

## Grade 3 Mathematics Unit Plan

Title of Unit: Area of Rectangles and Squares

Goals of Unit:

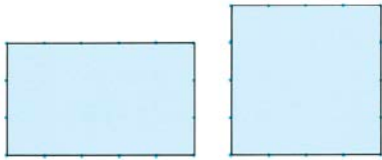
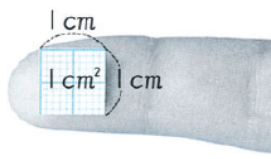
- To understand the meaning of area as the size of space a 2-dimensional object takes up.
- To measure the areas of squares and rectangles using both arbitrary and square units.
- To measure the areas of squares and rectangles by using a formula.

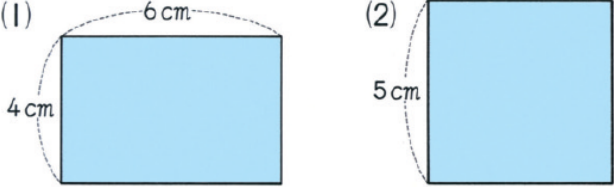
Plan of Unit (Total 5 lessons)

1. Recall prior knowledge (1 day)
2. Comparing areas using arbitrary units (1 day)
3. Comparing areas using square units (1 day)
4. Finding area by using a formula (2 days)

(Note: Resource is Tokyo Shoseki Mathematics for Elementary School textbook.)

Lesson No. & Date	Goal of Lesson	Resource	Learning Activities
1  7/16	To review prior knowledge needed to engage effectively in this unit of study. <ul style="list-style-type: none"> <li>• Attributes of rectangles and squares</li> <li>• Perimeter of polygons</li> <li>• Multiplication involving arrays</li> </ul>		<ol style="list-style-type: none"> <li>1. What do you know about rectangles and squares?</li> <li>2. These dots are arranged in a rectangular array. How can we find the number of dots?</li> <li>3. Let's find the perimeter of rectangles and other polygons.</li> </ol> Using the given dimensions. Using a ruler to measure the sides.
2  7/17	Understand that the size of space of the sheets can be compared directly by overlapping, and indirectly by tracing the space and placing it on top of the other.  Know that the term	G1 p. 80  G4B pp. 22-23	<ol style="list-style-type: none"> <li>4. Introduction</li> </ol> Which of the two picnic sheets has the larger area? How can we find out? (Which takes up more space?) <ol style="list-style-type: none"> <li>5. Posing the problem</li> </ol> Which newsletter has the larger area? (Unlike the picnic sheets, we cannot move the newspaper to

	<p>area is used for the size of the space that covers 2 dimensional shapes.</p> <p>Understand that area can be compared by using an arbitrary unit.</p>		<p>overlap the shapes.)</p> <p>6. Discussion/Summary</p> <p>Teacher guides students to understand that the area can be compared by using an arbitrary unit.</p>
<p>3 7/18</p>	<p>Understand that area can be compared by using a square unit.</p>	<p>G4B pp. 22-24</p>	<p>1. Posing the problem</p> <p>Which of the following shapes, the rectangle or the square, has the larger area, and by how much?</p> <p>Think about a way to express how large they are.</p> <div style="text-align: center;">  </div> <p>2. Discussion/Summary</p> <p>By contrasting students' solutions including the misunderstanding, teacher guides them to understand the size of area can be expressed using numbers by setting up a unit square.</p> <p>The advantage of using numbers to express the area is for us to easily compare and show how much the area is and how much different.</p> <p>It is also important to emphasized that measuring the perimeter does not help us compare the areas.</p>
<p>4 7/19</p>	<p>Understand square cm and square in.</p> <p>Deepen understanding of</p>	<p>G4B pp. 24-25</p>	<p>1. Introducing the formal unit of area measurement</p> <div style="text-align: center;">  </div>

	area units by creating shapes on a grid.		<p>3. Find area in <math>\text{cm}^2</math> of shapes on a grid (worksheet).</p> <p>4. Introduce square inch (<math>\text{in}^2</math>).</p>
5 7/20	Derive the formula for finding the area of rectangles and squares.	G4B pp. 26-27	<p>1. Posing the problem</p> <p>Let's think about how to find the area of the rectangle and square without counting the number of unit squares one by one.</p> <div style="text-align: center;">  <p>(1) <span style="margin-left: 200px;">(2)</span></p> </div> <p>2. Discussion/Summary</p> <p>Multiplication can be used if we look at the number of square units that fit along the length (vertical side) of a rectangle as a group and how many groups will fit along the width (horizontal side). This is the same idea that we used multiplication to find the number of dots in an array.</p>
6 7/21	Find the area of rectangles and the squares (mm, cm, inch) by using a formula.		<p>1. Give a variety of rectangle and squares in different sizes, orientations to find and compare the area.</p> <p>2. Discussion/Summary</p> <p>We can find the area of shapes with measurements (mm cm, inch) by using the formula. Sometimes it is necessary to convert the unit in order to use the appropriate unit.</p>