

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

UNIFIED SUPPLEMENTARY LEARNING MATERIALS (USLeM)



MATHEMATICS

Development & Editorial Team

Writers:	Ryan Michael A. Magdaparan
Illustrators:	
Layout Artists:	Joel J. Estudillo
Content Editors:	Dominador J. Villafria, Editha B. Cajilig, Lorna M. Elemento, Olive R. Lomibao, Melody F. Grimaldo
Language Editors:	Jose B. Ballovar
Management Team:	Dr. Malcom S. Garma, Regional Director - NCR Dr. Sheryll T. Gayola, SDS SDO-Marikina City Dr. Genia V. Santos, CLMD Chief - NCR Dr. Elisa O. Cerveza, CID Chief SDO-Marikina City Regional EPS, Bernadeth C. Daran Dennis M. Mendoza, LR EPS - NCR SDO EPS, Dominador J. Villafria Ivy Coney A. Gamatero, LR EPS SDO-Marikina City Nancy C. Mabunga, Librarian - NCR Menere R. Nasiad, PDO SDO-Marikina City Catherine C. Paningbatan, Librarian SDO-Marikina City

(This is a Government Property. Not for Sale.)

UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

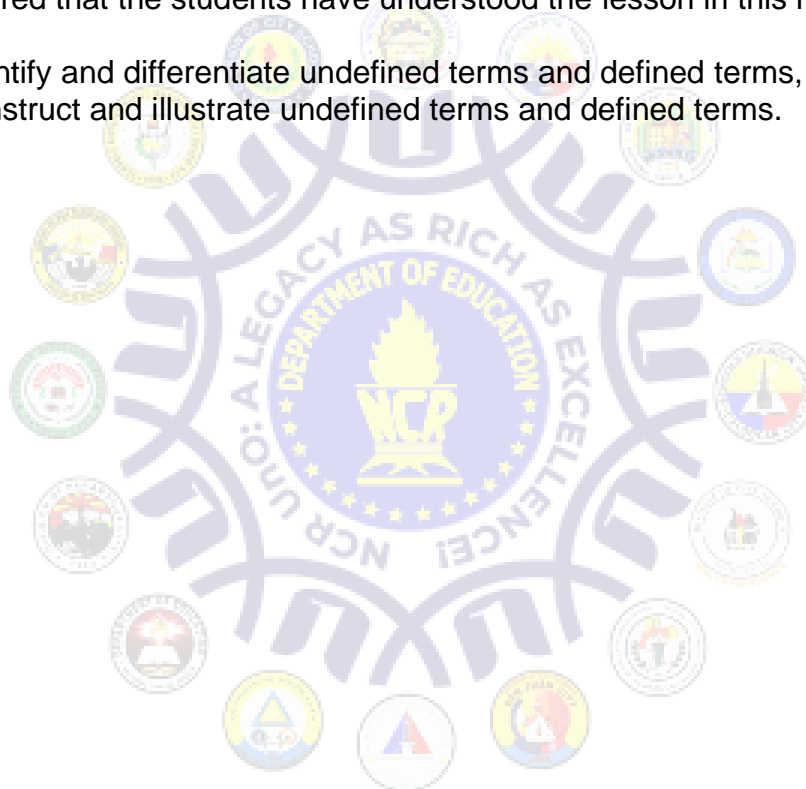
Expectation

In this module, **Grade 8** learners are expected to:

- illustrate the need for an axiomatic structure of a mathematical system in general, (a) defined terms; (b) undefined terms. **M8GE-IIIa-c1**

It can be inferred that the students have understood the lesson in this module when they can:

1. identify and differentiate undefined terms and defined terms,
2. construct and illustrate undefined terms and defined terms.



UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

Pre-Test

Directions: Read each item carefully. Write the letter of your answer on your paper.

- Which of the following correctly describes a point?
A. a straight path B. an exact location
C. an endless surface D. intersecting paths
- Which of the following symbols represents a line?
A. \overline{BC} B. \overleftrightarrow{CD}
C. \overline{DE} D. \overleftrightarrow{UH}
- Which of the following correctly describes a line?
A. A curve set of points that goes infinitely in both directions.
B. A set of points that goes infinitely in both directions and has no width.
C. A set of points that goes infinitely in only one direction.
D. A set of points that stops at specific points in both directions
- Which of the following terms is described as a flat surface with infinite length and width, but no thickness?
A. Line B. Plane C. Point D. Ray
- Which of the following is an undefined term that has no width, depth, length, and thickness?
A. Line B. Plane C. Point D. Ray
- Which is not an undefined term?
A. Line B. Plane C. Point D. Ray
- Which of the following best represents a line?
A. edge of a table B. a meter stick
C. an electric wire D. a roll of string
- Which angle has a measure of exactly 90° ?
A. Complementary Angles B. Congruent Angles
C. Right Angle D. Supplementary Angles
- Which of the following objects illustrates a point?
A. a ball B. a location marker in google maps
C. a tiny calamansi D. a very round pebble
- Which of the following is **not** an undefined term?
A. Angle B. Line C. Plane D. Point

UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

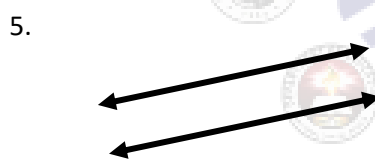
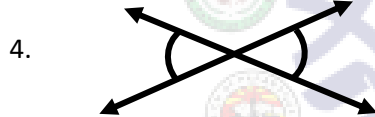
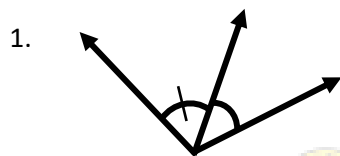
Looking Back

A. Match the figure to their correct description.

In your past lessons, you have already learned about the description and definition of several terms. Quickly recall the following by matching the correct answer that describes the given figure in Column A from the choices given in Column B.

Column A

Column B



A. Vertical Angles – are two angles opposite each other

B. Parallel Lines – lines on the same plane that do not intersect and always have the same distance from each other

C. Linear Pairs – two adjacent angles that form a line

D. Adjacent Angles – two angles that have a common side, a common vertex and no interior point in common

E. Perpendicular Lines – two lines that intersect at a right angle

B. Identify what is being described for each statement.

- _____ 1. An angle whose measure is 90° .
- _____ 2. Points that lie on the same line.
- _____ 3. A subset of a line with only one endpoint.
- _____ 4. Two non-collinear rays that have a common endpoint called the vertex.
- _____ 5. A portion of a line with two end points.

UNIFIED SUPPLEMENTARY LEARNING MATERIALS

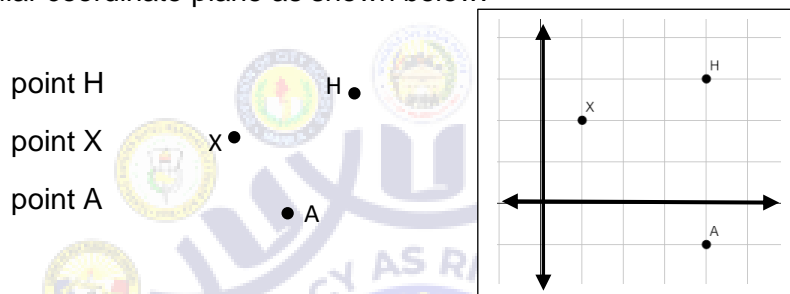
Grade 8 MATHEMATICS

Brief Introduction

Undefined terms are terms that can be described but cannot be defined such as **point**, a **line**, and a **plane**. These terms can only be described intuitively. We imagine these geometric terms as they are difficult to replicate exactly in real life, but the idea of their image gives us a basis for all other terms. These terms are the basic building blocks of geometry.

Point

A point has no size, no length, no width, and no thickness. In geometry it only indicates location or position. It is named using a capital letter such as the one you noticed in a rectangular coordinate plane as shown below.



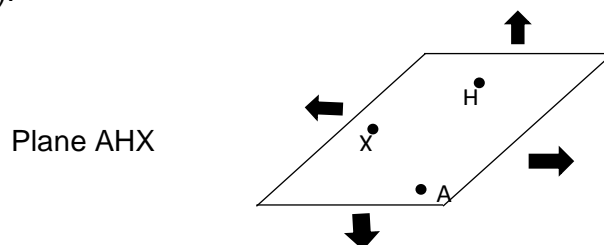
Line

A line has no thickness and has infinite length. It goes infinitely in both directions. It is represented by a straight edge having arrowheads on both ends. It is named with two capital letters with a small line and arrows at both ends (e.g. \overleftrightarrow{HK}). It can also be named by a single italic lowercase letter (e.g. line g).



Plane

A plane is a flat surface extending indefinitely in all directions and it has no thickness, but with two dimensions, the length and width. A plane is commonly represented as a figure that can be named by a single letter or by three points not all in the same line. It can be named using a script capital letters or three capital letters (e.g. Plane AHX or Plane ϕ).



It is important to remember the undefined terms, as they are the basis to define other terms used in Geometry. **Line segment** and **Ray** are two terms which are derived from a line as its subsets.

UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

Defined terms are terms with an exact definition or a specific description. They include a specific category and critical attributes. These terms are used to specify or describe different parts that will be used for theorems and other defined terms that we will encounter further in Geometry.

Examples of **defined terms**:

Space - set of all points, boundless and three dimensional

Collinear points - set of points that lie on the same line

Noncollinear points - set of points that do not lie on the same line

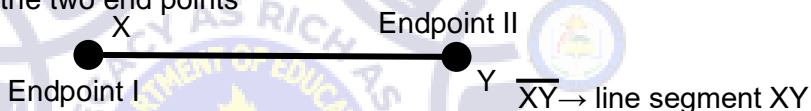
Coplanar points - set of points that lie on the same plane

Noncoplanar points - set of points that do not lie on the same plane

Ray – a part of a line beginning at an endpoint and infinitely extended in one direction. To name a ray we usually start to an endpoint.



Line Segment - part of a line consisting of two points, called endpoints, and the set of all points between the two end points



Opposite Rays – are two rays that share the same endpoint but extends towards opposite directions



Angle – union of two noncollinear rays that share the same endpoint called the vertex. The two rays are referred to as the sides of the angle and the opening between the two rays determines the angle measure.



These defined terms are important to the study of Geometry because they serve to simplify and specify other terms and concepts. As we study Geometry further, more and more defined terms will be added to make it easier to understand different concepts such as **postulates** and **theorems**.

Activity 1: Draw what is being asked for in each item.

1. Point E



2. Line Segment TU



UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

3. Line ML



4. Angle FOR



5. Opposite Rays



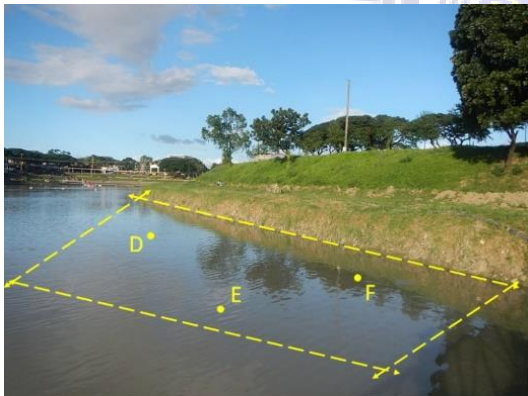
6. Plane SXZ



ACTIVITY 2:

Identify the undefined term illustrated in the picture below and name it.

1.) Surface of the Marikina River



2.) The rails in a railroad track



Remember

Write the appropriate word or words to complete the statements correctly.

UNDEFINED TERMS are terms that can only be _____ but cannot be _____.

DEFINED TERMS are terms with an exact _____ or a specific _____.

UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

Checking Your Understanding

Describing what is Undefined

Materials needed

1. Any sheet of paper
2. Drawing materials (Crayons, Pen, Pencil or Marker)
3. Ruler (or any straight object that can be used to make a straight line)

Directions:

1. On your sheet of paper draw a visible dot.



2. Draw another visible dot.



3. Using a ruler or straight object, draw a straight line through the two dots. Draw the line all the way to the edge of your paper.



Guide questions to perform the activities:

1. What term in geometry can you use to describe the two dots?
2. When you connected the two dots using the ruler what did you create?
3. Imagine that your sheet of paper never ended on any side or corner, what would happen when you do step 3?
4. If your sheet of paper extended forever, what term would you use to best describe it?

RUBRIC FOR THE ACTIVITY

Score	Description
10	All steps and answers were done correctly.
8	Two to three steps and answers were done correctly.
6	Two steps were done correctly but the answers were not correct.
3	At least one step and answer were done correctly.
1	None of the steps were done and some answers were inappropriate.

UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

Post-Test

Directions: Read each item carefully. Choose the letter that corresponds to the correct answer.

- Which of the following represents a line segment?
A. \overline{AB}
B. \overleftrightarrow{CD}
C. \overrightarrow{EF}
D. \overline{GI}
- Which of the following statements is true?
A. A point has thickness.
B. A plane has a defined border or edge.
C. A line segment continues indefinitely on only one side.
D. A ray has only one endpoint.
- What portion of a line has one arrowhead?
A. Line
B. Plane
C. Point
D. Ray
- In geometry, which of the following is defined term?
A. Line
B. Plane
C. Point
D. Ray
- What is a line segment?
A. A curve set of points that goes infinitely in both directions.
B. A set of points that goes infinitely in both directions.
C. A set of points that goes infinitely in only one direction.
D. A set of all points that has two endpoints.
- Which of the following consists of two rays with common endpoint and extended in opposite directions?
A. Line Segment
B. Opposite rays
C. Ray
D. Separate rays
- Which is an undefined term in geometry?
A. Angle
B. Line Segment
C. Point
D. Ray
- What is the common endpoint of the two rays in an angle?
A. Angle Measure
B. Arrowhead
C. Midpoint
D. Vertex
- What represents a plane?
A. a straight path
B. an exact location
C. a flat surface
D. intersecting paths
- Which term is not defined?
A. Angle
B. Line
C. Line Segment
D. Ray

UNIFIED SUPPLEMENTARY LEARNING MATERIALS

Grade 8 MATHEMATICS

ANSWER KEY

	Pre Test		Looking Back		Post Test
1.	B	A.1.	D	1.	D
2.	D	2.	C	2.	D
3.	B	3.	E	3.	D
4.	B	4.	A	4.	D
5.	C	5.	B	5.	D
6.	D	B.1.	Right Angle	6.	B
7.	A	2.	Collinear Points	7.	C
8.	C	3.	Ray	8.	D
9.	B	4.	Angle	9.	C
10.	A	5.	Line Segment	10.	B

Note: Other Activities with answer is in the duplicate of this USLeM