



Republic of the Philippines

Department of Education



DIPLOKOMANG
DIVISION

ZAMBOANGA DEL NORTE
DIVISION



5

SCIENCE

Quarter 3 - Module 1 Describing the Motion of Object



Name of Learner: _____

Grade & Section: _____

Name of School: _____

JANUARY

Makugihon

FEBRUARY

Mahigugmaon

MARCH

Matinabungon

APRIL

Matinahuron

MAY

Mahapsay og Malimpyo

JUNE

*Maabtik og Masunod sa
Dhaklong Oras*

JULY

Maantigo og Maabilidad

AUGUST

*Maginhuhunon
para sa Ulan*

SEPTEMBER

Madaginaton

OCTOBER

Matinud-anon

NOVEMBER

Masaligan

DECEMBER

Maalampon

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Lesson 1

Describing the Motion of Object



What I Need to Know

This module was designed and written in a way that suits your understanding and needs. It is here to help you master in **describing the motion of an object by tracing and measuring its change in position (distance travelled) over a period of time (S5-FE-IIIa-1)**.

Specifically, you are expected to:

1. Identify the distance covered by a moving object.
2. Determine the period of time spent by a moving object as it changes its position.
3. Compute the speed of moving objects.



What's In

In your previous lessons, you have learned about 'push and pull' or the force that makes the objects move, right? Do you ever wonder how the different forces around us affect the motion of objects?

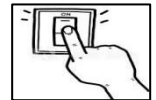
Have you ever seen the cars that race through the streets at night? The balls that roll on the ground when you kick them? Do you notice how they move in a specific direction and how fast they travel through space?

This lesson will surely help you investigate further on the motion of objects. But before that, let us find out whether you can still recall what you have learned before by answering the following exercises.

Directions: Encircle the letter of the correct answer.

1. What is motion?
 - A. the push or pull upon an object
 - B. a force that works against motion
 - C. increase in mass of objects
 - D. change in position of objects
2. Which refers to the location of a particular object?
 - A. position
 - B. motion
 - C. friction
 - D. force

3. Based on the picture at the right, what causes the switch button to change its position as it is turned 'on'?



- A. force applied by the finger in one's hand C. dimension of the wall
 B. attachment of the switch to the wall D. size of one's palm
4. Which of the following has the greatest effect on the motion of a falling object?
- A. gravity of the Earth C. air resistance
 B. mass of the falling object D. force applied to the object
5. To identify whether an object has moved or not, you need to consider its _____
- A. reference point C. force applied
 B. increase in mass D. change in size



What's New



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There were two sisters walking to school, Jahara and Jewel. They needed to walk 1 kilometer to get to school. One day, they decided to have a race to see who could get there faster. They both began walking at the same time, but at different speeds. In the end, Jahara reached the school after 25 minutes, while Jewel arrived in school after 20 minutes.

Answer the following questions: _____

1. How far did they walk to school? _____
2. How much time did it take Jahara to arrive in school? _____
3. How much time did it take Jewel to arrive in school? _____
4. Who arrived first? _____
5. Why did Jewel arrive first? _____



What Is It

Force and **motion** are important parts of our daily lives. From kicking a soccer ball to picking up a sandwich to dropping a pencil, force and motion are always at play. Even the blood flowing through our body moves due to the pumping force of the heart muscle. Everything is in constant motion because forces are always at work.

By definition, **motion** is a change in position with respect to a **reference point**. A **reference point** is a fixed place used to determine whether the position of an object has changed.

To determine the effects of motion on the length covered by an object from one point to another, it is important that we measure its **distance**. **Distance** is the measure of how far two points are from one another.

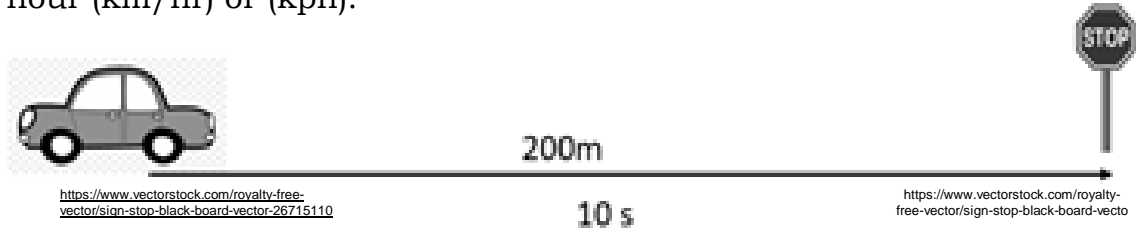
Scientifically, distance should be measured by using measuring tools such as a meter stick, tape measure, measuring wheel, and ultrasonic sensor. Scientists throughout the world use the metric system as a world standard for measurement. Commonly used metric units for measuring short distances include millimeter (mm) and centimeter (cm) while in measuring longer distances, meter (m) and kilometer (km) are often used.

The distance covered by a moving object is affected by its **speed** or the measure of how fast it moves. **Speed** refers to how fast an object's position changes over time. *The faster an object moves, the shorter time it takes for it to cover a certain distance. The slower it moves, the longer it takes for it to cover the same distance.* In measuring short period of time, second (s) or (sec) is often used while hour (h) or (hr) is used for longer period of time.

To calculate speed, you simply divide the distance traveled by a moving object to the time spent traveling. This can be expressed as:

$$\boxed{\text{Speed} = \frac{\text{distance}}{\text{time}}} \quad \text{or} \quad \boxed{v = \frac{d}{t}}$$

Since speed (v) is a measure of distance (d) per unit of time (t), commonly used units for speed include meters per second (m/s), kilometers per hour (km/hr) or (kph).



Example on how to calculate the speed of a moving object:

Given data:
 distance = 200 m
 time = 10 s

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

$$= \frac{200 \text{ m}}{10 \text{ s}}$$

$$= 20 \text{ m/s}$$

Problem sample:

Ana ran to her friend's house which is 240 meters away from her house in 40 seconds. How fast did Ana run?

Given data:

distance travelled = 240 m

time = 40 s

Solution:

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

$$= \frac{240 \text{ m}}{40 \text{ s}}$$

Speed = 6 m/s



What's More

Directions: Complete the table below by computing the speed of the given vehicles by using the formula:

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

Then, answer the questions that follow.

Kinds of vehicles	Point of Origin	Distance	Time	Destination	Speed
<i>tricycle</i>	<i>Dipolog City</i>	<i>40km</i>	<i>1 hr</i>	<i>Manukan, Zamboanga del Norte</i>	
<i>van</i>	<i>Dipolog City</i>	<i>80km</i>	<i>1.5 hrs</i>	<i>Sindangan, Zamboanga del Norte</i>	
<i>car</i>	<i>Dipolog City</i>	<i>140km</i>	<i>2 hrs</i>	<i>Tampilisan, Zamboanga del Norte</i>	

Questions:

1. Which vehicle travelled the fastest? _____
2. What is the speed of the fastest vehicle? _____
3. Which vehicle traveled the slowest? _____
4. What is the speed of the slowest vehicle? _____



What I Have Learned

How do you describe motion? Complete the graphic organizer below by putting the correct word found in the word pool.

motion	reference point	distance travelled	time
force	gravity	speed	

Describing the Motion of Objects	←	An object moves if there is 1) _____ exerted on the object.
	←	A 2) _____ is a fixed place used to determine the original position of an object.
	←	There is 3) _____ in an object if there is a change in its position with respect to a reference point.
	←	4) _____ describes how fast or slow an object changes its position over a period of time.
	←	Speed of objects can be computed by dividing 5) _____ over 6) _____.



What I Can Do

Answer the following questions.

1. Many accidents are happening on the streets, like car crashes or biking accidents. Why do you think these happen?

2. How can we prevent the occurrence of traffic accidents?

3. Why is it important to drive, bike or walk safely and carefully?



Assessment

I. Modified True or False

Directions: Write **T** if the statement is correct. If it is **false**, *change the underlined word* to make the statement correct. Write your answer before the number.

Examples:

seconds In measuring a short period of time that an object moves we use hours.

T Distance should be measured using standard unit of measure.

- _____ 1. Distance is the measure of how far or near two points are from one another.
- _____ 2. A reference point serves as a fixed location which you can refer in determining whether an object has moved or not.
- _____ 3. Motion refers to how fast or slow an object has changed its position in a given distance over a period of time.
- _____ 4. Force must be applied to an object to be in motion.
- _____ 5. Speed can be calculated by multiplying the distance covered by an object in motion by the period of time used to cover the given distance.

II. Multiple Choice.

Directions: Encircle the letter of the correct answer.

- Which of the following shows the fastest speed?
 - A. 15 m/s
 - B. 41 m/s
 - C. 21m/s
 - D. 51m/s
- Which is a unit of speed?
 - A. m/s
 - B. s
 - C. kg
 - D. hr
- What is the formula for finding the speed of an object?
 - A. Speed = distance/time
 - B. Speed = force /time
 - C. Speed=work/time
 - D. Speed= time/distance
- An eagle flies a distance of 60 meters in 10 seconds. What is the eagle's speed?
 - A. 600 m/s
 - B. 50 m/s
 - C. 6 m/s
 - D. 70 m/s
- You are having a bike race with your friends around the neighborhood. If you go 10 meters in 5 seconds, what is your speed?
 - A. 2 meters per second
 - B. 50 meters per second
 - C. 2 miles per hour
 - D. 5 meters per second



Additional Activities

Solve for the following problem. Show your solution.

1. A truck driver travels 240 kilometers in 5 hours. If he drove at a steady speed, how fast is he going?

2. A racing car travels 360 kilometers in 120 minutes. What speed is it traveling at?

Answer Key Science 5 Q3Module1

What's In

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

What's New

1. 1 km
2. 25 min.
3. 20 min.
4. Jewel
5. Jewel arrived first because she walks faster than Jahara.

What's More

vehicles	speed
tricycle	40 km/hr
van	53.33 km/hr
car	70 km/hr

1. car
2. 70 km/hr
3. tricycle
4. 40 km/hr

What I Have Learned

1. force
2. reference point
3. motion
4. speed
5. distance
6. time

What I Can Do

Answers may vary.

Assessment

I. Modified true or false

1. T
2. T
3. Speed
4. T
5. dividing

II. Multiple Choice

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

Additional Activities

1. 48 km/hr or kph
2. 3 km/min or 180 km/hr

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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, Subanons, 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
Zamboangueños, 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 centuried 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.”