

LESSON PLAN CLASS 9 [2019-2020]



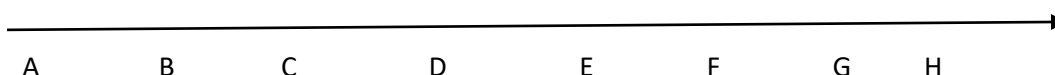
Class	Subject	Time Slot	Lesson	Topic
IX	MATHS	35Min+ 35 Mins P3+P4	INTRODUCTION TO ENCLID'S GEOMETRY	1. Euclid's Postulates 2. Euclid's fifth postulates 3. Equivalent version of Euclid's fifth postulate.
Expected Learning Outcome: The learners will be able to : 1. Know about the equivalent version of Euclid's fifth postulate; apply the knowledge of Euclid's axioms in solving problems.				
Expected skill development: • Comparison skills while doing relations on axioms, postulates and theorem. • Thinking skills while doing application based questions on axioms and postulates.				

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

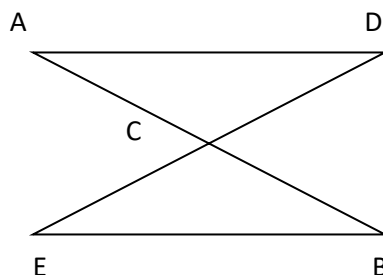
Pedagogy	Content
(5 Min) Warm Up <u>Interactive method</u> The facilitator will ask the learners to recall AXIOMS and Euclid's fifth postulate.	Response by Learners: 1. Things which are equal to the same thing are equal to one another. 2. If equals are added to equals, the wholes are equal. 3. If equals are subtracted from equals, the remainders are equal. 4. The whole is greater than the part. 5. Things which coincides with one another are equal to one another. 6. Things which are double of the same thing are equal to one another. 7. Things which are halves of the same thing are equal to one another. 8. Facilitator will explain these axioms with the help of some examples. The facilitator will introduce learners about POSTULATES

(20 Mins) Demonstration by facilitator on board. <u>(Demonstration / Discussion method)</u>	The axioms which are only specific to geometry are called POSTULATES. The facilitator tells about Euclid's POSTULATES. 1. A straight line can be drawn from any point to any other point. 2. A terminated line can be produced indefinitely. 3. A circle can be drawn with any centre and any radius. 4. All right angles are equal to each other. 5. If a straight line falling on two straight lines makes the interior angles on the same side of it taken together less than two right angles, then the two straight lines if produced indefinitely, meet on that side on which the sum of angles is less than two right angles.
(3 Minutes) Closure:	The facilitator takes up the fifth postulate and explains its equivalent version of Euclid's fifth postulate. Two equivalent version of Euclid's fifth postulate are : i. "For every line l and for every point P not lying on l, there exists a unique line m passing through P and parallel to l". ii. Two distinct intersecting lines can not be parallel to the same line. Think Line: Does Euclid's fifth postulates imply the existence of parallel lines? Explain.

- a) Proposed Questions (must include the questions asked in the classroom and the ones given as class-work in the notebook)
1. Two sales man make equal sales during the month of August. In September, each salesman doubles his sale of the month of August. Compare their sales in September.
 2. In the figure show that the length $AH >$ sum of lengths of $AB + BC + CD$.



3. In the figure we have $AC=DC$, $CB=CE$. Show that $AB=DE$.



Write the following definitions:

“A square is a polygon made up of four line segment, out of which, length of three line segment are equal to the length of 4th one and all its angles are right angles. “ Define the terms used in this definition which you feel necessary. Are there any undefined terms in this? Can you justify that all angles are and sides of a square are equal?

The terms need to be defined are:

- i. Polygon : A simple closed figure made up of three or more line segments.
- ii. Line segment : part of a line with two end points.
- iii. Line : undefined term.
- iv. Point : undefined term
- v. Angle : a figure formed by two rays with a common initial point.
- vi. Ray : Part of a line with one end point.
- vii. Right Angle : Angle whose measure is 90° .

Undefined terms used are : Line, point.

Euclid's forth postulates says that “ all right angles are equal to one another”.

In a square , all angles are right angles, therefore all angles are equal (from Euclid's fourth postulates).

Three line segments are equal to 4th line segment (given).

Therefore all the four sides of a square are equal. (by Euclid's 1st axiom, ' Things which are equal to the same thing are equal to one another').

b) Evaluation/Assessment: Peer discussion will be done. Teacher will assess the children randomly and also through student teacher interaction. Note book work.

Learners on the way
Individual attention by facilitator.

Advanced Learners
If a straight line falling on two straight lines make the interior angles on the same side of it. Whose sum is 120° , then the two straight lines, if produced indefinitely, meet on the side on which the sum of angles is _____ 120° _____.

Materials needed/Resources: NCERT Text book.	
Common Misconceptions: To differentiate between Axioms, Postulates and theorem.	Addressing the Misconceptions: Explanation by taking various mathematical statements by showing them.

HOME ASSIGNMENTS: *Write the Euclid's postulates in the notebook as discussed and do exercise 5.2.*

Teaching Methodology :

- Discussion/ interaction method.
- Lecture
- Demonstation.