Name of Lesson: Covering Regions with Square Units

Grade Level: Third Subject: Measurement--Area Prepared By: Debbie Owens

|  |  |
| --- | --- |
| Core: 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.
 | Objective(s): 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. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |   | Teacher Guide  | Student Guide  |   |
| Preparation for Learning |  Gaining Attention |  **Handout**: construction paper and 2” squares. **Ask:** How many squares will it take to cover the construction paper? Give them a few minutes to work. **Ask** students how many squares are needed to cover their paper. **Record** responses on a line plot to refer to later. |  Students work by themselves to decide how many squares it takes to cover the construction paper. Students will share the number of squares needed.  | Materials Needed • Premade 1”, 2”, 3”, 4”, 6” squares, 1 foot squares, 1 yard squares (made out of oak tag, 12 x 12 cardstock, etc.)* Need 2” squares for students to use to cover area
* Need 12”x18” construction paper for each student.

• Vocabulary web * Rubric
* 3--12”x12” squares (laminated). 2 showing incorrect ways to tile and 1 showing the correct way to tile. OR show pages 3-5 in Notebook
* tape or magnets to hang up 12x12 tiled squares
* Journal recording sheet
 |
|  Direction (Stating objective)  | **Write** today’s objectives on the white board or display page 1 on Notebook:1. You will be able to explain what area is and what a square unit is.2. You will be able to accurately use square tiles to measure area. **Direct** students read the objectives together. |  Students orally read the objectives. |
|  Recall (recall of prerequisite information)  |  **Ask:** What did you remember about perimeter? **Wait** to allow time for students to recall. **Randomly call** on students to elicit responses. Steer class discussion to the two questions below: **Ask:** What does perimeter measure? (The distance around a figure.) **Ask:** What units do we use when measuring perimeter? (inches, feet, yards, meters, centimeters, kilometers, miles.) |  Students share responses to questions. | Other Resources (e.g. Web, books, etc.) \* Document camera and projector\* White board and markers  |
| Material | Content (presentation of new material) |  **Explain:** Today we are going to do some different measuring. So far we have been measuring around different figures. But what about all that space inside? **Ask:** Don’t you think it deserves to be measured? **Ask:** How do you think we could measure the inside of a polygon? **Show:** different sized square units. Hang different sized squares on the board—1”, 2”, 3”, 4”, 6”, 1’, 1yard squares. (Use magnets or tape to hang up.)**Ask:**  What do you notice about these units? What do we know about squares? **Tell**: Well you have just figured out the secret for measuring the inside space of plane figures. We use squares to cover up the space inside. **Ask:** Can any one figure out what we call the unit for measuring the inside space?**Tell:** AREA is what we call the space inside a plane figure.   |   Students share ideas on how to measure the inside of a plane figure. Students should be able to share they are all squares. Each side is the same length. Squares have right angles, etc. Students should be able to figure out that we use square units to measure the inside space.  |
| New  | Application—Guided LearningWe Do | **Hand out** the vocabulary sheets and display blank teacher copy under document camera or display page 2 Notebook. **Complete** worksheet with students’ input. Definition: The number of square units needed to cover a region. Characteristics: square units used to measure, inside space is completely coveredExamples: rectangle with squares insideNon-examples: such as perimeter. **Refer** students to the line plot (hopefully there will be some discrepancies between how many squares needed. If not, tell students that it’s important that people count the number of square units accurately.) **Tell:** To measure area, we need to make sure the entire area is covered with no overlapping or gaps. **SHOW** different examples (either pages 3-5 in Notebook) or actual examples (3-12x12 tiles made earlier). **Elicit** responses of what was done wrong or right with each example. | Students record information as well as share ideas.Students share what teacher did wrong. | Additional Notes   |
|  | Application—Eliciting Performance—You Do | **Tell** students they are going to show how to cover their construction paper correctly using their square units. | Students cover paper without overlapping and gaps. |  |
| Delivery of  | Application—Feedback-- | **Walk** around room assisting students as they practice. **Provide** feedback and encouragement. **Note** if any student is struggling, provide assistance. | Students work on task and talk with partners if necessary. |  |
| Wrap-Up | Evaluation | **Call** students back together. **Hand-out** math journal. Emphasize the need to answer each question as completely with words and pictures. **Grade** journals based on rubric. | Students complete math journal and turn in with all materials used during class. |  |
| Closure—retention/ transfer  | **Ask**: What do we call it when we measure AROUND a figure? PerimeterWhat do we call it when we measure the INSIDE of a figure? Area |  |  |