

Seymour Public Schools Math Grade 3 Unit 7

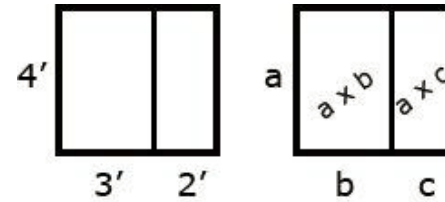
<p>Grade: 3</p> <p>Unit 7 – Geometry, Perimeter, and Area</p>	<p>Subject: Math</p> <ul style="list-style-type: none"> • Time Frame: 21 days • Domains: Measurement and Data; Geometry 	
<p>Standards</p>	<p>Content Standards: 3.MD.5, 3.MD.6, 3.MD.7, 3.MD.8, 3.G.1, 3.G.2 http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf</p>	<p>Practice Standards: MP 1, 2, 3, 4, 5, 6, 7, 8</p>
<p>Enduring Understandings</p>	<ol style="list-style-type: none"> 1. Area is an expression of how much surface area is covered, not a length. You use square units to measure area. 2. Measurement processes are used in everyday life to describe and quantify the world. 3. Perimeter is the distance around a figure or shape. 4. Geometric attributes provide information about an object's properties and position in space. They support visualization and problem solving. 	
<p>Essential Questions</p>	<ol style="list-style-type: none"> 1. How do you show area? 2. Why does "what" we measure influence "how" we measure? 3. How do we show perimeter? 4. How do we find area and perimeter? 5. How do attributes better describe a shape or object? 6. How can I partition a shape to make equal parts or areas? 	
<p>Vocabulary</p>	<p>angle, concave, convex, decagon, hexagon, octagon, polygon, pentagon, ray, right angle, opposite, parallelogram, rectangle, rhombus, square, trapezoid, parallel, quadrilateral, area, perimeter, unit square, side length, decompose, rectilinear polygon, dimensions, tangram</p>	

would be found by multiplying the side lengths.

- b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.**
- c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.**
- d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.**

a poster that was 4' by 2'. They placed their posters on the wall side-by-side so that there was no space between them. How much area will the two posters cover?

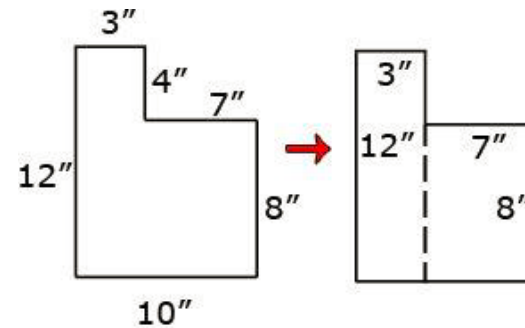
Students use pictures, words, and numbers to explain their understanding of the distributive property in this context.



$$4 \times 3 + 4 \times 2 = 20$$

$$4 \times 5 = 20$$

Example: Students can decompose a rectilinear figure into different rectangles. They find the area of the figure by adding the areas of each of the rectangles together.



area is $12 \times 3 + 8 \times 7 =$
 92 sq inches

3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

3.MD.8. Students develop an understanding of the concept of perimeter by walking around the perimeter of a room, using rubber bands to represent the perimeter of a plane figure on a geoboard, or tracing around a shape on an interactive whiteboard. They find the perimeter of objects; use addition to find perimeters; and recognize the patterns that exist when finding the sum of the lengths and widths of rectangles.

Students use geoboards, tiles, and graph paper to find all the possible rectangles that have a given perimeter (e.g., find the rectangles with a perimeter of 14 cm.) They record all the possibilities using dot or graph paper, compile the possibilities into an organized list or a table, and determine whether they have all the possible rectangles.

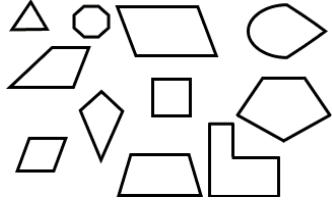
Given a perimeter and a length or width, students use objects or pictures to find the missing length or width. They justify and communicate their solutions using words, diagrams, pictures, numbers, and an interactive whiteboard.

Students use geoboards, tiles, graph paper, or technology to find all the possible rectangles with a given area (e.g. find the rectangles that have an area of 12 square units.) They record all the possibilities using dot or graph paper, compile the possibilities into an organized list or a table, and determine whether they have all the possible rectangles. Students then investigate the perimeter of the rectangles with an area of 12.

Area	Length	Width	Perimeter
12. sq. in.	1 in.	12 in.	26 in.
12. sq. in.	2 in.	6 in.	16 in.
12. sq. in.	3 in.	4 in.	14 in.
12. sq. in.	4 in.	3 in.	14 in.
12. sq. in.	6 in.	2 in.	16 in.
12. sq. in.	12 in.	1 in.	26 in.

The patterns in the chart allow the students to identify the factors of 12, connect

	<p>the results to the Commutative Property, and discuss the differences in perimeter with the same area. The chart can be used to investigate rectangles with the same perimeter. It is important to include squares in the investigation.</p>
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Priority and Supporting CCSS	Explanations and Examples*
<p>3.G.1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.</p>	<p>3.G.1. In second grade, students identify and draw triangles, quadrilaterals, pentagons, and hexagons. Third graders build on this experience and further investigate quadrilaterals (technology may be used during this exploration). Students recognize shapes that are and are not quadrilaterals by examining the properties of the geometric figures. They conceptualize that a quadrilateral must be a closed figure with four straight sides and begin to notice characteristics of the angles and the relationship between opposite sides. Students should be encouraged to provide details and use proper vocabulary when describing the properties of quadrilaterals. They sort geometric figures (see examples below) and identify squares, rectangles, and rhombuses as quadrilaterals.</p> 

Priority and Supporting CCSS	Explanations and Examples*												
<p>3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. <i>For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.</i></p>	<p>3.G.2. Given a shape, students partition it into equal parts, recognizing that these parts all have the same area. They identify the fractional name of each part and are able to partition a shape into parts with equal areas in several different ways.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td></tr> <tr><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>$\frac{1}{4}$</td></tr> <tr><td>$\frac{1}{4}$</td></tr> <tr><td>$\frac{1}{4}$</td></tr> <tr><td>$\frac{1}{4}$</td></tr> </table> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td><td>$\frac{1}{4}$</td></tr> </table> </div>	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
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Resources

Math Expressions – Unit 7, Lessons 1-11
Soar to Success Math Intervention
Mega Math
Common Core Mathematics-Newmark Learning- Units – 23-26
Xtramath.org

Unit Assessments

Unit Test
Quick Quizzes
Formative Assessments
Performance Task

Technology: Videos, Websites, Links

<https://grade3commoncoremath.wikispaces.hcpss.org/home>

www.thinkcentral.com

www.learnzillion.com

<http://mathworksheetsland.com/3/>