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DepED
DEPARTMENT OF EDUCATION

# Mathematics Activity Sheet Quarter 3 – MELC 1

## Representing Point, Line and Plane Using Concrete and Pictorial Models

REGION VI – WESTERN VISAYAS

**Mathematics 7**
**Learning Activity Sheet Quarter 3 – MELC 1: Representing Point, Line and Plane Using Concrete and Pictorial Models**
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This **Learning Activity Sheet** is developed by DepEd Region 6 – Western Visayas.



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# *Introductory Message*

Welcome to Mathematics for Grade 7!

The **Learning Activity Sheet** is a product of the collaborative efforts of the Schools Division of Cadiz City and DepEd Regional Office VI - Western Visayas through the Curriculum and Learning Management Division (CLMD). This is developed to guide the learning facilitators (teachers, parents and responsible adults) in helping the learners meet the standards set by the K to 12 Basic Education Curriculum.

The **Learning Activity Sheet** is self-directed instructional materials aimed to guide the learners in accomplishing activities at their own pace and time using the contextualized resources in the community. This will also assist the learners in acquiring the lifelong learning skills, knowledge and attitudes for productivity and employment.

**For learning facilitator:**

The **Mathematics Activity Sheet** will help you facilitate the teaching-learning activities specified in each Most Essential Learning Competency (MELC) with minimal or no face-to-face encounter between you and learner. This will be made available to the learners with the references/links to ease the independent learning.

**For the learner:**

The **Mathematics Activity Sheet** is developed to help you continue learning even if you are not in school. This learning material provides you with meaningful and engaging activities for independent learning. Being an active learner, carefully read and understand the instructions then perform the activities and answer the assessments. This will be returned to your facilitator on the agreed schedule.

**Learning Activity Sheets (LAS) 1a**

Name of Learner: _____
Grade and Section: _____ Date: _____

**MATHEMATICS 7 ACTIVITY SHEET**
**Representing Point, Line and Plane Using Concrete and Pictorial Models**

## I. Learning Competency with Code

Represents point, line and place using concrete and pictorial models **(M7GE-IIIa-1)**

## II. Background Information for Learners

The world is filled with many objects of different shapes and sizes. These objects exist in our environment. These make our world so beautiful. These objects in our nature have different sizes, shapes and colors.

In any mathematical system, definitions are important. Elements and objects must be defined precisely. However, there are some terms or objects that are the primitive building blocks of the system and hence cannot be defined independently of other objects. In geometry, these are point, line and plane. These are called the undefined terms.

A **point** indicates position only and has no dimension. It is represented by a dot. It is denoted by a capital letter. The **concrete models** of a point include **a small seed**, **a tiny pebble**, **a grain of sand** and **a speck of dust**.

A **line** is an infinite set of points and has length. It is represented by a double-headed arrow and can be extended indefinitely in both directions. It is denoted by a small letter or by two capital letters with a drawing of a line above the two letters. **Pictorial models** of a line include **a string**, **a rod**, and **a straight path**. However, a line is longer than any of the given models.

A **plane** is a flat surface extending indefinitely in all directions. It is represented by a rectangle thus, has length and width. We name a plane by a capital letter or by using three points on the plane which are not on the same line. **Representations** of a plane include **a piece of paper**, the **top of the table**, and the **ceiling** of a room.

The table below will help you understand the undefined terms in geometry.

| Term | Figure | Notation |
|---|---|---|
| Point | ● ***A*** | point A |
| Line | ***R*** ***V*** ***m*** | line ***m*** or $\overleftrightarrow{RV}$ |
| Plane | ● $P$ ● $Q$ ● $R$ | plane *PQR or* □ $PQR$ |

## III. Accompanying DepEd Textbook and Educational Sites

**Mathematics – Grade 7 Learner's Material**, First Edition, 2014, Authors: Elizabeth R. Aseron; Angelo D. Armas; Allan M. Canonigo; Ms. Jasmine T. Dullete; Flordeliza F. Franscisco, PhD; Ian June L. Garces, PhD; Eugenia V. Guerra; Phoebe V. Guerra; Almira D., Lacsina; Rhett Anthony C. Latonio; Lambert G. Quesada, Ma. Christy R. Reyes; Rechilda P. Villame; Debbie Marie B. Verzosa, PhD; and Catherine P. Vistro-Yu, PhD, DepEd- IMCS

## IV. Activity Proper

***Day 1***

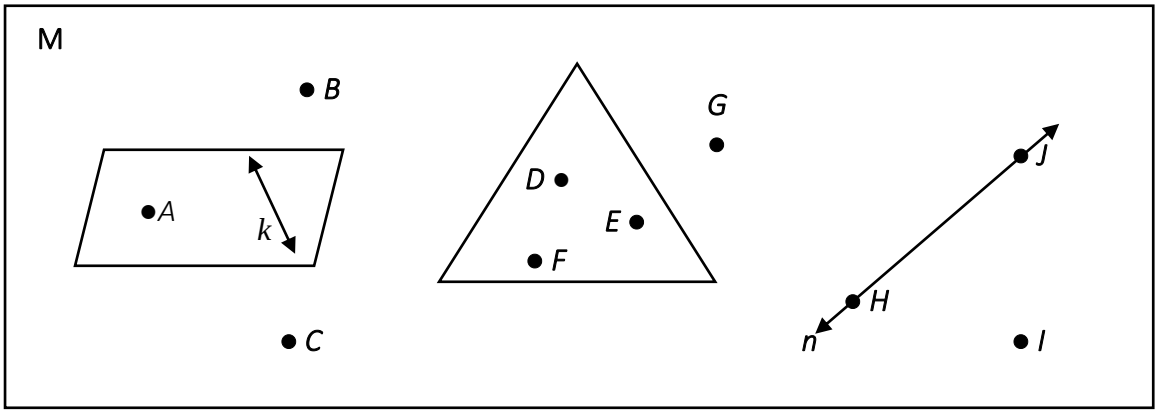
### 1. Directions / Instructions

For further information about this lesson, please refer to Mathematics Learner's Material pages 184-187.

### 2. Exercises/Activities

**Exercises 1**

Direction: Use the figures below to identify what is being asked.




a. Name the point in the interior region of the parallelogram.
b. Name the points in the interior region of the triangle.
c. Name the line in the interior region of the parallelogram.
d. Give other name for line ***n***.
e. Name the plane that can be formed by the three points in the interior of the triangle.
f. Name the plane formed by the line ***n*** and point ***I***.
g. Name the point outside the triangular region.
h. Name the points outside the region bounded by the parallelogram.
i. Name the points of plane ***M***.
j. Give other names for plane ***M***.

**Exercises 2**
Directions: Below are some of the objects around us that could represent a point, a line, or a plane. Place each object in its corresponding column in the table.

| | | | |
|---|---|---|---|
| Bulletin board | Camera pinhole | A broomstick | A grain of rice |
| A guava seed | A thread | The floor | A windowpane |
| Tip of a pencil | A lamp post | Edge of a table | A step of a ladder |

| **Objects that could represent a point** | **Objects that could represent a line** | **Objects that could represent a plane** |
|---|---|---|
| | | |

## 3. Guide Questions

1. Consider the stars in the night sky. Do they represent points?
2. Consider the moon in its fullest form. Would you consider a full moon as a representation of a point?
3. A pencil is an object that represents a line. Does the pencil extend to infinity in both directions? Is a pencil a line?

## V. Reflection

Complete the statement.
I have learned that_____
_____

I have realized that _____
_____

I will apply _____
_____

## VI. Answer Key

Exercise 1:

a. Point A
b. Points D, E and F
c. Line k
d. Line HJ or JH
e. Plane DEF or any combination of DEF
f. Plane HJI or any combination of HJI
g. Point G
h. Points B and C
i. All the points
j. Answer may vary

Exercise 2:

| | | |
|---|---|---|
| Objects that could represent a point | Objects that could represent a line | Objects that could represent a plane |
| Camera pinhole<br>A grain of rice<br>A guava seed<br>Tip of a pencil | A broom stick<br>Thread<br>A lamp post<br>Edge of a table | Bulletin board<br>Floor<br>A windowpane<br>A step of ladder |

**Learning Activity Sheets (LAS) 1b**

Name of Learner: _____
Grade and Section: _____ Date: _____

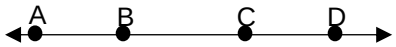
**MATHEMATICS 7 ACTIVITY SHEET**
**Representing Point, Line and Plane Using Concrete and Pictorial Models**

## I. Learning Competency with Code

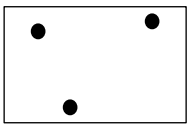
Represents point, line and place using concrete and pictorial models **(M7GE-IIIa-1)**

## II. Background Information for Learners

**Collinear points** are three or more points lying on the same line. Three **non-collinear** points determine a plane.

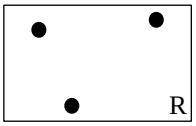



*Collinear points*

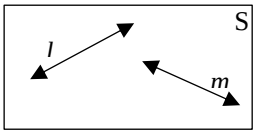


*Non-collinear points*

**Coplanar points** are points that lie on the same plane.
**Coplanar lines** are lines that lie on the same plane.



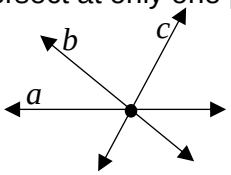

*Coplanar points*



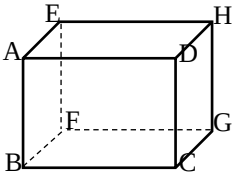

*Coplanar lines*

Two lines (including subsets) are **intersecting** if they have a common point. Three or more lines are **concurrent** if they all intersect at only one point.

*Concurrent lines*




**Parallel lines** are coplanar lines that do not meet. The symbol "∥ " is used to denote parallelism. **Skew lines** are lines that do not lie on the same plane and do not meet.




From the illustration,

**A**. some of the parallel lines:

$\overline{AB} \parallel \overline{DC}$; $\overline{EF} \parallel \overline{HG}$

$\overline{AD} \parallel \overline{BC}$; $\overline{EH} \parallel \overline{FG}$

**B**. some of the skew lines:

$\overline{AE}$ *and* $\overline{DC}$; $\overline{AB}$ *and* $\overline{FG}$

$\overline{EH}$ *and* $\overline{AB}$; $\overline{CG}$ *and* $\overline{EF}$

## III. Accompanying DepEd Textbook and Educational Sites

Mathematics – Grade 7 Learner's Material,
Elementary Algebra (Textbook for First Year)pp 187-190, *Revised Edition, copyright 2009,SD Publications, Inc, and Julietea G. Bernabe,*
Next Century Mathematics (Grade 7) Second Edition
New High school Mathematics (third year) pp.7-8

**IV. Activity Proper**

**Day 2**

**Exercises 1**
Directions: Answer each question below. Encircle the letter of the correct answer.

1. What do you call the points on the same line?
   A. collinear B. noncollinear C. coplanar D. non-coplanar

2. What is the term used to describe the points on the same plane?
   A. collinear B. noncollinear C. coplanar D. non-coplanar

3. What do you call the lines that do not lie on the same plane?
   A. Parallel lines B. skew lines C. intersecting lines D. non-coplanar lines

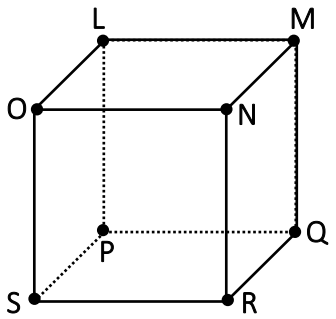
4. Which term refers to coplanar lines that do not meet?
   A. Parallel lines B. skew lines C. intersecting lines D. non-coplanar lines

5. Which pair of lines having a common point?
   A. Parallel lines B. skew lines C. intersecting lines D. none of the above

6. What do you call those three or more lines that intersect at only one point?
   A. Parallel lines B. skew lines C. intersecting lines D. concurrent lines

**Exercises 2**
Direction: Refer to the figure below and answer the questions that follow.

Given: The points L, M, N, O, P, Q, R and S are corners of a box as shown.




1. Lines *OS* and *ON* intersect at point *O.* They are intersecting lines.
   Lines *NR* and *RQ* intersect at point R. They are also intersecting lines.
a. What other lines intersect with line *OS*?
b. What other lines intersect with line *NR*?
c. What lines intersect with *PQ*?

2. Lines *LM* and *ON* are **parallel**.
   Lines *OS* and *NR* are **parallel**.
a. What line parallel to line *LM*?
b. What line parallel to line *NR*?
c. What line parallel to line *LO*?

3.

a. Name if possible other lines that are concurrent at point *L*.
b. Name if possible, other lines that are concurrent at point *R*.
c. What lines are concurrent at point *Q*?

4. Lines *OS* and *PQ* are two lines which are neither intersecting nor parallel. These two lines do not lie on a plane and are called ***skew lines***. Lines *LP* and *RQ* are also skew lines. The lines *OS, NR, SP,* and *RQ* are ***skew*** to *LM.*

a. What other lines are skew to line *OS*?
b. What other lines are skew to line *PQ*?
c. What lines are skew to line *MQ*?

**3. Guide Questions**

1. How would you describe parallel lines?
2. What do you think about concurrent lines?
3. How would you distinguish concurrent lines from intersecting lines?

**V. Reflection**

Complete the statement.

I have learned that

_____
_____

I have realized that

_____
_____

I will apply

_____
_____

## VI. Answer Key

*Exercise 1*

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

*Exercise 2*

1. a. Lines DA,DC,HE,HG
   b. Lines CD,CB,GF,GH
   c. Lines EA,EH,FB,FG
2. a. line DC
   b. line DH
   c. line BC
3. a. lines AD,AB,AE
   b. lines GH,GF,GC
   c. linesFE,FB,FG
4. a. lines EF,CB,AB
   b. lines DH,DC,DA
   c. lines HE,DH,DC