2022-2023, Fourth Grade, Mathematics

Ongoing Mathematical Practices: 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	**Effective Teaching Practices** 1. Establish mathematics goals to focus learning. 2. Implement tasks that promote reasoning and problem solving. 3. Use and connect mathematical representations. 4. Facilitate meaningful mathematical discourse. 5. Pose purposeful questions. 6. Build procedural fluency from conceptual understanding. 7. Support productive struggle in learning mathematics. 8. Elicit and use evidence of student thinking
Ongoing fluency expectation: *4.NBT.B.4 Add/subtract within 1,000,000. *4.WCE.M.1 Recall basic multiplication facts through 12 times 12 along with the related division facts.*	***Ongoing resources*** *student journals* *Number Talks* Online Resources: *Xtramath* and Freckle Ed
Literacy Skills for Mathematical Proficiency: 1. Use multiple reading strategies. 2. Understand and use correct mathematical vocabulary. 3. Discuss and articulate mathematical ideas. 4. Write mathematical arguments.	**Go Math** Q1 chapters 1-3 to chapter 4 lesson 4.6 Q2 chapter 4 mid chapter ✓ to chapter 7 inc. Engage NY-Module 3, Module 5 Q3 chapter 8 through chapter 12 mid-chap ✓ High Stakes Test Prep wb by request Q4 chapter 12 (after mid-chap ✓) through chapter 13 **Getting Ready for Grade 5 (Planning Guide online)**

2022.23, Fourth Grade, Mathematics, Quarter 1

Content Standards	=-Student Friendly "I Can" Statements
`4.WCE.M.1 Recall basic multiplication facts through 12 times 12 along with the related division facts.	**I can** accurately express multiplication facts through 12 x 12 and relate them to division.
4.WCE.M.2 Read, write, and compare whole numbers to millions.	**I can** read, write, and compare whole numbers to millions.
4.NBT.A.1 Recognize that in a 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.*	**I can** interpret the value of each digit in a multi-digit number as ten times the digit to its right in numbers less than 1,000,000. *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.*
***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.	**I can** read and write multi-digit whole numbers (less than 1,000,000) using base-ten numbers. **I can** read and write multi-digit whole numbers in standard form, word form, and expanded form. **I can** compare ~~two~~ multi-digit numbers using place value as a strategy. **I can** use the appropriate symbols (<, =, >) to show the relationship between multi-digit numbers. **I can** order numbers from least to greatest and greatest to least. (see lesson 1.3)
4.WCE.M.3 Identify the place value of a specific digit in a number (from millions to hundredths) and the quantity it represents.	**I can** explain that the placement of a digit in a number determines the digit's value.
4.NBT.A.3 Round multi-digit whole numbers to any place (up to and including the hundred-thousands place) using understanding of place value.	**I can** round multi-digit numbers up to and including hundred-thousands place using understanding of place value.

***4.NBT.B.4** Fluently add and subtract within 1,000,000 using appropriate strategies and algorithms.	**I can** use a variety of strategies to illustrate and explain why addition and subtraction algorithms work. **I can** fluently add and subtract multi-digit whole numbers up to a million using the standard algorithm as well as other strategies such as bar modeling and using the commutative and associative properties of addition. (Differentiated group may add distributive property of addition.) **I can** recognize and apply the commutative and associative properties of addition (and distributive when applicable).
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.	**I can** explain how the factors and products of a multiplication equation are related to each other. For example, 24=6 x 4 can be interpreted as 24 being 6 times as many as 4. **I can** write an equation to represent a multiplicative comparison in a word problem.
***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. (Q1, Q2)*	**I can** read a contextual problem and choose the information that is necessary to work the problem and arrive at the answer. **I can** distinguish between a multiplication and an addition comparison. **I can** write an equation to represent a multiplicative comparison in a word problem. **I can** model and solve a multiplicative or additive comparison problem by making a drawing or writing an equation that involves a variable.
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.	**I can** solve multi-step word problems with whole numbers using the four operations. **I can** check the reasonableness of an answer using mental math and estimation by rounding. **I can** interpret the remainder when I divide and explain the reasonableness of my answer.

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 value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**I can** multiply a multi-digit number by a one-digit number. **I can** multiply 2 two-digit numbers. **I can** model multiplication of multi-digit numbers using equations, rectangular arrays, and area models. **I can** explain the process of multiplication using place value strategies and properties of operations.
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. (Q1,Q2)*	**I can** solve division problems with one-digit divisors and up to four-digit dividends with and without remainders. **I can** explain and illustrate a long division problem using equations, number lines, base ten blocks, rectangular arrays, and /or area models. **I can** describe the relationship between multiplication and division. **I can** use place value strategies to divide a number up to 4 digits by a 1-digit number, with and without remainders.

2022.23, Fourth Grade, Mathematics, Quarter 2

Content Standards	Student Friendly "I Can" Statements
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.* *(Q1,Q2)*	**I can** solve division problems with one-digit divisors and up to four digit dividends with and without remainders. **I can** explain and illustrate a long division problem using equations, number lines, base ten blocks, rectangular arrays, and /or area models. **I can** describe the relationship between multiplication and division. **I can** use place value strategies to divide a number up to 4 digits by a 1-digit number, with and without remainders.
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.	**I can** determine all factor pairs for a whole number in the range of 1-100. **I can** recognize that a whole number is a multiple of each of its factors. **I can** generate a list of multiples for a given 1-digit number. **I can** determine if a given whole number is a multiple of a 1-digit number.
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. (Q2, Q3)*	**I can** create a function table, graph or verbal description that models a pattern. **I can** model word problems by writing an expression with a symbol for an unknown number. **I can** generate and extend a pattern that follows a given rule. **I can** analyze multiple features of a given pattern and determine if additional patterns occur within it. **I can** use what I know about numbers and shapes and how they work together to explain additional patterns that arise from a given pattern.
4.NF.A.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{a\ x\ n}{b\ x\ n}$ or $\frac{a \div n}{b \div n}$ 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.	**I can** explain why fractions are equivalent such as $\frac{a}{b}$ is equivalent to $\frac{a \div n}{b \div n}$ by using visual fraction models. **I can** demonstrate that the more parts a whole is broken into, the smaller the parts and the fewer parts a whole is broken into, the larger the parts.

For example, $\frac{3}{4}=\frac{3\,x\,2}{4\,x\,2}=\frac{6}{8}$.	**I can** create equivalent fractions by multiplying or dividing the numerator and denominator by the same number. For example, $\frac{3}{4}=\frac{3\,x\,2}{4\,x\,2}=\frac{6}{8}$. **I can** create equivalent fractions by dividing a shaded region into various parts, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. (Students should type fractions correctly using the equation editor.)
4.WCE.M.4 Recognize and rename fractions in simplest form.	**I can** recognize and rename fractions in simplest form.
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 $\frac{1}{2}$. 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.	**I can** compare fractions relating to the same whole with different numerators and denominators by creating common numerators or denominators. **I can** compare fraction sizes by relating to ½ or 1 whole by locating their positions on a number line, or by using pictorial models. **I can** show and justify my comparison of fractions using the symbols <, =, or > in inequalities to show the relationship.
4.WCE.M.5 Locate and compare fractions and mixed numbers on the number line.	**I can** locate and compare fractions and mixed numbers on a number line.
4.NF.B.3 Understand a fraction $\frac{a}{b}$ with a > 1 as a sum of fractions $\frac{1}{b}$. *For example,* $\frac{4}{5}=\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$. **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.,* $\frac{3}{8}=\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$; $\frac{3}{8}=\frac{1}{8}+\frac{2}{8}$; $2\frac{1}{8}=1+1+\frac{1}{8}=\frac{8}{8}+\frac{8}{8}+\frac{1}{8}$*)*, recording each	**I can** decompose (rewrite as the sum of its parts) a fraction into unit fractions. For example: ⅘ = ⅕ + ⅕ + ⅕ + ⅕. **I can** illustrate, write, and explain how to compose and decompose fractions by joining and separating parts that refer to the same whole. **I can** illustrate, write, and explain multiple ways to compose and decompose fractions using sums and differences of fractions with the same denominator. **I can** record each decomposition by an equation. **I can** add and subtract mixed numbers with like denominators by renaming each mixed number with an equivalent improper fraction. **I can** use properties of operations to justify my process for adding and subtracting mixed numbers with like denominators.

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 between addition and subtraction. **d.** Solve contextual problems involving addition and subtraction of fractions referring to the same whole and having like denominators.	**I can** use fraction models and equations to represent and solve contextual problems with addition and subtraction of fractions referring to the same whole with like denominators.
4.WCE.M.6 Convert improper fractions into mixed numbers and mixed numbers into improper fractions.	**I can** convert improper fractions into mixed numbers and mixed numbers into improper fractions.
4.NF.B.3 Understand a fraction $\frac{a}{b}$ with a > 1 as a sum of fractions $\frac{1}{b}$. *For example*, $\frac{4}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$. **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.,* $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$*)*, 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	**I can** decompose (rewrite as the sum of its parts) a fraction into unit fractions. For example: ⅘ = ⅕ + ⅕ + ⅕ + ⅕. **I can** illustrate, write, and explain how to compose and decompose fractions by joining and separating parts that refer to the same whole. **I can** illustrate, write, and explain multiple ways to compose and decompose fractions using sums and differences of fractions with the same denominator. **I can** record each decomposition by an equation. **I can** add and subtract mixed numbers with like denominators by renaming each mixed number with an equivalent improper fraction. **I can** use properties of operations to justify my process for adding and subtracting mixed numbers with like denominators. **I can** use fraction models and equations to represent and solve contextual problems with addition and subtraction of fractions referring to the same whole with like denominators.

properties of operations and the relationship between addition and subtraction. **d.** Solve contextual problems involving addition and subtraction of fractions referring to the same whole and having like denominators.	

2022-23, Fourth Grade, Mathematics, Quarter 3

Content Standards	Student Friendly "I Can" Statements
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 $\frac{a}{b}$ as a multiple of $\frac{1}{b}$. For example, use a visual fraction model to represent $\frac{5}{4}$ as the product 5 ×$\frac{1}{4}$, recording the conclusion by the equation $\frac{5}{4}$ = 5 ×$\frac{1}{4}$. **b**. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 ×* $\frac{2}{5}$ *as 6 × recognizing this product as* $\frac{6}{5}$*. (In general, n ×* $\frac{a}{b}$ *=* $\frac{(n\ x\ a)}{b}$ *= (n x a)*$\frac{1}{b}$*.)* **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* $\frac{3}{8}$ *of a pound of roast beef, and there will be 4 people at the party, how many pounds of*	**I can** interpret and construct models and develop equations to solve word problems when multiplying a fraction by a whole number. **I can** use repeated addition to explain the result when a fraction is multiplied by a whole number. Ex: 3 x (⅖) = ⅖ + ⅖ + ⅖ = $\frac{6}{5}$ **I can** explain that a fraction (a/b) represents a whole number multiple of the unit fraction (1/b). Ex: $\frac{5}{4}$= 5 x (¼) **I can** use models and properties to explain that the product of a whole number and any fraction ($\frac{a}{b}$) can be rewritten as a whole number multiple of the unit fraction ($\frac{1}{b}$). Ex: 3 x (⅖) can be written as (3x2) x ⅕. (In general, n × (a/b) = (n × a)/b.) **I can** solve conceptual problems that involve multiplying a fraction by a whole number using multiple strategies.

roast beef will be needed? Between what two whole numbers does your answer lie?	
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. (Q3, Q4)* *Conversions "given in a larger unit in terms of a smaller unit" moved to* ***5.MD.A.1*** *along with…* ***I can*** *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.*	**I can** represent measurements using diagrams with a correct measurement scale. **I can** solve real-word problems involving measurements expressed by whole numbers, fractions, and decimals. **I can** solve word problems involving mixed measures by using conversions to rewrite (rename) measures. **I can** use number line diagrams to solve multi-step, real-world problems related to measurements from a larger unit to smaller unit. **I can** add and subtract money using decimal numbers. **I can** add/subtract decimals to the hundredths place. **I can** use the strategy "draw a diagram" to solve elapsed time problems.
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 $\frac{3}{10}$ as $\frac{30}{100}$ and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.	**I can** use what I know about place value to rewrite a fraction with a denominator of 10 to an equivalent fraction with a denominator of 100. (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general, but addition and subtraction with unlike denominators in general is not a requirement at this grade.)
4.WCE.M.7 Write decimal and fraction equivalents of tenths, hundredths, and thousandths given a model.	**I can** write the decimal and fraction equivalents of benchmark fractions given place value models.
4.NF.C.6 Read and write decimal notation for fractions with denominators 10 or 100. Locate these decimals on a number line.	**I can** write the decimal and fraction equivalents of benchmark fractions given a place value models. **I can** represent fractions with denominators of 10 and 100 as decimals and show placement on a number line diagram. **I can** create equivalent fractions and decimals using the same place value. (Ex. $\frac{62}{100}$ = 0.62)

	I can use money to model fractions (and mixed numbers) as decimals. **I can** read and write fractions (and mixed numbers) as decimals.
4.WCE.M.8 Determine the fraction and decimal equivalents for halves and fourths.	**I can** fluently determine the fraction and decimal equivalents for halves and fourths (e.g., ½= 0.50, 7/4=1¾ =1.75)
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. **Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**I can** read, write, and compare fractions/decimals to tenths and hundredths. **I can** determine if one decimal represents a larger value than another based on their relative sizes. **I can** justify the comparison of two decimals by using a visual model to show how they must relate to the same whole. **I can** compare two decimals to the hundredths place using a grid or a number line. **I can** show the relationship of two decimals using <, >, or = and justify the conclusions by drawing place value models. **I can** represent the comparison of two decimals using <, >, or = and justify my thinking by shading place value models.
4.WCE.M.9 Compare decimals (up to hundredths) using concrete and pictorial representations.	**I can** compare decimals using >, <, or = by drawing place value models.
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.	**I can** draw and identify lines and angles and classify shapes by properties of their lines and angles. **I can** draw points, lines, line segments, rays, angles, perpendicular and parallel lines. **I can** identify points, lines, line segments, rays, angles, perpendicular and parallel lines in two-dimensional figures. **I can** classify types of angles as right, acute, or obtuse, straight, and reflex. **I can** identify an angle and its parts (vertex, common endpoint, and ray).

	I can use appropriate vocabulary to define an angle. **I can** classify lines as parallel, perpendicular, or intersecting.
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.	**I can** sort, classify, and identify two-dimensional figures based on whether or not they have parallel and/or perpendicular lines and/or right, obtuse, and acute angles formed by line segments. **I can** classify triangles by acute, obtuse, or right angles.
4.G.A.3 Recognize and draw lines of symmetry for two-dimensional figures.	**I can** classify figures as symmetrical and non-symmetrical. **I can** recognize and draw lines of symmetry as a line across the figure such that the figure can be folded along the line into matching parts. (Use exact vocabulary for vertical, horizontal, and diagonal.) **I can** identify and draw figures that have lines of symmetry.
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 (Q2, Q3).*	**I can** create a function table, graph or verbal description that models a pattern. **I can** model word problems by writing an expression with a symbol for an unknown number. **I can** generate and extend a pattern that follows a given rule. **I can** analyze multiple features of a given pattern and determine if additional patterns occur within it. **I can** use what I know about numbers and shapes and how they work together to explain additional patterns that arise from a given pattern.
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.	**I can** understand and explain that an angle measurement is a fraction of a circle created by the area between two rays. **I can** recognize angles are measured in degrees. **I can** understand and justify the measure of an angle, of "n" degrees, is the sum of one degree angles. **I can** recognize a circle has 360 equal parts and $\frac{1}{360}$ measures one degree. **I can** classify angles as acute, obtuse, right or straight.

b. Understand that an angle that turns through 1/360 of a circle is called a "one-degree angle," 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.	**I can** demonstrate how to accurately use a protractor to measure an angle in whole number degrees. **I can** use a protractor to draw an angle of a given measure. **I can** use and identify benchmark angle measurements such as 45°, 90°, 180°.
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.	**I can** decompose angles into smaller angles. **I can** write an equation to represent the measure of an angle by adding the sum of the parts of the angle. (Example: 40°= 10°+ 30° degrees) **I can** write an equation to represent an angle measure as the sum of its parts with an unknown angle measurement in any position. (Ex:__° + 20° = 30°; 10° + = 30°; 10° + 20° = _) **I can** add and subtract to find the missing angle measure. **I can** solve conceptual problems involving the measure of unknown angles.
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.* *(Q3, Q4)* *"Express measurements in a larger unit in terms of a smaller unit" added as part of 4.WCE.M.10. (Q4)*	***I can*** *record measurement equivalents using a two-column conversion table and a line plot.* ***I can*** *describe the relative size of measurement units, e.g., km, m, cm; kg, g; l, ml; lb., oz.; hr., min., sec.* ***I can*** *describe a larger unit by telling how many smaller units are inside the larger unit.* ***I can*** *compare and convert units of measurement within a single system (customary and metric) involving length, liquid volume, and mass/weight of objects.* ***I can*** *relate customary units of measurement to fractions.* ***I can*** *relate metric units of measurement to place value.*

4.MD.B.4 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, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	**I can** record a data set of measurements in fractions by creating a line plot. **I can** use information from line plots to solve problems involving addition, subtraction, multiplication, and division of fractions.

2022.23 Fourth Grade, Mathematics, Quarter 4

Content Standards	Student Friendly "I Can" Statements
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. (Q3, Q4)*	**I can** represent measurements using diagrams with a correct measurement scale. **I can** solve real-word problems involving measurements expressed by whole numbers, fractions, and decimals. **I can** solve word problems involving mixed measures by using conversions to rewrite (rename) measures. **I can** use number line diagrams to solve multi-step, real-world problems related to measurements from a larger unit to smaller unit. **I can** add and subtract money using decimal numbers. **I can** add/subtract decimals to the hundredths place. **I can** use the strategy "draw a diagram" to solve elapsed time problems.
4.WCE.M.10 Memorize the standard units of measurement, including 1 meter = 100 centimeters, 1 kilometer = 1000 meters, 1 gram = 1000 milligrams, 1 liter = 1000 milliliters, 1 minute = 60 seconds, 1 hour = 60 minutes, 1 pound = 16 ounces, and 1 ton = 2,000 pounds, and express measurements of a larger unit in terms of a smaller unit.	**I can** convert standard units of measurement from memory. **I can** express measurements in a smaller unit or larger unit within a single system of measurement such as seconds, minutes, hours; inches, feet, yards; centimeters and meters; cups, pints, quarts, gallons; milliliters and liters.

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.* *(Q3, Q4)* *"Express measurements in a larger unit in terms of a smaller unit" added as part of 4.WCE.M.10.*	***I can*** *record measurement equivalents using a two-column conversion table and a line plot.* ***I can*** *describe the relative size of measurement units, e.g., km, m, cm; kg, g; l, ml; lb., oz.; hr., min., sec.* ***I can*** *describe a larger unit by telling how many smaller units are inside the larger unit.* ***I can*** *compare and convert units of measurement within a single system (customary and metric) involving length, liquid volume, and mass/weight of objects.* ***I can*** *relate customary units of measurement to fractions.* ***I can*** *relate metric units of measurement to place value.* ***I can*** *solve 1 to 2 step problems with fractions.*
4.WCE.M.11 Determine appropriate size of unit of measurement in problem situations involving length, capacity or weight.	**I can** decide the appropriate unit to use in word problems that involve length (including eighths of an inch), capacity, or weight.
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.*	**I can** explain how the area of a figure relates to multiplication. **I can** relate the formula for area to tiling in an area model. **I can** read, illustrate, solve, and apply area and perimeter to real world and mathematical problems. **I can** calculate the area and perimeter of regular and irregular shapes by knowing the area and perimeter formulas for rectangles. Area = l x w; A = *b* x *h*. Perimeter = 2(l + w); P = (2 x *l*) + (2 x *w*) **I can** determine the missing measurement in an area problem by using what I know about multiplication. **I can** calculate the area and perimeter of rectangular figures and irregular shapes in real world situations by using an equation with an unknown. **I can** solve problems involving area and/or perimeter of rectangular figures, including regular and irregular shapes composed of rectangles.

Embedded K-8 TN Computer Science Standards: referenced in resource column

FCO.6 Select and use appropriate word processing, spreadsheets, and multimedia applications.

AIT.3 Determine the best technology and appropriate tool to address a variety of tasks and problems.

AIT.4 Use multiple processes and diverse perspectives to explore alternative solutions.

AIT.8 Identify that various algorithms can achieve the same result and determine the most efficient sequence.

Getting Ready for Grade 5

4.WCE.M.1 Recall basic multiplication facts through 12 times 12 along with the related division facts.	**I can** accurately express multiplication facts through 12 x 12 and relate them to division.
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.*	**I can** create a function table, graph or verbal description that models a pattern. **I can** model word problems by writing an expression with a symbol for an unknown number. **I can** generate and extend a pattern that follows a given rule. **I can** analyze multiple features of a given pattern and determine if additional patterns occur within it. **I can** use what I know about numbers and shapes and how they work together to explain additional patterns that arise from a given pattern.
4.NF.A.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{a \times n}{b \times n}$ or $\frac{a \div n}{b \div n}$ 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.	**I can** explain why fractions are equivalent using several different models. **I can** demonstrate that the more parts a whole is broken into, the smaller the parts. **I can** demonstrate that the fewer parts a whole is broken into, the larger the parts.

For example, $\frac{3}{4}=\frac{3 \times 2}{4 \times 2}=\frac{6}{8}$.	**I can** create equivalent fractions by multiplying or dividing the numerator and denominator by the same number or by dividing a shaded region into various parts.
***4.NBT.B.4** Fluently add and subtract within 1,000,000 using appropriate strategies and algorithms.	**I can** use a variety of strategies to illustrate and explain why addition and subtraction algorithms work. **I can** fluently add and subtract multi-digit whole numbers up to a million using the standard algorithm as related to money. **I can** recognize and apply the commutative and associative properties of addition (and distributive when applicable).