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| **THEME:** | PLANE FIGURES |
| **DATE**: | 10– 10 – 2024 |
| **CLASS**: | Js 3 |
| **TIME**: | 8:40-09:20am |
| **DURATION** | 40 MINUTES |
| **SUBJECT**: | Mathematics |
| **UNIT TOPIC:** | AREA OF PLANE FIGURES |
| **LESSON TOPIC:** | SECTOR |

**SPECIFIC OBJECTIVE**: By the end of the lesson, students should be able to

1. Define a sector.
2. Mention the methods of solving the area of a sector
3. Solve the area of sectors using different information.

**INSTRUCTIONAL RESOURCES:** Chart showing a circle and its parts

**LESSON PRESENTATION**

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| **STEP 1** | **PREVIOUS KNOWLEDGE:** students were taught how to solve the area circle. | | Students recall. |
| **STEP 2** | **EXPLORATION:**  The teacher introduces the topic with the following questions:   1. **What is a sector?** 2. **Do you know how to solve for the area of a sector?** | | Students make attempt to answer the questions. |
| **STEP 3**  **Obj 1;**  **Obj 2**  **Obj 3** | **DISCUSSION:**  ***Teacher starts the discussion:***  **The area of a sector is the region enclosed by the two radii of a circle and the arc.** In simple words, the area of a sector is a fraction of the area of the circle.  wk 5.jpg Methods of calculating the area of a sector There are three ways for calculating the area of a sector. Each of these methods is done using a distinct formula depending on the type of information given about the sector. Area of a sector when the central angle is given in degrees If the angle of the sector is given in degrees, then the formula for the area of a sector is given by,  **Area of a sector = (θ/360) πr2**  A = **(θ/360) πr2**  Where θ = the central angle in degrees  Pi (π) = 3.14 and r = the radius of a sector. Area of a sector given the central angle in radians If the central angle is given in radians, then the formula for calculating the area of a sector is;  **Area of a sector = (θr2)/2**  Where θ = the measure of the central angle given in radians. Area of a sector given the arc length Given the length of the arc, the area of a sector is given by,  **Area of a sector = rL/2**  Where r = radius of the circle.  L = arc length.  Let’s work out a couple of example problems involving the area of a sector.  **Example 1**  Calculate the area of a sector with a radius of 10 yards and an angle of 90 degrees.  Solution  Area of a sector = (θ/360) πr2  A = (90/360) x 3.14 x 10 x 10  = 78.5 sq. yards.  **Example 2**  Find the central angle of a sector whose radius is 56 cm and the area is 144 cm2.  Solution  A= (θ/360) πr2  144 = (θ/360) x 3.14 x 56 x 56.  144 = 27.353 θ  Divide both sides by θ.  θ = 5.26  Thus, the central angle is 5.26 degrees.  **Example 3**  Find the area of a sector with a radius of 8 m and a central angle of 0.52 radians.  Solution  Here, the central angle is in radians, so we have,  Area of a sector = (θr2)/2  = (0.52 x 82)/2  = 16.64 m2  **Example 4**  The length of an arc is 64 cm. Find the area of the sector formed by the arc if the circle’s radius is 13 cm.  Solution  Area of a sector = rL/2  = 64 x 13/2  = 416 cm2. | | Students listen attentively and take down notes. |
| **STEP 4** | **APPLICATION:**  **Find the area of the sector when the radius of the circle is 16 units, and the length of the arc is 5 units.**  **Solution:** If the length of the arc of a circle with radius 16 units is 5 units, the area of the sector corresponding to that arc is;  A = (l*r*)/2 = (5 × 16)/2 = 40 square units | | Students ask questions on the topic which the teacher answers. |
| **STEP 5** | **EVALUATION:** the teacher evaluates the students with the following questions:   1. **If the angle of the sector with radius 4 units is 45°, then find the length of the sector.** 2. Find the area of a sector whose arc is 8 inches and radius is 5 inches. | | The students answer the questions. |
| **Assignment**  Find the angle of a sector whose arc length is 22 cm and the area is 44 cm2.  **References**  **New concept mathematics for Jss3 by A. A. Arigbabu et al.**  **New general mathematics for Jss3 by M/ F. Macrae et al.** | |  |