

5th Grade Math Curriculum Map

Standards – Quarter 1	Dates Taught (For Teacher Use)
<p>Number and Operations in Base Ten</p> <p>Understand the place value system (Major Work)</p> <p>5.NBT.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.</p> <p>5.NBT.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.</p> <p>5.NBT.3 Read, write, and compare decimals to thousandths.</p> <p>a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.</p> <p>b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>Required: NC DPI Math Formative 5.NBT.3 Task 1 – “London Olympics”</p> <p>5.NBT.4 Use place value understanding to round decimals to any place.</p> <p>Perform operations with multi-digit whole numbers and with decimals to hundredths. (Major Work)</p> <p>5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.</p> <p>5.NBT.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-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 equations, rectangular arrays, and/or area models.</p> <p>Required: NC DPI Math Formative 5.NBT.6 Task 2 – “Lion Hunt”</p>	

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<p>Vocabulary: thousandths, rectangular arrays, reasoning</p>	
<p>Operations and Algebraic Thinking Write and interpret numerical expressions. (Major Work) 5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. <i>Required: NC DPI Math Formative 5.OA.1 Task 2 – “Expression Sets”</i></p> <p>5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>Required: NC DPI Math Formative 5.OA.2 Task 2 – “Comparing Products”</i></p> <p>Vocabulary: parentheses, brackets, braces, numerical expression</p>	

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“I Can” Statements of the Standards - Quarter 1	Dates Taught (For Teacher Use)
<p>Operations and Algebraic Thinking</p> <p>I can evaluate and explain how to use numerical expressions with parentheses, braces, and brackets.</p> <p>I can identify and write a simple expression.</p> <p>I can describe numerical expressions.</p>	
<p>Number and Operations in Base Ten</p> <p>I can identify place value using base ten.</p> <p>I can explain how to multiply and divide by powers of ten.</p> <p>I can explain and use exponents with powers of ten.</p> <p>I can investigate relationships of a decimal to the powers of ten.</p> <p>I can write and read decimals to the thousandths.</p> <p>I can compare decimals to the thousandths using $<$, $>$, $<$, and $=$.</p> <p>I can explore my understanding of place value to round decimals to a given place value.</p> <p>I can fluently multiply multi-digit whole numbers using the standard algorithm and/or alternative strategies.</p> <p>I can explore various strategies to divide up to four digit dividends and two digit divisors.</p> <p>I can illustrate and explain a division calculation.</p>	

5th Grade Math Curriculum Map

Standards – Quarter 2	Standards to Spiral	Dates Taught/ Spiraled (For Teacher Use)
Operations and Algebraic Thinking	Spiral from Quarter 1: 5OA1 5OA2	
Number and Operations in Base Ten 5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Required: NC DPI Math Formative 5.NBT.7 Task 2 – “John’s Canvas” Vocabulary: thousandths	Spiral from Quarter 1: 5NBT1 5NBT2 5NBT3 5NBT4 5NBT5 5NBT6	
Number and Operations - Fractions Use equivalent fractions as a strategy to add and subtract fractions. (Major Work) 5.NF.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. 5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and		

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assess the reasonableness of answers.

Required: NC DPI Math Formative 5.NF.2 Task 2 – “To Add or Not to Add?”

Apply and extend previous understandings of multiplication and division to multiply and divide fractions. (Major Work)

5.NF.3 Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

- a.** Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.
- b.** Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

5.NF.5 Interpret multiplication as scaling (resizing), by:

- a.** Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
- b.** Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.

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Required: NC DPI Math Formative 5.NF.5 Task 2 – “Who Has More Box Tops?” Vocabulary: equivalent, unit fraction		
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“I Can” Statements of the Standards - Quarter 2		Dates Taught (For Teacher Use)
Number and Operations in Base Ten I can add, subtract, multiply, and divide decimals to the hundredths place value. I can explain how to add, subtract, multiply, and divide decimals to the hundredths place value.		
Number and Operations - Fractions I can use a model to represent the addition and subtraction of fractions with unlike denominators. I can solve word problems using addition and subtraction of fractions including like and unlike denominators. I can use benchmark fractions and number sense of fractions to estimate mentally and check for reasonableness. I can use models to solve division problems using fractions. I can solve word problems including the division of whole numbers with answers in forms of mixed numbers. I can create and solve problems using models to multiply a fraction or whole number by a fraction. I can find the area of rectangle with fractional side lengths. I can use the factors to compare the products without using multiplication. I can multiply with whole numbers and fractions.		

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Standards – Quarter 3	Standards to Spiral	Dates Taught/ Spiraled (For Teacher Use)
Operations and Algebraic Thinking	Spiral from Quarter 1: 5OA1 5OA2	
Number and Operations in Base Ten	Spiral from Quarter 1 and Quarter 2 ALL of NBT	
<p>Number and Operations - Fractions</p> <p>5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.</p> <p>5.NF.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.¹</p> <p>a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.</p> <p>b. Interpret division of a whole number by a unit fraction, and compute such quotients.</p> <p>c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.</p> <p>Required: NC DPI Math Formative 5.NF.7 Task 8 – “How Many Cookies?”</p>	Spiral from Quarter 2: 5NF1 5NF2 5NF3 5NF4a 5NF4b 5NF5a 5NF5b	

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Vocabulary: equivalent, unit fraction		
Measurement and Data Convert like measurement units within a given measurement system. (Major Work) 5.MD.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition. (Major Work) 5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. 5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. 5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, & show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.		

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<p>c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.</p> <p>Required: <i>NC DPI Math Formative 5.MD.5 Task 3 – “Transferring Teachers”</i></p> <p>Vocabulary: conversion/convert liquid volume volume rectangular prism</p>		
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“I Can” Statements of the Standards - Quarter 3	Dates Taught (For Teacher Use)
<p>Number and Operations - Fractions</p> <p>I can solve real world problems using multiplication of fractions and mixed numbers. I can interpret and solve division of fractions by a whole number and/or within a story context. I can interpret and solve division of whole numbers by unit fractions and/or within a story context.</p>	
<p>Measurement and Data</p> <p>I can convert standard measurement units within a given measurement system. I can recognize and identify the volume of solid figures and their measurements. I can measure volume by counting cubic units. I can identify the volume using the formula. I can relate volume to multiplication and addition to solve real world problems.</p>	

5th Grade Math Curriculum Map

Standards – Quarter 4	Standards to Spiral	Dates Taught/ Spiraled (For Teacher Use)
Operations and Algebraic Thinking Analyze patterns and relationships. (Major Work) 5.OA.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>Required: NC DPI Math Formative 5.OA.3 Task 1 – “Dan’s Bicycle”</i> Vocabulary: coordinate plane	Spiral from Quarter 1: 5OA1 5OA2	
Number and Operations in Base Ten	Spiral from Quarter 1 and Quarter 2 ALL of NBT	
Number and Operations - Fractions	Spiral from Quarter 2 and Quarter 3 ALL of NF	
Measurement and Data Represent and interpret data. (Major Work) 5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>Required: NC DPI Math Formative 5.MD.2 Task 1 – “How High Did it Bounce?”</i>	Spiral from Quarter 3: 5MD1 5MD3 5MD4 5MD5a 5MD5b	

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Vocabulary: liquid volume	5MD5c	
<p>Geometry</p> <p>Graph points on the coordinate plane to solve real-world and mathematical problems. (Major Work)</p> <p>5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</p> <p>5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</p> <p>Classify two-dimensional figures into categories based on their properties. (Major Work)</p> <p>5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.</p> <p>5.G.4 Classify two-dimensional figures in a hierarchy based on properties.</p> <p>Vocabulary: coordinate system, coordinate plane, first quadrant, points, lines, axis/axes, x-axis, y-axis, horizontal, vertical, origin, ordered pairs, coordinates, x-coordinate, y-coordinate, category, subcategory, hierarchy</p>		

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“I Can” Statements of the Standards - Quarter 4	Dates Taught (For Teacher Use)
Operations and Algebraic Thinking I can generate patterns with two rules. I can form ordered pairs. I can plot ordered pairs on a coordinate plane.	
Measurement and Data I can make a line plot to display a data set of fractions using different measurement units ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$).	
Geometry I can identify axes in the first quadrant of the coordinate plane. I can plot ordered pairs in the first quadrant of the coordinate plane. I can graph and interpret real world mathematical problems on a coordinate grid. I can classify two-dimensional figures by their attributes. I can classify two-dimensional figures in a hierarchy based on properties.	