

Sequenced Units for the Common Core State Standards in Mathematics

Grade 1

In Kindergarten, students learned to count in order, count to find out “how many”, and model addition and subtraction situations with small sets of objects. Students identified and described geometric shapes, as well as created and composed shapes. In Grade 1, students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They develop an understanding of the relationship between addition and subtraction and develop efficient strategies for adding, subtracting, and comparing within 100. The measurement focus at this grade level is on iterating and transitivity; the geometric focus is on composition and decomposition of shapes, and comparing various attributes of shapes.

In Grade 1, students build on the previous year’s experience with small numbers to introduce the concept of a “ten” as a bundle of ones and to familiarize students with mathematical symbols for comparison. As the year progresses, they begin to think of whole numbers in terms of tens and ones. Students develop understanding of strategies for addition and subtraction within 20. Students generalize their methods to add within 100 using concrete models and drawings, demonstrating fluency with addition and subtraction within 10 by the end of the year. To further their understanding of properties of geometric shapes, students compose and decompose figures and build understanding of part-whole relationships. The three geometry units in this sequence of units provide time throughout the year for students to develop vocabulary and conceptual understanding that they can use to reason about shapes and their attributes. Students develop understanding of linear measurement and understand that length is measured in equal-size units. They also compare lengths indirectly.

This document reflects our current thinking related to the intent of the Common Core State Standards for Mathematics (CCSSM) and assumes 160 days for instruction, divided among 18 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 1, 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.

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Unit 1: Understanding ten ones make a ten	Suggested number of days: 10
<p>In Kindergarten students have gained familiarity with making groups of ten ones. This unit develops a more abstract understanding of place value, viewing 2-digit numbers as <i>tens</i> and <i>ones</i>. This understanding of place value supports counting on and making ten strategies that students use to become more efficient in addition and subtraction situations.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Operations and Algebraic Thinking – 1.OA</p> <p>C. Add and subtract within 20.</p> <p>6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Number and Operations in Base Ten – 1.NBT</p> <p>B. Understand place value.</p> <p>2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</p> <p>a. 10 can be thought of as a bundle of ten ones — called a “ten.”</p> <p>b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>2. Reason abstractly and quantitatively.</p> <p>3. Construct viable arguments and critique the reasoning of others.</p>	<p>Comments</p> <p>In this unit the focus in 1.OA.C.6 is on counting on and making ten.</p> <p>1.OA.C.6 is repeated in units 6, 9, and 18 to provide multiple opportunities to learn and practice all of the different strategies. In each of these units, new strategies will be introduced to expand students’ proficiency in addition and subtraction to work towards fluency.</p> <p>Students will progress from concrete to pictorial to more abstract reasoning (MP.2). This includes the habit of listening to others and responding (MP.3).</p>

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Unit 2: Using data to add and subtract to 20	Suggested number of days: 12
<p>In this unit students build on the strategies and problem types with which they are familiar with from Kindergarten, extending the number range to 20. The data work in this unit provides a context for students to make important connections to addition and subtraction.¹</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Operations and Algebraic Thinking – 1.OA</p> <p>A. Represent and solve problems involving addition and subtraction.</p> <p>1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.²</p> <p>NOTE: ² See Glossary, Table 1.</p> <p>C. Add and subtract within 20.</p> <p>5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</p> <p>Measurement and Data – 1.MD</p> <p>C. Represent and interpret data.</p> <p>4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>1. Make sense of problems and persevere in solving them.</p> <p>4. Model with mathematics.</p>	<p>Comments</p> <p>1.OA.A.1 is addressed in full in unit 9 to include all problem types.</p> <p>1.MD.4 is used as a context for students to make sense of numbers and as an application in everyday life. It can also be used as a context throughout the year. This standard will be addressed in full in unit 9 to include compare problems.</p> <p>Working with data gives students an opportunity to model with mathematics (MP.4) Students use the context of data to reason through rich problem situations that encourage them to persevere when problem solving (MP.1).</p>

¹ For additional information, see page 5 in the Categorical Data progressions document.

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Unit 3: Ordering and comparing lengths	Suggested number of days: 5
<p>In this unit students explore length comparisons both directly and indirectly. They build and expand upon the direct comparison that they learned in Kindergarten to compare and order three objects directly, and then extend this to indirect comparisons through the use of a third object.² This concrete experience with length comparisons supports students’ understanding of number comparisons and comparison problem solving.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Measurement and Data – 1.MD</p> <p>A. Measure lengths indirectly and by iterating length units.</p> <ol style="list-style-type: none"> 1. Order three objects by length; compare the lengths of two objects indirectly by using a third object. <p>Common Core State Standards for Mathematical Practice</p> <ol style="list-style-type: none"> 3. Construct viable arguments and critique the reasoning of others. 5. Use appropriate tools strategically. 	<p>Comments</p> <p>1.MD.A.1 involves measuring non-standard units.³ Comparison is the focus of this unit, whereas iterating length units (1.MD.A.2), is addressed in unit 16.</p> <p>Students need to use the tools appropriately (MP.5), but this unit should also provide an opportunity for students to explain their reasoning about length comparisons (MP.3).</p>
Unit 4: Exploring quantities to 99	Suggested number of days: 8
<p>This unit is focused on counting and writing two-digit numbers. This unit provides student opportunities to practice making groups of ten to efficiently represent and count objects.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Number and Operations in Base Ten – 1.NBT</p> <p>A. Extend the counting sequence.</p> <ol style="list-style-type: none"> 1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. <p>Common Core State Standards for Mathematical Practice</p> <ol style="list-style-type: none"> 6. Attend to precision. 7. Look for and make use of structure. 	<p>Comments</p> <p>The focus of this unit is numbers within 99. 1.NBT.A.1 will be repeated in unit 8, in which the number range will be extended to 120. In this unit students can focus on the uniformity of how tens and ones change as you count larger quantities.</p> <p>In this unit students recognize and apply number patterns (MP.7) and communicating this understanding precisely in reading, writing, and representing numbers (MP.6).</p>

² For more details on how this understanding is developed, see page 8 in the K-5, Geometric Measurement progressions document.

³ For more details, see page 13 in the Common Core State Standards for Mathematics under “Mathematics | Grade 1”.

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Unit 5: Telling and writing time to the hour	Suggested number of days: 5
<p>This is students' first experience in the classroom telling and writing time. In this unit students are not doing any operations with time. Students identify the different parts of the clock, making connections between these parts and the time in hours.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Measurement and Data – 1.MD</p> <p>B. Tell and write time.</p> <p>3. Tell and write time in hours and half-hours using analog and digital clocks.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>5. Use appropriate tools strategically.</p> <p>6. Attend to precision.</p>	<p>Comments</p> <p>The focus of 1.MD.B.3 in this unit is telling time in hours. Students will extend this skill to telling time to the half hour in unit 10.</p> <p>Precisely communicating the roles of the different components of the clock is the focus of this unit (MP.5, MP.6).</p>

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Unit 6: Developing addition and subtraction strategies	Suggested number of days: 12
<p>In this unit the focus is on “Put Together/Take Apart” problems with unknown addends. These problem types give students the opportunity to see subtraction as the opposite of addition in a different way than as reversing the action.⁴ Counting on strategies reinforce that subtraction is an unknown addend problem, which help students view subtraction as being just as easy as addition and emphasizes the relation between subtraction and addition.⁵</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Operations and Algebraic Thinking – 1.OA</p> <p>B. Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p>3. Apply properties of operations as strategies to add and subtract.³ <i>Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) NOTE:³ Students need not use formal terms for these properties.</i></p> <p>4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.</p> <p>C. Add and subtract within 20.</p> <p>6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Common Core State Standards for Mathematical Practice</p> <p>3. Construct viable arguments and critique the reasoning of others.</p> <p>7. Look for and make use of structure.</p>	<p>Comments</p> <p>1.OA.B.3 is repeated in unit 15 to add the associative property to students’ repertoire.</p> <p>In this unit the focus in 1.OA.C.6 is on the relationship between addition and subtraction. This standard is repeated in units 9 and 18 to provide multiple opportunities to learn and practice all of the different strategies. In each of these units, new strategies will be introduced to expand students’ proficiency in addition and subtraction to work towards fluency.</p> <p>It is important for students to construct viable arguments (MP.3) because in order for students to develop this conceptual understanding, they need to be given the opportunity to explain how they know a strategy works. Exploring structure of problem types facilitate the development of more sophisticated strategies (MP.7).⁶</p>

⁴ For additional information, see page 13 in the Operations and Algebraic Thinking progressions document.

⁵ For more details about how students progress through these types of problems, see page 15 in the Operations and Algebraic Thinking progressions document.

⁶ For more information about the different levels of strategies students use, see page 36 in the Operations and Algebraic Thinking progressions document.

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Unit 7: Distinguishing attributes of shapes	Suggested number of days: 5
<p>In this unit students extend their understanding of attributes—e.g. orientation, size, and number of sides—they learned in Kindergarten to distinguish between defining attributes and non-defining attributes. Students need to explore various examples in different ways so that their experiences with shapes are not limited to single examples (e.g. if a student has only worked with equilateral triangles, it may be difficult for them to develop more general understandings of triangles).⁷</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Geometry – 1.G</p> <p>A. Reason with shapes and their attributes.</p> <p>1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>3. Construct viable arguments and critique the reasoning of others.</p> <p>7. Look for and make use of structure.</p>	<p>Comments</p> <p>Although building and drawing shapes can support students understanding of defining attributes, this part of 1.G.A.1 is not required until unit 12.</p> <p>This unit gives students opportunities to construct arguments and justify their conclusions based on defining attributes and the structure of geometric figures (MP.3, MP.7).</p>

⁷ For more information about developing spatial reasoning, see page 3 in the Geometry progressions document.

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Unit 8: Using place value to read, write, represent, and compare numbers	Suggested number of days: 10
<p>In this unit students extend their understanding from unit 1, to a larger number range. Students apply the structure of teen numbers to reason about larger quantities and their relative magnitude.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Number and Operations in Base Ten – 1.NBT</p> <p>A. Extend the counting sequence.</p> <ol style="list-style-type: none"> 1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. <p>B. Understand place value.</p> <ol style="list-style-type: none"> 2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: <ol style="list-style-type: none"> c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). 3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. <p>Common Core State Standards for Mathematical Practice</p> <ol style="list-style-type: none"> 2. Reason abstractly and quantitatively. 7. Look for and make use of structure. 	<p>Comments</p> <p>1.NBT.A.1 involves relating the structure of numbers 0-20 to the numbers 100-120.</p> <p>In this unit 1.NBT.B.3 focuses on students using comparative language to describe numerical comparisons. Mathematical comparison symbols ($<$ and $>$) will be introduced in unit 13.</p> <p>Students continue to explore the structure of place value (MP.7); namely that the two digits of a two-digit number represent amounts of tens and ones and that to compare numbers relies on their relative magnitudes. Students make sense of the relationships between the numerals and the quantities (MP.2).</p>

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Unit 9: Extending strategies for solving addition and subtraction problems	Suggested number of days: 15
<p>In this unit data provides an authentic context for students to develop appropriate strategies to reason about and solve addition and subtraction problems. In particular, this unit introduces “compare” problems. Because compare problems are relatively difficult for students to master, this unit should provide students time to grapple with the misleading language and difficult contexts involved in these problem types.⁸</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Operations and Algebraic Thinking – 1.OA</p> <p>A. Represent and solve problems involving addition and subtraction.</p> <p>1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.²</p> <p>NOTE:² See Glossary, Table 1.</p> <p>C. Add and subtract within 20.</p> <p>6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>D. Work with addition and subtraction equations.</p> <p>7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</p> <p>Measurement and Data – 1.MD</p> <p>C. Represent and interpret data.</p> <p>4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>1. Make sense of problems and persevere in solving them.</p> <p>2. Reason abstractly and quantitatively.</p> <p>3. Construct viable arguments and critique the reasoning of others.</p>	<p>Comments</p> <p>1.OA.A.1 is addressed in its entirety in this unit to include “compare” problems (the most difficult problem type). The other problem types should also be revisited during this unit. Students will have the opportunity to discuss how this problem type relates to the previous ones they have encountered.</p> <p>1.OA.C.6 will be addressed in its entirety in unit 18 in which students are expected to demonstrate fluency.</p> <p>1.OA.D.7 is repeated in full in unit 13 to provide the opportunity for students to reason about equality and expressions.</p> <p>1.MD.C.4 is a useful context for practicing compare problem types and Level 3 strategies and provides opportunity for students to construct arguments about the context and strategies involved.</p> <p>Reasoning about strategies and selecting appropriate strategies is critical to developing conceptual understanding of addition and subtraction in all situations (MP.1, MP.2, MP.3).</p>

⁸ For more information about these problem types, see pages 9 and 38 in the Operations and Algebraic Thinking progressions document.

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Unit 10: Telling and writing time to the half hour	Suggested number of days: 5
In this unit students extend their understanding of telling and writing time from unit 5 to include situations that deal with telling time to the half hour.	
<p>Common Core State Standards for Mathematical Content</p> <p>Measurement and Data – 1.MD</p> <p>B. Tell and write time.</p> <p style="padding-left: 20px;">3. Tell and write time in hours and half-hours using analog and digital clocks.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>5. Use appropriate tools strategically.</p> <p>6. Attend to precision.</p>	<p>Comments</p> <p>As in unit 5, precisely communicating the roles of the different components of the clock is the focus of this unit (MP.5, MP.6).</p>

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Unit 11: Adding multiples of ten	Suggested number of days: 10
<p>In this unit students build on their understanding of adding and subtracting within 20 to develop strategies for adding larger numbers. Students are also introduced to mentally adding 10. These standards are grouped together because the ability to compose a ten and the ability to add and subtract ten is a crucial understanding that can help students develop number sense and proficiency with numbers and operations. Concrete objects or drawings afford connections with written numerical work and discussions in terms of tens and ones by using activities that build number sense.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Number and Operations in Base Ten – 1.NBT</p> <p>C. Use place value understanding and properties of operations to add and subtract.</p> <p>4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p> <p>5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>1. Make sense of problems and persevere in solving them.</p> <p>5. Use appropriate tools strategically.</p>	<p>Comments</p> <p>While 1.NBT.C.4 calls for first graders to add two two-digit numbers (adding the tens to tens and ones to ones, which may involve composing tens), they are not expected to compute differences of two-digit numbers other than multiples of ten.⁹</p> <p>1.NBT.C.4 and 1.NBT.C.5 are repeated in unit 14 to provide the opportunity for students to explain their reasoning.</p> <p>Students should have ample time to make sense of concrete models with a focus on composing <i>tens</i> (MP.1, MP.5).</p>

⁹ For more information about the expectations for this grade level, see page 7 in the Number and Operations in Base Ten progressions document.

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Unit 12: Composing and drawing shapes	Suggested number of days: 8
<p>In this unit students transition from using trial and error to applying their understanding of different attributes in order to draw and compose shapes.¹⁰ Composing and decomposing figures supports students’ understanding of part-whole relationships.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Geometry – 1.G</p> <p>A. Reason with shapes and their attributes.</p> <ol style="list-style-type: none"> 1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes. 2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.⁴ NOTE: ⁴Students do not need to learn formal names such as “right rectangular prism.” <p>Common Core State Standards for Mathematical Practice</p> <ol style="list-style-type: none"> 2. Reason abstractly and quantitatively. 4. Model with mathematics. 	<p>Comments</p> <p>Students model these geometric figures (MP.4) in meaningful ways that highlight defining attributes in an abstract way (MP.2). For example, students understand that a new shape can be composed from two other shapes and can simultaneously see both the composite shape and the component shapes.³</p>

¹⁰ For more information about students work with geometric attributes, see page 3 in the Geometry progressions document.

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Unit 13: Interpreting and using symbols in numeric expressions and comparisons.	Suggested number of days: 10
<p>In this unit students apply their conceptual understanding of addition, subtraction, and comparison to interpret and write expressions and equations. It is important for students to make sense of the symbols involved, as well as knowing when to use them. A new concept to this unit is reasoning about whether or not equations are true or false.</p> <p>This unit also provides an opportunity for students to apply their understanding of the symbols while practicing their addition and subtraction strategies in different problem situations.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Operations and Algebraic Thinking – 1.OA</p> <p>D. Work with addition and subtraction equations.</p> <p>7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i></p> <p>8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \heartsuit - 3$, $6 + 6 = \square$.</i></p> <p>Number and Operations in Base Ten – 1.NBT</p> <p>B. Understand place value.</p> <p>3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>2. Reason abstractly and quantitatively.</p> <p>4. Model with mathematics.</p>	<p>Comments</p> <p>1.OA.D.7 was addressed in unit 9. Students now use their understanding of the equal sign to determine whether or not equations are true or false.</p> <p>1.OA.D.8 introduces the use of symbols to represent unknown quantities. Teachers may have been using some sort of symbol to represent unknown quantities in earlier units, but students to do so during this unit.</p> <p>1.NBT.B.3 is repeated in this unit to now include the use of mathematical symbols in expressing numeric comparisons. Correctly placing the $<$ and $>$ symbols is a challenge for early learners.¹¹</p> <p>Students will use models to justify their reasoning throughout this unit (MP.4) and will represent these concrete models with abstract symbols and expressions (MP.2).</p>

¹¹ For more information, see page 6 in the Number and Operations in Base Ten progressions document.

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Unit 14: Using understanding of place value to add and subtract	Suggested number of days: 10
<p>In this unit students extend their understanding from unit 11 to include subtraction. They are also expected to relate their strategies for addition and subtraction to written methods and explain their reasoning.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Number and Operations in Base Ten – 1.NBT</p> <p>C. Use place value understanding and properties of operations to add and subtract.</p> <p>4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p> <p>5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.</p> <p>6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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 and explain the reasoning used.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>6. Attend to precision.</p> <p>8. Look for and express regularity in repeated reasoning.</p>	<p>Comments</p> <p>While 1.NBT.C.4 calls for first graders to add two two-digit numbers (adding the tens to tens and ones to ones, which may involve composing tens), they are not expected to compute differences of two-digit numbers other than multiples of ten.¹²</p> <p>1.NBT.C.5 is repeated here to include mentally subtracting 10 from a number.</p> <p>1.NBT.C.6 calls for students to extend on their work with adding and subtracting 10 to subtracting <i>multiples</i> of ten.</p> <p>In doing the mental calculation without counting students give carefully formulated explanations for their reasoning by saying that they have one more or one less <i>ten</i> than before (MP.6). This relies on the students' attention to the regularity in the structure of two-digit numbers (MP.8).</p>

¹² For more information about the expectations for this grade level, see page 7 in the Number and Operations in Base Ten progressions document.

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Unit 15: Applying properties of operations to solve problems	Suggested number of days: 10
<p>Throughout other units students have been building understandings of properties of operations through repeated experience with addition and subtraction. In this unit students apply these understandings to solve real-world and mathematical word problems.¹³</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Operations and Algebraic Thinking – 1.OA</p> <p>A. Represent and solve problems involving addition and subtraction.</p> <ol style="list-style-type: none"> 2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. <p>B. Understand and apply properties of operations and the relationship between addition and subtraction.</p> <ol style="list-style-type: none"> 3. Apply properties of operations as strategies to add and subtract.³ <i>Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)</i> <i>NOTE:³ Students need not use formal terms for these properties.</i> <p>Common Core State Standards for Mathematical Practice</p> <ol style="list-style-type: none"> 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. 	<p>Comments</p> <p>1.OA.B.3 is repeated here to include the associative property of addition.</p> <p>This unit focuses on students’ understanding of the structure of addition and subtraction and use of properties in problem solving (MP.7) and applying it to their calculations (MP.8).</p>

¹³ For additional information about students’ work with these properties of addition, see page 3 of the Operations and Algebraic Thinking progressions document.

Sequenced Units for the Common Core State Standards in Mathematics Grade 1

Unit 16: Measuring lengths with non-standard units	Suggested number of days: 10
<p>This unit lays the groundwork for the use of standard measurement units in Grade 2 and the general concept of length. They learn about the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units).</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Measurement and Data – 1.MD</p> <p>A. Measure lengths indirectly and by iterating length units.</p> <p style="padding-left: 20px;">2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. <i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i></p> <p>Common Core State Standards for Mathematical Practice</p> <p>3. Construct viable arguments and critique the reasoning of others.</p> <p>5. Use appropriate tools strategically.</p>	<p>Comments</p> <p>Giving students opportunities to use and select appropriate tools (MP.5) and justify and critique strategies for measurement (MP.3) supports conceptual understanding of measurement rather than just procedural skills.</p>
Unit 17: Finding equal shares of shapes	Suggested number of days: 5
<p>In this unit students partition shapes into equal shares. The focus is fair shares and equal area to support initial understandings of properties such as congruence and symmetry in area—not to discuss fractions. The terms “halves, fourths, and quarters” name the amount of area that is represented to describe the part-whole relationship. Fraction notation is first used in Grade 3.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Geometry – 1.G</p> <p>A. Reason with shapes and their attributes.</p> <p style="padding-left: 20px;">3. Partition circles and rectangles into two and four equal shares, describe the shares using the words <i>halves, fourths, and quarters</i>, and use the phrases <i>half of, fourth of, and quarter of</i>. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.</p> <p>Common Core State Standards for Mathematical Practice</p> <p>3. Construct viable arguments and critique the reasoning of others.</p>	<p>Comments</p> <p>Students construct arguments to support their own partitioning, but also distinguish correct reasoning from that which is flawed (MP.3).</p>

Sequenced Units for the Common Core State Standards in Mathematics Grade 1

Unit 18: Demonstrating proficiency in addition and subtraction situations	Suggested number of days: 10
<p>In this unit students apply their understanding from the entire year to demonstrate fluency in addition and subtraction. They should have experienced ample opportunities to practice the various problem types using strategies based on place value, properties of operations, and the relationship between addition and subtraction.</p>	
<p>Common Core State Standards for Mathematical Content</p> <p>Operations and Algebraic Thinking – 1.OA</p> <p>A. Represent and solve problems involving addition and subtraction.</p> <p>1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.²</p> <p>NOTE:² See Glossary, Table 1.</p> <p>C. Add and subtract within 20.</p> <p>6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p> <p>Common Core State Standards for Mathematical Practice</p> <p>3. Construct viable arguments and critique the reasoning of others.</p> <p>8. Look for and express regularity in repeated reasoning.</p>	<p>Comments</p> <p>1.OA.C.6 is finalized in this unit to include creating equivalent but easier or known sums as a strategy for solving addition and subtraction problems.</p> <p>Students will select, justify, and explain their strategies in addition and subtraction situations (MP.3). Students find shortcuts by using numerical reasoning to effectively add and subtract (MP.8).</p>