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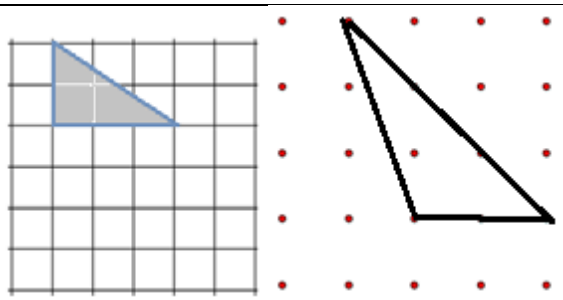
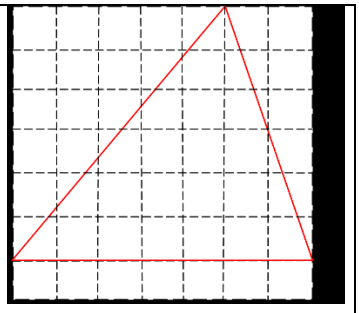
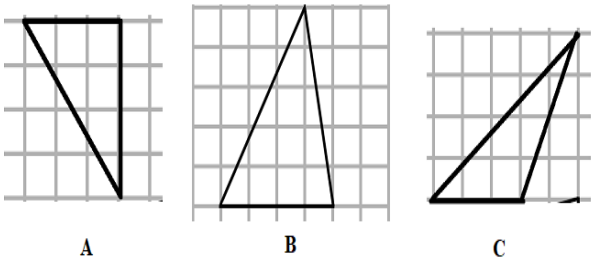
BASIC 7

WEEKLY LESSON PLAN – WEEK 5

Strand:	Geometry and Measurement		**Sub-Strand:**	Measurement	
Content Standard:	B.7.3.2.2 Derive the formula for determining the area of a triangle and use it to solve problems				
Indicator (s)	B7.3.2.2.1 Use the relationships between a triangle and a rectangle (or parallelogram) to deduce the formula for determining the area of a triangle. B7.3.2.2.2 Determine the area of a triangle		**Performance Indicator:**		
Week Ending	28-07-2023				
Class	B.S.7	**Class Size:**		**Duration:**	
Subject	Mathematics				
Reference	Mathematics Curriculum, Teachers Resource Pack, Learners Resource Pack, Textbook.				
Teaching / Learning Resources	Chart, Meter Rule, Compass, divider, Poster, Pictures.		**Core Competencies:**	• Analyze and make distinct judgment about viewpoints expressed in an argument • Ability to effectively define goals towards solving a problem	
DAYS	**PHASE 1 : STARTER**	**PHASE 2: MAIN**		**PHASE 3: REFLECTION**	
MONDAY	Review Learners knowledge on the previous lesson.	1. Assist Learners to draw in the dot square grid a triangle whose area is 3 square units. 2. Discuss the formula for calculating area with the Learners. 3. Learners practice calculating the area of the triangle in the square grid.		Learners in small groups to discuss and calculate the area of triangles in square. Exercise; Calculate the area of triangle using the square grid, if each square has side length of 1 cm	

			
TUESDAY	Discuss with Learners the meaning of **Parallelogram.**	1. Learners brainstorm to draw triangles in a square grid. 2. Assist Learners to determine the number of unit squares enclosed by the triangles 3. Learners practice calculating the perpendicular height of each triangle. 4. Learners to describe how the perpendicular heights of each triangle help you in calculating its area.  	Through questions and answers, conclude the lesson. **Exercise;** 1. a triangle has an area of 16in^2 and a base of 8in. What is the height of this triangle? 2. a triangle has side lengths of 3 inches, 4 inches, and a base of 5 inches. What is the height of this triangle? 3. What is the area of a triangle whose width is 4cm and whose perpendicular height is 15cm?
THURSDAY	Assist Learners to identify the formula for calculating the area of a triangle.	1. Demonstrate calculating for the area of triangles whilst Learners observe. 2. Learners brainstorm to identify the types of a triangle. 3. Assist Learners to find the area of the various types of triangles. ***Area of a right triangle*** The area of a triangle = (½ × Base × Height) square units. ***Example 1***	Learners in small groups to calculate examples of finding the area of triangles. **Exercise;** 1. Calculate the area of an equilateral triangle whose side is 4 cm

		Find the area of the right-angled triangle whose base is 9 m and height is 12m. <u>Solution</u> A = $^1/_2$ × base × height = $^1/_2$ × 12 × 9 = 54 cm² ***Example 2*** The base and height of a right triangle are 70 cm and 8 m, respectively. What is the area of the triangle? <u>Solution</u> A = ½ × base × height Here, we have 70 cm and 8 m. You can choose to work with cm or m. Let's work in meters by changing 70cm to meters. Divide 70cm by 100. 70/100 = 0.7m. ⇒ A = (½ × 0.7 × 8) m^2 ⇒ A = (½ x 5.6) m^2 ⇒ A = 2.8m^2 *Area of an equilateral triangle* An equilateral triangle is a triangle in which the three sides are equal and the three interior angles equal. The area of an equilateral triangle is:	2. Find the area of an equilateral triangle whose perimeter is 84 mm. 3. Find the area of the right-angled triangle whose base is 9 m and height is 12m.

		$A = (a^2\sqrt{3})/4$ Where a = length of the sides. ***Example 5*** Calculate the area of an equilateral triangle whose side is 4 cm. <u>Solution</u> $\Rightarrow A = (a^2/4)\sqrt{3}$ $\Rightarrow (4^2/4)\sqrt{3}$ $\Rightarrow (16/4)\sqrt{3}$ $= 4\sqrt{3}\ cm^2$ ***Example 6*** Find the area of an equilateral triangle whose perimeter is 84 mm. <u>Solution</u> The perimeter of an equilateral triangle = 3a. $\Rightarrow 3a = 84$ mm $\Rightarrow a = 84/3$ $\Rightarrow a = 28$ mm Area $= (a^2/4)\sqrt{3}$ $\Rightarrow (28^2/4)\sqrt{3}$ $= 196\sqrt{3}\ mm^2$	

		Area of a scalene triangle A scalene triangle is a triangle with 3 different side lengths and 3 different angles. The area of a scalene triangle can be calculated using Heron's formula. Heron's formula is given by; ⇒ Area = √ {p (p – a) (p – b) (p – c)} where 'p' is the semi-perimeter and a, b, c are the side lengths. ⇒ p = (a + b + c) / 2 ***Example 7*** Calculate the area of a triangle whose side lengths are 18mm, 20mm, and 12mm. <u>Solution</u> ⇒ p = (a + b + c) / 2 Substitute the values of a, b and c. ⇒ p = (12 + 18 + 20) / 2 ⇒ p = 50/2 ⇒ p = 25 ⇒ Area = √ {p (p – a) (p – b) (p – c)} = √ {25 x (25 – 12) x (25 – 18) x (25 – 20)} = √ (25 x 13 x 7 x 5) = 5√455 mm^2	

Name of Teacher: ***School:*** ***District:***