

NORTH MAC MIDDLE SCHOOL
CURRICULUM GUIDE

Teacher : Lauri Burke

Grade Level: 4th

Course: Math

Course Description

The fourth grade math curriculum will focus on multiplication and division of whole numbers (with focus on multiplication and division facts while working on multidigit multiplication and division), addition and subtraction of fractions and decimals, and identifying and describing representations of points, lines, line segments, rays, and angles, including endpoints and vertices. Concrete materials and two-dimensional representations will be used to solve problems involving perimeter, patterns, probability, and equivalence of fractions and decimals.

Textbook:

Title: Progress in Mathematics

ISBN: 978-0-8215-8444-6

Authors:

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Assessment

There will be a minimum of 500 points scored each quarter. These points will be obtained from assignments, quizzes, chapter tests, and projects.

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UNIT 1 Multiplication & Division Concepts

<i>Content</i>	<i>Assessment</i>	<i>Common Core</i>	<i>Essential Questions</i>
4-1 A Number Patterns	Check Your Progress Chapt 1 1-5	4.OA.1 Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	How and when can numbers be manipulated for application purposes?
4-1B Use Multiplication to compare	Check Your Progress Chapt 1 6-9		What are ways numbers are represented in everyday life?
	Check Your Progress Chapt 1-13		How can estimation and mental math aid in the development of number sense?
	Check Your Progress Chapter 4 1-6A		How can you build numbers through hundred millions?
	Check Your Progress Chapter 4 7-12		How can you use models and related facts to find missing factors?
	Check Your Progress Chapter 4 1-16		
	Check Your Progress Chapter 5 1-6		
1-1 Thousands	Check Your Progress Chapter 5 7-12	4.NBT.1 Generalize place value understanding for multi-digit whole numbers. Recognize that in a multi-digit whole number, a digit in one place represents ten	
1-2 Milliion	Check Your Progress Chapter 5 1-18		
1-3 Millions	Check Your Progress Chapter 12 1-5		
1-4 Place Value			

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<p>1-5 Estimation</p> <p>1-1 Thousands</p> <p>1-3 Millions</p> <p>1-4 Place Value</p> <p>1-6 Compare/Order Whole Numbers</p> <p>1-7 Number Sense: Number Line</p> <p>1-13 Problem Solving - Mixed</p>	<p>Check Your Progress Chapter 12 6-9</p> <p>Check Your Progress Chapter 12 1-12</p>	<p>times what it represents in the place to its right. For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)</p> <p>4.NBT.2 Generalize place value understanding for multi-digit whole numbers. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$</p>	
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<p>8-6 Factors (GCF)</p> <p>9-6 Multiples</p> <p>9-6A Factor Pairs</p> <p>9-6B Prime and Composite Numbers</p>		<p>symbols to record the results of comparisons. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)</p> <p>4.OA.4 Gain familiarity with factors and multiples. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.</p>	
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<p>5-15 Factor Trees (Ladders)</p> <p>4-1 Multiplication Properties</p> <p>4-2 Multiplication Models</p> <p>4-3 Special Factors</p> <p>4-4 Multiply by One-Digit Numbers</p> <p>4-5 A Multiply with Models</p> <p>4-6 Multiply with Regrouping</p> <p>4-6A Use Mental Math to Multiply</p> <p>4-7 Multiply Three-Digit Numbers</p>		<p>4.NBT.5 Use place value understanding and properties of operations to perform multi-digit arithmetic. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate</p>	
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<p>4-9 Multiplying Four-Digit Numbers</p> <p>4-10 Patterns in Multiplication</p> <p>4-11A Multiplying with Area Models</p> <p>4-12 Multiply by Two-Digit Numbers</p> <p>4-13 More Multiplication with Two-Digit Numbers</p> <p>5-13 Multi-step Problems</p> <p>5-1 Division Rules</p> <p>5-2 Relate Multiplication and Division</p> <p>5-3 Missing Numbers</p> <p>5-4 Number Patterns</p> <p>5-5 Estimate in Division/ One-Digit Division</p> <p>5-6 One-Digit Quotients</p> <p>5-7 Divisibility Rules</p>		<p>and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)</p> <p>4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using</p>	
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<p>5-8/5-9 Two-Digit Quotients</p> <p>5-10 Three-Digit Quotients</p> <p>5-12 Zeros In Quotients</p> <p>5-13 Large Number Division</p> <p>5-13A Multistep Problems and Bar Graphs</p> <p>5-14 Division in Money</p> <p>5-4A Use Bar Diagrams</p> <p>5-15 Order of Operations</p> <p>5-16 Mean (Average)</p> <p>5-17 Problem Solving-Interpret Remainders</p> <p>5-18 Problem Solving - Review</p> <p>12-11 Problem Solving: More than one Step</p> <p>12-12 Problem Solving: Review</p>		<p>equations, rectangular arrays, and/or area models.</p> <p>4.OA.2</p> <p>Use the four operations with whole numbers to solve problems. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem,</p>	
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14-1 Equations		distinguishing multiplicative comparison from additive comparison.	
4-5 Products: Front End Estimation		4.0A.3 Use the four operations with whole numbers to solve problems.	
4-7 Multiply Three-Digit Numbers		Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.	
4-11 Products: Rounding and Estimation		Represent these problems using equations with a letter standing for the unknown quantity.	
4-16 Problem Solving – Mixed Review		Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
5-6 One-Digit Quotients			
5-7 Divisibility Rules			
5-8/5-9 Two-Digit Quotients			
5-10 Three-Digit Quotients			
5-11 More Quotients			
5-12 Zeros In Quotients			
5-13 Large Number Division			

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5-13A Multistep Problems and Bar Graphs			
6-13 Problem Solving: Use more than One Step			
12-2 Divisors: Multiples of Ten			
12-3 Estimate Quotients			
12-4 Two-Digit Dividend			
12-5 Three Digit Dividends			
12-6 Trial Quotients			
12-7 Greater Quotients			
12-8 Four Digit Dividends			
12-9 Zero in the Quotient			
12-10 Greater Dividends			
12-11 Problem Solving: More than one Step			
12-12 Problem Solving: Review			

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UNIT 2: Fractions: Equivalence and Operations

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>
8-3 Estimate Fractions 8-4 Understand Equivalent Fractions 8-5 Write Equivalent Fractions 8-7 Factors: Lowest Terms 8-12 Problem Solving Applications: Review	Chapter 8 1-5 Chapter 8 6-8A Chapter 8 1-12 Chapter 9 1-5 Chapter 9 6-8A Chapter 9 1-12		4.NF.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent	How can strategies be used to compute fractions and decimals? How can fractions and decimals be modeled and compared? How are four math operations compared? Why is it important to have quick recall of multiplication and division facts?

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<p>8-1 Write fractions 8-2 Fractions and number line 8-3 Estimate fractions 8-4 Understand equivalent fractions 8-8 Mixed Numbers 8-8A Compare fractions using benchmarks 8-9 Compare fractions 8-10 Order fractions 8-12 Problem Solving applications: Review</p> <p>9-1A Models to Add fractions 9-1C Use models to subtract</p>			<p>fractions.</p> <p>4.NF.2</p> <p>Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.</p> <p>4.NF.3a</p> <p>Understand addition and subtraction of</p>	<p>How can you find the perimeter/area of a shape?</p> <p>What geometric features are present in our surroundings?</p>
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<p>9-12 Problem solving: mixed review</p>			<p>number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.</p>	
<p>9-8A Multiply with fractions</p>			<p>4.NF.4a Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.</p>	
<p>9-8A Multiply with fractions</p>			<p>4.NF.4b Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number.</p>	

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<p>9-8A Multiply with fractions 9-9 Compute probability 9-10 Find part of a number 9-12 Problem Solving: mixed review</p> <p>6-1 Measure with Inches 6-2 Rename Units of Length 6-3 Compute customary units 6-4 Customary Units of capacity 6-5 Customary Units of weight 6-6 Measure with metric units 6-7 Work with metric units 6-8 Metric units of capacity 6-9 Metric units of mass 6-10 Temperature 6-11 A renamed measure 6-11 Time 6-12 Elapsed time</p>			<p>4.NF.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.</p> <p>4.MD.1 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.4 For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.</p>	
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<p>2-8 Add and subtract money 4-8 Multiplying money 4-12 Multiply by two-digit numbers 5-14 Divide money 6-1 Measure with Inches 6-2 Rename Units of Length 6-3 Compute customary units 6-4 Customary Units of capacity 6-5 Customary Units of weight 6-6 Measure with metric units 6-7 Work with metric units 6-8 Metric units of capacity 6-9 Metric units of mass 6-10 Temperature 6-11 A renamed measure 6-11 Time 6-12 Elapsed time 6-13 Problem solving: more than one step 6-14 Problem solving application 13-10 Divide with money</p> <p>11-1 Using Perimeter Formulas</p> <p>11-2 Using Area Formulas</p>			<p>4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p>4.MD.3 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller</p>	
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<p>11-3 Perimeter and Area</p> <p>11-3A Perimeter and Area Formulas</p> <p>11-9 Problem Solving Application – Mixed Review</p> <p>7-4 Surveys and Line Plots</p> <p>9-5A Organize Measurement Data</p>			<p>unit. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor</p> <p>4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.</p>	
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<p>13-3A Comparing Decimals with models and symbols</p> <p>13-4 Comparing decimals</p> <p>13-5 Ordering decimals</p>			<p>4.NF.7</p> <p>Compare two decimals to hundredths by reasoning about their size.</p> <p>Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.</p>	
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Unit 4 Computation Applications

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>
4-5 Products: Front End Estimation 4-7 Multiply Three-Digit Numbers 4-11 Products: Rounding and Estimation 4-16 Problem Solving – Mixed Review 5-6 One-Digit Quotients 5-7 Divisibility Rules 5-8/5-9 Two-Digit Quotients 5-10 Three-Digit Quotients 5-11 More Quotients 5-12 Zeros In Quotients 5-13 Large Number Division 5-13A Multistep Problems and Bar Graphs	Chapter 11 –3A Chapter 4 1-4 Chapter 4 5-9 Chapter 4 1-12 Chapter 12 1-5 Chapter 4 6-9 Chapter 4 1-12		4.OA.3 Represent and solve problems involving multiplication and division. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. 4.OA.5 Understand properties of multiplication and the relationship between multiplication and division. Apply properties of operations as strategies to multiply and divide. Examples: If $6 \times 4 = 24$ is known,	

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<p>6-13 Problem Solving: Use more than One Step</p> <p>12-2 Divisors: Multiples of Ten</p> <p>12-3 Estimate Quotients</p> <p>12-4 Two-Digit Dividend</p> <p>12-5 Three Digit Dividends</p> <p>12-6 Trial Quotients</p> <p>12-7 Greater Quotients</p> <p>12-8 Four Digit Dividends</p> <p>12-9 Zero in the Quotient</p> <p>12-10 Greater Dividends</p> <p>12-11 Problem Solving: More than one Step</p> <p>12-12 Problem Solving: Review</p>			<p>then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$ then $15 \times 2 = 30$, or by $5 \times 2 = 10$ then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.) (Students need not use formal terms for these properties.)</p> <p>4.NBT.3 Generalize place value understanding for multi-digit whole numbers. Use place value understanding to round multi-digit whole numbers to any place. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to</p>	
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<p>4-1 Multiplication Properties</p> <p>4-1A Number Patterns</p> <p>10-12 Problem Solving –Find Pattern</p>		<p>1,000,000.)</p> <p>4.NBT.4 Use place value understanding and properties of operations to perform multi-digit arithmetic. Fluently add and subtract multi-digit whole numbers using the standard algorithm. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)</p> <p>4.MD.1 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr,</p>	
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			<p>min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example: Know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),</p> <p>4.MD.2 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money,</p>	
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			<p>including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale</p>	
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UNIT 5 Dimensional Geometry

<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>
10-1 Points, Lines and Line Segments	Chapter 10 1-4		4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	What are ways numbers are represented in everyday life? -How do coordinate grids help you organize information? What geometric features are present in our surroundings?
10-2 Rays and Angles	Chapter 10 5-8			
10-3 Parallel and Perpendicular Lines	Chapter 10 1-13			
10-4 Circles				
10-11 Coordinate Geometry				
10-13 Problem Solving Application: Mixed Review				
10-1 Points, Lines, and Line Segments			4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or	
10-2 Rays and Angels				

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10=3 Parallel and perpendicular lines 10-5 Polygons 10-6 Quadrilaterals 10-7 Triangles 10-7A Symmetry 10-12 Problem Solving – Find Pattern			the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles 4.G.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. 4.MD.5a Recognize angles as geometric shapes that are formed wherever two rays share a common	
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<p>10-2 Rays and Angles</p> <p>10-2A Measure Angles</p> <p>10-2B Unknown Angle Measures</p>			<p>An angle that turns through n one-degree angles is said to have an angle measure of n degrees.</p> <p>4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure</p> <p>4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world</p>	
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			<p>and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.</p>
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QUARTER: _____

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<i>Content</i>	<i>Assessment</i>	<i>Standards</i>	<i>Common Core</i>	<i>Essential Questions</i>

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