

SUBJECT: MATHEMATICS

CLASS: IX

CHAPTER 8: QUADRILATERALS

Curiosity Questions:

- 1) Are all squares, rectangles?
- 2) Are all rectangles, parallelograms?

Answer Guide:

- Why is a quadrilateral called so?
- Mention some types of quadrilaterals

Experiential Learning

Lab Activity: Properties of Parallelograms

Objective:

To explore the similarities and differences in the properties with respect to the diagonals of a parallelogram, a rectangle, a rhombus and a square.

Prerequisite Knowledge:

- i. Knowledge of constructing a parallelogram, a rhombus, a rectangle and a square or knowledge of drawing a parallelogram, a rhombus, a rectangle and a square on a graph sheet or on a squared sheet.
- ii. Knowledge of properties of sides and angles of a parallelogram, a rhombus, a rectangle and a square.

Materials required:

- i. A chart paper or a squared paper or a graph paper
- ii. Geometry box
- iii. A pair of scissors

Procedure:

1. Construct a parallelogram of convenient dimensions and cut it or draw a parallelogram on a squared sheet and cut it.
2. Draw a diagonal of the parallelogram and cut along the diagonal to get two triangles.
3. Superimpose one triangle on the other and verify that they are congruent.
4. Cut and take out another parallelogram.
5. Draw both the diagonals and name the triangles.
6. Cut along the diagonals to obtain the four triangles.
7. Verify that triangle 1 is congruent to triangle 3 and triangle 2 is congruent to triangle 4 by superimposing.
8. Enter the observations in the table given.

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S.No.	Quadrilaterals			
	Parallelogram	Rhombus	Rectangle	Square
1	✓	✓	✓	✓
2	x	✓	x	✓
3	x	x	✓	✓
4	✓	✓	✓	✓

9. Draw a rhombus, a rectangle and a square using a square dotted sheet.
10. Repeat the same steps for all these quadrilaterals as done for a parallelogram.
11. Check whether the diagonals are equal in length or not, for these quadrilaterals.
12. Check whether the diagonals are perpendicular to each other or not in all the quadrilaterals.