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

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
(USLeM)

SCIENCE 6 WEEK 7

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THE SOLAR SYSTEM

Expectations

This Unified Supplementary Learning Material will help you to:

- determine the relative sizes of the planets and their relative distances from the Sun; and
- use a scale to construct a model of the solar system showing the relative sizes of the planets and their relative distances from the Sun.

Pre-Test

DIRECTIONS: Encircle the letter of the **best** answer.

1. Which is **NOT** a giant planet?

A. Mars B. Neptune C. Saturn D. Uranus

2. What is the approximate equatorial diameter of Venus in kilometers?

A. 4,480 B. 6,787 C. 12,104 D. 12,756

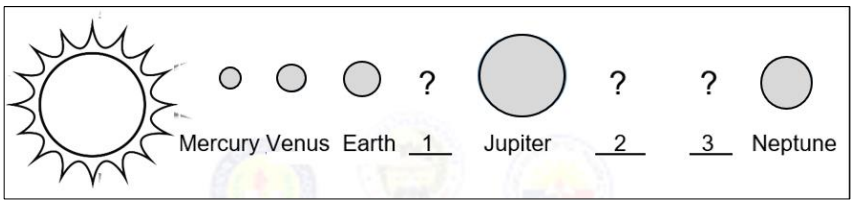
3. What is the **correct** arrangement of planets according to their average distance from the Sun?

A. Mars, Mercury, Earth, Venus
B. Earth, Venus, Mars, Mercury
C. Venus, Earth, Mercury, Mars
D. Mercury, Venus, Earth, Mars

4. Which statement **best** describes the relative distance of Earth and Mars?

A. Earth is nearer to the Sun than Mars.
B. Mars is nearer to the Sun than Earth.
C. Earth is farther from the Sun as compared to Mars.
D. Mars and Earth have the same average distance from the Sun.

5. In the Solar System model below which are planets 1, 2, and 3, respectively?



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A. Saturn, Mars, Uranus
B. Mars, Saturn, Uranus
C. Uranus, Saturn, Mars
D. Mars, Uranus, Saturn

Looking Back

DIRECTIONS: Identify the planet described in each statement. Write your answers before the number.

_____ 1. The blue-green gaseous planet.
_____ 2. The planet with almost the same size as the Earth.
_____ 3. The largest and most massive planet and is known for its Great Red Spot.
_____ 4. The planet with an approximate average distance of 227 million km from the Sun.
_____ 5. The seventh planet with an approximate average distance of 2.9 billion km from the Sun.

Brief Introduction

The solar system is composed of the Sun, the eight planets, and all other celestial bodies. The planets travel around the Sun through their elliptical orbits. They differ in terms of their relative sizes and distances from the Sun as shown on Table 1.

Table 1. Relative Sizes and Distances of Planets from the Sun

Planets	Approximate Distance from the Sun (km)	Approximate Equatorial Diameter (km)
Mercury	58 million	4,880
Venus	108 million	12,104
Earth	149 million	12,756
Mars	227 million	6,788
Jupiter	774 million	142,894
Saturn	1.4 billion	120,536
Uranus	2.9 billion	51,118
Neptune	4.5 billion	49,532

The **asteroid belt** found between Mars and Jupiter separates the planets into two groups. The first group consists of four planets from the Sun found inside the asteroid belt are called **terrestrial** or **inner planets,** namely: Mercury, Venus, Earth, and Mars. On the other hand, the second group found outside the asteroid belt are called **Jovian** or **outer planets** that include Jupiter, Saturn, Uranus, and Neptune.

Activities

Activity 1: How Big Am I?

A. DIRECTIONS: Complete the information on the table and answer the questions that follow.

Table 2. Sizes of Planets in the Solar System

Group	Planets	Approximate Equatorial Diameter (km)	Rank from biggest to smallest
Inner Planets (Terrestrial Planets)	Mercury	4,880	
	Venus	12,104	
	Earth	12,756	
	Mars	6,788	
Outer Planets (Jovian Planets)	Jupiter	142,894	
	Saturn	120,536	
	Uranus	51,118	
	Neptune	49,532	

_____ 1. Which is the smallest among the four giant planets?

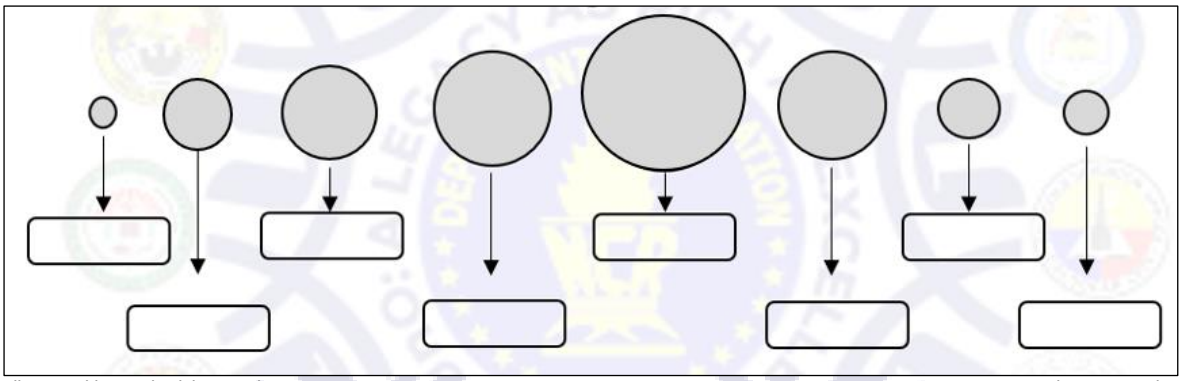
_____ 2. Which is the third largest among the terrestrial planets?

_____ 3. What is the approximate equatorial diameter of Uranus?

_____ 4. What is the difference in size between Saturn and Neptune?

_____ 5. What is the approximate equatorial diameter of the fourth largest planet?

B. DIRECTIONS: Relate the size of the circles with the approximate equatorial diameter of the planets from the table above to identify the planet. Write the answer on the box provided.



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Activity 2: Closer You and I

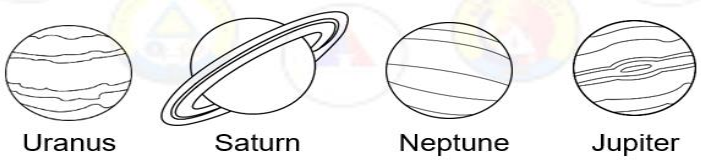
A. DIRECTIONS: Complete the information on the table and answer the questions that follow**.**

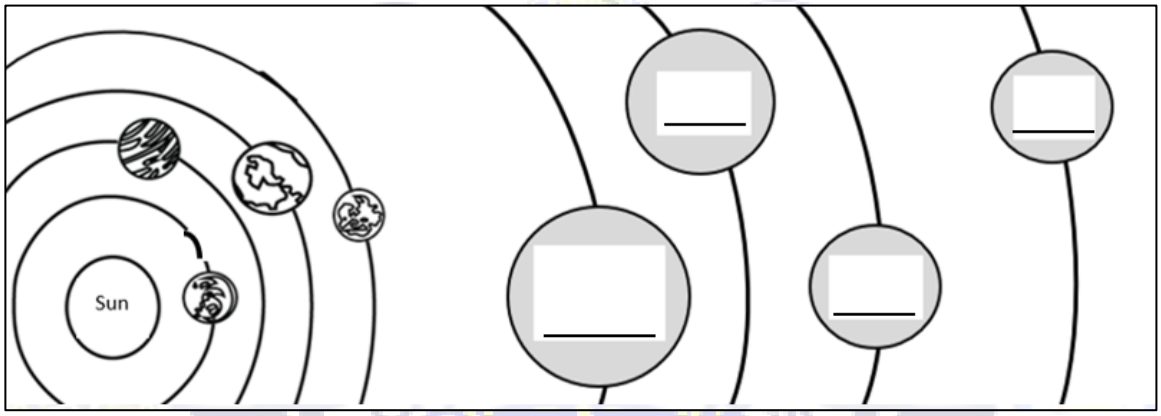
Table 3. Distances of Planets in the Solar System

Group	Planets	Approximate Distance from the Sun (km)	Distance to the Next Planet (km)
Inner Planets	Mercury	58 million	----------
	Venus	108 million	50 million
	Earth	149 million	
	Mars	227 million	
Outer Planets	Jupiter	774 million	
	Saturn	1.4 billion	626 million
	Uranus	2.9 billion	
	Neptune	4.5 billion	

_____1. How far is Jupiter from the Sun?
_____2. Which planet is farthest from the Sun?
_____3. Which planet is nearest from the Sun?
_____4. How far is the third farthest planet from the Sun?
_____5. What is the difference in distance between Saturn and Neptune?

B. DIRECTIONS: Write the name of the planet in its correct position in the solar system.





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Activity 3: Draw Me

DIRECTIONS: Draw and label your own model of the solar system. Consider the given scaled size and distance of planets on the table below.

Planets	Scaled Size (mm)	Scaled Distance (mm)
Mercury	1	3
Venus	2.4	5
Earth	2.6	7
Mars	1.4	10
Jupiter	29.2	35
Saturn	24.7	64
Uranus	10.4	130
Neptune	10	204
Sun with a radius of **3 cm**		

Legend: Scale for size: 1 mm: 4880 km
Scale for distance: 1 mm: 22 million km

Draw your model here

Remember

- The relative sizes and distances of the planets from the Sun in the Solar System vary.
- Mercury, Venus, Earth, and Mars are small inner planets with diameters less than 13,000 kilometers.
- Jupiter, Saturn, Uranus, and Neptune are the outer and giant planets, with diameters exceeding 48,000 kilometers.
- The asteroid belt separates the terrestrial and Jovian planets in the solar system.
- A model is used to show the relative sizes and positions of the planets in the Solar system.

Checking Your Understanding

DIRECTIONS: Inside the circle, put a check (/) if the statement is correct and cross (x) if incorrect.

1. Saturn is larger than Uranus and Neptune. ◯
2. The smallest planet has a diameter of 6,788 km. ◯
3. The smallest among the giant planets is Saturn. ◯
4. Jupiter is the biggest planet with a diameter of 142,984 km. ◯
5. Giant Planets have a diameter greater than 15,000 kilometers. ◯

Post-Test

DIRECTIONS: Encircle the letter of the **best** answer.

1. Which planet **does not** belong to the group?

   A. Mars B. Neptune C. Saturn D. Uranus

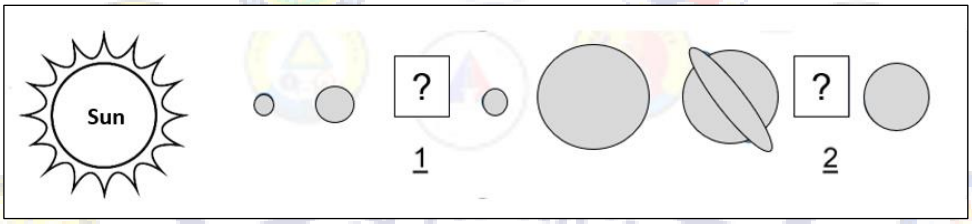
2. Which planet has an approximate diameter of 12,756 kilometers?

   A. Earth B. Mars C. Venus D. Uranus

3. Which statement **best** describes the relative distance of Earth and Mars?

A. Earth is nearer to the Sun than Mars.
B. Mars is nearer to the Sun than Earth.
C. Earth is farther from the Sun as compared to Mars.
D. Mars and Earth have the same average distance from the Sun.

4. Relative to the size of the circles and the approximate equatorial diameter of the planet, which are planets 1 and 2, respectively, in the figure below?



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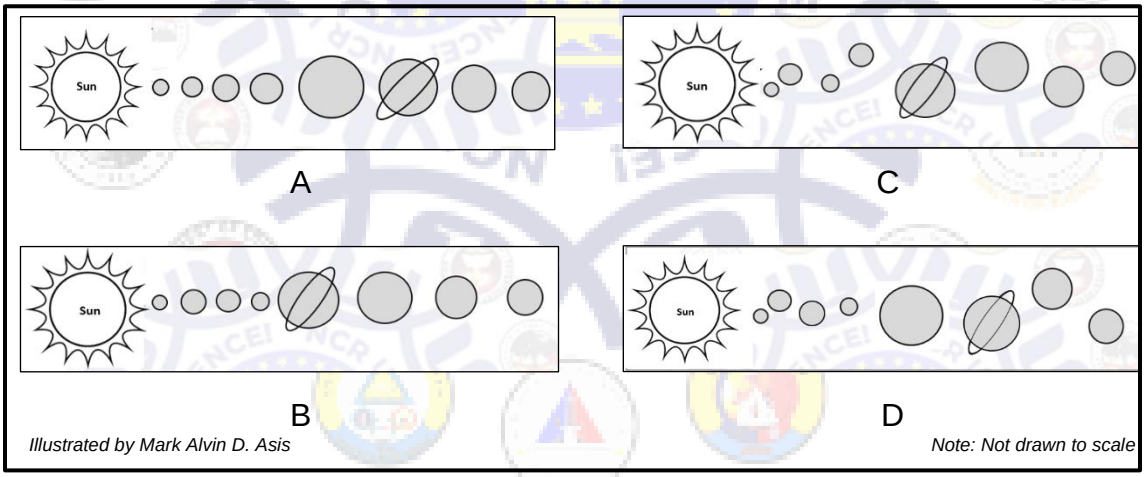
A. Earth, Saturn
B. Earth, Uranus
C. Mars, Jupiter
D. Venus, Neptune

5. Which **best** represents the model of the solar system in terms of relative sizes and positions of the planets?



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Sarte, Evelyn T. et al. (2016) Science Beyond Borders 6. Vibal Group Inc. 1253 G Araneta Ave. Quezon City. pp. 208-213.

https://www.reference.com/science/separates-inner-planets-outer-_planets-8da8f4d71024fff7

Answer Key

PRE-TEST

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

LOOKING BACK

1. Neptune
2. Venus
3. Jupiter
4. Mars
5. Uranus

Activity 1 (Part A)

1. Neptune
2. Mars
3. 51,118 km
4. 652 km
5. 49,532 km

Activity 1 (Part B)

Mercury
Earth
Neptune
Saturn
Jupiter
Uranus
Venus
Mars

Planets	Rank from biggest to smallest
Mercury	8th
Venus	6th
Earth	5th
Mars	7th
Jupiter	1st
Saturn	2nd
Uranus	3rd
Neptune	4th

Activity 2 (Part A)

1. 774 million km
2. Neptune
3. Mercury
4. 71,004 million km
5. 3.1 billion km

Activity 2 (Part B)

Planets	Distance to the Next Planet (km)
Mercury	
Venus	50 million
Earth	41 million
Mars	78 million
Jupiter	547 million
Saturn	626 million
Uranus	1.5 billion
Neptune	1.6 billion

Activity 3: Use as a guide

Points	Criteria				No Out-put
5	• Almost the same with the model • Completed	4	• 75% the same with the model • More than half completed • Very neat	3	• 50% the same with the model • Semi-completed • Some parts are less neat	2	• Far from the model • Incomplete • More messy than neat	0	

CHECKING YOUR UNDERSTANDING

1. /
2. /
3. X
4. /
5. X

POS-TEST

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