

NJDOE MODEL CURRICULUM

CONTENT AREA: Mathematics GRADE: 3 UNIT: # 1 UNIT NAME: Represent and Solve Problems Involving Multiplication and Division

STUDENT LEARNING OBJECTIVES		CORRESPONDING CCSS	
1	Interpret products of whole numbers as repeated addition or equal groups of objects (up to 100).	3.OA.1	Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as 5×7.</i>
2	Explain division as a set of objects partitioned equally into a number of shares (up to 100).	3.OA.2	Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 object each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</i>
3	Determine the unknown in a division or multiplication equation with an unknown relating 3 whole numbers up to 100 (does not require students to solve from memory).	3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations: $8 \times ? = 48$, $5 = \square \div 3$, $6 \times 6 = ?$</i>
4	Round whole numbers to the nearest 10 or 100.	3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
5	Fluently add and subtract (with regrouping) two 2-digit whole numbers within 100.	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.
6	Multiply one-digit whole numbers by multiples of 10 (10 - 90).	3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.
7	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
8	Explain the relationship between tiling/multiplying side lengths to find the area of rectangles.	3.MD.7a,b	Relate area to the operations of multiplication and addition. a. 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. 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.

Major **Supporting** **Additional** (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 #7 Use concrete objects or pictures to help conceptualize measures of area.
2. Reason abstractly and quantitatively.
- 3. Construct viable arguments and critique the reasoning of others.**
SLO #7 Analyze measures of area by breaking them into unit squares
- 4. Model with mathematics.**
SLO #7 Use and apply previously learned concepts about unit measurements to solve area measure problems.
- 5. Use appropriate tools strategically.**
SLO #7 Consider available and appropriate tools, such as arrays, models, and drawings, when solving area measure problems.
SLO #6 Use concrete objects or pictures to help conceptualize measures of area.
6. Attend to precision.
- 7. Look for and make use of structure.**
SLO #4 Fluently multiply and divide within 50, using the relationship between multiplication and division; e.g., if $44 \div 2$ equals 22, then 22×2 must equal 44.
SLO #8 Compare area measures (rectangles) by tiling and computing the product of the side lengths.
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 #: 1		
Day	Topic	SLO	Learning Objectives	Essential Questions	Suggested Student Activities		Possible Resources
					Whole Group	Small Group / Stations	
1	Multiplication modeling	1	Visually define multiplication	<i>What does multiplication actually mean?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.193-198
2	Multiplication definition	1	See multiplication as repeated and faster addition	<i>How are multiplication and addition related?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.199-204
3	Arrays	1, 7, 8	See multiplication as an array	<i>How does counting blocks prove multiplication works?</i>	Transfer repeated addition to repeated rows	<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.205-210
4	Multiplication with arrays	1, 7, 8		<i>How can arrays help me count faster in real life?</i>	Emphasize real world examples of arrays that can help one know how many faster than counting	<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.211-216
5	Multiplication	1, 7, 8	RTI or Enrichment as needed			<ul style="list-style-type: none"> • Review mini lesson for those who need it • Further practice for those who need it 	MyMath p.217-224
6	Multiplication	1, 7, 8				<ul style="list-style-type: none"> • Review • Assessment 	
7	Division modeling	2	Visually define division	<i>What does division look like?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.245-250

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8	Division as equal sharing	2	See division as breaking a whole into so many parts or equal amount	<i>What does division mean?</i>	Don't spend time on division by repeated subtraction. It only changes a student's mental image of division and not in a good way.	<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.251-256
9	Inverse relationships	1, 2	Inverse operations "undo" each other.	<i>How are multiplication and division related like addition and subtraction?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.265-270
10	Division and multiplication as inverse operations	1, 2, 3	Find the missing number in a multiplication or division sentence	<i>How can I find a missing number when I know the others by paying attention to the operations?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.271-276
11	Division in real life	2, 3	Solve problems using concepts in division	<i>How can I use my dividing skills to figure things out?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.277-282
12	Division	2, 3	RTI or Enrichment as needed			<ul style="list-style-type: none"> • Review mini lesson for those who need it • Further practice for those who need it 	MyMath p.283-286
13	Division	1, 2, 3				<ul style="list-style-type: none"> • Review • Assessment 	MyMath p.
14	Multiplication table	1, 6	Find the patterns in a multiplication table to 100	<i>How can seeing a pattern help me predict?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.295-300
15	Multiply and Divide by 2	1, 2, 6	Multiply and divide by 2	<i>When someone says they have twice as much or half as much, how do I find out how much that is?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.301-312

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16	Multiply by 5	1, 2, 6	Predict the pattern in multiplying by 5	<i>How can skip counting by 5 help me multiply by 5 and see the pattern?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.313-318
17	Divide by 5	2, 6	Use the patterns of 5 to divide	<i>How can knowing the multiples of 5 help me divide by 5?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.319-324
18	Patterns	6	Use patterns to predict a number	<i>How can patterns help me predict the total?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.325-332
19	Multiples of 10	6	Multiply by multiples of 10	<i>What pattern helps me multiply any number by 10?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.333-338
20				<i>What pattern helps me know the multiples of 10?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.339-344
21	Division by 10	6	Divide multiples of 10 by 10	<i>How do the multiplication patterns of 10 help me divide by 10?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.345-350
22			RTI or Enrichment as needed			<ul style="list-style-type: none"> • Review mini lesson for those who need it • Further practice for those who need it 	MyMath p.351-356
23	Multiplication and division patterns					<ul style="list-style-type: none"> • Review • Assessment 	
24	Multiply and divide by 3		Multiply and divide numbers by 3	<i>Do I remember that multiplication and division are inverse operations?</i>	Continue the use of arrays through all of these factors. It will come in handy soon.	<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.365-376

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25	Multiply and divide by 4		Multiply and divide numbers by 4	<i>How is multiplying or dividing by 4 related to multiplying or dividing by 2?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.383-394
26	Multiply and divide by 0 and 1		Multiply and divide numbers by 0 and 1	<ul style="list-style-type: none"> • <i>What does multiplying by 0 or 1 really mean?</i> • <i>What does dividing by 1 mean?</i> • <i>Do dividing by 0 mean anything?</i> 		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.403-414
27	Multiplication and division by 6, 7, 8, 9		Multiply and divide by larger 1 digit numbers	<i>What patterns do I see in multiplying or dividing by 6, 8, and 9 when I compare them to 2,3, and 4?</i>	<p>Feel free to use the multiplication table here, in addition to arrays and patterns.</p> <p>While a lesson may be useful, using these pages for station work over the next few days may be a better strategy. Students don't really memorize multiplication facts until they are required to use them repeatedly. The sooner you give them a reason to use them with a purpose, the sooner they'll commit to memorizing them.</p>		MyMath p.429-466
28	Area	7, 8	Use unit squares to find the area of a rectangular figure	<i>How can I count to find the area of a figure?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.765-770
29	Computing area	7, 8	Make tiles to count/compute the area of a rectangular figure	<i>How can I use my knowledge of arrays to find the area of something?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.779-784
30	Area of rectangles	7, 8	Use tiles and arrays to compute the area of rectangles			<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p.785-790
31	Areas of composite figures	7, 8	Break areas into rectangles to find the area	<i>How can I break something into two parts to help me find the area of both parts?</i>		<ul style="list-style-type: none"> • Lesson • Guided Practice • Independent Practice • i-Ready 	MyMath p. 797-802

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32	<ul style="list-style-type: none"> • Multiplication and division by 1-digit numbers • Areas of rectangles 		RTI or Enrichment as needed			<ul style="list-style-type: none"> • <i>Review mini lesson for those who need it</i> • <i>Further practice for those who need it</i> 	
33	<ul style="list-style-type: none"> • Multiplication and division by 1-digit numbers • Areas of rectangles 	6, 7, 8				<ul style="list-style-type: none"> • Review • Assessment 	
<u>Word Wall Candidates</u>							
Array		Factor		Multiplication		Product	
Divide		Fact Family		Inverse Operation		Partition	
Divisor		Quotient		Composite figure		Multiplication sentence	
						Dividend	
<u>Authentic Application</u>							
Your Goal To compute the total area of two classrooms and a hallway							
Your Role You own a carpet store							
Your Audience You need to give your results to the school and to your carpet supplier							
The Situation The school has asked your carpet store to lay carpet on the floors of two classrooms and one hallway. You need to compute how much carpet you need to carpet the floor of all three areas.							
The Product After measuring the rectangular areas by counting the number of tiles on the floor along each wall, you need to use your multiplication skills with arrays to compute the area of each floor and add the three areas together to arrive at your total area.							
Success Criteria You need to give the area of each of the three floors and the total area . You need to make a drawing showing the lengths along each wall for each of your three floors. It needs to be made neatly and the rooms labeled so everyone can understand your drawing.							

