

Teacher's Diary on Classroom Assessment

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The moment we hear the word 'assessment' it makes us conscious of being put under a scanner, and gives us a feeling that we will be compared with our peers. It highlights our weaknesses instead of our strengths. A child in the school environment goes through similar feelings on hearing about assessment. If the academic calendar of a school is observed, the most anxious moments for the teacher and children are during examinations. This defeats the purpose of assessment. There are various purposes for doing an assessment and its benefits are manifold. It enables the teacher to identify whether students have any learning gaps and then modify his/her instructional strategies. Though as a teacher I wanted to use assessment to improve overall learning, it is taking me time to learn how to assess without inducing stress and fear. With CCE becoming mandatory, I resolved not to reduce the activity to mere tallying and book-keeping but to deeply integrate assessment with everyday classroom activities and to use it to plan my next steps. There is enough body of research evidences across the world to show that continuous assessment leads to drastic improvement in students' learning levels.

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In short, assessment is not a program which is merely done 'to' the child; rather, as a teacher we need to consider it as a process we are doing for the child to facilitate his/her learning (National Council of Teachers of Mathematics). To put this into practice, I see the classroom practices in three stages. At the beginning of a concept, I assess the students' understanding of previous concepts. While teaching a concept I use various assessment techniques to check the progress of the students. I also believe that it is very important to provide appropriate and timely feedback to the child while assessing him/her on a continuous basis. This helps the child to identify his/her key strengths and possible areas of improvement. This does not mean that term-end or year-end assessments are of no significance. It is also important to conduct assessment at the end of a chapter, term or year. It provides evidence of achievement to parents, students themselves and to school authorities. Hence assessment must be looked at in a comprehensive manner. While framing the questions I need to focus on all areas which will equip the child to apply the knowledge in different situations and also develop problem solving skills and mathematical communication.

Looking at the NCERT syllabus (std. VI – VIII) at the beginning of the year, I decided that as a mathematics teacher of std. VIII, I would identify an overarching skill which I wanted my students to develop in preparation for Std. IX mathematics. I zoomed in on the readiness to move from concrete to abstract as I recognized that the lack of this skill caused many students to abandon mathematics at the higher level. The sub-skills were also extracted from the syllabus, and these were the ability to:

- Use and understand mathematical language including symbols
- Generalize from specific results
- Apply logical thinking
- Appreciate the notion of proof

My first task on starting each unit was to design an entry level test to measure the extent of the student's knowledge and skills in a particular

topic. The responses would lead me to determine whether he/she needed a review in the topic or he/she was ready for greater challenges. This test would assess the student's mastery of the content standards that are building blocks for the next topic. It would enable me to place the student at an appropriate starting point. It would help me find answers for three questions:

- (1) Is the student equipped with the pre-requisite knowledge required for acquiring the concept?
- (2) How ready is the student to move from concrete to abstract?
- (3) Does the student have prior knowledge about content to be covered in the coming year?

For this I needed to closely examine the particular topic and create a test that would help me diagnose all of the above. I decided on grouping questions into four categories. For example for the test for the topic 'Mensuration' in grade 8, I proceeded as follows:

Category 1	Concept of area and perimeter
Category 2	Derivation of simple formulae for rectangles using logical steps and then generalizing it to shapes like triangles and parallelograms and combinations of these
Category 3	Application in daily life example, with problem solving
Category 4	Establishing the relationship between area and perimeter

After this classification I designed a few questions for each category and used them to analyze the student's responses.

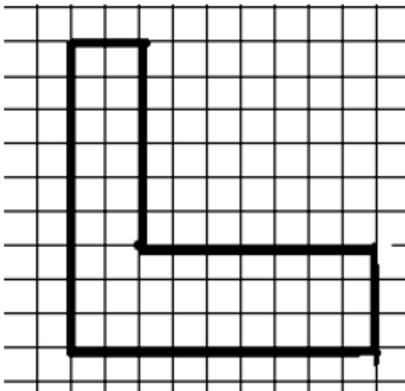
Category 1:

- (1) For which of the following given shapes can we find the area and perimeter? Justify your answer.



- (2) Help Radha to plan 'Project Lawn'. The dimensions of the rectangular plot of land are 5 m and 10 m. If she wants to buy grass seedlings for the lawn, what would we have to find out and what will the unit be for it?
- Area in meters
 - Area in square meters.
 - Perimeter in meters
 - Perimeter in square meters

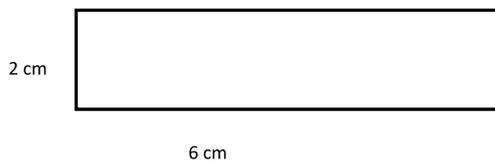
- (3) a) Find the area and perimeter of the figure shown below. Each square in the grid has a side of unit length.



- b) If Ram has a similar L-shaped flower bed, in his garden then how will you find the area of the flower bed?

Category 2:

- (1) Choose the correct calculation to find the area of the given picture .

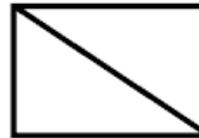


- $6\text{ cm} \times 2\text{ cm} \times 6\text{ cm}$
- $6\text{ cm} \times 2\text{ cm}$
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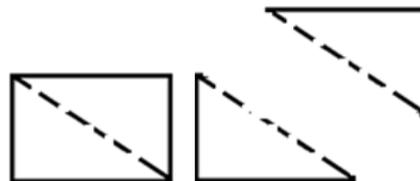
- (2) To find the area of a triangle which of the following formula will you consider?

- $\frac{1}{2} \times \text{length} \times \text{breadth}$
- $\text{Length} \times \text{height}$
- $\frac{1}{2} \times \text{length} \times \text{height}$
- $\frac{1}{2} \times \text{base} \times \text{height}$

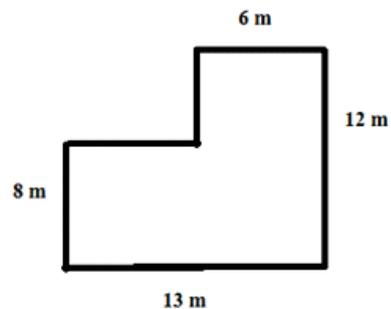
- (3) a) How will you find the area of each of these figures?



- b) If the rectangular shape given below is cut along the broken line, as shown and the parts are separated, then will the sum of the perimeters of the parts be same as the perimeter of the whole rectangle?

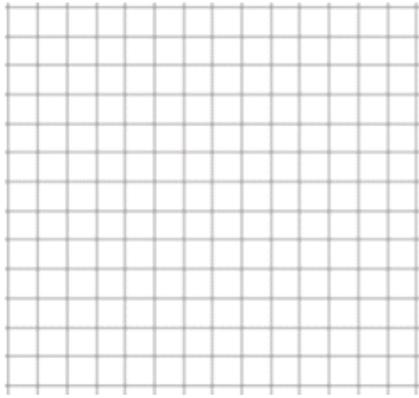


- (4)

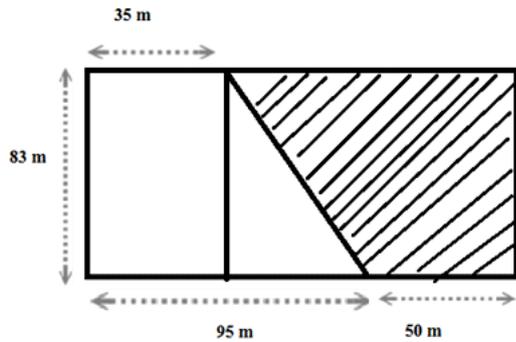


What is the perimeter and area of the above figure?

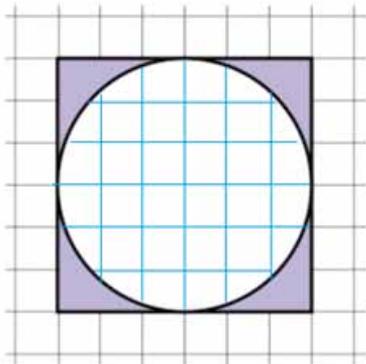
- (5) The area of each square in the grid is 1 square unit. Draw a right angled triangle with area 10 square units.



(6) Find the area of the shaded portion of the following figure:



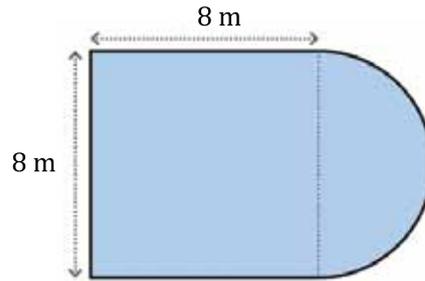
(7) In the figure given below, what is the area of the shaded portion? Each square of the grid is of area 1 cm^2 .



Category 3:

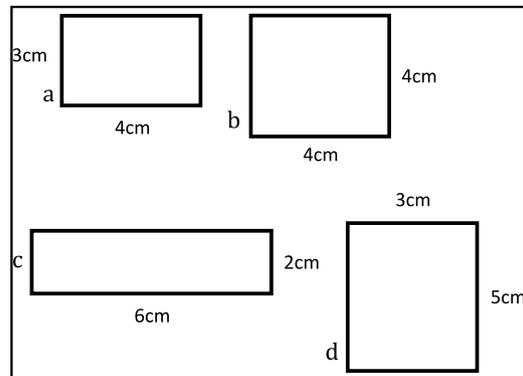
- (1) A park is circular in shape. It has a jogging track all around it with width 3.5 m. If the inner radius of the park is 7 m, find the cost of cementing the path at the rate of Rs 15 per square meter.
- (2) Rama's study room is rectangular in shape with dimension 10 m x 8 m. She wants to tile her floor with tiles of 24 cm by 24 cm. How many such tiles will be required by her to tile the floor?

- (3) A swimming pool is in the shape of a combined square and a half circle as shown in the figure below. The half circle is the shallow part of the pool where children are allowed and the square is the deep part where only adults are allowed. What fraction of the area of the pool are the children allowed to swim in?

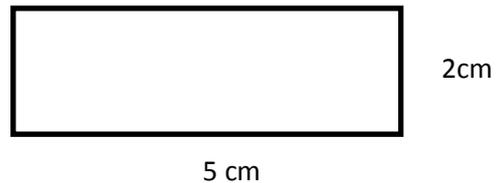


Category 4:

- (1) Which of the following figures has area 12 square centimeter and perimeter 16 cm?



- (2) A wire is bent into a square shape of length 5 cm. If the same wire is bent to form a triangle, what will be the perimeter and the area of the triangle formed?
- (3) The perimeter of this rectangle is 14 cm, and its area is 10 square cm.



- a. Draw a diagram of a rectangle with the same perimeter, but a larger area. Write down the area of your rectangle.

- b. Draw a diagram of a rectangle with the same perimeter, but a smaller area.
Write down the area of your rectangle.
- (4) The perimeter of a rectangle is 22 cm, and its area is 24 square cm. Is it possible to draw a rectangle with the same area but a larger perimeter?
- (5) a) Draw a circle of diameter 5 cm using a compass. What is the area of a square with the same perimeter as the circumference of the circle?
- b) Draw two different shapes where the numerical value of the perimeter of one is the same as the numerical value of the area of the other.

Closing comment:

The children who were not successful in categories 2, 3 and 4 give me indicators for designing a bridge course for the content of grade VII. For children who did not cover category 1, I must design a remedial class for the concept of area and perimeter. For children able to solve category 4, I can think of more challenging strategies for assessment.

In preparation to develop the overarching skill and the sub-skills identified by me, I would pay particular attention to the student's interpretation of the diagrams and the word problems as well as the ability to move from the specific to the general by the comfort level with using mensuration formulae. The few open ended questions used would help me test their logical skills. Calling on students to defend their reasoning for such questions would help them develop an idea of the reason for proof.

References

- [1] NCERT text books
- [2] <http://www.mathmammoth.com/>
- [3] National Council of Teachers of Mathematics (NCTM). Principles and Standards for School Mathematics.



The CCE column is the product of the Azim Premji University Resource Centre. The team members who are working on it are SINDHU SREEDEVI, JOYITA BANERJEE and SNEHA TITUS.

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