

NJDOE MODEL CURRICULUM

CONTENT AREA: Math GRADE: 3 UNIT: # 5 UNIT NAME: Represent and Solve Problems Involving Multiplication and Division

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	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.
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	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	Find the area of a rectangular array by counting the number of square units and compare that number with the product of the (whole number) side lengths.	3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
		3.MD.7a	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.
4	Create and interpret a scaled picture (or bar) graph to represent data in 1- or 2-step word problems.	3.MD.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i>
5	Depict data measured in fourths and halves of an inch with a line plot with scales marked with appropriate units.	3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units -- whole numbers, halves, or quarters.
6	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	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.

STUDENT LEARNING OBJECTIVES		CORRESPONDING CCSS	
7	Fluently multiply and divide within 100, using the relationship between multiplication and division.	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.

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).

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 Interpret graphed data represented in 1- or 2-step word problems.
- SLO #4 Use concrete pictures to help conceptualize data represented by a 1- or 2-step word problem.
- SLO #5 Graph and plot data to depict measurements in fourths and halves of inches.

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.
- SLO #5 Make sense of quantities measured in fractions of an inch and understand the relationship to data on a line plot.

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

- SLO #1 Understand the assumptions and definitions regarding different attributes and categories of shapes.

4. Model with mathematics.

- SLO #2 Use and apply previously learned concepts about the properties of operations to solve perimeter problems.
- SLO #4 Apply previously learned concepts about representing data to create and interpret data represented in word problems.
- SLO #5 Apply previously learned concepts about fractions to depict data measured in fractions and plotted on a line.

5. Use appropriate tools strategically.

6. Attend to precision.

- SLO #4 Communicate and precisely explain whole numbers as fractions and where they are located on the number line.
- SLO # 5 Specify units of measure on a plotted line and clarify the correspondence of the depicted data with quantities.

7. Look for and make use of structure.

- SLO #1 Look for and discern a structure based on different shapes attributes.
- SLO #3 Understand that knowing $8 \times 5 = 40$, then one also knows that $40 \div 5 = 8$.
- SLO #5 Look for and discern patterns between multiplication and division.
- SLO #6 Look for and discern a pattern when adding or subtracting within 1000.
- SLO #7 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.

Greater Brunswick Charter School Curriculum

Grade level: 3		Subject: Math			Unit #: 3		
Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	
1	Interpreting data	4	To determine learning readiness	<i>How much do I already know about data?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math p.682-690
2	Collecting and Recording data	4, 5	<i>To identify and record data.</i>	<i>How can I keep track of what I find out?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 12-1 p.691-696
3	Picture graphs	4, 6	<i>To draw a picture graph from data.</i>	<i>How is a key for a graph like a key that opens a door?</i>	<i>Include at one station every three days or so practice with adding and subtracting numbers to 1000. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment as needed for strugglers i-Ready 	My Math 12-2 p.697-702
4	Bar graphs	4	To draw and interpret bar graphs	<i>How do my tallies tell me how long to make a bar on the graph?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 12-3 p.703-708
5	Bar graphs	4	To convert bar graphs to and from picture graphs	<i>How is a bar graph just like and different than a picture graph?</i>		<ul style="list-style-type: none"> Independent Practice Intervention as needed for strugglers Enrichment for those who got it already i-Ready 	My Math 12-4 p.709-714
5	Line plots	4, 6	To create and interpret line plots	<i>How are line plots kind of like picture graphs laying down?</i>	<i>Include at one station every three days or so practice with adding and subtracting numbers to 1000. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 12-5 p.715-720
6	Data graphs	4, 5	To draw and interpret all data graphs	<i>How well can I draw and interpret graphs?</i>		<ul style="list-style-type: none"> Independent practice Intervention for strugglers i-Ready 	My Math p.721-722

Grade level: 3

Subject: Math

Unit #: 3

Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	
7	Data graphs	4, 5				<ul style="list-style-type: none"> Review Assessment 	
8	Measure to fractions of an inch	5, 6	To measure items to $\frac{1}{2}$ " and $\frac{1}{4}$ "	<i>What can I use on my body to help me estimate a half-inch and a quarter-inch?</i>	<i>Include at one station every three days or so practice with adding and subtracting numbers to 1000. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 12-6 p.723-728
9	Working with measurement data	4, 5	To collect measures of objects and graph them	<i>How can I make my own data and show it on a graph?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 12-7 p.729-734
10	Line plots and bar graphs	4	To use line plots and bar graphs to record real world data	<i>How does a graph help me see the answer?</i>		<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment as needed for strugglers i-Ready 	My Math 12-8 p.735-740
11	Using graphs in real world situations	4, 5	To use graphs to solve problems	<i>How does a graph help me see the answer?</i>		<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment i-Ready 	My Math p.741-744
12	Using graphs in real world situations	4, 5	Assessment			<ul style="list-style-type: none"> Review Assessment 	
13	Perimeter and area	1, 2, 3, 6	To determine learning readiness	<i>What do I know from my own life about finding perimeter and area of figures?</i>	<i>Include at one station every three days or so practice with adding and subtracting numbers to 1000. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math p.747-752
14	<ul style="list-style-type: none"> Names of figures, Perimeter 	1, 2	<ul style="list-style-type: none"> To identify by name each figure involved To find the perimeter of a closed figure 	<ul style="list-style-type: none"> <i>What characteristics of a figure do I use to know its name?</i> <i>How do I find the distance around the outside of an object?</i> 		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 13-1 p.753-758

Grade level: 3		Subject: Math			Unit #: 3		
Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	
15	Perimeter	1, 2	To calculate the perimeter of an object	<i>What operation to I use to add one side to another and to another?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 13-2 p.759-764
16	<ul style="list-style-type: none"> Area Unit square 	3	To clearly identify the difference between perimeter and area	<i>What is the difference between going around the outside of an object and filling it up?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 13-3 p.765-770
16	Measuring area	2, 3, 4, 7	<ul style="list-style-type: none"> To count the square units and half-units to find the area of a figure. To use the fact that two halves make a whole. 	<i>How can I find the area by counting the blocks?</i>	<i>Include at one station every three days or so practice with multiplying and dividing numbers to 100. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 13-4 p.771-776
17	Perimeter and area	2, 3, 4	To differentiate the methods for finding the perimeter and the area of a figure.	<i>Do I know what to do to find the perimeter and what to do differently to find the area?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math p.777-778
18	Area by tiles or arrays	3, 4, 7	<ul style="list-style-type: none"> To figure the area of a rectangle by dividing it into tiles or arrays To discover a formula for the area of a rectangle 	<ul style="list-style-type: none"> <i>How can I make the inside of a rectangle help me find the area?</i> <i>Is there a way I can get the area faster than drawing lines and counting?</i> 	<i>Include at one station every three days or so practice with multiplying and dividing numbers to 100. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 13-5 p.779-784
19	Area of a rectangle	3, 4	To compute the area of a rectangle	<i>How do I use my knowledge of arrays for multiplying to find the area of a rectangle?</i>		<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment as needed for strugglers i-Ready 	My Math 13-6 p.785-790
20	Distributive Property	5	To use the area of a rectangle to discover why the Distributive Property works	<i>How can I prove that, when multiplying a number by two numbers, it doesn't matter if I add them together first.</i>	<i>Take your time with this Distributive Property concept. This is really the only time students see WHY it works.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 13-7 p.791-796

Grade level: 3

Subject: Math

Unit #: 3

Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	
21	Distributive Property	5	To use the area of a rectangle to discover why the Distributive Property works	<i>How can I prove that, when multiplying a number by two numbers, it doesn't matter if I add them together first.</i>		<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment i-Ready 	KahnAcademylesson CPalms Lesson Sequence Worksheets
22	Area of composite figures	1, 5	To use the distributive property to help find the area of a composite figure			<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	My Math 13-8 p.797-802
23	Area of composite figures	1, 5, 7	To find the area of a composite figure		<i>Include at one station every three days or so practice with multiplying and dividing numbers to 100. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment i-Ready 	
24	Area of composite figures	1, 5	To find the area of a composite figure			<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment i-Ready 	My Math p.803-804 CompositeAreaSheet CompositeAreaLesson&Sheets AFewEasyFigures VirginiaExamples-NotGreat
25	Area and Perimeter	2, 3	To find the area and perimeter of the same figure	<i>If the area is the same, is the perimeter always the same?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	MyMath 13-9 p.805-810
26	Area and Perimeter	2, 3	To find the area and perimeter in real world situations	<i>Is there anything different to do if the problem is something real?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	MyMath 13-10 p.811-816
27	Area and Perimeter	2, 3, 5	To determine content and skill attainment	<i>Do I know what to do to find an area or a perimeter of any figure that doesn't include a circle?</i>		<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment i-Ready 	MyMath p.817-820

Grade level: 3		Subject: Math			Unit #: 3		
Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	
28	Area and Perimeter	2, 3, 5	Assessment			<ul style="list-style-type: none"> • Review • Assessment 	
29	Learning readiness	1, 7	To determine readiness for learning	<i>How much about shapes do I already know?</i>	<i>Include at one station every three days or so practice with multiplying and dividing numbers to 100. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> • Lesson & Guided Practice • Independent Practice • Intervention/Enrichment • i-Ready 	MyMath p. 822-832
30	Angles	1	To identify right angles	<i>What makes two lines form a right angle?</i>	<i>The key focus on the text pages is to know a right angle so students can identify a figure with a right angle. Include the remainder if you wish.</i>	<ul style="list-style-type: none"> • Lesson & Guided Practice • Independent Practice • Intervention/Enrichment • i-Ready 	MyMath 13-1 p.833-838
31	Polygons	1	To identify the attributes that determine a specific polygon	<i>How do I know a type of shape when I see one?</i>	<i>The point here is to be able to tell a pentagon when they see one by identifying the base characteristics it needs to have.</i>	<ul style="list-style-type: none"> • Lesson & Guided Practice • Independent Practice • Intervention/Enrichment • i-Ready 	MyMath 13-2 p.839-844
32	Quadrilaterals	1	To classify the type of quadrilateral based on its attributes	<i>What tells me the kind of four-sided figure I am looking at?</i>		<ul style="list-style-type: none"> • Lesson & Guided Practice • Independent Practice • Intervention/Enrichment • i-Ready 	MyMath 13-4 p.851-856
33	Quadrilaterals	1, 7	To describe the attributes given a quadrilateral		<i>Include at one station every three days or so practice with multiplying and dividing numbers to 100. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> • Lesson & Guided Practice • Independent Practice • Intervention/Enrichment • i-Ready 	MyMath 13-5 p.857-864

Grade level: 3		Subject: Math			Unit #: 3		
Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	
34	Triangles	1	To match the attributes to a triangle.	<i>How does reading the attributes of a triangle help me identify which one is being described?</i>	<i>Triangles aren't in the SLOs for this unit, but they are in the work for the next lesson. If you have time, you can do this lesson or have students skip problems in the next lesson that involve triangles.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	MyMath 13-3 p.845-850
35	Polygon problems	1	To strategize the solution to a real world problem	<i>How does checking a guess and fixing it if I need to help me solve a problem?</i>		<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	MyMath 13-6 p.865-870
36	Partitioning shapes	1, 7	To divide shapes into portions to solve problems	<i>How can I break shapes into different pieces or sections to help me figure out a problem?</i>	<i>Include at one station every three days or so practice with multiplying and dividing numbers to 100. It is a mastery SLO in this unit.</i>	<ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready 	MyMath 13-7 p.871-876
37	Attributes of polygons	1	To determine mastery of content and skills	<i>Do I know enough about shapes and their attributes?</i>		<ul style="list-style-type: none"> Independent Practice Intervention/Enrichment i-Ready 	MyMath p.877-880
38	Polygons and their attributes	1	Assessment			<ul style="list-style-type: none"> Review Assessment 	
<u>Word Wall Candidates</u>							
Analyze Interpret Scale		Data Key Tally	Bar Graph Line Plot Survey	Frequency Table Pictograph	Half Inch Quarter Inch		
Area Composite figure		Unit square	Square unit	Formula	Perimeter		
Attribute Polygon Right Angle		Hexagon Quadrilateral	Octagon Rhombus	Parallelogram Right Triangle	Pentagon Trapezoid		

Grade level: 3

Subject: Math

Unit #: 3

Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	

Authentic Application

Your Goal: To make the layout for a playground by dividing the ground into polygon shapes with each polygon being the space for one piece of playground equipment.

Your Role: Playground landscaper

Your Audience: The students in your class

The Situation: Your team must use all of the types of quadrilaterals and triangles studied in the chapter at least once. You must place into your playground all of the equipment that is on the school playground. You can include any piece of equipment more than once and you can include pieces of equipment you have seen and like in other playgrounds and wish it were in this school playground. Your playground should have no wasted ground between the sections of the playground.

Your Product: A drawing of the entire playground your team has made with the dimensions of **each side** of each playground section, the **perimeter** of each section, the **area** of each section, and the **name of the polygon** you used for each section.

Your Success: Scoring Rubric:

	4	3	2	1
Shapes	Every possible shape is used	Most, not all, of the shapes are used.	More than one shape is used	Only one shape is used
Layout	There is no open spaces between the equipment sections of the playground	There are one or two places where space between sections is wasted	There are multiple places in which space is wasted and it did not need to be	There was no care taken to ensure there was no wasted space between sections
Labeling	All labeling is as required	Some dimensions are missing, but all labels are shown.	No dimensions are given or no labels are given	There is no labeling or dimensions
Equipment	All the playground equipment at the school is included and at least one additional piece is also shown.	All the playground equipment at the school is included	Most sections have equipment, but a few are empty	Many sections of the playground have no equipment in them
Presentation	Presentation is visually organized and complete.	Presentation is organized and complete.	Presentation is complete.	Presentation is disorganized and incomplete.
Requirements	Goes beyond the requirements of the problem.	Meets the requirements of the problem.	Hardly meets the requirements of the problem.	Does not meet the requirements of the problem.

