5th Grade MATH Timeline

Macon County 2017-2018

1st Nine Weeks

Standard	Learning Target	Lesson #	Resources	T	M
5.NBT.A.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 1/10 of what it represents in the place to its left.	• Recognize that place value in a decimal number is based on the same base-ten concepts as whole numbers.	1			
5.NBT.A.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.	• Identify the value of a digit in a number as 10 times the value it would have in the place to its right and 1/10 the value it would have in the place to its left.	2,3			
5.NBT.A.3 Read and write decimals to thousandths using standard form, word form, and expanded form (e.g., the expanded form of 347.392 is written as 3 x 100 + 4 x 10 + 7 x 1 + 3 x (1/10) + (1/100) + 2 x (1/1000)). Compare two decimals to thousandths based on meanings of the digits in each place and use the symbols <, >, and equal to	• Read decimals to the thousandths place using standard form, word form, and expanded form. • Write decimals to the thousandths place using standard form, word form, and expanded form. • Use >, <, and = to compare decimals to the thousandths place.	4			

show the relationship. **5.NBT.A.4** Round decimals to the nearest hundredth, tenth, or whole number using understanding of place value.	• Use place-value relationships to round decimals to the nearest hundredth, tenth, and whole number.				
5.NBT.B.5 Fluently multiply multi-digit whole numbers (up to three-digit by four-digit factors) using appropriate strategies and algorithms.	• Use the distributive property to break apart factors in order to solve multi-digit multiplication problems. • Use the standard algorithm to solve multi-digit multiplication problems with whole numbers up to 3 digit by 4 digit.	5			
5.NBT.B.6 Find whole-number quotients and remainders 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.	• Divide three- and four-digit dividends by two-digit divisors to find whole number quotients and remainders. • Divide whole numbers using area models and strategies such as place value understanding, properties of operations, by using place-value relationships to round decimals to the nearest hundredth.	6			
5.NBT.B.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 operations; assess the reasonableness of answers using estimation strategies. (Limit division problems so that either the dividend or the divisor is a whole number.)	• Add decimals to hundredths. • Subtract decimals to hundredths. • Explain how to add and subtract decimals to hundredths. • Multiply decimals to hundredths. • Explain how to multiply decimals to hundredths.	7,8,9			

	• Divide decimals to hundredths. • Explain how to divide decimals to hundredths using models, strategies, and estimation.				
2nd Nine Weeks					
5.NF.A.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. *For example:* 2/3 + 5/4 = 8 /12 + 15/12 = 23/12 (in general a/b + c/d = (ad + bc)/bd.)	• Given two fractions with unlike denominators, write equivalent fractions with a common denominator. • Use equivalent fractions to add and subtract fractions and mixed numbers with unlike denominators.	10			
5.NF.A.2 Solve contextual problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result >2/5 +1/2 = 3/7, by observing that 3/7 < ½.	• Add and subtract fractions and mixed numbers with unlike denominators in order to solve contextual problems. • Use benchmark fractions to estimate fraction sums and differences. • Use estimation to check whether a solution is reasonable.	11			
5.NF.B.3 Interpret a fraction as division of the numerator by the	• Use visual fraction models to represent a fraction as division.	12			

denominator (a/b = a ÷ b). For example, ¾ = 3 ÷ 4 so when 3 wholes are shared equally among 4 people, each person has a share of size ¾. Solve contextual problems involving division of 4 whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem. For example, if 8 people want to share 49 sheets of construction paper equally, how many sheets will each person receive? Between what two whole numbers does your answer lie?	• Solve contextual problems involving division of whole numbers in which the quotient is a fraction or mixed number. • Understand a fraction as a way to represent division where the numerator is divided by the denominator.				
5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number or a fraction by a fraction. **a.** Interpret the product a/b x q as a x (q ÷ b) (partition the quantity q into b equal parts and then multiply by a). Interpret the product >a/b x q as (a x q) ÷ b (multiply a times the quantity q and then partition the product into b equal parts). For example, use a visual fraction model or write a story context to show that 2/3 x 6 can be interpreted as 2 x (6 ÷ 3) or (2 x 6) ÷ 3. Do the same with 2/3 x ·4/ 5 = 8/15. (In general, ·a/ b x · c/ d = ·ac/bd.) **b.** Find the area of a rectangle with	• Understand the algorithm of multiplying by a fraction. • Use visual fraction models to multiply a whole number by a fraction. • Use visual fraction models to multiply a fraction by a fraction. • Find the area of rectangles with fractional side lengths by tiling the area with unit squares. • Find the area of rectangles with fractional side lengths by multiplying side lengths. • Show that the number of unit squares that tile a rectangle with fractional side lengths is the same as the product of the side lengths.	13,14			

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.B.5 Interpret multiplication as scaling (resizing). **a.** Compare 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. For example, know if the product will be greater than, less than, or equal to the factors. **b.** Explain 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); explain why multiplying a given number by a fraction less than 1 results in a product less than the given number; and relate the principle of fraction equivalence $a/b = (a \times n)/(b \times n)$ to the effect of multiplying a/b by 1.	• Recognize that multiplying a whole number or fraction by a number greater than 1 results in a product greater than the whole number or fraction and multiplying by a number less than 1 results in a product less than the whole number or fraction. • Reason about the size of a product when a number is multiplied by 1, by a factor greater than 1, and by a factor	15			
5.NF.B.6 Solve real-world problems involving multiplication of fractions and mixed numbers by using visual	• Represent real-world problems involving multiplication of fractions and mixed numbers using visual	16			

fraction models or equations to represent the problem.	models and equations.				
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. **a.** Interpret division of a unit fraction by a non-zero whole number and compute such quotients. For example, use visual models and the relationship between multiplication and division to explain that 1/3 ÷ 4 = 1/12 because (1/12) x 4 = 1/3 **b.** Interpret division of a whole number by a unit fraction and compute such quotients. For example, use visual models and the relationship between multiplication and division to explain that 4 ÷ (1/5) =20 because 20 x ·(1/5) = 20 because 20 x (1/5) = 4. **c.** Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share ·½ lb of chocolate equally? How	• Identify situations that involve dividing a unit fraction by a whole number and a whole number by a unit fraction. • Use a visual fraction model to find the quotient of a unit fraction divided by a whole number or the quotient of a whole number divided by a unit fraction. • For a given division equation with a unit fraction and a whole number, use the relationship between multiplication and division to write a related multiplication equation. • Represent and solve real-world problems involving division of unit fractions by whole numbers using visual fraction models and equations. • Represent and solve real-world problems involving division of whole numbers by unit fractions using visual fraction models and equations.	17, 18			

many 1/3 cup servings are in 2 cups of raisins?					
5.OA.A.1 Use parentheses and/or brackets in numerical expressions and evaluate expressions having these symbols using the conventional order(Order of Operations).	• Evaluate and write numerical expressions containing parentheses and brackets.	19			
5.OA.A.2 Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as 2 x (8 + 7). Recognize that 3 x (18,932 + 921) is three times as large as 18,932 + 921, without having to calculate the indicated sum or product.	• Interpret numerical expressions without evaluating them.	19			
3rd Nine Weeks					
5.OA.B.3 Generate two numerical patterns using two given rules. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences. **a.** Identify relationships between corresponding terms in two numerical patterns. For example, observe that	• Generate 2 numerical patterns given 2 rules. • Identify relationships between corresponding terms of two patterns. • Plot corresponding terms of two patterns as ordered pairs in the first quadrant of the coordinate plane.	20			

the terms in one sequence are twice the corresponding terms in the other sequence. **b.** Form ordered pairs consisting of corresponding terms from two numerical patterns and graph the ordered pairs on a coordinate plane.					
5.MD.A.1 Convert customary and metric measurement units within a single system by expressing measurements of a larger unit in terms of a smaller unit. Use these conversions to solve multi-step real-world problems involving distances, intervals of time, liquid volumes, masses of objects, and money (including problems involving simple fractions or decimals). For example, 3.6 liters and 4.1 liters can be combined as 7.7 liters or 7700 milliliters.	• Convert from a larger unit of measurement to a smaller unit of measurement within the same measurement system. • Convert from a smaller unit of measurement to a larger unit of measurement within the same measurement system. • Convert from a larger unit of time or money to a smaller unit. • Convert units of measurement within a given measurement system to solve multi-step word problems.	21,22			
5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit 1/2 , 1/4 , 1/8. Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the	• Create a line plot that displays measurement data that has fractional units. • Use a line plot to solve contextual problems about measurement data given in fractional units. • Analyze data shown on a line plot.	23			

total amount in all the beakers were redistributed equally.					
5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. **a.** Understand that 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.** Understand that 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.	• Understand the concept of volume as an attribute of solid figures. • Find the volume of rectangular prisms with whole number, fractional, and mixed number side lengths by counting unit cubes. • Use addition and multiplication to find the total number of unit cubes in order to find the volume of a rectangular prism.	24			
5.MD.C.4 Measure volume by counting unit cubes, using cubic centimeters, cubic inches, cubic feet, and improvised units.	• Find the volume of a rectangular prism in various cubic units by filling it with unit cubes and counting them or by counting the number of unit cubes in one layer and multiplying by the number of layers. • Recognize that the volume of a unit cube depends on the measurement unit used for its dimensions. • Determine the third dimension of a rectangular prism given its volume and two dimensions.	25			
5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume of right rectangular prisms. **a.** Find the volume of a right	• Find the volume of a rectangular prism by multiplying its height by the area of its base. • Find the volume of a rectangular prism	26, 27			

rectangular prism with whole-number side lengths by packing it with unit cubes and 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 whole-number products of three factors as volumes (e.g., to represent the associative property of multiplication). **b.** Know and apply the formulas $V = \ell \times w \times h$ and $V = B \times h$ (where B represents the area of the base) 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. **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.	using the formula $V = \ell \times w \times h$. • Solve real-world problems involving volumes of rectangular prisms. • Recognize volume as additive. • Use addition to find volumes of solid figures composed of two non-overlapping rectangular prisms.				
5.G.A.1 Graph ordered pairs and label points using the first quadrant of the coordinate plane. Understand in the ordered pair that the first number indicates the horizontal distance traveled along the x-axis from the origin and the second number indicates the vertical distance traveled along the y-axis, with the convention that the names of the two axes and the coordinates correspond	• Recognize the coordinate plane as formed by the intersection of a horizontal and vertical number line. • Identify the x- and y-coordinates of a point on the coordinate plane in the first quadrant. • Plot a point on the coordinate plane given its x- and y-coordinates.	28			

(e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).					
5.G.A.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.	• Interpret coordinate values of points in the context of a problem. • Find the horizontal and vertical distances between two points in the first quadrant. • Use points in the coordinate plane to solve real world and mathematical problems.	29			
5.G.B.3 Classify two-dimensional figures in a hierarchy based on properties. Understand that attributes belonging to a category of twodimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.	• Classify two-dimensional figures in a hierarchy based on properties of the figures (shared attributes and properties). • Draw and use flow charts, Venn diagrams, and tree diagrams to show the hierarchical relationship of two-dimensional figures.	30			