**Design**

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| **Day 1** | | | |
| Core Curriculum | Goals & Objectives | | Teaching strategies and evaluation strategies. |
| I. Covering Regions (Recognize area as an attribute of plane figures and understand concepts of area measurement. 3.MD.5)   1. A square with side length 1 unit is called a “unit square.” A unit square is said to have “one square unit” of area. 2. A unit square can be used to measure area. 3. Area is the # of square units needed to cover a region. 4. The amount of space inside a shape is its area. 5. Square units cover the plane figure without overlapping or gaps. | Each third grade student will be able to correctly cover and count the number of square tiles given square tiles with a plane figure with 100% accuracy.  Each third grade student will be able to define the term area and square unit when given a writing prompt with a score of at least 3 on a 4-point rubric. | | * Use premade square units to measure the tops of their desks. * Discuss the number of squares used to measure desk, what was actually measured (inside space of desk) * Discuss discrepancies between classmates’ measurements—guide discussion that squares must cover entire plane figure with NO overlapping or gaps. * Introduce the word AREA and do a vocabulary web. * Discuss what unit is used to measure area—square units. * Provide small groups with different sized square units to measure different surfaces. Record results in a table or chart. * Discuss the area of surfaces measured to bring about a discussion on what a unit square is. |
| **Day 2** | | | |
| 1. Estimating and Measuring Area (3.MD.6)    1. Understand the size of different unit squares.    2. Use concrete and pictorial models of square units to determine the area of two-dimensional surfaces by counting them    3. Area is the # of square units needed to cover a region.    4. The amount of space inside a shape is its area.    5. Square units cover the plane figure without overlapping or gaps.       1. Be able to accurately count. | Each third grade student will be able to calculate area by counting tiles when given a practice worksheet with 90% accuracy.  Each third grade student will select appropriate size unit square when given 10 multiple-choice questions with 80% accuracy. | | \* Show examples of different sized unit squares, such as square cm, square inches, square feet, square yard, square meter. Students brainstorm and record where they would use each unit square for measuring. For example, square yard for measuring the playground, square feet for measuring classroom.   * Use tile blocks (square inches), laminated square feet to measure different surfaces in classroom and school. Review how to cover accurately and how to calculate total squares used. * Practice skills by completing a worksheet. |
| **Day 3** | | | |
| 1. Area of Squares and Rectangles—be able to relate area to the operations of multiplication and addition. (3.MD.7)    1. Find the area of a rectangle with whole-number side lengths by **tiling it.**       1. Understand what an array is and relate it to area.       2. Know how to calculate multiplication facts.       3. Understand what area is.       4. Tiling involves no overlapping or leaving of gaps. | Each third grade student will calculate the area of 10 different rectangular shapes by using tiles when given the lengths of two sides with 80% accuracy. | | * Use graphing paper to solve a story problem involving area. * Class discussion regarding how to calculate the total number of squares—we could count the number of squares like we did prior lessons. Is there another way? What does square remind us? Review what an array is and how to calculate. What shapes allow us to use this method? * Use Clickers for class practice and student understanding. * Use graph paper to create different rectangular shapes and calculate area for each room. Partner check. |
| **Day 4** | | | |
| * 1. Show that the area is the same as would be found by **multiplying the side lengths**.      1. Know multiplication facts.      2. Understand the commutative property of multiplication | Each student will draw rectangular –shaped rooms and calculate area for each room when given graphing paper and recording sheet with 100% accuracy.   |  |  |  | | --- | --- | --- | | Room Name | # of square units when counted | Width x length= # square units | |  |  |  | |  |  |  |   Each student will write a journal entry when given a problem explaining how he/she can find the area of a rectangle when given the lengths of two sides with a score of 3 or higher on a 4-point rubric. | * Think-pair share. Solve problem: Joe has found a piece of carpet that has measurements of 4 yards by 5 yards. He needs to figure out the area of the carpet. Use your knowledge of area and multiplication to determine the area. Share your solutions. Discuss as class. Was there an easy or “short cut” to finding area without having to cover the shape with squares? Will the short-cut work on any rectangular shape? * Practice using this “short-cut” method using computers. <http://www.thatquiz.org/tq-4/?-j201v-lc-m2kc0-na-p0> * Journal entry: Why can you multiply the lengths of each side to determine area? * Create floor plan for pet rock house. * Calculate the area for each room. Given budget decide on how to floor each room. | |
| **Day 5 & 6** | | | |
| 1. Area and the Distributive Property (3MD7C)    1. Use tiling to show in a concrete case the area of a large rectangle.    2. Be able to take this large rectangle and divide it into smaller rectangles. Find the area of the two smaller rectangles.    3. Be able to explain that a rectangle with the whole-number side lengths a and b+c is the sum of a x b and a x c.    4. Use area models to represent the distributive property in mathematical reasoning. | Each third grade student will write equations for given a large rectangle and two small rectangles when given cards to match with 80% accuracy.  Each third grade student will calculate the area of a rectangle using the distributive property when given 10 different rectangles with 80% accuracy.  Each third grade student will explain how the distributive property works when given area models with a score of 3 or higher on a 4-point rubric. | * Pose problem—The new reading room for the pet rock’s library is shaped like a rectangle that is 8 inches by 9 inches. Mrs. Owens has a rectangular piece of pattern paper that is 8 inches by 5 inches for the reading area. What part of the reading area will be left without carpet? What will the area of the carpeted parted section? * Link to prior knowledge about finding area by having students share. * Draw and discuss the rectangle on grid paper. What multiplication facts are represented? * Small group—draw another rectangle with different dimensions and draw a line to separate into two rectangles. Write the equation for the large rectangle and the equations to the two small equations. * Matching activity—students will work in pairs to match large rectangle with 2 small rectangle. Then write down the equation for both cards. * Self—Students complete short quiz for assessment. | |
| **Day 7** | | | |
| 1. Area of Irregular Shapes    1. Recognize area as additive    2. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts. | Each third grade student will calculate area when given 10 different rectilinear (irregular) shapes with 80% accuracy. | | \* Partner problem: Provide students with a rectilinear figure and have them work in pairs to find the area. Problem: Mrs. Owens has decided the pet rock library will be in the shape of this picture. The length of each side is shown in feet. Find the area of the library WITHOUT counting each square.  \* Whole class discussion: How can you find the area of the desk *without* counting squares? There are many ways to divide this shape into rectangles and squares  \* Interactive Lesson using Smartboard Tools to practice and discuss. <http://www.studyladder.com/myschool/173116/myclass/298813>  \* Independent Practice: Complete worksheet. |
| **Day 8** | | | |
| 1. Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.    1. Find perimeter given the side lengths    2. Find an unknown side length | Each third grade student will calculate the perimeter when given 10 shapes with 80% accuracy.  Each third grade student will calculate an unknown side length when given 10 problems with 80% accuracy. | | * Review: perimeter using this website and white boards.   <http://www.thatquiz.org/tq-4/?-j201v-lc-m2kc0-na-p0>   * Independent Practice: Complete worksheet. |
| **Day 9** | | | |
| * 1. Exhibit with the same perimeter and different areas | Each third grade student will find and draw rectangles then calculate the area of each rectangle when given a set perimeter with 80% accuracy.  Each third grade student will explain his/her thinking when given the task of deciding which rectangle from above assignment would make the best yard for his/her pet rock with a score of 3 or higher on a 4-point rubric. | | * Pose questions to whole class: Can you have different shapes with different areas but the same perimeter? * Do thumbs up/thumbs down to record guesses * Direct teach: Using 8 units of 1 inch straws, demonstrate using the document camera how you can make a 2 x 2 square with perimeter of 8 units and area of 4 units. Then make a 1 x 3 rectangle. P= 8, but A = 3. Model your recordings on worksheet. * Discuss: Can you have same perimeter and different area? * Partner work: You have been given 12 units of fencing for your pet rock’s yard. The yard has to be in the shape of a rectangle. You and your partner must use all 12 units of fencing. |
| **Day 10** | | | |
| * 1. Exhibit with the same area and different perimeters. | Each third grade student will draw rectangles and calculate the perimeter for each rectangle when given 16 square units with 80% accuracy.  Each third grade student will explain his/her thinking when given the task of deciding which rectangle from above  assignment would make the best yard for his/her pet rock with a score of 3 or higher on a 4-point rubric. | | * Each third grade student will draw rectangles and calculate the perimeter for each rectangle when given 16 square units with 80% accuracy. * Each third grade student will explain his/her thinking when given the task of deciding which rectangle from above assignment would make the best yard for his/her pet rock with a score of 3 or higher on a 4-point rubric. |
| **Day 11** | | | |
| 3.W.3—Write narratives to develop imagined experiences or events using effective technique, descriptive details, and clear event sequences.  a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.  b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.  c. Use temporal words and phrases to signal event order.  3.OA.8 Solve two-step word problems using the four operations. | Each third grade student will sequence important events using sequence words when given the book The Diary of a Spider and The Diary of a Fly by Doreen Cronin with 100% accuracy.  Each third grade student will determine the cost of using different flooring materials when given the dimensions of different rooms with 100% accuracy. | | * Whole class—read The Diary of a Spider. As a class retell the story using sequence words. * Small groups—give students events from The Diary of a Fly and have them sequence the events . * Individual Practice—complete worksheet to determine cost of materials based on floor dimensions. |
| **Day 12 & 13** | | | |
| 3.OA.8 Solve two-step word problems using the four operations. | Each third grade student will decide what flooring material to use and cost for each room in his/her pet rock house when given a budget with 100% accuracy before being allowed to “purchase” materials and flooring each room. | | * Individual Practice—complete worksheet regarding cost of flooring for his/her personal pet rock house. * Submit final plan to teacher for approval. |
| **Day 14-17** | | | |
| Art—Create pet rock.  3.W.3—Write narratives to develop imagined experiences or events using effective technique, descriptive details, and clear event sequences.  a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.  b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.  c. Use temporal words and phrases to signal event order.  Math   * Find the area of a rectangle with whole-number side lengths by **tiling it.** * Square units cover the plane figure without overlapping or gaps. * Show that the area is the same as would be found by **multiplying the side lengths**. | Each third grade student will create a pet rock when given art materials with 100% completion.  Each third grade student will write fictional journal entries about his/her pet rock when given a mini-diary.  Each third grade student will cover his/her per rock floor when given materials based on budget proposals with no gaps or overlapping. | | * Individual—cover floor using paper squares, foam tiles, pattern paper, or coloring based on submitted proposal. * Individual—write a story in a diary format about the adventures of his/her pet rock. * Individual—create pet rock using paints, glitter glue, googly eyes. |