

MERUVAMBAYI M U P SCHOOL

TEACHING MANUAL

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NAME OF THE SUBJECT: MATHEMATICS (VII: ENGLISH MEDIUM)

UNIT: 2

NAME OF THE UNIT: PARALLEL LINES

PARALLEL LINES

We have already learned geometrical concepts as angle, right angle, drawing parallel lines using different methods, linear pair of angles and opposite angles through the lessons. Here first we introduced parallel lines. The lines which keep the same distance throughout and never meet are called parallel lines. Also in this chapter explained that the lines with the same slanting and the perpendiculars drawn to the same line are parallel and also discovering the relations between the pair of corresponding angles, alternate angles, co-interior and co-exterior angles formed by the intersection of line with a pair of parallel lines and discovering the fact that the sum of the angles of a triangle is 180° .

LEARNING OUTCOMES:

- Explaining parallel lines as lines which are a constant distance apart.
- Explaining parallel lines in terms of perpendicularity and slant.
- Drawing parallel lines using different methods and proving that they are parallel.
- Explain parallel lines ceasing models.
- Given one angle made by a line cutting across a pair of parallel lines computing the other angles and justifying the computation.
- Using computer to describe various properties of parallel lines.
- Explain the classification of pairs of corresponding, alternate, co-interior, co-exterior angles.
- Proving that the sum of the angles of a triangle is 180° .

IDEAS:

- Lines which are at the same distance everywhere and so do not meet anywhere are called parallel.
- The lines perpendicular to the lines are parallel.
- The slanted lines which are equal to the lines are parallel.
- The two parallel lines forms equal angles with any other line.
- Based on the same slanted lines of a line can draw parallel lines.
- The four angles formed by crossing two parallel lines to a line. The corresponding pair of angles will be same.
- The four pairs of alternate angles are same.
- Two pairs of co-exterior angles, each pair of angles are supplementary angles.
- Two pairs of co-interior angles, each pair of angles are supplementary.
- The sum of the angles of a triangle is 180° .

LEARNING MATERIALS:

- Text book
- ICT projector

TIME:

10 periods

LEARNING EXPERIENCE

Topic 1: Parallel lines

- Ask the students to observe the pictures which are given in the slide^{2&3} and ask if we extend the given lines, would those lines meet each other?
- Make the students to understand why those lines would meet each other and wouldn't meet each other with the help of the slides.
- Ask the students that if we extend the pair of the sides of a rectangle⁷, would they meet or not?
- And make them to understand why those pair of the sides of a rectangle do not meet each other.
- From the above examples, with the help of teacher, ask the students to find out the peculiarities of parallel lines.

Conclusion

The lines which are at the same distance everywhere and do not meet anywhere are called parallel.

Topic 2: Same distance

- Ask the students to draw a rectangle which has 5 centimetre length and 2 centimetre breadth².
- Teacher help the students to draw the rectangle.
- Ask the students to extend the top and bottom side of the rectangle⁵.
- Make the students to clear that how to draw a parallel line using setsquare and ruler.
- Make the students to understand that we can draw only a line through a point¹¹.

Topic 3: Same direction

- Ask the students to observe a rectangle and make them to understand that the sides of a rectangle are parallel².
- Two perpendiculars to the same line are parallel.
- By showing 2 sets of slanted lines, ask them whether the lines would meet each other.
- Make them to understand that if the lines are not to meet either way, by how much should each line be slanted⁶.
- Make the students to understand what a parallelogram with the help of a slide.

Conclusion

A quadrilateral like this with opposite sides parallel, is called a Parallelogram

Topic 4: Parallels and angles

- With the help of an activity make the students to understand that parallel lines should have the same slant with any other line.
- Ask the students to draw a set of parallel line and a slant across the line.
- Let the students find out the number of angles formed when a slant cutting across a parallel line.
- Ask them to measure each angle and make them to understand the relationship between the angles.
- Make them to clear that parallel lines make equal angles with any other line.

- Let them to do the rest of problems which are given in the textbook.

Topic 5: Matching angles

- Make the students to understand that when a line cuts across a pair of parallel lines eight angles are formed. Bottom line makes four angles and top line makes four angles.
- We can pair one angle at the bottom with one at the top in several different ways. Some such pairs are equal others are supplementary.
- Let them draw a parallel line and a slant and ask them to measure each angle and find out the angles which are equal in measurement.
- Make the students to understand the concept of corresponding angles with the help of the above activity.

Topic 6: Alternate angles

- Equal angles from the top and bottom can be paired in another manner.
- Let them observe the picture given in the textbook and ask them to find out the pairs of the angles from bottom and top line according to their measurement.
- Make them to understand the concept of alternate angles with the help of the activity.
- Let them find out the difference between corresponding angles and alternate angles.

Conclusion

The angles formed by a line cutting across two parallel lines can be paired in several ways, choosing one angle of the four made with one line and one of the four made with the other. Of these eight pairs have equal angles. Bases on the positions with respect to the line angles in four such pairs are called corresponding angles and angles in the other four are called alternate angles.

Topic 7: Supplementary angles

- With the help of the teacher students find out co-interior angles and co-exterior angles.
- Let them do the problems which are given in the text book based on the concept co-interior angle and co-exterior angle.
- Make the students to understand that co-interior angles and co-exterior angles are supplementary angles.
- Let them find out the sum of the angles of a parallelogram.

Conclusion

The sum of the angles of a parallelogram is 360° .

Topic 8: Parallel lines and triangles

- *This activity help the students to understand that the sum of the angles of a triangle is 180.*
- *Let them do the activity with the help of their text book.*
- *Ask them to do the problems which are given in their text book.*

Conclusion

Sum of the angles of any triangle is 180° .

Topic 9 &10: let's do it

- *Extra problems given in the text book.*
- *Let the students to do the problems with the help of teacher.*