

# My Dream Room

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## ***Lesson Plan #3: Room Areas – Calculating Area of Floors and Walls***

### **I. Prerequisite Knowledge and Skills**

Students have been introduced to concept of area and understand length/width terminology. Students have calculated perimeter of “dream” room. Students have worked in cooperative groups.

### **II. New Learning**

Students will learn how to calculate the area of a room and walls. Students will learn to calculate surface area of walls less window and door areas.

### **III. Rationale**

*NCTM* Standards states that students should be able to “develop, understand, and use formulas to find the area of rectangles and related triangles and parallelograms.” This lesson deepens students understanding of calculation of area and allows students to develop a formula not only for area but also for a large surface area that has uncovered areas such as windows and doors.

### **IV. Goals**

a. Performance Objective: After working to develop formulas in class for calculating area and surface area of walls, students will calculate area of floor and surface area of each wall for selected room from previous lessons.

### **V. Materials**

- a. Overhead graph transparency from decorator
- b. Overhead projector
- c. Students' scale room drawings (floor plans) (lesson #2)
- d. Area Calculation Transparency
- e. Area Calculations Forms (one for each student)
- f. Perimeter calculations from lesson #1
- g. 1" paper strips for each student.

## **VI. Procedure**

### **a. Opener**

1. Ask students to explain what area means. Take several answers such as the amount of space needed to cover something or base times width. Ask students to think of examples where someone might need to know the area of something. Ideas might include to buy paper large enough to wrap a package or to know how much seed you need to plant a crop in an area.
2. Explain to students that soon they will be selecting furniture, floor coverings such as carpet and wood, and paint for their dream rooms. Explain that when designers do this, they have to know the areas of walls and floors in order to calculate the amount of supplies that will be needed to cover these areas.
3. Divide students into groups of 3 –4. (7 groups). Distribute perimeter calculations from lesson #1.
4. Ask each group to calculate the area of each object in terms of both straws and yarn.

### **b. Development**

5. Using overhead projector, ask each group for their length and width measurements in terms of straws and yarn and their calculated area. Ask groups to explain their method of calculating the area. Fill in measurements on Area Calculation Transparency.
6. Ask students if they can create a relationship between "straw" and "yarn" measurements in terms of area. Compare that to the equation created for perimeter in lesson #1. Reason with students why the differences in equations.

### **c. Closing**

7. Explain to students that to prepare for the selection of furniture and wall and floor coverings, they will need to know the area of the various surfaces in their room.
8. Brainstorm with students the surfaces that they might want to cover. Ideas should include walls, floors, doors, and windows. They will want to have separate measurements for each of these items.
9. Discuss how to measure the height of the room. You might want to assume a standard measurement of 8' or 9' to make things easier.

Name \_\_\_\_\_

Date \_\_\_\_\_

### *My Room Measurements*

Paper Measurement

Actual Measurement

**Length of Room**

**Width of Room**

**Perimeter of Room**

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**Area of Floor**

**Area of Wall #1**

**Area of Wall #2**

**Area of Wall #3**

**Area of Wall #4**

**Area of Window #1**

**Area of Window #2**

**Area of Window #3**

**Area of Window #4**

**Area of Door #1**

**Area of Door #2**

**Area of Door #3**