



4



SCIENCE

Quarter 3 - Module 3 Magnetic Force



Name of Learner: _____

Grade & Section: _____

Name of School: _____

JANUARY

Makugihon

FEBRUARY

Mohiguigmaon

MARCH

Matinabungon

APRIL

Matinahuron

MAY

Mahapsay og Malimpyo

JUNE

*Maabtik og Masunod sa
 Oksaklong Oras*

JULY

Maantigo og Maabilidad

AUGUST

*Maginhantuhunon
 Para sa Uban*

SEPTEMBER

Madaginaton

OCTOBER

Matinud-anon

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Masaligan

DECEMBER

Maalampon

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Lesson 3

Magnetic Force



What I Need to Know

After going through this module, you are expected to:

1. Characterize magnetic force; (WEEK 3, S4FE-IIIId-e-3)



What's In

In your previous grade, you have learned about magnet. Can you still remember? Answer the following below.

A. Directions: Write **T** if the statement is true and **F** if the statement is False.

- _____ 1. Objects like nails and needle are attracted to magnet.
- _____ 2. Not all objects are attracted to magnets.
- _____ 3. The ends of the magnets are called its pole.
- _____ 4. A magnet is a material or object that produces a magnetic field.
- _____ 5. A magnet has only south pole and doesn't have north pole.

B. Directions: Draw a magnet and label its poles.



What's New

Perform this activity with adult supervision.

Activity 1: MAGNETIC OR NON-MAGNETIC MATERIALS

What you need:

- | | | |
|----------------|---------|----------|
| bar magnets | nails | slippers |
| plastic bottle | tin can | |
| paper | wood | |
| metal spoon | glass | |

What to do:

1. Hold the different items close to the bar magnet (not touching) to see if they are attracted to the magnet.
2. Complete the table indicating whether or not the items are attracted to the magnet.

Materials	MAGNETIC?	
	YES	NO
1. Paper		
2. Wood		
3. plastic bottle		
4. can		
5. nails		
6. slippers		
7. glass		
8. metal spoon		

3. What can you conclude from your results?

So now we know that magnetic forces can act over a distance, but can they still act if there is something in the way? Do the activity below

Activity 2: Can a Magnetic Force act through substances?

What you need:

- bar magnets
- paper
- cellophane
- thick piece of wood
- bear brand/milo empty wrapper
- nails

What to do:

1. Hold 2 bar magnets. Let the north poles face closer to each other. What do you notice?

2. Hold 2 bar magnets. Let the south poles face closer to each other. What do you notice?

3. Have the two opposite poles face closer to each other. What do you notice?

Activity 3:

Direction: Use the objects listed in column A as the blocking objects in picking up the nails using a magnet. Record your observation in column B.

A BLOCKING OBJECT	B OBSERVATION
paper	
cellophane	
thick piece of wood	
Bear Brand or Milo empty wrapper	

Follow up questions:

1. Were there any materials which prevented the magnet from picking up the nails?

2. What does this activity tell us about magnetic force?

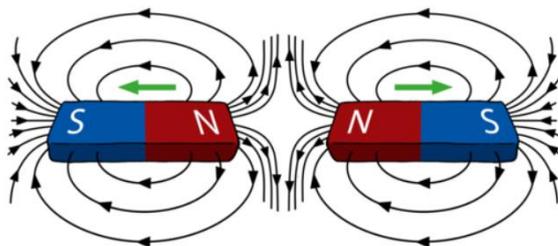


What is it

Magnetic force is defined as the power that pulls materials together. An example of magnetic force is how a magnet can pick up coins. (*www.yourdictionary.com*)

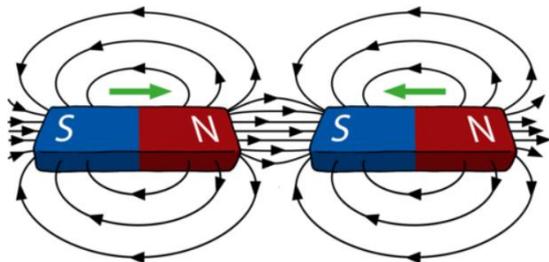
The force exerted by magnet is known as magnetic force. In the last activity we observed that the magnetic force acts over a distance. The magnet does not need to touch something in order to exert a force on it.

Each magnet has two poles. One is the north pole and other is the south pole. We have seen in the activity that two similar poles or like poles repel or move away from each other



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While the two dissimilar or unlike poles attract each other.



<https://intl.siyavula.com/read/science/grade-9/forces/images/gr9ec01-gd-0053.png>

The patterns you saw with your magnets in the illustrations are called **magnetic field lines**. Magnetic field lines are used to show something we can't actually see. The closer the field lines are drawn together, the stronger the field being described. The more field lines that are drawn, the stronger the field. The field lines go from the north pole to the south pole.



What's More

Activity 4: Find Me, Scouters!

Directions: Search and encircle some terminologies associated to MAGNETIC FORCE in the word bank in the pool of letters below.

WORD BANK		
SOUTH POLE	REPEL	NORTH POLE
ATTRACT	MAGNETISM	FORCE

P	E	C	E	I	P	E	Y	E	A	O	R
S	O	U	T	H	P	O	L	E	T	B	E
P	S	I	W	O	S	O	Y	O	T	J	P
P	I	O	A	V	O	R	A	S	R	E	E
X	C	R	N	P	D	T	E	K	E	C	L
T	M	A	G	N	E	T	I	S	M	A	T
A	M	I	R	R	O	R	T	C	F	T	O
P	N	S	A	Y	A	I	A	Z	O	T	P
Q	L	M	D	O	R	S	G	G	R	R	L
I	B	P	Y	U	A	T	E	T	C	A	I
N	O	R	T	H	P	O	L	E	E	C	J
N	Z	R	I	S	W	O	V	M	H	T	N

Activity 5: Tell whether each sets of magnets will attract or repel.

1.



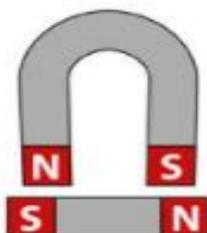
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2.



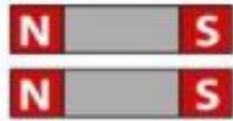
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3.



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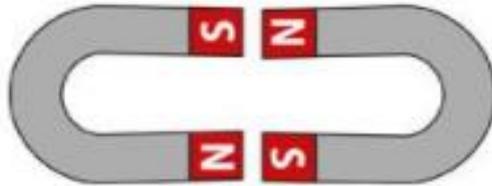
4.



—



5.



—



What I Have Learned

Activity 6: Complete ME.

Directions: Complete the paragraph, by supplying with the missing word. Find your answers in the word bank provided.

magnetic field	magnetic force	repel
attract	magnets	

When the poles of the two _____ are put near each other, they have a _____ that will either pull them together or push them apart. If the poles are different, then they will _____ each other or pull together. If the poles are the same, then they will _____ each other or will push apart. The pattern drawn in a magnet to show the strength of its poles is called _____.



What I Can Do

Activity 7:

Directions: Answer the following.

1. Are magnets important? Why?

2. Cite situation/s in our daily lives showing importance of magnets.



Assessment

Directions: Encircle the letter of the best answer.

1. The power that pulls materials together is called_____.
 - a. magnetic field
 - b. magnetic force
 - c. south pole
 - d. north pole
2. What do you call the invisible area around the magnet?
 - a. magnetic field
 - b. magnetic force
 - c. south pole
 - d. north pole
3. What will happen when two magnets with like poles are place near each other? The magnets will _____.
 - a. repel
 - b. attract
 - c. melt
 - d. explode

4. What will happen when the north and south poles of two magnets are placed near each other?
 - a. repel
 - b. attract
 - c. scattered
 - d. jump

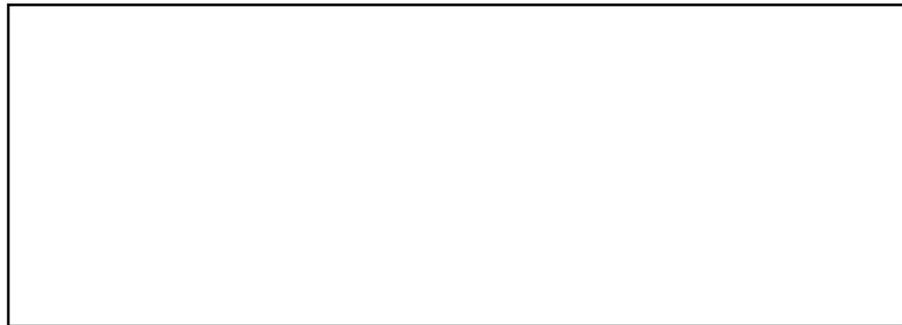
5. Which statement below about magnets is NOT true?
 - a. Like poles of a magnet repel.
 - b. Unlike poles of a magnet attract.
 - c. Magnets have an invisible area called magnetic field
 - d. North and West are the two poles of a magnet.



Additional Activities

Directions: Make a diagram showing the field lines between bar magnets which are attracting and those which are repelling.

Magnets which are attracting.



Magnets which are repelling.



Answer Key

What's In

- A.
1. True
 2. True
 3. True
 4. True
 5. False



What's New

Activity 1.

Materials	MAGNETIC	
	YES	NO
Paper		/
Wood		/
Plastic bottle		/
Can	/	
Nails	/	
Slippers		/
Glass		/
Metal spoon	/	

3. Not all materials are magnetic. Only some metals are magnetic, such as can, nails and metal spoon.

Activity 2

What to do:

1. The two poles repel each other. There is a "pushing" force.
2. The two poles repel each other. There is a "pushing" force.
3. The two poles attract each other. There is a pulling force between the poles.

Activity 3:

A	B
Blocking Object	Observation
paper	Nails are attracted to magnet
cellophane	Nails are attracted to magnet
thick piece of wood	Nails are NOT attracted to magnet
Bear Brand or Milo empty wrapper	Nails are attracted to magnet

Follow up Questions:

1. The only material which may have prevented the magnet from picking up the nails is the thick piece of wood.
2. It acts over a distance. It is strongest closer to the magnet and weaker as you move farther away from the magnet.

What's More

Activity 4

P	E	C	E	I	P	E	Y	E	A	O	R
S	O	U	T	H	P	O	L	E	T	B	E
P	S	I	W	O	S	O	Y	O	T	J	F
P	I	O	A	V	O	R	A	S	R	E	E
X	C	R	N	P	D	T	E	K	E	C	U
T	M	A	G	N	E	T	I	S	M	A	T
A	M	I	R	R	O	R	T	C	F	T	O
P	N	S	A	Y	A	I	A	Z	O	T	P
Q	L	M	D	O	R	S	G	G	R	R	L
I	B	P	Y	U	A	T	E	T	C	A	I
N	O	R	T	H	P	O	L	E	E	C	J
N	Z	R	I	S	W	O	V	M	H	T	N

Activity 5

1. repel
2. attract
3. attract
4. repel
5. Attract

What I Have Learned

Activity 6 :

1. magnets
2. Magnetic force
3. Attract
4. Repel
5. magnetic field

What I Can Do.

Activity 7

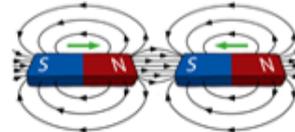
1. Yes, reasons may vary
2. Answers may vary

Assessment:

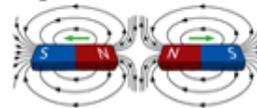
1. B
2. A
3. A
4. B
5. D

Additional Activities:

Attracting



Repelling



References:

Scott, et.al Science 4. Foresman Publishing .2006

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What's More Activity 4/ retrieved from
<https://images.app.goo.gl/gK49Vijuevjtio6m7>

Region IX: Zamboanga Peninsula Hymn – Our Eden Land

Here the trees and flowers bloom
Here the breezes gently Blow,
Here the birds sing Merrily,
The liberty forever Stays,

Gallant men And Ladies fair
Linger with love and care
Golden beams of sunrise and sunset
Are visions you'll never forget
Oh! That's Region IX

Cebuanos, Ilocanos, Subanonos, Boholanos, Ilongos,
All of them are proud and true
Region IX our Eden Land

Here the Badjaos roam the seas
Here the Samals live in peace
Here the Tausogs thrive so free
With the Yakans in unity

Hardworking people Abound,
Every valleys and Dale
Zamboangaños, Tagalogs, Bicolanos,

Region IX
Our..
Eden...
Land...

My Final Farewell

Farewell, dear Fatherland, clime of the sun caress'd
Pearl of the Orient seas, our Eden lost!,
Gladly now I go to give thee this faded life's best,
And were it brighter, fresher, or more blest
Still would I give it thee, nor count the cost.

On the field of battle, 'mid the frenzy of fight,
Others have given their lives, without doubt or heed;
The place matters not-cypress or laurel or lily white,
Scaffold or open plain, combat or martyrdom's plight,
T is ever the same, to serve our home and country's need.

I die just when I see the dawn break,
Through the gloom of night, to herald the day;
And if color is lacking my blood thou shalt take,
Pour'd out at need for thy dear sake
To dye with its crimson the waking ray.

My dreams, when life first opened to me,
My dreams, when the hopes of youth beat high,
Were to see thy lov'd face, O gem of the Orient sea
From gloom and grief, from care and sorrow free;
No blush on thy brow, no tear in thine eye.

Dream of my life, my living and burning desire,
All hail ! cries the soul that is now to take flight;
All hail ! And sweet it is for thee to expire ;
To die for thy sake, that thou mayst aspire;
And sleep in thy bosom eternity's long night.

If over my grave some day thou seest grow,
In the grassy sod, a humble flower,
Draw it to thy lips and kiss my soul so,
While I may feel on my brow in the cold tomb below
The touch of thy tenderness, thy breath's warm power.

Let the moon beam over me soft and serene,
Let the dawn shed over me its radiant flashes,
Let the wind with sad lament over me keen ;
And if on my cross a bird should be seen,
Let it trill there its hymn of peace to my ashes.

Let the sun draw the vapors up to the sky,
And heavenward in purity bear my tardy protest
Let some kind soul o'er my untimely fate sigh,
And in the still evening a prayer be lifted on high
From thee, O my country, that in God I may rest.

Pray for all those that hapless have died,
For all who have suffered the unmeasur'd pain;
For our mothers that bitterly their woes have cried,
For widows and orphans, for captives by torture tried
And then for thyself that redemption thou mayst gain

And when the dark night wraps the graveyard around
With only the dead in their vigil to see
Break not my repose or the mystery profound
And perchance thou mayst hear a sad hymn resound
'T is I, O my country, raising a song unto thee.

And even my grave is remembered no more
Unmark'd by never a cross nor a stone
Let the plow sweep through it, the spade turn it o'er
That my ashes may carpet earthly floor,
Before into nothingness at last they are blown.

Then will oblivion bring to me no care
As over thy vales and plains I sweep;
Throbbing and cleansed in thy space and air
With color and light, with song and lament I fare,
Ever repeating the faith that I keep.

My Fatherland ador'd, that sadness to my sorrow lends
Beloved Filipinas, hear now my last good-by!
I give thee all: parents and kindred and friends
For I go where no slave before the oppressor bends,
Where faith can never kill, and God reigns e'er on high!

Farewell to you all, from my soul torn away,
Friends of my childhood in the home dispossessed!
Give thanks that I rest from the wearisome day!
Farewell to thee, too, sweet friend that lightened my way;
Beloved creatures all, farewell! In death there is rest!

I Am a Filipino, by Carlos P. Romulo

I am a Filipino—inheritor of a glorious past, hostage to the uncertain future. As such I must prove equal to a two-fold task—the task of meeting my responsibility to the past, and the task of performing my obligation to the future.

I sprung from a hardy race, child many generations removed of ancient Malayan pioneers. Across the centuries the memory comes rushing back to me: of brown-skinned men putting out to sea in ships that were as frail as their hearts were stout. Over the sea I see them come, borne upon the billowing wave and the whistling wind, carried upon the mighty swell of hope—hope in the free abundance of new land that was to be their home and their children's forever.

I am a Filipino. In my blood runs the immortal seed of heroes—seed that flowered down the centuries in deeds of courage and defiance. In my veins yet pulses the same hot blood that sent Lapulapu to battle against the first invader of this land, that nerved Lakandula in the combat against the alien foe, that drove Diego Silang and Dagohoy into rebellion against the foreign oppressor.

The seed I bear within me is an immortal seed. It is the mark of my manhood, the symbol of dignity as a human being. Like the seeds that were once buried in the tomb of Tutankhamen many thousand years ago, it shall grow and flower and bear fruit again. It is the insignia of my race, and my generation is but a stage in the unending search of my people for freedom and happiness.

I am a Filipino, child of the marriage of the East and the West. The East, with its languor and mysticism, its passivity and endurance, was my mother, and my sire was the West that came thundering across the seas with the Cross and Sword and the Machine. I am of the East, an eager participant in its spirit, and in its struggles for liberation from the imperialist yoke. But I also know that the East must awake from its centuries sleep, shake off the lethargy that has bound his limbs, and start moving where destiny awaits.

I am a Filipino, and this is my inheritance. What pledge shall I give that I may prove worthy of my inheritance? I shall give the pledge that has come ringing down the corridors of the centuries, and it shall be compounded of the joyous cries of my Malayan forebears when first they saw the contours of this land loom before their eyes, of the battle cries that have resounded in every field of combat from Mactan to Tirad Pass, of the voices of my people when they sing:

"I am a Filipino born to freedom, and I shall not rest until freedom shall have been added unto my inheritance—for myself and my children and my children's children—forever."