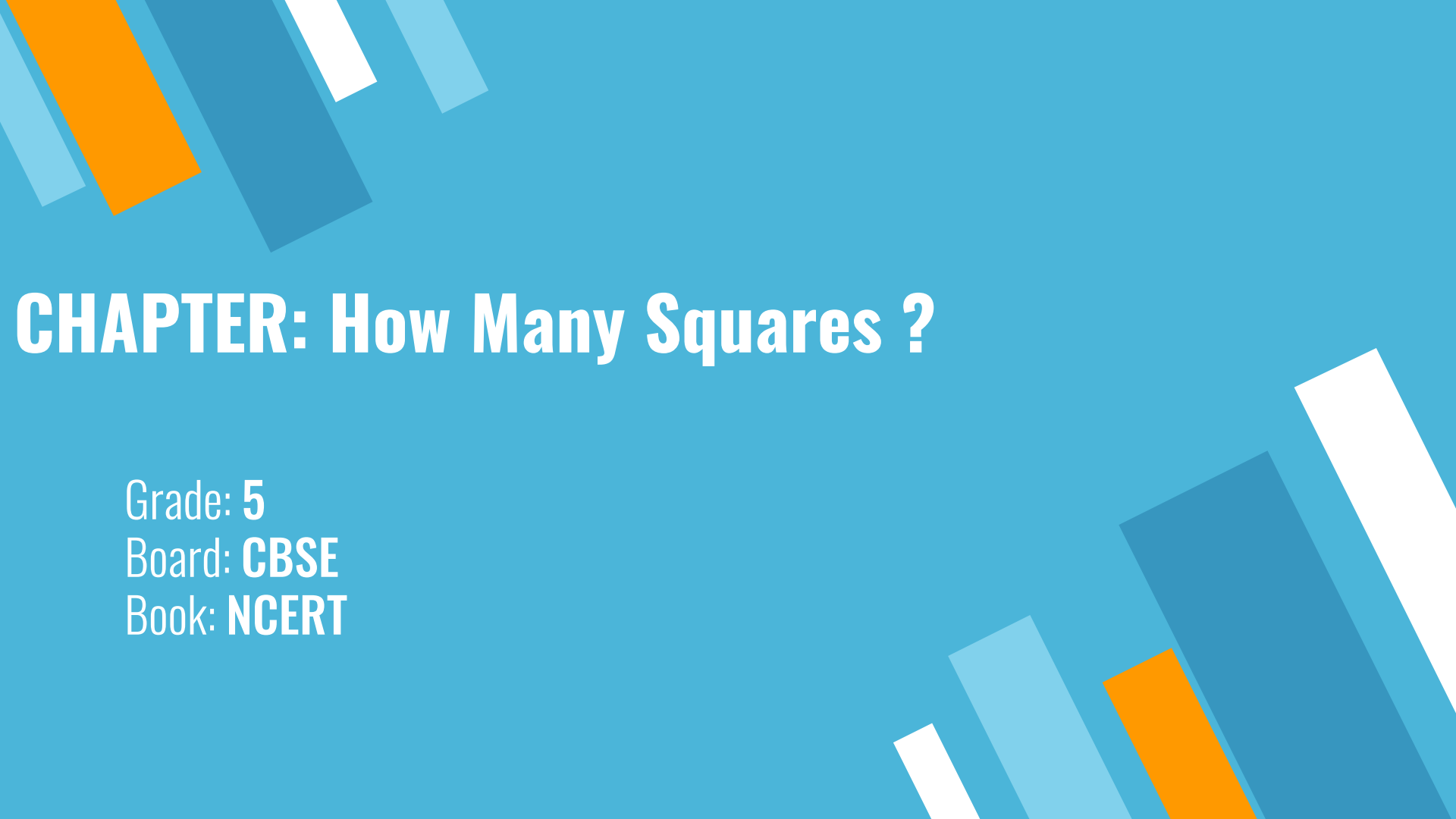




CHAPTER: How Many Squares ?

Grade: 5

Board: **CBSE**

Book: **NCERT**



1.

Chapter Summary and Placement

<Read through the following to understand how this chapter is connected with the previous and next grades and also the important concepts covered in it.>



- 
- 
1. Knowledge of this chapter will help students to determine area and perimeter of simple geometrical figures



2.

LEARNING OUTCOMES

<On completion of the chapter, students will be able to:>



- 
- 
1. Calculate the perimeter and area of regular and irregular plane figures



3. TEACHING PLAN

Follow this section for getting ideas on teaching the content covered in the chapter. The subtopic given in the first column with the matching learning outcome can be explained using instructions and resources listed subsequently



Subtopic and Learning Objective #1

Subtopic:
Perimeter

LO:

Calculate the perimeter and area of regular and irregular plane figures

1. To make the student identify and determine the perimeter of geometrical figures.

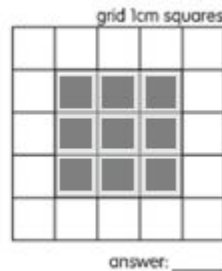
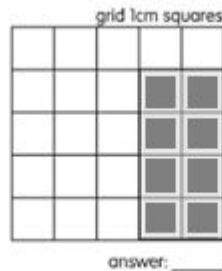
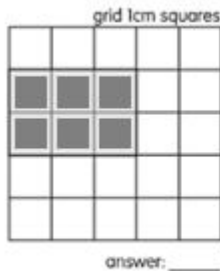
Teacher Activity

1. Ask the students to define the perimeter.

The perimeter of a shape is the distance around the shape

2. Ask the students to open page no. 34.
3. Ask the students to make as many rectangles as they can, using 12 squares as shown on the page.
4. Read out the instructions loudly and explain the activity to the students.
5. Discuss the answers to the following questions:
 - How many rectangles could they make?
 - Which rectangle has the longest perimeter?
 - Which rectangle has the smallest perimeter?

Check for understanding:
Calculate the perimeter



Resources Suggested

Blackboard, pen and paper

Subtopic and Learning Objective #2

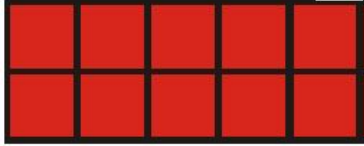
Subtopic:
Area

LO: Calculate the perimeter and area of regular and irregular plane figures

1. To make the student identify and determine the area of regular plain figures.

Teacher Activity

1. On the board draw the following shape on a grid with each square of side 1 cm



1. Ask the students what the perimeter of the shape is? 10cm
2. Ask the students to count the number of squares inside the rectangle. 10
3. Explain that

The area is the amount of space inside the shape.

4. So the area of the rectangle is 10 square cm
5. Ask the students to find the area of rectangles they had drawn on page no. 34
6. Ask the students:
 - Which of these rectangles has the biggest area?
 - Which of these rectangles has the smallest area?
 - Why does the area remain same when perimeter changes? Discuss

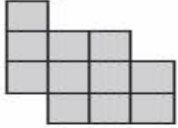
Activity 1 can be performed to make class measure area and perimeter of plain figures

Teacher Activity

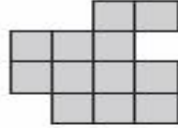
Check for understanding:

Find the area of the given shapes. The side length of each small square is 1 cm.

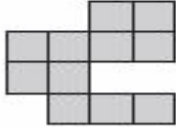
1)



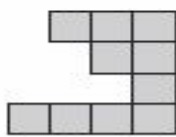
2)



3)



4)



Resources Suggested

Blackboard, pen and paper

Activity 1

Name of the activity- Measure Stamps

Type of activity – Group

Use it for – Making the students determine area and perimeter

Materials – textbook, notebook, pen, erasers and sharpners.

Procedure:

Instructions to the teacher

1. Divide the students in pairs
2. Ask the students to open the book to page no. 35
3. Read the question given below loudly.
4. Let the students discuss the answers in pairs and write in their notebooks.
5. Ask the students to create a grid in their notebooks.
6. Divide them into groups of 6.
7. Ask each group to repeat the stamp activity using erasers and sharpeners.
8. Place them on the square grid and find their area and perimeter.
9. Help the students in case of any difficulty.

Subtopic and Learning Objective #3

Subtopic:

Area of irregular shapes

LO:

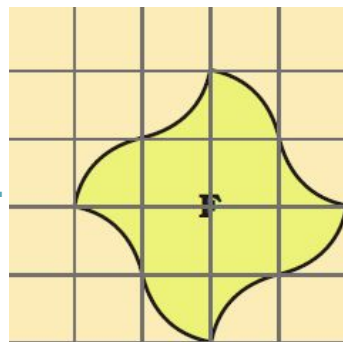
Calculate the perimeter and area of regular and irregular plain figures

1. To make the student identify and determine the area of irregular plain figures.

Teacher Activity

1. Ask the students to open page 39 and find the area of the elephant's foot print.
2. Explain that such shapes are called irregular shapes.
3. To find the area ask the students to identify the largest squares and rectangles within the footprint and add their area.
4. Then count the small squares for irregular outlines and add to the above.
5. The area of the given figure would be 8 square cm.
 6. Let the students share more irregular figures and find their area.

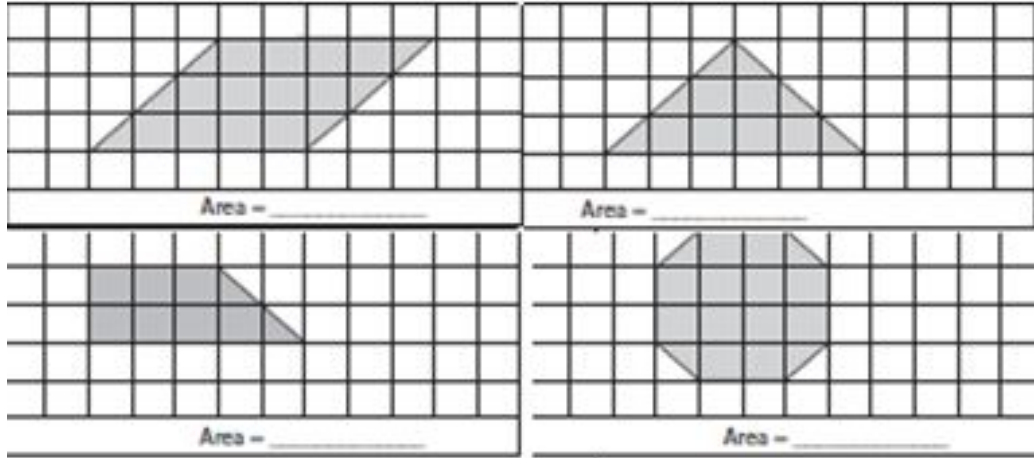
Activity 2 can be performed to make class determine the areas of irregular shapes.



Check for understanding:

Calculate the area of the shapes below in square cm:

Teacher Activity



Resources Suggested

Blackboard, pen and paper

Activity 2

Name of the activity- Which has bigger area?

Type of activity – Group

Use it for – Making the students determine the area of irregular shapes.

Materials – chart paper, scale, pencil and pen

Procedure:

Instructions to the teacher

1. Divide the class into groups of 4 each.
 2. Each group gets a chart paper on which they make their own grid using scale and pencil.
 3. Every student will trace their hand and foot on the grid.
 4. Ask the students to mark their prints with their names for easy identification
 5. Students will then measure the area of each footprint and handprint and record it on the chart paper.
-
2. Is the area of the foot more than the area of the hand?
 3. Is it true for all children?
 4. Let the students find areas of more irregular shapes in similar manner

Subtopic and Learning Objective #4

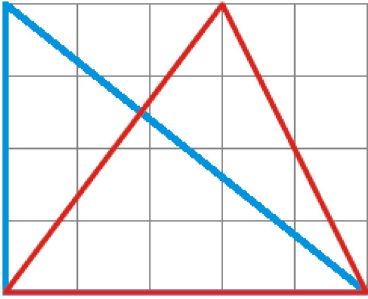
Subtopic:
Triangles in Squares and Rectangles

LO:
Calculate the perimeter and area of regular and irregular plain figures

1. To make the student determine the area of triangles.

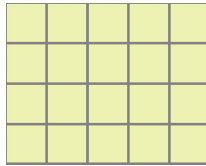
Teacher Activity

1. Ask the students to find out if the area of the two triangles is equal?

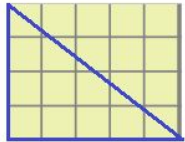


Explain as follows:

Area of the rectangle is 20 square cm



The blue triangle is half of the big rectangle.



Teacher Activity

So the area of blue triangle will be half of the big rectangle = 10 square cm.

1. Let's take the red triangle now.

2. It can be represented as half of two rectangles.

3. Area of orange rectangle = 12 square cm

Half = 6 square cm

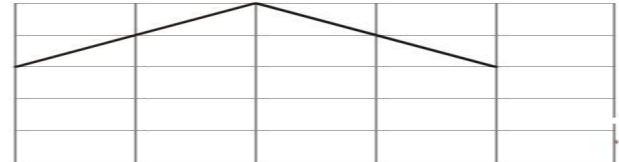
4. Area of green rectangle = 8 square cm

Half = 4 square cm

5. Total area of red triangle = $6 + 4 = 10$ square cm



Activity 3 can be performed to make class create their own tiles.



Check for understanding:

Complete the shape with two more sides, so that its area is 10 square cm.

Resources Suggested

Blackboard, pen and paper

Activity 2

Name of the activity- Make your own tile

Type of activity – Group

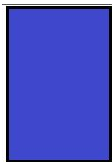
Use it for – Making the students determine the area of irregular shapes.

Materials – cardboard, scale, pencil, crayons, scissors and pen

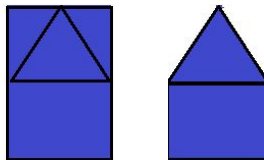
Procedure:

Instructions to the teacher

1. Divide the class into 2 groups.
2. Each student will take a piece of cardboard and draw a rectangle of side 3cm by 4 cm on it

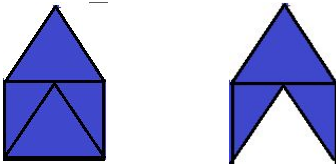


Then tell the students to draw a triangle on any one side of it. Cut it as shown.



Activity 2

4.Students will then draw another triangle of the same size on another side of the rectangle.
But this time it will be drawn on the inside of the rectangle.



5.Let the students cut the shape and colour it.

6.The two groups can join the tiles to make patterns as shown below.





4. WORKSHEETS

Print or copy the worksheet questions on the blackboard and ask the students to attempt them. They can be given as homework or a class test as well.

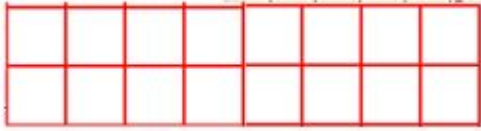
Worksheet 1

Use it like: test after the chapter is complete, homework

Estimate and answer:

- a) Which has the bigger area —base of your pencil box or the page of the math textbook?
- b) Which has the smaller area—two fifty-rupee notes together or a two thousand rupee note?
- c) Which has the bigger area —one of your hand print or one of your foot print?
- d) Which has smaller area – base of the duster or base of chalk box?

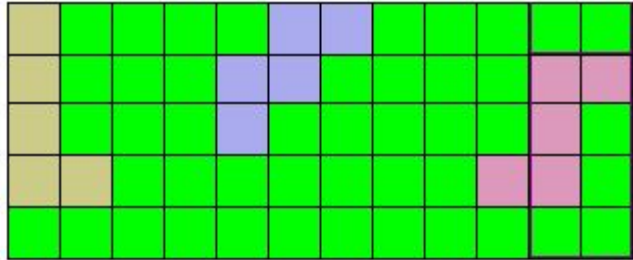
Worksheet 2



1. Divide this rectangle into four shapes – two equal rectangles and two equal triangles.
2. What is the area of each of the rectangles?
3. What is the area of each of the triangles?

Worksheet 3

In the grid given, each side of the little square is 1cm, draw as many shapes as possible using 5 such squares.

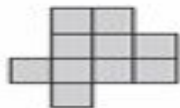
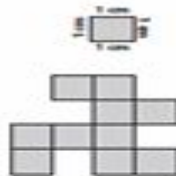
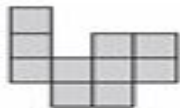


- Tick the shape that has the shortest perimeter.
- How much is it? ____ cm
- Circle the shape that has the longest perimeter.
- How much is it? ____ cm
- Do all the shapes have the same area? _____
- What is the area of the shapes? _____ square cm.
- How many shapes could you draw? _____

Worksheet 4

Find the area of the given shapes.

The side length of each square is 1 cm.





5. SOLUTIONS

This section gives you sample answers for activities and questions listed above.



Worksheet 1

the page of the math textbook

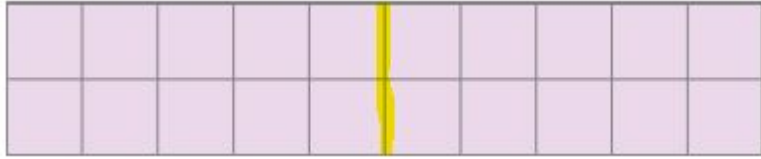
b) a two thousand rupee note

c) one of your foot print (answer may change from person to person)

d) base of the duster (please check the objects in your classroom for correct answer)

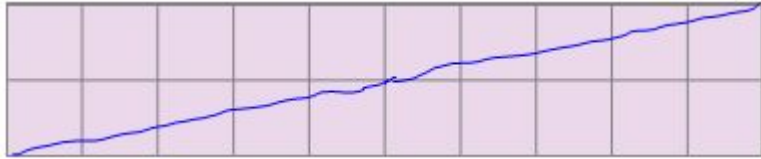
Worksheet 2

One straight line is drawn in the given rectangle to divide it into two equal rectangles as shown below:



Area of each of the smaller rectangles is half of the given rectangle. Area of the given rectangle is 20 square cm. So, the area of each of two rectangles is 10 square cm.

One straight line is drawn in the given rectangle to divide it in two equal triangle as shown below:



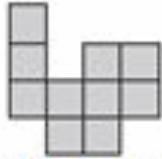
Area of each of the triangles is half of the given rectangle. Area of this rectangle is 20 square cm. So, the area of each of the triangles is 10 squares cm.

Worksheet 3

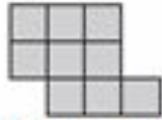
- a. all have same perimeter
- b. 12cm
- c. all have same perimeter
- d. 12cm
- e. yes
- f. 5 square cm
- g. 12



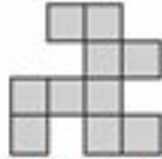
Worksheet 4



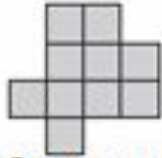
10 square cm



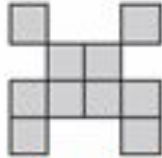
9 square cm



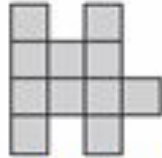
10 square cm



10 square cm



10 square cm



11 square cm



6. EXTRA RESOURCES

Carry out the following suggested activities/ tasks if you have the time and resources to do them



Teacher can use these videos if time and facilities permit:

1. <https://www.youtube.com/watch?v=x0NHC0cmKfU>
2. <https://www.youtube.com/watch?v=Pxxoq84-fok>
3. https://www.youtube.com/watch?v=S8ueaJ_bAUc

Area of irregular shapes
Area of irregular shapes
Area of regular shapes