many cups of chocolate chips would she need?

_____ chocolate chips

	raisins	chocolate chips	
	2	3	
x 2	4	6	x 2
x 3	6	9	x 3
x			x
x			x

2) Peyton and Sally are making salad dressing using oil and vinegar. The ratio tables below show how they make them. Whose dressing has more vinegar? Explain.

Peyton's Salad Dressing		
[illegible]	[illegible]	[illegible]
3	4	7
6	8	14
9	12	21
12	16	28

Sally's Salad Dressing		
[illegible]	[illegible]	[illegible]
3	1	4
6	2	8
9	3	12
12	4	16

_____ has more vinegar in her salad dressing.

Explain how you know:

Name

Homework

USE RATIO TABLES TO COMPARE RATIOS: INDEPENDENT PRACTICE

1. Arnold uses a recipe that calls for 4 eggs and 3 cups of flour to feed a large group of people. Show how to complete the ratio table below. Then answer the questions.

a. How many cups of flour will Arnold use if he uses 16 eggs?

_____ cups of flour

	Eggs	Flour	
	4	3	
x 2	8	6	x 2
x 3	12	9	x 3
x			x
x			x

b. Explain how to find how many cups of flour Arnold will use if he uses 2 dozen (24) eggs.

2. Brooke and Emma are selling popcorn and pretzels at the activity night. Brooke expects to sell 5 pretzels for every 4 boxes of popcorn. Emma expects to sell 4 pretzels for every 3 boxes of popcorn. Complete the tables. Who expects to sell more popcorn?

Brooke	
Pretzels	Boxes of Popcorn
5	4

Emma	
Pretzels	Boxes of Popcorn
4	3

_____ expects to sell more popcorn.

3. Alexandria and Mychael made sticker books. They put the same number of star stickers and the same number of smiley face stickers on each page. Who uses more star stickers?

Alexandria's Sticker Book		
Star Stickers	Smiley Face Stickers	Total
2	3	5
4	6	10
6	9	15

Mychael's Sticker Book		
Star Stickers	Smiley Face Stickers	Total
4	2	6
8	4	12
12	6	18

_____ uses more star stickers in their book.

Explain how you know: