

NJDOE MODEL CURRICULUM

CONTENT AREA: Mathematics	GRADE: 3	UNIT: # 5	UNIT NAME: Whole Number Operations Applied to Area and Perimeter
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#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
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.	3.G.1
2	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
3	Explain the relationship between tiling/multiplying side lengths to find the area of rectangles.	3.MD.7a 3.MD.7b
4	Use the area model (with rectangles) to explain the Distributive Property.	3.MD.7c
5	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.	3.MD.7d
6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	3.MD.6
7	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	3.NBT.2
8	Fluently multiply and divide within 100, using the relationship between multiplication and division.	3.OA.7
Repeated Standards		
<p>SLO #7 is MASTERY for standard 3.NBT.2 in this unit: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and the relationship between addition and subtraction.</p> <p>SLO #8 is MASTERY for standard 3.OA.7 in this unit: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. Know from memory all products of two 1-digit numbers.</p>		

Major Content **Supporting Content** **Additional Content** (Identified by PARCC Model Content Frameworks).

Bold type indicates grade level fluency requirements. (Identified by PARCC Model Content Frameworks).

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CONTENT AREA: Mathematics

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**UNIT NAME: Whole Number Operations
Applied to Area and Perimeter**

Selected Opportunities for Connection to Mathematical Practices

1. Make sense of problems and persevere in solving them.

- SLO #1 Use concrete objects or pictures to help conceptualize and understand similar and dissimilar attributes of shapes.
- SLO #4 Use concrete objects or pictures to help conceptualize area models in order to explain the Distributive Property.
- SLO #5 Use concrete objects or pictures to help conceptualize areas of rectilinear figures in order to solve real world area problems.
- SLO #6 Use concrete objects or pictures to help conceptualize measures of area.

2. Reason abstractly and quantitatively.

- SLO #1 Know and use flexibly the different properties of objects to understand the attributes of shapes.
- SLO #2 Use quantitative reasoning that entails a coherent representation of polygons in order to find the perimeter.
- SLO #2 Know and use flexibly the different properties of operations in order to find the perimeter of polygons.

3. Construct viable arguments and critique the reasoning of others.

- SLO #1 Understand the assumptions and definitions regarding different attributes and categories of shapes.
- SLO #6 Analyze measures of area by breaking them into unit squares.

4. Model with mathematics.

- SLO #2 Use and apply previously learned concepts about the properties of operations to solve perimeter problems.
- SLO #6 Use and apply previously learned concepts about unit measurements to solve area measure problems.
- SLO #5 Use and apply previously learned concepts about addition and decomposing to solve real world area problems.
- SLO #5 Interpret area results in the context of the problem.

5. Use appropriate tools strategically.

- SLO #4 Consider available and appropriate tools, such as arrays, models, and drawings, when using the area model to explain the Distributive Property.
- SLO #5 Consider available and appropriate tools, such as arrays, models, and drawings, when finding the area of rectilinear figures.
- SLO #6 Consider available and appropriate tools, such as arrays, models, and drawings, when solving area measure problems.

6. Attend to precision.

- SLO #4 Communicate precisely how the area model can illustrate the Distributive Property.

7. Look for and make use of structure.

- SLO #1 Look for and discern a structure based on different shapes attributes'.
- SLO #7 Look for and discern a pattern when adding or subtracting within 1000.

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SLO #8 Look for and discern a pattern when multiply or dividing within 100.
 8. Look for and express regularity in repeated reasoning.

Bold type identifies possible starting points for connections to the SLOs in this unit.

Code #	Common Core State Standards
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.
3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
3.MD.7a	Relate area to the operations of multiplication and addition. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
3.MD.7b	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.
3.MD.7c	Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths <i>a</i> and <i>b + c</i> is the sum of <i>a × b</i> and <i>a × c</i> . Use area models to represent the distributive property in mathematical reasoning.
3.MD.7d	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.
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.NBT.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. Know from memory all products of two 1-digit numbers.

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