Second Grade Standards

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These are the standards for what is taught throughout the year in Second Grade. It is the expectation that these skills will be reinforced after they have been taught.

Mathematical Practice Standards Taught Throughout the Year		
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**
In Grade 2, students realize that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. They may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, "Does this make sense?" They make conjectures about the solution and plan out a problem-solving approach. An example for this might be giving a student an equation and having him/her write a story to match.	Younger students recognize that a number represents a specific quantity. They connect the quantity to written symbols. Quantitative reasoning entails creating a representation of a problem while attending to the meanings of the quantities. Second graders begin to know and use different properties of operations and relate addition and subtraction to length. In Grade 2 students represent situations by decontextualizing tasks into numbers and symbols. For example, in the task, "There are 25 children in the cafeteria, and they are joined by 17 more children. How many students are in the cafeteria?" Students translate the situation into an equation, such as: 25 + 17 = ☐ and then solve the problem. Students also contextualize situations during the problem solving process. For example, while solving the task above, students might refer to the context of the task to determine that they need to subtract 19 if 19 children leave.	Second graders may construct arguments using concrete referents, such as objects, pictures, drawings, and actions. They practice their mathematical communication skills as they participate in mathematical discussions involving questions like "How did you get that?", "Explain your thinking.", and "Why is that true?" They not only explain their own thinking, but listen to others' explanations. They decide if the explanations make sense and ask appropriate questions. Students critique the strategies and reasoning of their classmates. For example, to solve 74 − 18, students may use a variety of strategies, and after working on the task, they might discuss and critique each other's' reasoning and strategies, citing similarities and differences between various problem solving approaches.

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Mathematical Practice Standards Taught Throughout the Year		
4. Model with mathematics	**5. Use appropriate tools strategically**	**6. Attend to precision**
In early grades, students experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. In Grade 2 students model real-life mathematical situations with a number sentence or an equation and check to make sure that their equation accurately matches the problem context. They use concrete manipulatives and pictorial representations to explain the equation. They create an appropriate problem situation from an equation. For example, students create a story problem for the equation 43 + 17 = ☐ such as "There were 43 gumballs in the machine. Tom poured in 17 more gumballs. How many gumballs are now in the machine?"	In Grade 2, students consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be better suited. For instance, second graders may decide to solve a problem by drawing a picture rather than writing an equation. Students may use tools such as snap cubes, place value (base ten) blocks, hundreds number boards, number lines, rulers, virtual manipulatives, and concrete geometric shapes (e.g., pattern blocks, three dimensional solids). Students understand which tools are the most appropriate to use. For example, while measuring the length of the hallway, students can explain why a yardstick is more appropriate to use than a ruler.	As children begin to develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and when they explain their own reasoning. Second grade students communicate clearly, using grade-level appropriate vocabulary accurately and precise explanations and reasoning to explain their process and solutions. For example, while measuring an object, students carefully line up the tool correctly to get an accurate measurement. During tasks involving number sense, students consider if their answer is reasonable and check their work to ensure the accuracy of solutions.

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Mathematical Practice Standards Taught Throughout the Year	
7. Look for and make use of structure	**8. Look for and express regularity in repeated reasoning**
Second grade students look for patterns and structures in the number system. For example, students notice number patterns within the tens place as they connect skip counting by 10s to corresponding numbers on a 100s chart. Students see structure in the base-ten number system as they understand that 10 ones equal a ten, and 10 tens equal a hundred. Students adopt mental math strategies based on patterns (making ten, fact families, doubles). They use structure to understand subtraction as a missing addend problems (e.g., $50 - 33 = \square$ can be written as $33 + \square = 50$ and can be thought of as "How much more do I need to add to 33 to get to 50?")	Second grade students notice repetitive actions in counting and computation (e.g., number patterns to skip count). When children have multiple opportunities to add and subtract, they look for shortcuts, such as using estimation strategies and then adjust the answer to compensate. Students continually check for the reasonableness of their solutions during and after completing a task by asking themselves, "Does this make sense?"

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Standards taught during 1st Quarter	
Operations and Algebraic Thinking **Represent and solve problems involving addition and subtraction. Add and subtract within 20.**	**Number and Operations in Base Ten** **Understand place value. Use place value understanding and properties of operations to add and subtract.**
2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. See Table 1, page 95. **2.OA.2** Fluently [G] add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers. See Standard 1.OA.6 for a list of mental strategies.	**2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens—called a "hundred". b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundred (and 0 tens and 0 ones). **2.NBT.2** Count forward and backward within 1,000 by ones, tens, and hundreds starting at any number; skip-count by 5s starting at any multiple of 5. **2.NBT.3** Read and write numbers to 1,000 using base-ten numerals, number names, expanded form [G], and equivalent representations, e.g., 716 is 700 + 10 + 6, or 6 + 700 + 10, or 6 ones and 71 tens, etc. **2.NBT.4** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. **2.NBT.5** Fluently add and subtract within 100 using strategies

	based on place value, properties of operations, and/or the relationship between addition and subtraction.

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Standards taught during 2nd Quarter		
Operations and Algebraic Thinking **Add and subtract within 20.**	**Number and Operations in Base Ten** **Use place value understanding and properties of operations to add and subtract.**	**Measurement and Data** **Relate addition and subtraction to length. Work with money. Represent and interpret data.**
2.OA.2 Fluently [G] add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers. See Standard 1.OA.6 for a list of mental strategies.	**2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **2.NBT.6** Add up to four two-digit numbers using strategies based on place value and properties of operations. **2.NBT.7** Add and subtract within 1,000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; record the strategy with a written numerical method (drawings and, when appropriate, equations) and explain the reasoning used. Understand that in adding or subtracting three-digit numbers, hundreds are added or subtracted from hundreds, tens are added or subtracted from tens, ones are added or subtracted from ones; and sometimes it is necessary to compose or	**2.MD.5** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same whole number units, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) **2.MD.6** Represent whole numbers as lengths from 0 on a number line diagram [G] with equally spaced points corresponding to the numbers 0, 1, 2, …, and represent whole-number sums and differences within 100 on a number line diagram. **2.MD.8** Solve problems with money. a. Identify nickels and quarters by name and value. b. Find the value of a collection of quarters, dimes, nickels, and

	decompose tens or hundreds. **2.NBT.8** Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. **2.NBT.9** Explain why addition and subtraction strategies work, using place value and the properties of operations. Explanations may be supported by drawings or objects.	pennies. c. Solve word problems by adding and subtracting within 100, dollars with dollars and cents with cents (not using dollars and cents simultaneously) using the $ and ¢ symbols appropriately (not including decimal notation). **2.MD.10** Organize, represent, and interpret data with up to four categories; complete picture graphs when single -unit scales are provided; complete bar graphs when single -unit scales are provided; solve simple put -together, take -apart, and compare problems in a graph. See Table 1, page 95.

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Standards taught during 3rd Quarter		
Operations in Algebraic Thinking **Represent and solve problems involving addition and subtraction. Add and subtract within 20. Work with equal groups of objects to gain foundations for multiplication.**	**Number and Operations in Base Ten** **Use place value understanding and properties of operations to add and subtract.**	**Measurement and Data** **Measure and estimate lengths in standard units. Represent and interpret data.**
2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. See Table 1, page 95. **2.OA.2** Fluently [G] add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers. See Standard 1.OA.6 for a list of mental strategies. **2.OA.3** Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two	**2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	**2.MD.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. **2.MD.2** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. **2.MD.3** Estimate lengths using units of inches, feet, centimeters, and meters. **2.MD.4** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. **2.MD.7** Tell and write time from analog and digital clocks to the nearest five

equal addends. **2.OA.4** Use 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.		minutes, using a.m. and p.m. **2.MD.9** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot [G], where the horizontal scale is marked off in whole-number units.

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Standards taught during 4th Quarter		
Operations and Algebraic Thinking **Represent and solve problems involving addition and subtraction. Add and subtract within 20. Work with equal groups of objects to gain foundations for multiplication.**	**Number and Operations in Base Ten** **Use place value understanding and properties of operations to add and subtract.**	**Geometry** **Reason with shapes and their attributes.**
2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. See Table 1, page 95. **2.OA.2** Fluently [G] add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers. See Standard 1.OA.6 for a list of mental strategies. **2.OA.4** Use 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.	**2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	**2.G.1** Recognize and identify triangles, quadrilaterals, pentagons, and hexagons based on the number of sides or vertices. Recognize and identify cubes, rectangular prisms, cones, and cylinders. **2.G.2** Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. **2.G.3** Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words *halves, thirds,* or *fourths* and *quarters,* and use the phrases *half of, third of,* or *fourth of* and *quarter of*. Describe the whole as two halves, three thirds, or four fourths in real-world contexts. Recognize that equal shares of identical wholes need not have the same shape.