

Grade 5 – Areas and its boundaries

Concept: Area and perimeter

Bridging

- Recall the meaning of perimeter and area
- Recall the units centimetre (cm) and metre (m) and distinguish between the two

Learning Objectives:

After the completion of this lesson, the students will be able to do the following:

1. Compare the sizes of objects through stacking
2. Recall the meaning of “Area”
3. Recall the meaning of “Perimeter”
4. Compare sizes through usage of centimetre squares
5. Identify the difference between perimeter and area

Day 1:

Activity 1:

Time: 20 mins

Objective: To compare sizes of objects through stacking.

Materials: Squares of different sizes (preferably wooden or plastic). If that is not available, coloured paper cut in different sizes will also do.

Classroom Transaction:

Let each group pick up 4 different squares and arrange them in order of their size. The students may be able to visually compare and determine the smallest object, the largest object, etc. Ask the students to show a way by which the order can be clearly seen. They may stack up the squares in order in different ways as shown in Figures 1 and 2.

Let the students draw these in their books and describe the relationships. An example of this is as follows:

The yellow square is smaller in size than the pink square.

Note to the Teachers:

Notice that the word “area” is not introduced immediately. It is important first to focus on the concept of size and ensure that the sense of size is clearly understood by the students. It is good to use familiar words, like “size”, when the concept is being introduced. Once the concept is comprehended through commonly understood words, one can introduce the terminology (“area”).

Extended Activity: Repeat the same activity with circles.

Superimposing one shape over another shape is one way of comparing sizes, which works for certain objects.



Figure 1



Figure 2

Activity 2: (Suggested Activity)

Time: 30 mins



Objective: To compare sizes through the usage of centimetre squares

Materials: Regular and irregular shapes, centimetre squares, centimetre-square grid paper.

Tell the students that the area of a shape refers to the space that it encloses or covers.

Classroom Transaction:

“How does one measure the space occupied (area) by a book, a leaf, or a circle?”

Teacher’s Note:

It is not necessary to use the words “regular shape” and “irregular shape”.

The students may suggest usage of small objects to measure the space occupied. They should be allowed to do that as well. However, by this stage, they are already familiar with centimetre as a measure for length. They also use square-ruled notebooks that have centimetre squares. They can stick some of these papers onto thick card sheets and cut centimetre squares to use as a measure for covering these shapes.

Note:

Tell the students that a square that measures one centimetre by one centimetre is called a square centimetre.

Activity 3:



Question: “Who has the biggest hand in the class?”

Let the students draw an outline of their hands and check the area by filling in the outline with centimetre squares. They could also measure the area of their foot in the same manner. They could draw the outlines on square grid paper. It may also be interesting to find out how much variation there can be if the same hand is traced in different positions on the square grid paper.

Once the students have completed the above exercise, they should record the sizes in the following manner:

My hand is ___ square cm in size (area).

Teacher's Note:

Let the students think how they can measure the less-than-half- and greater-than-half-squares. Based on the students' thoughts, the teacher can tune the measuring technique.

Observation Rubric:

Student's Name	Struggling in counting the squares	Able to distinguish between area and perimeter	Able to compare the figure along with number

Day 2:

Estimating perimeter of an object

Objectives: To recall the meaning of perimeter

Materials: Rope/thread, different types of scale: $\frac{1}{2}$ scale, full scale, measuring tape

Provide a piece of rope/thread to the students and make them trace the outline of the figure that they have drawn and estimate the length of boundaries.

Discussion:

The following questions can be asked while conducting a discussion:

- 1) What is the special name of this boundary?
- 2) What are the ways to measure the outer portion of this closed figure?
- 3) Is there any another way to find the length of the boundary? If yes, list them.

Show the scale and the measuring tape to the students and discuss about the different units, such as centimetre, metre. The teacher can also introduce the meter scale or a tape to discuss about centimetre and metre.

Verbal Activity:

Clap and say "Area", "Perimeter" and spell it out as well.

Representation:

A sample activity of the assessment should be done in class on the blackboard. After the students have understood the concept, they teacher can conduct an assessment.

Assessment:

Learning Objectives: Identify the difference between perimeter and area

Place the students in groups of five. Each group must have a measuring tape or a scale. Measure the perimeter of any four objects in the classroom, e.g., pen, notebook, scale, eraser, chart, etc.

The students must record in the perimeter and area in their notebooks. Each group should come forward and share the name of the object measured. The other groups should provide an estimate of the area and the perimeter.

(Note: Other groups can ask different questions, such as “How to measure?”, “What are the strategies to measure?”, etc.)



Day Wise Topic	Plan for the Day	Assessment
Day 1: Bridging		
Day 2: Bridging		
Day 3: Finding Area using length and width (Pg.nos.:146-147)		
Day 4: Area - Guessing Activity (Pg. no.: 148)		
Comparing Area and Perimeter (Pg. no.: 149)		
Day 5: Discussion on Perimeter, Classroom Activity on Area (Pg. nos.: 150 – 151)		
Day 6: Comparing Units, Activity for Choosing Appropriate Units (Pg. no: 152 – 153)		
Day 7: Distinguishing between Area and Perimeter (Pg. nos.: 154 – 155)		
Day 8: Comparing Lake, Kings Story (Pg. nos.: 156 – 157)		
Day 9: Classroom Discussion- Kings Story and Discussion (Pg. no.: 157)		
Day 10: Different ways to measure boundary (Pg. no.: 158)		



(*Get Activities 1 and 2 from “At Right Angles” Vol.5, No. 2, July 2016

For more details, please visit

<https://azimpremjiuniversity.edu.in/SitePages/resources-ara-vol-5-no-2-july-2016-area-and-perimeter.aspx>)