4th Grade Math Timeline

Macon County 17-18

Standard	Learning Targets	Lesson #	Resources	T
	• Identify place value in three-digit numbers. • Understand the concepts of >, <, and =. • Model three-digit numbers. • Perform two-digit addition and subtraction with and without regrouping.	0, MP1-8	Teacher Toolbox	
4.NBT.A.1 Recognize the multi-digit whole number (less than or equal to 1,000,000), a digit in one place represents 10 times as much as it represents in the place to its right. *For example, recognize that 7 in 700 is 10 times bigger than the 7 in 70 because 700 ÷ 70 = 10 and 70 x 10 = 700.*	• Use a place-value chart to understand the value of each digit in a number. • Identify the value of a digit based on its position in a number. • Demonstrate how moving a digit from one place-value position to the next changes the value of the digit. • Show that any number can be represented in different ways. • Use standard form, word form, and expanded form to read and write multi-digit whole numbers.	1	****Note**** Lesson 1 also includes standard **4.NBT.A.2**	

4.NBT.A.2 Read and write multi-digit whole numbers (less than or equal to 1,000,000) using standard form, word form, and expanded form (e.g. the expanded form of 4256 is written as 4 x 1000 ÷ 2 x 100 ÷ 5 x 10 ÷ 6 x 1). **Compare** two multi-digit numbers based on meanings of the digits in each place and use the symbols <, =, and > to show the relationship..	• Use symbols (<mark>>, <, =</mark>) to show the relationship between two multi-digit numbers. • <mark>Compare</mark> multi-digit numbers in order to solve word problems.	2		
4.NBT.B.4 Fluently add and subtract within 1,000,000 using appropriate strategies and algorithms.	• Use the standard algorithm to add multi-digit whole numbers. • Use the standard algorithm to subtract multi-digit whole numbers.	3		

4.NBT.A.3 Round multi-digit whole numbers to any place (up to and including the hundred-thousand place) using understanding of place value.	• ==Round== multi-digit whole numbers. • Explain how to round a multi-digit whole number to a specific place value. • Use rounded numbers to ==estimate== a sum or difference in a word problem.	4		
4.OA.A.1 Interpret a multiplication equation as a comparison (e.g. interpret 35 = 5 x 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.	• Use a multiplication sign to represent the relationship between two numbers as a ==multiplicative comparison==. • Identify a multiplication ==equation== as showing two ways to describe a ==product== as a comparison between two ==factors==. • Write an equation to represent a multiplicative comparison described in a word problem. • Write a word problem using a multiplicative comparison to describe a given multiplication equation.	5		

4.OA.A.2 Multiply or divide to solve contextual problems involving multiplicative comparison, and distinguish multiplicative comparison from additive comparison. *For example, school A has 300 students and school B has 600 students: to say that school B has two times as many students is an example of multiplicative comparison; to say that school B has 300 more students is an example of additive comparison.*	• Use drawings and ==symbols== to represent a word problem involving multiplicative comparison. • Use an equation to solve for the ==unknown== in a multiplicative comparison problem. • Solve word problems involving multiplicative comparisons by using multiplication or division.	6		
4.OA.B.4 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.	• Use basic multiplication facts to list all the ==factors of a number==. • Use basic multiplication facts to determine whether a number is a ==multiple== of another number. • Apply understanding of multiples and factors to solving problems. • Apply understanding of ==prime and composite numbers==.	7		

4.OA.C.5 Generate a number or shape pattern that follows a given rule. **Identify** apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	• Use ==rules== to generate or extend a number ==pattern==. • Use manipulatives or drawings to show a shape pattern. • Describe, analyze, and extend patterns in numbers and shapes.	8		
4.OA.A.3 Solve multi-step contextual problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. **Represent** these problems using equations with a letter standing for the unknown quantity. **Assess the reasonableness** of answers using mental computation and estimation strategies including rounding.	• Use ==equations== with a letter standing for the ==unknown== to represent multi-step word problems. • Write and solve an equation in order to solve a multi-step word problem. • Interpret the ==remainder== in a division word problem. • Use estimation strategies to check that an answer is ==reasonable==.	9 10		
4.NBT.B.5 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	• Multiply whole numbers of up to four digits by one-digit whole numbers. • Multiply a two-digit number by a two-digit number.	11		

value and the properties of operations. **Illustrate and explain** the calculation by using equations, rectangular arrays, and/or area models.	• Use area models and <mark>partial products</mark> to multiply.			
4.NBT.B.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 equations, rectangular arrays, and/or area models.	• Divide up to four-digit <mark>dividends</mark> by one-digit <mark>divisors</mark>, with remainders. • Use area models, subtraction of partial products, and <mark>partial quotients</mark> to divide. • Recognize the relationship between multiplication and division.	12		
4.NF.A.1 Explain why a fraction · a/b is equivalent to a fraction $a \times n/ b \times n$ or $a \div n/ b \div n$ 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 fractions. *For example, 3/4 = 3 x 2/4 x 2 = 6/8.*	• Understand the value of a <mark>fraction</mark>. <mark>(numerator, denominator)</mark> • Understand how a fraction model represents a fraction. • Use models to demonstrate that two fractions are equivalent. • Represent <mark>equivalent fractions</mark> using models. • Multiply and divide to find equivalent fractions.	13		

4.NF.A.2 Compare two fractions with different numerators and different denominators by creating common denominators or common numerators or by comparing to a benchmark fraction such as ½. **Recognize** that comparisons are valid only when the two fractions refer to the same whole. Use the symbols <, > , =, or , to **show the relationship** and **justify the conclusions**.	• Use symbols (>, <, =) to compare fractions with different numerators and denominators. (common denominators) • Recognize that fractions with different denominators and the same numerators represent different values. • Use benchmark fractions to compare fractions. • Recognize that you can only compare two fractions when both refer to the same whole.	14		
4.NF.B.3 Understand a fraction *a/b* with *a* >1 as a sum of fractions 1/*b* . *For example,* *4/5 = 1/5 + 1/5 + 1/5 + 1/ 5* .	• Understand addition as joining parts. • Understand subtraction as separating parts. • Extend their understanding of addition and subtraction of whole numbers to addition and subtraction of fractions. • Use fraction models to add and subtract fractions with like denominators.	15 (a,b)		

a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way (e.g., 3/ 8 = 1/ 8 + 1/ 8 + 1/ 8 ; 3/ 8 = 1/ 8 + 2/8 ; 2 1/ 8 + 1 + 1+ 1/8 = 8/8 + 8/8 + 1/ 8) recording each decomposition by an equation. **Justify decompositions by using a visual fraction model.** **c.** Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship	• Add fractions with like denominators. • Subtract fractions with like denominators. • Use fraction models, number lines, and equations to represent word problems. • Break apart fractions greater than 1 into a fraction equivalent to 1 and a fraction less than 1. • Write a mixed number as a fraction and write a fraction greater than 1 as a ==mixed number==. • Add and subtract mixed numbers with like denominators. • Write and solve an equation with mixed numbers with like denominators in order to solve a word problem.	16 (a,d) 17 (b, c, d)		

between addition and subtraction. **d.** Solve contextual problems involving addition and subtraction of fractions referring to the same whole and having like denominators.				
4.NF.B.4 Apply and extend *previous understandings of multiplication as repeated addition to multiply a whole number by a fraction.* **a. 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 x 1/4 , recording the conclusion by the equation 5/4 = 5 x 1/4 .* **b. Understand** *a multiple of a/ b as a multiple of 1/b and use this understanding to multiply a whole*	• Multiply a ==unit fraction== (numerator of 1) by a whole number. • Multiply a fraction with a numerator greater than 1 by a whole number.	18 (a,b)		

number by a fraction. For example, use a visual fraction model to express *3 x 2/5 as 6 x 1/5 , recognizing this product as 6/5 . (In general, n x a/b = (n x a)/ b =* *(n x a) x 1/b)* **c.** Solve contextual problems involving multiplication of a whole number by a fraction (e.g., by using visual fraction models and equations to represent the problem). *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 4 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	•Solve word problems that involve multiplying a fraction by a whole number.	19 (c)		
4.NF.C.5 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. *For example, express 3/ 10 as 30/ 100 and add 3/10 + 4/100 = 34/100.*	• Rewrite a fraction that has a denominator of 10 as an equivalent fraction with a denominator of 100. • Rewrite a fraction that has a denominator of 100 as an equivalent fraction with a denominator of 10. • Explain the relationship between ==tenths== and ==hundredths==. • Add two fractions with denominators of 10 and 100.	20		

4.NF.C.6 Read and write decimal notation for fractions with denominators 10 or 100. **Locate** these decimals on a number line.	• Convert ==decimals== into fractions, with denominators of 10 or 100. (==decimal point==) • Convert fractions into decimals, with denominators of 10 or 100.	21		
4.NF.C.7 Compare two decimals to hundredths by reasoning about their size. **Recognize** that comparisons are valid only when the two decimals refer to the same whole. **Use** the symbols >, =, or < to show the relationship and justify the conclusions.	• Compare two decimals up to hundredths, using the >, <, and = symbols. • Solve word problems involving comparisons of tenths and hundredths decimals.	22		
4.MD.A.1 Measure and estimate to determine relative sizes of measurement units within a single system of measurement involving length, liquid volume, and mass/weight of objects using customary and metric units.	• Identify the units of measurement within a measurement system. • Estimate to determine relative sizes of units within the same system. • ==Convert== measurements from a larger unit to a smaller unit within the same system. (==metric system, customary system==) • Use a conversion table showing equivalent measurements within the same system.	23		

4.MD.A.2 Solve one- or two-step real-world problems involving whole number measurements with all four operations within a single system of measurement including problems involving simple fractions.	• **Solve** word problems involving time and money. • **Convert** larger units of time to smaller units in order to solve word problems about time. • **Convert** amounts of money in bills and coins to solve word problems about money.	24		
	• **Convert** larger units of measurement to smaller units in order to solve word problems involving ==length==, ==liquid volume==, or ==mass==. • **Write and solve equations** in order to solve word problems involving length, liquid volume, and mass.	25		
4.MD.A.3 Know and 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.*	• Use the ==formula== for ==perimeter== to solve problems. • Use the formula for ==area== to solve problems.	26		

4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). **Use operations** on fractions for this grade to solve problems involving information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	• Make a ==line plot== that displays data in fractional units. • Solve addition word problems by using a line plot. • Solve subtraction word problems by using a line plot.	27		
4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and **understand** concepts of angle measurement. **a. Understand** that an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. **b. Understand** that an angle that turns through 1 /360 of a circle is called a "one-degree angle,"	•Recognize an ==angle== as a geometric shape. • Identify ==acute==, ==right==, and ==obtuse== angles. • Recognize the relationship between the measure of an angle and the part of a circle that the angle turns through. (==ray==, ==vertex==, ==degree==, ==endpoint==)	28		

and can be used to measure angles. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees and represents a fractional portion of the circle.				
4.MD.C.6 Measure angles in whole number degrees using a protractor. **Sketch** angles of specified measure.	• Use a ==protractor== to measure an angle. • Draw an angle of a specific degree. • Use ==benchmark angle== measures to estimate the measure of an angle.	29		
4.MD.C.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 and mathematical problems *(e.g., by using an equation with a symbol for the unknown angle measure)*.	• Recognize that an angle can be split up into several smaller angles. (==decompose==) • Recognize that several smaller angles can be combined to form a larger angle. (==compose==) • Add and subtract to find angle measures. • Use addition and subtraction to solve word problems about angle measures.	30		

4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse, straight, reflex), and perpendicular and parallel lines. **Identify** these in two-dimensional figures.	• Identify and draw ==points==, ==lines==, ==line segments==, ==rays==, and ==angles==, and identify them in ==two-dimensional figures.== • Identify and draw ==parallel== and ==perpendicular lines==, distinguish between the two, and identify them in two-dimensional figures. (==straight, reflex angles==)	31		
4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. **Recognize** right triangles as a category and **identify** right triangles.	• Sort two-dimensional figures based on parallel or perpendicular sides and on acute, obtuse, or right angles. (==polygon==) • Recognize that triangles can be classified based on the lengths of their sides (==isosceles==, ==equilateral==, ==scalene==). • Name a triangle based on the kind of angles it has (==acute==, ==obtuse==, ==right==). (==quadrilateral==, ==parallelogram==, ==rhombus==, ==trapezoid==)	32		

| 4.G.A.3 Recognize and **draw** lines of symmetry for two-dimensional figures. | • Recognize ==lines of symmetry== in two-dimensional figures.
• Draw lines of symmetry in two-dimensional figures. | 33 | | |