

Pre-Content/content Post-Content	Learning outcomes/Objectives	
<u>Pre-Content</u> Recall - Define & Classify quadrilaterals in different types <u>Content</u> - Angle sum property of a quadrilateral - Properties of quadrilaterals - Properties of a Parallelogram - Mid-point Theorem <u>Post Content</u> - Application	Students will be able to ✓ recall basic concepts related to quadrilaterals and different types of quadrilaterals. ✓ explore that the sum of all the interior angles of a quadrilateral is 360° ✓ assimilate the properties of all types of quadrilaterals with reference to its sides and angles ✓ discuss & learn properties of parallelograms ✓ explore the result of mid-point theorem ✓ apply the knowledge of various results and properties in solving various problems	Students will be able to ✓ recall and define quadrilaterals. ✓ classify them in different types ✓ draw their figures ✓ explore that the sum of angles of a quadrilateral is 360° with the help of an activity ✓ justify with the help of a proof ✓ describe various properties of quadrilaterals. ✓ describe & justify properties of a parallelogram with the help of proof. ✓ solve problems based on properties of a parallelogram ✓ explore the result of midpoint theorem with the help of activity. ✓ justify the result with the help of proof ✓ apply the knowledge to solve various problems. ✓ acquire Problem Solving perform the required calculations to solve various problems ✓

Home Work /Assignments

1. NCERT Exercise /solved examples given as home task
2. Questions from sample papers to solve
3. Selected questions from NCERT Exemplar

Teacher's Activity	Student's Activity	Teacher's observation and Remedial
Teacher will conduct an oral assessment based on their previous knowledge. explain that the sum of interior angles of a quadrilateral is 360°. Ex-8.1 discuss all the properties of different types of quadrilaterals Ex-8.1 show ICR content and discuss properties of parallelograms in detail. Ex-8.1 ANNEXURE-1 give instructions to do the activity for hands on experience to verify the result Ex-8.2 ANNEXURE-2 give extra practice questions to the students	Students will get involved in thinking process and will share their ideas based on their previous knowledge and will classify quadrilaterals in different types verify the same and apply the concept to the questions in the exercise Ex-8.1 get involved in the thinking process and apply the concept Ex-8.1 describe and justify the properties with the help of supporting proof and will be able to solve problems based on them. Ex-8.1 ANNEXURE-1 follow the instructions and work on the activity allotted and describe and justify the theorem and later will be able to give the proof for the same Ex-8.2 ANNEXURE-2 try to solve the assignments and practice questions from sample papers and exemplar	Teacher will write her/his observations after completion of the topic

Teaching Aids : Smart board, ICR, Cartesian Plane, Graph Paper

Methodology/Innovative Methods: Discussion, Question-Answer method, Activity, problem solving, Drawing skills

Interdisciplinary Links: Science, Statistics

Relation with art :- Quadrilaterals are most popular shape used in architectural designs.

Faculty head

Coordinator

Vice-Principal

Principal

Subject	MATHEMATICS
Class	IX
Chapter/Unit	Geometry
Topic	Quadrilaterals
Time	20 minutes
Nature of Activity	Individual

What will I learn(Learning outcome)?

To prove that four triangles formed by the intersection of diagonals of a square are congruent

Skills:- Psychomotor, Justifying, Analyzing

What I have to do?

To prove that four triangles formed by the intersection of diagonals of a square are congruent using paper cutting and pasting

What do I require?

Square paper, pencil, pair of scissors.

What do I need to know?

Square, Diagonals, Triangles, Congruent triangles

➤ **Teacher's Activity**

The teacher will explain the concept and ask students to cut a square and make diagonals by paper folding and write observations.

How will I proceed?

➤ **Student's Activity**

- Cut a square $ABCD$
- Join AC and BD by making a crease
- Mark the point of intersection as O
- Four triangles are formed
- Cut these triangles out
- Keep all triangles one above the other.

What have I observed?

The four triangles exactly _____ each other

What have I learnt?

The four triangles formed by the intersection of diagonals are _____

What am I curious to know?

To verify that the triangles formed by the intersection of diagonals of regular hexagon are congruent

Let me evaluate myself

1. Show that the diagonals of a square are equal and bisect each other. _____

2. Show that each angle of a rectangle is a right angle

ANNEXURE-2

ACTIVITY - QUADRILATERAL

1. What we have to do?

To prove mid point theorem for a triangle, using paper cutting and pasting.

2. What is required?

Coloured paper, a pair of scissors, adhesive.

3. What do you need to know?

Two lines are parallel if for a transversal cutting them, the corresponding angles are equal.

4. How will you proceed?

- From a sheet of paper, cut a triangle ABC.
- Locate the mid points P and Q of sides AB and AC respectively by paper folding.
- Join points P and Q by folding and making a crease PQ.
- Cut $\triangle APQ$. Superimpose AQ over QC so that QP falls along CB

5. What have you observed?

Angle AQP covers angle _____ exactly

These are the _____ angles made on PQ and BC by AC

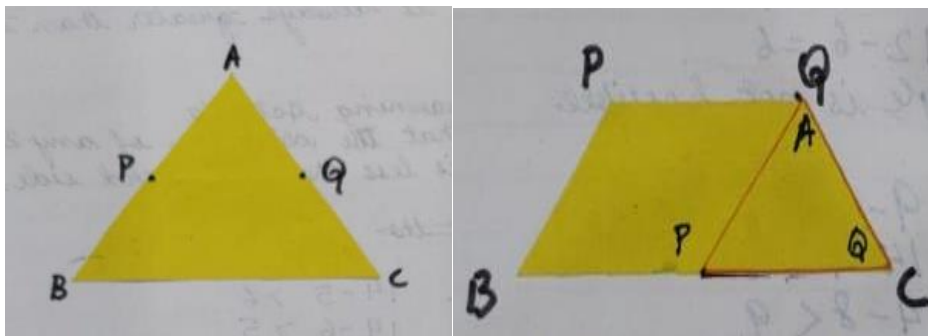
Therefore, PQ is parallel to _____

6. What have you learnt?

7. What would you be interested in doing?

Verify the same for different types of triangles -obtuse and right angle triangles

Is mid point theorem applicable to scalene triangle also?



Real life application :- To design video games, finding the halfway between places