Sequenced Units for the Common Core State Standards in Mathematics Grade 2

In the two years prior to Grade 2 students gained an understanding of whole numbers to 120, began to develop strategies for addition and subtraction, worked with non-standard measurement, and reasoned about attributes. Students are fluent in adding and subtracting within 10. Students also have an initial understanding of place value of two-digit numbers.

In Grade 2 students apply the strategies for addition and subtraction they developed in earlier grades to larger numbers and develop more sophisticated computational strategies based on place value, the relationship between addition and subtraction, and properties of the operations. They solve addition and subtraction problems within 1000 by applying their experience with using models. They develop, discuss, and use generalizable methods to efficiently and accurately compute sums and differences of whole numbers. They reach fluency in addition and subtraction within 100, and mental fluency in addition and subtraction within 20. Throughout Grade 2 students extend their problem solving strategies to include one and two-step problems involving all of the problem types in Table 1 (CCSSM, p. 88). They are introduced to standard units of measure and estimation of length. Students continue developing geometric concepts and spatial reasoning by composing and decomposing shapes with a new focus on examining sides and angles.

This document reflects the Dana Institute's current thinking related to the intent of the Common Core State Standards for Mathematics (CCSSM) and assumes 160 days for instruction, divided among 15 units. The number of days suggested for each unit assumes 45-minute class periods and is included to convey how instructional time should be balanced across the year. The units are sequenced in a way that we believe best develops and connects the mathematical content described in the CCSSM; however, the order of the standards included in any unit does not imply a sequence of content within that unit. Some standards may be revisited several times during the course; others may be only partially addressed in different units, depending on the focus of the unit. Strikethroughs in the text of the standards are used in some cases in an attempt to convey that focus, and comments are included throughout the document to clarify and provide additional background for each unit.

Throughout Grade 2, students should continue to develop proficiency with the Common Core's eight Standards for Mathematical Practice:

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.**

These practices should become the natural way in which students come to understand and do mathematics. While, depending on the content to be understood or on the problem to be solved, any practice might be brought to bear, some practices may prove more useful than others. Opportunities for highlighting certain practices are indicated in different units in this document, but this highlighting should not be interpreted to mean that other practices should be neglected in those units.

When using this document to help in planning your district's instructional program, you will also need to refer to the CCSSM document, relevant progressions documents for the CCSSM, and the appropriate assessment consortium framework.

Common Core Math Units
Grade 2

Unit 1: Adding and subtracting within 100 Suggested number of days: 12	I Can Statements	Notes/Comments	Unit Materials and Resources
Students start the year by working with addition and subtraction situations involving numbers they are already familiar with. They build on the strategies they used in Grade 1 to begin refining their addition strategies and develop strategies for subtraction within 100. Students expand their understanding of mentally adding and subtracting ten to include mental strategies for adding and subtracting other quantities within 20. These concepts are introduced at the beginning of the year because addition and subtraction is a major focus of Grade 2; therefore, students need time to practice to reach fluency by the end of the year.			
Common Core State Standards for Mathematical Content **Operations and Algebraic Thinking — 2.OA** B. Add and subtract within 20. 2. ~~Fluently~~ add and subtract within 20 using mental strategies. [2] By end of Grade 2, know from memory all sums of two one-digit numbers. *NOTE: [2]See standard 1.OA.e.G for a list of mental strategies.* **Number and Operations in Base Ten — 2.NBT** B. Use place value understanding and properties of operations to add subtract. 5. ~~Fluently~~ add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **Common Core State Standards for Mathematical Practice** 1. Make sense of problems and persevere in solving them. 7. Look for and make use of structure.	2. OA.2.1 Use drawings to add and subtract one digit numbers. 2. OA.2.2 Mentally add and subtract within 20. 2. OA.2.3 Know all sums of two one digit numbers from memory by the end Grade 2. 2. NBT.5.1 Fluently add numbers from 0-99 w/out regrouping. 2. NBT.5.2 Fluently add numbers from 0-99 with regrouping. 2. NBT.5.3 Fluently subtract numbers from 0-99 w/out regrouping. 2. NBT.5.4 Fluently subtract numbers from 0-99 w/regrouping. 2. NBT.5.5 Apply the properties of operations. 2. NBT.5.6 Recognize that subtraction is the opposite of addition. (1	**Comments** **2.OA.B.2** will be finalized in unit 15, allowing students time to work towards fluency. **2.NBT.B.5** calls for students to develop subtraction strategies with all numbers within 100—whereas in Grade 1, students only subtracted multiples of 10. This standard will be finalized in unit 15, allowing students time to work towards fluency. Students apply their understanding of the structure in the number system to refine addition strategies and develop subtraction strategies (**MP.7**). This involves using and analyzing multiple approaches to problem solving (**MP.1**).	

Common Core Math Units
Grade 2

Unit 2: Exploring standard units of length Suggested number of days: 12	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit students apply their understanding of measuring with non-standard units to develop proficiency in measuring length with both customary and metric units of measure (inches, feet, centimeters, and meters). This context is introduced early in the year so that it can be used throughout the year.			
Common Core State Standards for Mathematical Content **Measurement and Data — 2.MD** A. Measure and estimate lengths in standard units. 1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. 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. **Common Core State Standards for Mathematical Practice** 5. Use appropriate tools strategically.	2. MD.1.1 Define length in terms of equal units. 2.MD.1.2 Identify tools that measure length.(ex. Rulers, yard sticks, meter sticks, and measuring tapes) 2. MD.1.3 Select the appropriate tool to measure the length of an object. 2. MD.1.4 Correctly use a selected tool to measure the length of an object. 2. MD.2.1 Select the appropriate tool to measure the length of an object. 2. MD.2.2 Measure an object twice using two different standard units. (inches, centimeters, feet, yards) 2. MD.2.3 Compare, contrast, and explain the two measurements.	**Comments** **2.MD.A.1**introduces standard units of measurement for length, which are new to this grade level. The understanding that students develop in **2.MD.A.1**and **2.MD.A.2** will be applied in unit 9 and unit 14 when students collect measurement data and estimate and compare lengths. Selecting and using tools that measure standard units is new for students. Students become familiar with available tools and recognize the strengths and weaknesses of these tools in order to make their own decisions about when and why certain tools are useful (**MP.5**).	

Common Core Math Units
Grade 2

Unit 3: Relating addition and subtraction to length Suggested number of days: 12	I Can Statements	Notes/Comments	Unit Materials and Resources
This unit extends students' previous understandings of measurement and number by introducing the concept of number lines. Students apply their understanding of measurement from the previous unit to incorporate the use of number lines as a tool to solve addition and subtraction problems. Learning to solve one- and two-step problems is a critical understanding for this grade level. Students will relate addition and subtraction to measurement contexts in their everyday lives.[1]			
Common Core State Standards for Mathematical Content **0perations and Algebraic Thinking — 2.0A** A. Represent and solve problems involving addition and subtraction. 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. [1] *NOTE: [1]See Glossary, Table 1.*	2. OA.1.1 Locate clue words to help me solve problems and choose when to add or subtract in a word problem. 2 OA.1.2 Represent addition and subtraction word problems using objects, drawings, and equations with unknowns in all positions. 2 OA.1.3 Solve addition and subtraction word problems that involve one step operations. 2OA.1.4 Solve word problems with unknown numbers in different positions (e.g., 5 +__=13). 2OA.1.5 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). 2OA.1.6 Differentiate between one and two step word problems and choose the correct operation to solve.	**Comments** **2.0A.A.1** is addressed early in the year, giving students the opportunity to begin to use addition and subtraction strategies as they solve one- and two-step problems. This standard will be addressed in unit 9 and unit 15, giving students opportunities to develop fluency with increasingly advanced strategies for addition and subtraction. This standard is repeated in full in each of these units so that students work with all of the different problem types at once rather than each type in isolation.	
Measurement and Data — 2.MD B. Relate addition and subtraction to length. 5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	2. MD.5.1 Use addition and subtraction within 100 to solve word problems involving length. 2. MD. 5.2 Create models and drawings to solve word problems involving length. 2. MD. 5.3 Create equations with a symbol for the unknown number to represent the problems involving length.	**2.MD.B.6** calls for students to use the number line diagram as a measurement model and use strategies relating to distance, proximity of numbers, and reference points to reason about addition and subtraction.[2]	

6. Represent whole numbers as lengths from 0 on a number line diagram 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. **Common Core State Standards for Mathematical Practice** 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. *[1] For examples of two-step Grade 2 word problems see page 18 in the Operations and Algebraic Thinking progressions document.* *[2] For more information, see page 14 in the Geometric Measurement progressions document.* *[3] For more information, see page 7 in the Measurement and Data progressions document.*	2. MD.6.1 Create a number line that shows whole numbers as lengths from 0 with equally spaced points corresponding to the numbers 0,1,2……. 2. MD.6.2 Use a number line to solve addition and subtraction problems as length within 100.	Students are using tools strategically as they represent whole numbers as lengths on number line diagrams (**MP.5**). Students label the number line precisely (**MP.6**) and look for number patterns and relationships to develop computational strategies (**MP.7**).	

Common Core Math Units
Grade 2

Unit 4: Relating skip counting to time Suggested number of days: 6	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit skip-counting by 5s and 10s is used to support telling and writing time to the nearest five minutes.			
Common Core State Standards for Mathematical Content **Measurement and Data — 2.MD** C. Work with time and money. 7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. **Number and Operations in Base Ten — 2.NBT** A. Understand place value. 2. ~~Count within 1000~~; skip-count by 5s, 10s, ~~and 100s~~. **Common Core State Standards for Mathematical Practice** 6. Attend to precision. 7. Look for and make use of structure.	2. MD.7.1 Define a.m. and p.m. 2. MD.7.2 Count by 5's to 60. 2. MD.7.3 Read time to the nearest 5 minute intervals on analog and digital clocks. 2. MD.7.4 Write time to the nearest 5 minute intervals correctly from an analog and digital clock. 2. NBT.2.1 Count to 1000 by ones. 2. NBT.2.2 Skip count by 5's to 1000. 2. NBT.2.3 Skip count by 10's to 1000. 2. NBT.2.4 Skip count by 100's to 1000. (1^{st} 9 weeks – up to 250, 2^{nd} 9 weeks – up to 500, 3^{rd} 9 weeks – up to 750, 4^{th} 9 weeks – up to 1000)	**Comments** **2.MD.C.7** is addressed early in the school year in order to give students time to practice telling and writing time in daily classroom routines throughout the year. **2.NBT.A.2** is readdressed in unit 6 to extend the counting sequence to three-digit numbers. The standard is finalized in unit 8 to include the entire counting sequence and skip-counting by 100s. Students notice the pattern in the numbers and apply this understanding to time (**MP.7**). Students will precisely communicate their understanding by using appropriate vocabulary terms such as specifying a.m. and p.m. (**MP.6**)	

Common Core Math Units
Grade 2

Unit 5: Solving problems involving money Suggested number of days: 12	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit students solve real-world problems, working with coins and dollar bills in whole number amounts. Decimal numbers are first addressed in Grade 4. This standard is addressed early in the school year so that students may use money and its relationship to number as a context throughout the year.			
Common Core State Standards for Mathematical Content **Measurement and Data — 2.MD** C. Work with time and money. 8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and C symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?* **Common Core State Standards for Mathematical Practice** 2. Reason abstractly and quantitatively. 4. Model with mathematics.	2. MD.8.1 Identify the name of each coin and bill. 2. MD.8.2 Identify the value of each coin and bill. 2. MD.8.3 Apply patterns to add like coins using appropriate symbols. 2. MD.8.4 Add different coins together using appropriate symbols. 2. MD.8.5 Add coins and bills together using appropriate symbols. 2. MD.8.6 Solve word problems involving money.	**Comments** **2.MD.C.5** introduces the concept of money, which is new to this grade level. Students make sense of quantities and their relationships to coin and dollar values (**MP.2**) and represent problem situations with drawings and coins and bills (**MP.4**).	

Common Core Math Units
Grade 2

Unit 6: Understanding three-digit numbers Suggested number of days: 8	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit students extend their understanding of the base-ten system by viewing 10 tens as a *hundred*. This lays the groundwork for understanding the structure of the base-ten system as based in repeated bundling in groups of 10.[4]			
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 2.NBT** A. Understand place value. 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 hundreds (and 0 tens and 0 ones). 2. Count within 1000; skip-count by 5s, 10s, ~~and 100s.~~ **Common Core State Standards for Mathematical Practice** 3. Construct viable arguments and critique the reasoning of others. 7. Look for and make use of structure.	2. NBT.1.1 Identify the ones, tens ,and hundreds place in a given number. 2. NBT.1.2 Identify how many ones are in a ten. 2. NBT.1.3 Identify how many tens are in a hundred 2. NBT.1.4 Practice grouping ones, tens, and hundreds to build numbers. 2. NBT.1.5 Create bundles of tens to make one hundred. 2. NBT.1.6 Identify place value of a number within 1000. 2. NBT.2.1 Count to 1000 by ones. 2. NBT.2.2 Skip count by 5's to 1000. 2. NBT.2.3 Skip count by 10's to 1000. 2. NBT.2.4 Skip count by 100's to 1000. (1st 9 weeks – up to 250, 2nd 9 weeks – up to 500, 3rd 9 weeks – up to 750, 4th 9 weeks – up to 1000)	**Comments** The focus of **2.NBT.A.2** in this unit is to count within 1000. Skip counting is a foundational skill for multiplication—which is a major focus in Grade 3. Skip counting by 100s will be addressed in unit 8. Students explain their understanding of three- digit numbers by expressing values in different ways and analyzing other students' representations and explanations of numbers (**MP.3**). Making sense of structure in this unit involves more than just place naming. It involves understanding that ten tens makes a hundred (**MP.7**).	

[4]For additional information about this progression, see page 8 in the Number and Operations in Base Ten progressions document.

Common Core Math Units
Grade 2

Unit 7: Expressing and comparing three-digit numbers. Suggested number of days: 10	I Can Statements	Notes/Comments	Unit Materials and Resources
Reading and writing the expanded form of numbers is introduced in this unit. Students will write multi-digit numbers in expanded form as a sum of single-digit multiples of powers of ten. For example 643 = 600 + 40 + 3. Students should also understand multi-digit numbers written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 = 8 hundreds + 5 tens + 3 ones). [5]			
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 2.NBT** A. Understand place value. 3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. 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. **Common Core State Standards for Mathematical Practice** 3. Construct viable arguments and critique the reasoning of others. 6. Attend to precision. 7. Look for and make use of structure. [5] *For additional information about expanded form and base-ten notation, see page 17 and the Glossary in the Common Core State Standards for Mathematics.* [6] *For more information about reasoning skills, see page 8 in the Number and Operations in Base Ten progressions document.*	2. NBT.3.1 Read and write numbers within 1000. 2. NBT.3.2 Identify any number names within 1000. 2. NBT.3.3 Use expanded form to read and write numbers within 1000. 2. NBT.4.1 Recognize the symbols <, >, and =. 2. NBT.4.2 Define greater than, less than, or equal to. 2. NBT.4.3 Compare numbers up to 1000 using correct symbols <,>, or =.	**Comments** **2.NBT.A.4** calls for students to reason about 3- digit numbers, comparing magnitudes and understand that 1 hundred is greater than any quantity that can be represented by a 2-digit number.[6] Students should have opportunities to express their understanding of the place value of numbers, not just place naming (**MP.3**, **MP.6**). Recognizing and using patterns in the place value system support the development of numeric reasoning and is foundational for developing computational skills with larger numbers (**MP.7**).	

Common Core Math Units
Grade 2

Unit 8: Relating skip counting to mental addition and subtraction Suggested number of days: 5	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit students apply their skip counting skills to addition and subtraction situations. Skip counting and mentally adding 10s and 100s is an important skill that helps students to develop more sophisticated strategies, as well as efficiency and flexibility in computation.[7]			
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 2.NBT** A. Understand place value. 2. Count within 1000; skip-count by 5s, 10s, and 100s. B. Use place value understanding and properties of operations to add subtract. 8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. **Common Core State Standards for Mathematical Practice** 8. Look for and express regularity in repeated reasoning. [7] *For more information about different levels of computational strategies, see pages 36-39 in the Operations and Algebraic Thinking progressions document.*	2. NBT.2.1 Count to 1000 by ones. 2. NBT.2.2 Skip count by 5's to 1000. (2. NBT.2.3 Skip count by 10's to 1000. (2. NBT.2.4 Skip count by 100's to 1000. (1st 9 weeks – up to 250, 2nd 9 weeks – up to 500, 3rd 9 weeks – up to 750, 4th 9 weeks – up to 1000) 2. NBT.8.1 Identify place value within 1000. 2. NBT.8.2 Count by tens to 900. 2. NBT.8.3 Count by hundreds to 1000. 2. NBT.8.4 Apply place value knowledge to show that when adding or subtracting 10, the value of the tens place changes. 2. NBT.8.5 Apply place value knowledge to show that when adding or subtracting 100, the value of the hundreds place changes.	**Comments** **2.NBT.A.2** is finalized in this unit and will be applied to other concepts in other units. Students discover patterns and use this understanding to develop computational strategies using numerical reasoning (**MP.8**).	

Common Core Math Units
Grade 2

Unit 9: Generating and representing measurement data to solve problems Suggested number of days: 15	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit representing and interpreting data supports the development of addition and subtraction using authentic contexts. Representing data using line plots, picture graphs, and bar graphs is new to this grade level. These tools support students' understanding of measurement and comparison problems.			
Common Core State Standards for Mathematical Content **0perations and Algebraic Thinking — 2.0A** A. Represent and solve problems involving addition and subtraction. 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. [1] *NOTE: [1]See Glossary, Table 1.*	2. OA.1.1 Locate clue words to help me solve problems and choose when to add or subtract in a word problem. 2 OA.1.2 Represent addition and subtraction word problems using objects, drawings, and equations with unknowns in all positions. 2 OA.1.3 Solve addition and subtraction word problems that involve one step operations. 2OA.1.4 Solve word problems with unknown numbers in different positions (e.g., 5 +__=13). 2OA.1.5 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). 2OA.1.6 Differentiate between one and two step word problems and choose the correct operation to solve.	**Comments** **2.0A.A.1** is revisited in this unit to provide additional practice with all different problem types using a measurement context. This standard will be finalized in unit 15 in which students demonstrate fluency with addition and subtraction within 100.	
Measurement and Data — 2.MD D. Represent and interpret data. 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, where the horizontal scale is marked off in whole-number units.	2. MD.9.1 Measure lengths of objects correctly. 2. MD.9.2 Record data of measurements. 2. MD.9.3 Describe a line plot and horizontal scale. 2. MD.9.4 Using the data collected, create a line plot.	In **2.MD.D.9** students use their understanding of number lines to create line plots.	

10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[4] using information presented in a bar graph. *NOTE: [4]See Glossary, Table 1.* **Common Core State Standards for Mathematical Practice** 1. Make sense of problems and persevere in solving them. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics.	2. MD.10.1 Describe the parts a picture graph 2. MD.10.2 Describe the parts of a bar graph. 2. MD.10.3 Create a picture graph (with a single unit scale) to represent data set up to four categories. 2. MD.10.4 Create a bar graph (with a single unit scale) to represent a data set with up to four categories. 2. MD.10.5 Read data on a picture graph. 2. MD.10.6 Read data on a bar graph. 2. MD.10.7 Use data from the picture graph to solve problems. 2. MD.10.8 Use data from a bar graph to solve problems.	Through **MP.3**, students should be expected to explain why chosen strategies for addition and subtraction work. This will again be emphasized in unit 11 with **2.NBT.B.9**. Line plots, picture graphs, and bar graphs are strong contexts for modeling with mathematics (**MP.4**). Students analyze patterns and relationships among the quantities involved to make sense of the situations (**MP.1**).	

Common Core Math Units
Grade 2

Unit 10: Reasoning with shapes and their attributes. Suggested number of days: 10	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit students name and describe defining attributes of two-dimensional shapes by examining their sides and angles. Students also extend their work from Grade 1 of partitioning geometric figures into halves and fourths to now include thirds. Students use this experience to reason about partitions' equal area and part-whole relationships.[8]			
Common Core State Standards for Mathematical Content **Geometry — 2.G** A. Reason with shapes and their attributes. 1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. [5] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. *NOTE: [5]Sizes are compared directly or visually, not compared by measuring.* 3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of,* a *third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape. **Common Core State Standards for Mathematical Practice** 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others.	2. G.1.1 Recognize shapes based on given attributes. 2. G.1.2 Draw shapes based on given attributes. 2. G.1.3 Identify triangle, quadrilaterals, pentagons, hexagons, and cubes. 2. G.1.4 Define attributes such as angles, face, vertices, edges, and corners. 2. G.3.1 Define and model words-halves, thirds, half of, a third of, fourths, etc. 2. G.3.2 Identify equal shares. 2. G.3.3 Separate circles and rectangles into two, three, or four equal shares. 2. G.3.4 Show that equal shares of identical wholes do not need to have the same shape. 2. G.3.5 Create models and drawings to represent fractions.	**Comments** **2.G.A.1** includes the identification of pentagons and general quadrilaterals—shapes that are new to this grade level. **2.G.A.3** is focused on developing the language of partitioning shapes into equal parts—a formal understanding of fractions and fraction notation is introduced in Grade 3. Students make sense of spatial quantities and their relationships when partitioning shapes— in particular, understanding that equal shares of a geometric figure may not be congruent shapes (**MP.2**). Constructing arguments is critical to developing an understanding of defining attributes and reasoning about equal shares (**MP.3**).	

[8] Specific descriptions of these standards are found on page 10 of the Geometry progressions document.

Common Core Math Units
Grade 2

Unit 11: Applying strategies to add and subtract within 1000 Suggested number of days: 15	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit students apply computational strategies they have been developing in earlier units to make sense of calculations with numbers up to 1000. They generalize their understanding of addition and subtraction using concrete models or drawings and applying decomposition strategies.			
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 2.NBT** B. Use place value understanding and properties of operations to add subtract. 6. Add up to four two-digit numbers using strategies based on place value and properties of operations. 7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three- digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. 9. Explain why addition and subtraction strategies work, using place value and the properties of operations. [3] NOTE: [3] Explanations may be supported by drawings or objects. **Common Core State Standards for Mathematical Practice** 1. Make sense of problems and persevere in solving them. 8. Look for and express regularity in repeated reasoning.	2. NBT.6.1 Identify place value within 100. 2. NBT.6.2 Identify properties of operations. 2. NBT.6.3 Add three two-digit numbers using strategies based on place value and properties of operations. 2. NBT.6.4 Add three two digit numbers using strategies based on place value and properties of operations. 2. NBT.6.5 Add four two-digit numbers using place value and properties of operations. 2. NBT.6.6 Add four two-digit numbers. 2. NBT.7.1 Identify place value within 1000. 2. NBT.7.2 Identify the properties of operation within 1000. 2. NBT.7.3 Use the inverse operation. 2. NBT.7.4 Line up numbers correctly based on place value. 2. NBT.7.5 Solve addition and subtraction problems within 1,000 using concrete models, drawing, and strategies with and w/out regrouping. 2. NBT.7.6 Tell in my own words which strategies I used to solve the addition and subtraction problems. 2. NBT.9.1 Create models, drawings, or use objects to defend why an addition or subtraction strategy works.	**Comments** Students are working in problem situations involving more numbers and larger numbers which requires perseverance and the ability to explain their solution pathway to themselves (**MP.1**). Students are working towards efficiency in solving problems by using more sophisticated strategies (**MP.8**).	

Common Core Math Units
Grade 2

Unit 12: Developing foundations of multiplication through exploring even and odd numbers Suggested number of days: 8	I Can Statements	Notes/Comments	Unit Materials and Resources
The focus of this unit is to explore the structure of equal groups using odd and even numbers. This supports doubling strategies for addition and subtraction fluency to 20, and helps set the stage for the introduction to multiplication and division in Grade 3. At first glance distinguishing between odd and even seems like a simple straight-forward skill, but it is being used in this unit to build a strong foundational base for conceptual understanding of equal groups and the sophisticated strategy of using doubles ±n.			
Common Core State Standards for Mathematical Content **Operations and Algebraic Thinking — 2.OA** C. Work with equal groups of objects to gain foundations for multiplication. 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 equal addends. **Common Core State Standards for Mathematical Practice** 4. Model with mathematics. 7. Look for and make use of structure.	2. OA.3.1 Identify even numbers. 2. OA.3.2 Identify odd numbers. 2. OA.3.3 Use skip counting patterns to determine even or odd numbers. (skip count by 2's). 2. OA.3.4 Create an equation that shows an even number as a sum of doubles.	**Comments** Students model with the objects and write equations to express even and odd numbers (**MP.4**) and connect this understanding to the pattern of skip counting by 2's (**MP.7**).	

Common Core Math Units
Grade 2

Unit 13: Using arrays for foundations of multiplication Suggested number of days:	I Can Statements	Notes/Comments	Unit Materials and Resources
Students start this unit by arranging objects in arrays to develop the concept of equal groups. Then they progress toward partitioning a rectangle into rows and columns of same-size squares, which is an ideal context to support development of both arithmetical and spatial structuring foundations for later work with area in Grade 3.[9]			
Common Core State Standards for Mathematical Content **0perations and Algebraic Thinking — 2.0A** C. Work with equal groups of objects to gain foundations for multiplication. 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. **Geometry — 2.G** A. Reason with shapes and their attributes. 2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. **Common Core State Standards for Mathematical Practice** 6. Attend to precision. 7. Look for and make use of structure.	2. OA.4.1 Define/understand the meaning of an array. 2. OA.4.2 Design an array to model addition with up to 5 rows and 5 columns. 2. OA.4.3 Write an equation to express the array as the sum of equal addends. 2. G.2.1 Identify a square. 2. G.2.2 Identify a rectangle. 2. G.2.3 Compare a square and rectangle. 2. G.2.4 Divide a rectangle into equal sized rows and columns of same size squares. 2. G.2.5 Count the squares to find the total number of them.	**Comments** In demonstrating **2.0A.C.4**, students represent additive thinking by using skip-counting or repeated addition to find and represent the total number of objects. The concept of multiplicative thinking (multiplication) will be addressed in Grade 3. Composing two-dimensional shapes as a collection of rows and as a collection of columns of squares requires students to be precise in their representations and develop understanding of the structure of rectangular arrays (**MP.6**, **MP.7**).	

[9] For more information, see page 15 in the Geometric Measurement progressions document.

Common Core Math Units
Grade 2

Unit 14: Estimating and comparing lengths Suggested number of days: 12	I Can Statements	Notes/Comments	Unit Materials and Resources
In this unit students apply their multiple experiences with measurement to estimate lengths. This unit is near the end of the school year because students need repeated experience with measuring with standard units before they can effectively estimate lengths.			
Common Core State Standards for Mathematical Content **Measurement and Data — 2.MD** A. Measure and estimate lengths in standard units. 3. Estimate lengths using units of inches, feet, centimeters, and meters. 4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. **Common Core State Standards for Mathematical Practice** 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 5. Use appropriate tools strategically.	2. MD.3.1 Identify different units of measurements (inches, centimeters, etc.) 2. MD.3.2 Give examples of objects that relate to the size of the unit. (inches, centimeters, feet, meters) 2. MD.3.3 Estimate lengths using units of inches, feet, centimeters, and meters. 2. MD.4.1 Select the appropriate tool to measure the length of as object. 2. MD.4.2 Correctly use the tool to measure the length of two objects. 2. MD.4.3 Compare the lengths of two objects in terms of standard length units. 2. MD.4.4 Find the difference of the two lengths in terms of standard length units.	**Comments** Although "guess and check" experiences can be useful, **2.MD.A.3** requires explicit teaching of estimation strategies, such as iteration of a mental image of a unit or comparison with a known measurement. This prompts students to learn reference or benchmark lengths, order points along a continuum, and build up mental rulers.[10] Students explain their thinking and analyze others' arguments regarding both the validity of their estimate and how and why they used particular tools (**MP.3**, **MP.5**). In order to formulate accurate estimations students must have a coherent representation of the problem and consider the units involved (**MP.2**).	

[10] For more information, see pages 14-15 in the Geometric Measurement progressions document.

Common Core Math Units
Grade 2

Unit 15: Demonstrating fluency in addition and subtraction Suggested number of days: 15	I Can Statements	Notes/Comments	Unit Materials and Resources
This is a culminating unit in which students demonstrate fluency and are expected to use and explain strategies for accurate and efficient addition and subtraction. By this time in the year, students should be able to solve all problem types in Table 1 in the Common Core State Standards for Mathematics (p. 88) using concrete models or drawings and strategies for addition and subtraction to 1000.			
Common Core State Standards for Mathematical Content **Operations and Algebraic Thinking — 2.OA** A. Represent and solve problems involving addition and subtraction. 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. [1] *NOTE: [1]See Glossary, Table 1.* B. Add and subtract within 20. 2. Fluently add and subtract within 20 using mental strategies. [2] By end of Grade 2, know from memory all sums of two one-digit numbers. *NOTE: [2]See standard 1.OA.C.G for a list of mental strategies.*	2. OA.1.1 Locate clue words to help me solve problems and choose when to add or subtract in a word problem. 2 OA.1.2 Represent addition and subtraction word problems using objects, drawings, and equations with unknowns in all positions. 2 OA.1.3 Solve addition and subtraction word problems that involve one step operations. 2OA.1.4 Solve word problems with unknown numbers in different positions (e.g., 5 +__=13). 2OA.1.5 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). 2OA.1.6 Differentiate between one and two step word problems and choose the correct operation to solve. 2. OA.2.1 Use drawings to add and subtract one digit numbers. 2. OA.2.2 Mentally add and subtract within 20. 2. OA.2.3 Know all sums of two one digit numbers from memory by the end Grade 2.	Standards of Mathematical Practice have required students to justify their reasoning and explain their solution steps (**MP.1**, **MP.6**). With ample practice throughout the year, students should be fluent with the various strategies (**MP.8**).	

Common Core Math Units
Grade 2

Number and Operations in Base Ten — 2.NBT B. Use place value understanding and properties of operations to add subtract. 5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **Common Core State Standards for Mathematical Practice** 1. Make sense of problems and persevere in solving them. 6. Attend to precision. 8. Look for and express regularity in repeated reasoning.	2. NBT.5.1 Fluently add numbers from 0-99 w/out regrouping. 2. NBT.5.2 Fluently add numbers from 0-99 with regrouping. 2. NBT.5.3 Fluently subtract numbers from 0-99 w/out regrouping. 2. NBT.5.4 Fluently subtract numbers from 0-99 w/regrouping. 2. NBT.5.5 Apply the properties of operations. 2. NBT.5.6 Recognize that subtraction is the opposite of addition.		