2022.2023, Second 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 expectations: *2.OA.B.2 Fluently add and subtract within 30 using mental strategies. (By the end of 2nd grade, know from memory all sums of two one-digit numbers and related subtraction facts.) *2.NBT.B.5 Fluently add and subtract within 100 using strategies.	*Ongoing resources* *student journals* *Number Talks* Online Resources: *Xtramath* and Dreambox
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 Q2 chapters 4 - chapter 6 mid chapter ✓ Q3 chapter 6 mid chapter ✓ - chapter 9 **High Stakes wb, by request** chapters 10-11 **Getting Ready for Grade 3 (see Planning Guide)**

Content Standards	Student Friendly "I Can" Statements
2.OA.C.3 Determine whether a group of objects (up to 20) has an odd or even number of members by pairing objects or counting them by 2s. Write an equation to express an even number as a sum of two equal addends.	**I can** identify a group of objects as having an even or odd number of items using different strategies. **I can** write an equation to demonstrate that the sum of two identical addends is even. (e.g. 5+5=10, 6+6=12).
2.NBT.A.3 Read and write numbers to 1000 using standard form, word form, and expanded form.	**I can** recognize that the digits in a 3-digit number represent ones, tens, and hundreds, up to 1000. **I can** read and write numbers to 1000 in standard form (base-ten numerals), word form (number names), and expanded form.
2.NBT.A.2 Count within 1000. Skip-count within 1000 by 5s, 10s, and 100s, starting from any number in its skip counting sequence.	**I can** count to 1000 from any given number. Ex: 799, 800, 801, etc. **I can** skip count to 1000 by 5's, 10's and 100's starting with any number in its skip counting sequence.
2.WCE.M.1 Identify skip counting as finding multiples.	**I can** define skip counting as finding multiples.
2.NBT.A.1 Know that the three digits of a three-digit number represent amounts of hundreds, tens, and ones (e.g., 706 can be represented in multiple ways as 7 hundreds, 0 tens, and 6 ones; 706 ones; or 70 tens and 6 ones). This standard was formerly divided into parts a and b.	**I can** represent each digit in a 3-digit number in multiple ways using hundreds, tens, and ones. **I can** explain the value of each digit in a three-digit number. **I can** represent a hundred as 10 groups of 10. **I can** interpret the value of the zeroes in a given hundred as zero tens and zero ones. **I can** model and draw 3-digit numbers using quick pictures, place-value models, and place-value (**HTO**) charts.
2.NBT.B.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	**I can** mentally add and subtract 10 or 100 from a given number within 100-900.

2.NBT.A.4 Compare two three-digit numbers based on the meanings of the digits in each place and use the symbols >, =, and < to show the relationship.	**I can** determine whether a three-digit number is greater than, less than, or equal to another three-digit number, and record comparisons using the symbols >, <, and = to show the relationship.
2.OA.B.2 *Fluently add and subtract within 30 using mental strategies. By the end of 2nd grade, know from memory all sums of two one-digit numbers and related subtraction facts.(Q1 - 4)*	**I can** recall from memory all the sums of two one-digit numbers. ex: 4+9, 9+8, 5+7, etc.(Q1) **I can** recall from memory all of the differences within 20. (Q2) **I can** use mental math strategies (e.g., count on, make a ten, decompose numbers into smaller parts) to add or subtract numbers within 20 with ease. **I can** add within 30 using mental strategies. (Q3) **I can** subtract within 30 using mental strategies. (Q4)
2.OA.A.1 *Add and subtract within 100 to solve one- and two-step contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem. (Q1, Q2)*	**I can** represent addition and subtraction word problems using a drawing, diagram or equation with unknowns in all positions. **I can** solve addition and subtraction word problems that involve two steps (doing one computation, and using that answer to perform a second computation that leads to the solution of the problem.)
2.OA.C.4 Use repeated addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	**I can** use repeated addition to find the total number of objects arranged in rectangular arrays. **I can** write an equation to express the total as a sum of equal addends.

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*2.NBT.B.5 Fluently add and subtract within 100 using properties of operations, strategies based on place value, and/or the relationship between addition and subtraction.	**I can** add and subtract within 100 using strategies based on place value. **I can** add and subtract within 100 using properties of operations. - Commutative property: The order of the addends does not affect the sum, ex: 41 + 50 = 50 + 41. - Associative property: It does not matter which addends you combine first, the sum will still be the same, ex: 18 + 31 + 12 is the same as (18 + 12) + 31. **I can** explain the relationship between addition and subtraction, ex: If I know that 20 - 12 = 8, then I also know that 8 + 12 = 20.
2.NBT.B.9 Explain why addition and subtraction strategies work using properties of operations and place value. (Explanations may include words, drawing, or objects.)	**I can** explain addition and subtraction strategies in relation to properties of operations. - Identity property: you can add zero to any number, and the number will stay the same, ex: 6+0=6. - Commutative property: The order of the addends does not affect the sum, ex: 6+5 = 5+6. - Associative property: It does not matter which addends you add together first, the sum will still be the same, ex: (8+2) + 4 = 8 + (2+4). **I can** explain my answers by using objects, models, words, and/or equations. **I can** explain addition and subtraction using place value.
2.OA.A.1 Add and subtract within 100 to solve one- and two-step contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem. (Q1, Q2)	**I can** represent addition and subtraction word problems using a drawing, diagram or equation with unknowns in all positions. **I can** solve addition and subtraction word problems that involve two steps (doing one computation, and using that answer to perform a second computation that leads to the solution of the problem.)

2.OA.B.2 Fluently add and subtract within 30 using mental strategies. By the end of 2nd grade, know from memory all sums of two one-digit numbers and related subtraction facts.(Q1 - 4)	**I can** recall from memory all the sums of two one-digit numbers. ex: 4+9, 9+8, 5+7, etc.(Q1) **I can** recall from memory all of the differences within 20. (Q2) **I can** use mental math strategies (e.g., count on, make a ten, decompose numbers into smaller parts) to add or subtract numbers within 20 with ease. **I can** add within 30 using mental strategies. (Q3) **I can** subtract within 30 using mental strategies. (Q4)
2.NBT.B.6 Add up to four two-digit numbers using properties of operations and strategies based on place value.	**I can** add up to four two-digit numbers by applying strategies (e.g. decomposing numbers, rearranging the order of the numbers, making tens or multiples of tens) and properties (commutative, associative, and identity) based on place value.
2.NBT.B.7 Add and subtract within 1000 using concrete models, drawings, strategies based on place value, properties of operations, and/or the relationship between addition and subtraction to explain the reasoning used. (Q2, Q3)	*I can* use concrete models such as an open number line, place value blocks and drawings to demonstrate how to add or subtract within 1,000 using strategies based on place value. *I can* choose an appropriate strategy (written method) for solving an addition and subtraction problem within 1,000 and explain my reasoning.
2.WCE.M.2 Count backwards by ones starting at any number from 100.	**I can** count backwards by ones starting at any number from 100.

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*2.OA.B.2 Fluently add and subtract within 30 using mental strategies. By the end of 2nd grade, know from memory all sums of two one-digit numbers and related subtraction facts. (Q1 - 4)	**I can** recall from memory all the sums of two one-digit numbers. ex: 4+9, 9+8, 5+7, etc.(Q1) I can recall from memory all of the differences within 20. (Q2) **I can** use mental math strategies (e.g., count on, make a ten, decompose numbers into smaller parts) to add or subtract numbers within 20 with ease. **I can** add within 30 using mental strategies. (Q3) **I can** subtract within 30 using mental strategies. (Q4)
2.NBT.B.7 Add and subtract within 1000 using concrete models, drawings, strategies based on place value, properties of operations, and/or the relationship between addition and subtraction to explain the reasoning used. (Q2, Q3)	*I can use concrete models such as an open number line and other drawings to demonstrate how to add or subtract within 1,000 using strategies based on place value.* *I can choose an appropriate strategy (written method) for solving an addition and subtraction problem within 1,000 and explain my reasoning.*
2.MD.C.8 Solve contextual problems involving dollar bills, quarters, dimes, nickels, and pennies using ¢ and $ symbols appropriately.	**I can** identify the name and value of dollar bills, quarters, dimes, nickels and pennies. **I can** identify the dollar ($), cent (¢), and (.) symbol and place them appropriately. **I can** count combinations of dollars and coins; for example: If you have 2 dimes and 3 pennies, how many cents do you have? **I can** solve word problems involving dollar bills, quarters, dimes, nickels, and pennies. **I can** explain that a decimal point is used to separate dollars from cents and is read as the word 'and'.
2.MD.C.7 Tell and write time in quarter hours and to the nearest five minutes (in a.m. and p.m.) using analog and digital clocks.	**I can** tell time and write time to the 5 minute interval using analog and digital clocks..

	I can tell and write time to the quarter hour using analog and digital clocks. **I can** use a.m. and p.m. correctly.
2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	**I can** select and use the appropriate tool needed to measure the length of an object (ruler, yardstick, meter stick, and measuring tape). **I can** determine the appropriate unit of length to use for measuring different objects (centimeters, inches, feet, yards, and meters). **I can** recognize which units of measurement are comparable in size, (e.g. inch/cm, yard/m).
2.MD.A.2 Measure the length of an object using two different units of measure and describe how the two measurements relate to the size of the unit chosen.	**I can** measure the length of an object, to the nearest whole unit, using two different units of measure and compare them (i.e. measure the same length in inches and in feet). **I can** explain how the size of the unit length affects the measurement. For example, an object measured in both inches and feet could be 12 inches, or 1 foot; therefore, having more inches than feet because inches are smaller units.
2.MD.A.3 Estimate lengths using units of inches, feet, yards, centimeters, and meters.	**I can** describe strategies for estimating length (e.g. a meter is about the length from floor to above a door knob). **I can** discriminate between the size of centimeters, inches, feet, yards, and meters. Ex: A ladybug is about a centimeter in length, whereas a book might be a foot in length. **I can** estimate lengths in units of centimeters, inches, feet, yards, and meters. **I can** determine if my estimate is reasonable.
2.MD.B.5 Add and subtract within 100 to solve contextual problems involving lengths that are given in the same units by using drawings and equations with a symbol for the unknown to represent the problem.	**I can** add and subtract lengths within 100, ex: 45 cm – 24 cm = 21 cm on a bar model, open number line, or other pictorial representation.

	I can solve addition and subtraction contextual problems involving lengths of the same unit within 100 using drawings and equations with a symbol for the unknown number.
2.MD.B.6 Represent whole numbers as lengths from 0 on a number line and know that the points corresponding to the numbers on the number line are equally spaced. Use a number line to represent whole number sums and differences of lengths within 100.	**I can** create a number line with whole number intervals within 100 (focusing on equal spacing). **I can** identify each point within 100 on a number line. **I can** find sums and differences within 100 using both an open number line and a labeled number line.
2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	**I can** measure lengths of several objects to the nearest whole unit. **I can** create a line plot with a horizontal scale marked off in whole-number units. **I can** record length measurements on a line plot.
2.MD.A.4 Measure to determine how much longer one object is than another and express the difference in terms of a standard unit of length.	**I can** measure to determine how much longer one object is than another and determine the difference using the same unit of measurement.
2.MD.D.10 *Draw a pictograph and a bar graph (with intervals of one) to represent a data set with up to four categories. Solve addition and subtraction problems related to the data in a graph.*	***I can*** *draw a pictograph and a bar graph (with intervals of one) to represent a data set with up to four categories.* ***I can*** *solve addition and subtraction problems using data from a pictograph or bar graph (within a single-unit scale or intervals of one).* ***I can*** *compare data on a bar graph in terms of "how many more", "how many fewer/less", "how many in all".*

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2.MD.D.10 *Draw a pictograph and a bar graph (with intervals of one) to represent a data set with up to four categories. Solve addition and subtraction problems related to the data in a graph.*	***I can*** *draw a pictograph and a bar graph (with intervals of one) to represent a data set with up to four categories.* ***I can*** *solve addition and subtraction problems using data from a pictograph or bar graph (within a single-unit scale or intervals of one).* ***I can*** *compare data on a bar graph in terms of "how many more", "how many fewer/less", "how many in all".*
2.WCE.M.3. Solve addition and subtraction problems in context using various tools and strategies.	**I can** fluently solve addition and subtraction problems within 100, using various tools (Ex. 100's chart, number lines, open number lines, place value blocks, etc.) and strategies (counting on, counting back, place value, compensation, compatible numbers, etc.). **I can** use writing, drawings, and models to show how to add and subtract within 100 using multiple tools (100's chart, number lines, open number lines, place value blocks, etc.). **I can** use writing, drawings, and models to show how to add and subtract within 100 using multiple strategies (counting on, counting back, place value, compensation, compatible numbers, decomposing into tens, commutative and associative properties, and mental strategies).

2.G.A.1 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. Draw two-dimensional shapes having specified attributes (as determined directly or visually, not by measuring), such as a given number of angles or a given number of sides of equal length.	**I can** identify and describe the attributes of two- dimensional shapes and cubes (e.g. sides, vertices, angles). **I can** identify and draw shapes having specified attributes, such as a given number of angles or a given number of sides of equal length.
2.G.A.2 Partition a rectangle into rows and columns of same-sized squares and find the total number of squares.	**I can** determine the number of same-size squares in a rectangle. **I can** partition a rectangle into rows and columns of same sized squares.
2.G.A.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, fourths, half of, a third of, and a fourth of,* and describe the whole as *two halves, three thirds, four fourths.* Recognize that equal shares of identical wholes need not have the same shape.	**I can** partition (divide) a circle and rectangle into two, three, or four equal parts. **I can** describe the equal shares with words such as halves, thirds, and fourths. **I can** describe a whole using the number of equal parts it has, such as two halves make a whole. **I can** explain and give examples to show that halves, thirds, and fourths of an identical whole need not be the same shape. Ex: half of a rectangle can be shown horizontally or vertically.
2.WCE.M.4 Interpret products of whole numbers when one factor is a 0, 1, 2, 5, or 10.	**I can** find the product of a single digit number multiplied by 0, 1, 2, 5, or 10.

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 3: ***2.NBT.B.5** Fluently add and subtract within 100 using strategies.

Estimate Sums: 2-digit addition	**I can** round to the nearest ten then add.
Estimate Sums: 3-digit addition	**I can** round to the nearest hundred then add.
Estimate differences: 2-digit subtraction	**I can** round to the nearest ten then subtract.

Estimate differences: 3-digit subtraction	**I can** round to the nearest hundred then subtract.
Recognize place value to 100 (includes adding, subtracting, and comparing)	**I can** demonstrate place value to the hundreds place.
Critical Area Tasks	