Republic of the Philippines
Department of Education
NATIONAL CAPITAL REGION
Misamis Street, Bago-Bantay, Quezon City

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
(USLeM)

SCIENCE 6
Week 2

Writer / Illustrator
Ricky A. Mamaril

Layout Artist
Margie S. Mahinay

Content and Language Editor
Nelsie B. Caculitan

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
Grades 6 SCIENCE

LESSON 1: How Gravity Affects Movements of Different Objects

EXPECTATIONS:

In your previous grades, you have studied the effects of forces on an object.

This time, you will learn about gravitational force as one of the factors that affect the movement of objects. You will also observe the effects of gravitational force in a given situation.

PRETEST

Directions: Write **TRUE** if the statement about gravity is correct and **FALSE** if it is not. Write your answer on the space before the number.

_____ 1. Gravity lifts things upward.

_____ 2. Anything that has mass also has gravity.

_____ 3. Earth's gravity holds everything on the ground.

_____ 4. The Earth has a lesser gravitational pull than the Moon.

_____ 5. The gravity of Earth attracts all objects towards the center of Earth.

LOOKING BACK TO YOUR LESSON

Directions: Write **SF** for situations that involve STATIC FRICTION and **KF** for KINETIC FRICTION.

.

1

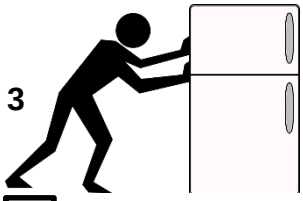
☐ A boy sliding down a slide

2

☐ Pushing a car that does not move

https://pxhere.com/en/photo/1458483?fbclid=IwAR1PvFUP2IvXhKNqaaucLZZ2zv9jxELjqZj0PAV9V4_xDBlug_GcoSg_vs

3



☐ Pushing a ref that doesn't move

https://pixabay.com/vectors/push-pushing-move-moving-action-150175/
https://pixabay.com/vectors/graphic-refrigerator-fridge-3968480/

4

☐ A girl pushing a cart

5

☐ Tug-of-war opponents who are keeping their positions

https://pixabay.com/vectors/silhouette-relationship-conflict-3141264/

6

☐ Rubbing both hands together

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
Grades 6 SCIENCE

BRIEF INTRODUCTION

Gravity is an unseen force that pulls objects toward each other. **Earth's gravity** is what keeps you on the ground and what makes things fall like a mango fruit that falls to the ground, a girl that can stand steadily on the floor, and roots of certain plants that grow downward as a response to gravity.

ACTIVITY 1

"G-Force!"

A. Directions: Do the following activities and record your observations. Answer the questions on the space provided.

1. ***throw upward a small stone and a pencil (one at a time)***
2. ***drop a sheet of paper and a crumpled paper at the same time from the same height***
3. ***hang a piece of cloth on a clothesline***

Throwing upward a small stone and a pencil	
Questions	**Answers**
1. What happens when you throw a small stone and a pencil?	
2. Based on the activity, what makes the small stone and a pencil fall?	

Dropping a sheet of paper and a crumpled paper at the same time from the same height	
Questions	**Answers**
1. Which of the papers hit the ground first?	
2. Why?	

Hanging cloth on a clothesline	
Questions	**Answers**
1. Which direction does the hanged cloth point?	
2. Why?	

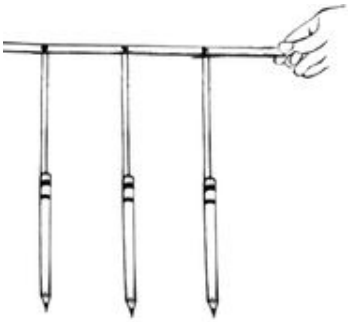
ACTIVITY 2 "Pull Down"

What you need:

1 pc barbecue stick (cut pointed part), 3 pcs strings (12 inches each), 3 pcs pencils

What to do:

1. Start by tying the three pencils to the pieces of string.
2. Then tie the strings into the stick.
3. Lift the stick so that the pencils hang from the string.
4. Tilt the stick.



Activity	Observation	
	Which direction do the pencils point?	*What makes the pencils point in that direction?*
1. Lifting the stick while the pencils hang from the string		
2. Tilting the stick		

REMEMBER

Anything tossed upward falls. **Gravity** is the force that pulls objects toward the ground. The greater the surface area of falling objects, the greater is the **air resistance** that affects their movement.

All objects with mass exert a gravitational force. **Mass** is a measure of how much matter a body contains. Gravitational force is greater for objects of greater mass.

CHECKING YOUR UNDERSTANDING

Directions: Tell whether gravitational force **speeds up** or **slows down** an object given in the following situations. Write your answers in the space provided.

_____1. Maria climbs up the stairs.

_____2. Elsie tosses the coin upward.

_____3. Juan Carlo pedals the bicycle to reach the top of the hill.

_____4. Pedro drops a stone down in an old well to check its water level.

_____5. The boy on the 5th floor building accidentally drops a ball to the ground.

POSTTEST

Directions: Write **TRUE** if the statement about gravity is correct and **FALSE** if it is not. Write your answer in the space provided.

_____ 1. The moon does not exert a gravitational force.
_____ 2. Gravitational force is acting on objects going up.
_____ 3. Earth's gravitational force keeps you on the ground.
_____ 4. Gravitational force is directed towards the center of the Earth.
_____ 5. Gravitational force is greater between objects of greater mass.

LESSON 2: EFFECTS OF FRICTIONAL FORCE

EXPECTATIONS

As you learned in your previous lesson, gravity affects everything. Your every movement is affected by gravity. In this lesson, you will describe how friction affects the motion of objects, like slowing moving things down and preventing stationary objects from moving. You will also learn the importance of road signs to ensure the safety of pedestrians and drivers to reduce the rate of road accidents.

PRETEST

Directions: Write the letter of the **CORRECT** answer on the space before the number.

____1. Which of the following statements correctly describes friction?
A. A smooth surface has more friction.
B. Friction slows down a moving object.
C. Friction is less on a rough surface.
D. Objects move slowly on a smooth surface.

____2. Which of the following activities shows that friction is **ADVANTAGEOUS?**
A. Biking on a rocky road
B. Walking on a smooth floor
C. Using a brake when approaching a stoplight
D. Pushing furniture without rollers on a rough surface

____3. Which of the following situations **CORRECTLY** describes how friction affects the movement of an object?

> *I. A ball rolls farther on a smooth surface than on a rough surface.*
> *II. A ball rolls farther on a rough surface than on a smooth surface.*
> *III. The ball rolls quickly on a smooth surface than on a rough surface.*
> *IV. The ball rolls quickly on a rough surface than on a smooth surface.*

A. I and II B. II and III C. I and III D. II and IV

____4. Why are road signs important?
A. Road signs help to regulate the flow of traffic to all road users.
B. Road signs give orders and warnings to pedestrians and drivers.
C. Road signs ensure the safety of pedestrians and drivers from road accidents.
D. All of the above

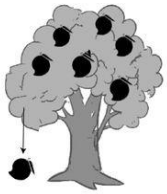
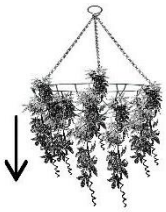
_____

_____5. Which of the following situations shows safety measures while driving to avoid road accidents?

A. John uses a cellphone.
B. Mario does not wear a seatbelt.
C. Ricky obeys the speed limit.
D. Mang Juan drinks alcohol.

LOOKING BACK TO YOUR LESSON

Directions: Encircle the pictures below which shows the evidence of gravity.

1 
2. 
3. 
4. 
5. 

BRIEF INTRODUCTION

Friction is the force produced between two surfaces when they rub against each other. Controlling any vehicular movement like braking depends on the frictional force between tires and road surface. When the road is wet, there is less frictional force between the two surfaces in contact with each other, especially if the vehicle is traveling at high speed. Cars and other vehicles have rolling friction and tend to speed up if not controlled. They have brakes that use friction to slow down and stop. **Speed limit** signs warn the vehicles to travel with lower speed limits in school zones and other public and private places.

ACTIVITY 1 Think! Stop! Look! and Listen! Before You Go!

Directions: Check the box if the situation in each column talks about road safety.

	1. A green traffic light means GO, but you must allow all the vehicles and pedestrians to clear the intersection before you go.
	2. A red signal light means STOP, but you can go through a red light if no one is around.
	3. When you see the yellow light, you should start slowing down because the red signal is about to be displayed.
	4. The 'Walk' or a "Walking Man" sign at intersections is for pedestrians. Cross the road only if the sign turns green.
	5. When the green light is on, look first to the left and right to ensure no vehicles are coming before you go.
	6. Never cross the road if the traffic light turns red.

	7. If you are biking on a place with a “School Crossing” sign, reduce speed and watch out for children who are crossing the roadway.
	8. If you are the passenger and encounter a “Men at Work” sign, you should advise the driver to speed up the car so that the men who are working on the street won’t be disturbed.
	9. If you are walking on the street and notice that there is a “Falling Debris” sign, you must be alert for potentially dangerous falling material.
	10. When you are a front passenger riding in a car and see a “Seatbelt Sign”, you have to ensure that you fasten your seatbelt properly for a safe journey.

ACTIVITY 2 Road Safety Advertisement

A. Directions: Draw three examples of road safety signs that you are familiar with and indicate what they are for.

B. Directions: Suppose you have been tasked by your school to introduce road safety to preschool children. Make a creative advertisement poster that you can use to explain road safety to them. Use the space below for this activity.

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
Grades 6 SCIENCE

REMEMBER

Road safety is so important because many lives are at stake when you are on the road. The potential for serious injuries or even death is always a high risk when someone is not focused while driving, crossing the street, or even just walking on the sidewalk. Road warning signs give helpful information to all road users. They symbolize commands to keep you safe and help to give messages to pedestrians and drivers that can maintain order and reduce road accidents.

CHECKING YOUR UNDERSTANDING

Directions: Match Column A with those in Column B. Write the letter of the correct answer before the number.

A

_____1. 

_____2. 

_____3. 

_____4. 

_____5. 

B

A. It indicates that parking of any vehicles is not allowed.

B. It warns the drivers to slow down or stop because workers are in or near the roadway.

C. It warns the people or drivers that they can slip and fall on the floor when it is wet.

D. It notifies the drivers that they must come to a complete stop.

E. It warns the driver that they are approaching a crossing where school children are expected to walk or cross the street.

POSTTEST

A. Directions: Put a checkmark (√) on the space provided before the number if the statement tells **FACT** about friction.

_____1. Friction is a force between two surfaces that are sliding.
_____2. Friction is a force that speeds up the movement of an object.
_____3. Friction acts in the same direction as the motion of the object.
_____4. Friction opposes motion between any surfaces that are touching.
_____5. Friction is the resistance to motion of one object moving relative to another.

B. Directions: Put a checkmark (√) on the space provided before the number if the statement tells safety measures to avoid road accidents.

_____1. Wearing a helmet is not necessary when riding a bike.
_____2. Stand and walk inside a moving vehicle like a school bus.
_____3. Cross only at sidewalks or at an intersection with pedestrian lanes.
_____4. Never forget to wear your safety belt whenever you are in a moving car.
_____5. Ensuring your vehicles in its roadworthy condition is a good practice to stay

safe on the road.

REFERENCES

https://lto.gov.ph/images/Services_LTO/DL/Road_Traffic_Signs_v4.pdf
https://lto.gov.ph/license-permit-issuance/337-reviewer-for-driver-s-license-examination.html
https://pixabay.com/vectors/silhouette-relationship-conflict-3141264/
https://pixabay.com/vectors/push-pushing-move-moving-action-150175/
https://pixabay.com/vectors/graphic-refrigerator-fridge-3968480/
https://pxhere.com/en/photo/1458483?fbclid=IwAR1PvFUP2IvXhKNqaaucLZZ2zv9jxELjqZj0-PAV9V4_xDBlug_GcoSq_vs

ANSWER KEY

Lesson 1: How Gravity Affects Movements of Different Objects

Pretest: 1. FALSE 2. TRUE 3. TRUE 4. FALSE 5. TRUE **Looking Back to your lesson:** 1. KF 2. SF 3. SF 4. KF 5. SF 6. KF	**Activity 1 "G-FORCE"** Note: Please accept related answers. 1. When you throw a small stone and a pencil upward, they go up but eventually fell on the ground. 2. gravity 1. crumpled paper 2. Because of air resistance, a crumpled piece of paper has less surface area than a piece of flat paper. 1. downward 2. Because gravity pulls it down.

Activity 2: "Pull Down"

Activity	Observation	
	Which direction do the pencils point?	*What make the pencils pointing to that direction?*
1. Lifting the stick while the paperclips hang from the string	Downward	Gravity
2. Tilting the stick	Downward	Gravity

Check your understanding: 1. slows down. 2. slows down. 3. slows down. 4. speeds up 5. speeds up	**Post Test:** 1. FALSE 2. FALSE 3. TRUE 4. TRUE 5. TRUE

Lesson 2: EFFECTS OF FRICTIONAL FORCE

Pretest:

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

Looking Back to your lesson:

1, 2, 3, 4, 5

Activities:

Activity 1: 1. √ 2. 3. √ 4. √ 5. √ 6. √ 7. √ 8. 9. √ 10. √	**Activity 2:** The outputs will be checked by the teacher.
Checking Your Understanding 1. E 2. C 3. D 4. B 5. A	**Posttest:** **A** **B.** **1.** √ 1. **2.** **2.** **3.** **3.** √ **4.** √ 4. √ **5.** √ 5. √