

EXPERIENTIAL LEARNING

SUBJECT: MATHEMATICS

CLASS: X

CHAPTER 6: TRIANGLES (SIMILAR TRIANGLES)

Curiosity Questions:

1. When are two figures said to be congruent?
2. Are congruent figures similar?

Answer Guide:

- What is the condition needed for similar figures to be congruent?
- Can a circle and a square be similar?
- What about two squares or two equilateral triangles? Are they similar?
- What are the similarity criteria of a triangle?
- What are equiangular triangles?
- What are Pythagorean triplets?

Experiential Learning:

INTRODUCTION TO SIMILARITY:

Concept:

- Two figures having the same shape but not necessarily the same size are called similar figures
- All the congruent figures are similar but the converse is not true
- Two polygons of the same number of sides are similar if i) their corresponding angles are equal and ii) their corresponding sides are in the same ratio

The above concepts are clearly demonstrated with the help of video.

Video link: <https://www.youtube.com/watch?v=XoBy1RspCxc>

BASIC PROPORTIONALITY THEOREM

Objective:

To verify Basic proportionality Theorem using parallel line board

Pre- requisite Knowledge:

Knowledge of parallel lines and ratio of two numbers

Materials required:

Coloured paper, parallel line board, pair of scissors, sketch pen, ruler and glue.

Procedure:

Step 1: Draw a triangle on a coloured Paper

Step 2: Label the triangle as ABC

Step 3: Cut the triangle

Step 4: Take the parallel line board and place the triangle ABC on it such that the line BC coincides with any of the lines on the board

Step 5: Draw a line parallel to BC using a ruler by the help of lines on the parallel line board

Step 6: Let the parallel line drawn to BC intersect AB and AC at D and E respectively

Step 7: Find $\frac{AD}{DB}$ and $\frac{AE}{EC}$

Step 8: What do you observe?

Step 9: Repeat the activity for two more triangles

Step 10: Write the result

Conclusion:

$$\frac{AD}{DB} = \frac{AE}{EC}$$

From the above activity, the following theorem, known as Basic Proportionality Theorem has been verified.

If a line is drawn parallel to one side of a triangle, to intersect the other two sides in distinct points, then the other two sides are divided in the same ratio.

