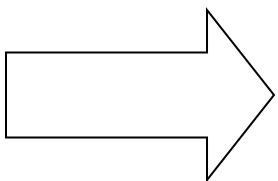


LESSON PLAN CLASS 9 [2019-2020]

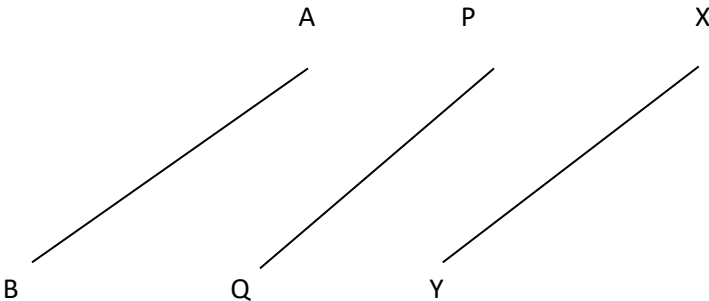


Class	Subject	Time Slot	Lesson	Topic
IX	MATHS	35Min+ 35 Mins P1+P2	INTRODUCTION TO ENCLID'S GEOMETRY	1. INTRODUCTION 2. Euclid's definitions 3. Euclid's axioms 4. Euclid's Postulates
Expected Learning Outcome: The learners will be able to : - To recapitulate the concept of point, surface and edges of surface. - Acquaint with basic definition of Axioms, Postulates etc. and will be able to differentiate between axioms, postulates and theorems given by mathematician Euclid. - Define Euclid's definition. - Relate Euclid's axioms				
Expected skill development: - Comparison skills while doing relations on axioms, postulates and theorems. - Thinking skills while doing application based questions on axioms.				

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

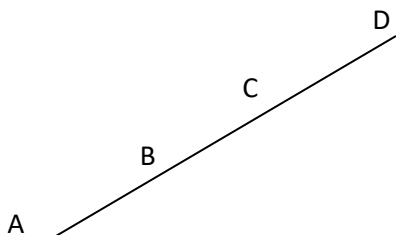
Pedagogy	Content
(12 Min) Warm Up <u>Interactive method</u> Facilitator will discuss and draw various shapes or objects and ask the students to tell point, surface and edges of surface. This task may be taken up as an introductory activity in the class room. Follow up : The definitions of a point, ray, line, line segment, edges, faces, concepts of parallel lines to be revised in the class.	- A point is that which has no part. - A line is a breathless length. - The ends of a line are points. - A straight line is a line which lies evenly with the points on itself. - A surface is that which has length and breadth only. - The edges of a surface is lines. - A plane surface is a surface which lies evenly with the straight lines on itself. Think line : The teacher may take up any object/ shape for this activity and ask to identify points, line segments, surface in the following.  The facilitator will explain that in geometry

(20 Mins) Demonstration by facilitator on board. <u>(Demonstration / Discussion method)</u>	we take point, line and plane as three main un-defined terms. The facilitator will explain that there are many basic facts that we take for granted we can not prove them and they are called axioms. Axioms are the self evident or universal truths and can not be proved. The facilitator will introduce the learners with axioms. The facilitator will tell the following axioms and explain them with the help of examples on the board. 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.
(3 Minutes) Closure:	How is an axiom different from a theorem?

a) Proposed Questions (must include the questions asked in the classroom <u>and</u> the ones given as class-work in the notebook) 1. Which of the following statements are true and which are false? Give reasons for your answers. (i) Only one line can pass through a single point. (ii) There are an infinite number of lines which pass through two distinct points. (iii) A terminated line can be produced indefinitely on both the sides. (iv) If two circles are equal, then their radii are equal. (v) if $AB = PQ$ and $PQ = XY$, then $AB = XY$.	
	
b) Evaluation/Assessment: Peer discussion will be done. Teacher will assess the children randomly and also through student teacher interaction.	
Learners on the way If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2} AB$. Explain by drawing the figure.	Advanced Learners In the adjacent question point C is called a midpoint of line segment AB. Prove that every line segment has one and only one midpoint.
Materials needed/Resources: NCERT Text book.	
Common Misconceptions: The learners consider axioms, postulates and theorems as only mathematical statements,	Addressing the Misconceptions: Explanation by taking various mathematical statements by showing them.

HOME ASSIGNMENTS: Write the Euclid's definitions and axioms in the note book as discussed.

- Give a definition for each of the following terms. Are there other terms that need to be defined first? What are they, and how might you define them?
 - (i) parallel lines (ii) perpendicular lines (iii) line segment (iv) radius of a circle (v) square
- If $AC = BD$, then prove that $AB = CD$.



Teaching Methodology :

- Discussion/ interaction method.
- Lecture
- Demonstation.