**Grade**  5

**Subject:**  Mathematics

**Strand:**  Measurement

**Duration:** 1 hour

**Focus Question:** When do I use the different units of length and area?

**Benchmark:** Use the formula for area of a rectangle to compute the area of rectangular

region; estimate the area of an irregular shape by counting squares.

**Prior Learning:** Know and understand the concept of perimeter.

Able to identify different polygons.

Know the properties of polygons with up to 10 sides.

**Student Learning Objectives:**

By the end of the lesson students should be able to:

1. Coin their own definition for area based on activities done.
2. Explore the tiling of a plane using different shapes given.
3. Identify shapes which will cover a plane exactly and those that will not.
4. Explain at least two methods that can be used to find the area of a rectangle.
5. Demonstrate how area of a figure is written and read.
6. Derive formula for finding area of rectangles.
7. Solve problems involving area measures.

**Skills:**

Counting squares, exploring shapes and their properties, differentiating between different square units, calculating area, deriving formulas

**Key vocabulary:** Square, units, area, rectangle, grid, rows, columns

**Materials:**

* At least 8 cut outs each of different shapes from letter size paper. (NB. Have two types of rectangles included)
* sheets of letter size paper
* 12 x 12 cm squares
* grid paper
* square tiles
* worksheet
* word strips with key vocabulary

**Content:**

Area refers to the amount of surface space a flat figure or shape takes up. This measured in square units.

**Procedure/ Learning Activities:**

**Engage:**

Mr. Beale wants to cover his display board using shapes. He tries to figure out which shape would best cover the board without showing the color underneath. Help him to decipher what shape is best to use.

Students will be given different shapes cut out in small mixed ability groups. They will be required to model the real life situation above. They will be asked to use paper shape cut outs to cover the rectangular planes given. They will say which shape they think best covers the rectangular planes shape. Students will tell what word best describes the ability to cover the surface of a flat shape. They will coin a definition for the term which will be noted on the board.

**Explore:**

Students will then be given grid paper. They will outline a rectangle of their choice on the paper. They will observe the rectangle and tell logical ways in which they think they could know the area of the rectangle. They will capture their findings based on given worksheet. (See sample worksheet attached).

**Explain:**

Students will be selected to give their reasoning for the methods they used to find the area. The remaining class members will be required to listen to the reasoning of the students and say whether or not they think it is logical. Students will derive formulas for rectangles from activities done. Summary of logical methods will be recorded on the board.

**Extent/elaborate:**

*Farmer Brown wants to make a garden 16 square units. Decide on possible shapes that the garden could have?*

Students will be asked to choose either square tiles or geo-boards to model the possibilities for the following situation. Students will be asked to take pictures of other students at work for class display.

**Evaluation (students):**

**Section A**

1. Find the area of the following shapes.

 **15 cm**

A. B.

 (Not drawn to scale)

1. Draw 1 possible shape that could have a surface area of 12 square units.

**Section B**

**Choose ONE of the following.**

1. Write and solve two story problems having to do with finding area of a rectangular region.
2. Write a paragraph about what you know about area.

**`**

**Evaluation: (teacher)**

Grid Paper

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |