

1st Grade Mathematics

Units of Instruction

2021-2022

Revised Curriculum



1st Grade Mathematics

Unit 1: Adding and Subtracting: Composing and Partitioning Shapes 25 Days	Unit 2: Adding and Subtracting: within 20 40 Days	Unit 3: Adding and Subtracting: Answering questions about data 25 Days	UNIT 4: Numbers within 120 30 Days	UNIT 5: Adding within 100 25 Days	Unit 6: Adding and subtracting: problems about length 20 Days	Unit 7: Solving Problems With Time and Money 15 Days
1.OA.6 1.G.1 1.G.2 1.G.3 1.OA.5	1.OA.1 1.OA.4 1.OA.6 1.OA.7 1.OA.2 1.OA.3 1.OA.8 1.NBT.2 (within 20)	1.MD.4 1.OA.3 1.OA.4 1.OA.6 1.OA.8 1.NBT.2 (within 20)	1.NBT.1 1.NBT.2 1.NBT.3	1.OA.6 1.OA.3 1.NBT.4 1.NBT.5 1.NBT.2 1.NBT.6 1.OA.4 1.OA.7	1.OA.3 1.OA.4 1.OA.6 1.MD.2 1.MD.1 1.NBT.2 1.OA.7	1.NBT.1 1.MD.3 1.G.3 1.OA.5 1.OA.6
*Fluency Standards (taught all year long): 1.OA.6						

Priority: 1.OA.1, 1.OA.3, 1.OA.4, 1.OA.6, 1.OA.7, 1.MD.4, 1.NBT.1, 1.NBT.2, 1.NBT.3, 1.NBT.4, 1.NBT.5, 1.MD.2

1st Grade Mathematics



Unit 1: Adding and Subtracting:
Composing and Partitioning Shapes

Grade 1 Mathematics

Unit 1: Adding and Subtracting; Composing and partitioning shapes

This unit focuses on concrete representations of putting together and taking apart situations with shapes. Students build on their previous understanding of number relationships, addition and subtraction strategies, and counting to make sense of composing and partitioning shapes and solids. The students extend their fluency with addition and subtraction strategies within 5 from kindergarten to sums within 10 across the year in 1st grade.

Duration: 25 Days

<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
<i>Priority Standards</i>	
Standards	Clarifications
<p>Cluster: Add and subtract within 20.</p> <p>KY.1.OA.6 Add and subtract within 20.</p> <p>a. Fluently add and subtract within 10.</p> <p>b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making 10; decomposing a number</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 10) efficiently, accurately, flexibly and appropriately. Being fluent means students choose flexibly among methods and strategies to solve contextual and mathematical problems, they understand and explain their approaches, and they produce accurate answers efficiently.</p> <p>Students make 10 ($8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decompose a number leading to a ten ($13 - 4 = 13 - 3 - 1 =$</p>

leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.

MP.2, MP.7, MP.8

10 - 1 = 9); know $8 + 4 = 12$ and know $12 - 8 = 4$ using the relationship between addition and subtraction; create equivalent, but easier or known sums, adding $6 + 7$ by creating $6 + 6 + 1 = 12 + 1 = 13$.

Note: Reaching fluency is an ongoing process that will take much of the year.

**Coherence KY.K.OA.2→KY.1.OA.6→KY.2.OA.2
KY.K.OA.3 KY.1.NBT.4**

Supporting Standards

Standards

Clarifications

Cluster: Reason with shapes and their attributes.

KY.1.G.1 Distinguish between defining attributes versus non-defining attributes; build and draw shapes to possess defining attributes.

MP.7

Defining attributes include, but are not limited to, number of sides or open/closed shapes.

Non-defining attributes include, but are not limited to, color, orientation or overall size.

Coherence KY.K.G.4→KY.1.G.1→KY.2.G.1

Cluster: Reason with shapes and their attributes.

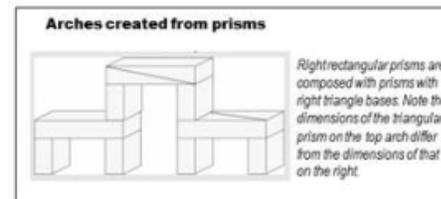
KY.1.G.2 Compose shapes.

a. Compose two-dimensional shapes to create rectangles, squares, trapezoids, triangles, half-circles, quarter-circles and composite shapes to compose new shapes from the composite shapes.

b. Use three-dimensional shapes (cubes, right rectangular prisms, right circular cones and right circular cylinders) to create a composite

Students do not need to learn formal names such as “right rectangular prisms.”

b.



Coherence KY.K.G.6→KY.1.G.2

shape and compose new shapes from the composite shapes.

MP.1, MP.4

Cluster: Reason with shapes and their attributes.

KY.1.G.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths and quarters, and use the phrases half of, fourth of and quarter of. Describe the whole as two of or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

MP.3, MP.6

Students see the relationship of taking the same shape and partitioning it into equal pieces. For example, they compare the size of the pieces when it's half of a shape or a fourth of the shape.



Coherence KY.K.G.6→KY.1.G.3→KY.2.G.3

Cluster: Add and subtract within 20.

KY.1.OA.5 Relate counting to addition and subtraction.

MP.5, MP.8

Strategies used when relating addition to subtraction: counting all (addition); counting on (addition); counting all (subtraction); counting back (subtraction); counting on (subtraction).

Counting all (addition)	Start with 1 and count to find the total number of objects	$5 + 3$ Start from 1, count up to 5, and count up 3 more: 1, 2, 3, 4, 5... 6, 7, 8
Counting on (addition)	Count from the start number rather than starting at 1	$5 + 3$ Start at 5... 6, 7, 8
Counting all (subtraction)	Remove the appropriate number of items and count the remaining items starting with 1	$8 - 5$ Start with 8 objects. Remove 5 and count the remaining items: 1, 2, 3
Counting back (subtraction)	Start with the total, count back the number being subtracted	$8 - 5$ Start at 8 and count back 5, one number at a time: 7, 6, 5, 4, 3
Count on (subtraction)	Start with the change number and count on to reach the total	$8 - 5$ Start with 5 and count up to 8 by ones (and later by larger numbers): 5... 6, 7, 8

Coherence KY.K.CC.4→KY.1.OA.5→KY.1.OA.6

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Unit 2: Adding and Subtracting: Within 20

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Unit 2: Adding and Subtracting within 20

This unit is focused on broadening and deepening students strategies for addition and subtraction within 20. The students use concrete, representational, and abstract situations to think about how strategies are related and when each is most appropriate. The derived strategies they explore include counting on or all, composing or decomposing for 10, and creating equivalent but easier or known sums. They consider mathematical and real world problems arising from adding to, taking from, putting together/taking apart, and comparing values. They begin to use equations to model word mathematical and real world problems. While this unit focuses on developing understanding of these strategies, fluency is developed across the course of the year.

Duration: 40 Days

<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
<i>Priority Standards</i>	
Standards	Clarifications
Cluster: Represent and solve problems using addition and subtraction. KY.1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking	Students flexibly model or represent addition and subtraction situations or context problems (involving sums and differences up to 20). See Table 1 in Appendix A. Note: Drawings need not show detail, but accurately

<p>apart and comparing, with unknowns in all positions.</p> <p>MP. 1, MP.2</p>	<p>represent the quantities involved in the task.</p> <p>Coherence KY.K.OA.2→ KY.1.OA.1→KY.2.OA. KY.1.MD.4</p>
<p>Cluster: Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p>KY.1.OA.4 Understand subtraction as an unknown-addend problem.</p> <p>MP. 2, MP.7</p>	<p>Students connect addition and subtraction as operations. (I can solve $10 - 8$ by thinking about what adds to 8 to make 10 [$__ + 8 = 10$].)</p> <p>Coherence KY.K.OA.2→KY.1.OA.4→KY.2.NBT.9</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.1.OA.6 Add and subtract within 20.</p> <p>a. Fluently add and subtract within 10.</p> <p>b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making 10; decomposing a number leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.</p> <p>MP.2, MP.7, MP.8</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 10) efficiently, accurately, flexibly and appropriately. Being fluent means students choose flexibly among methods and strategies to solve contextual and mathematical problems, they understand and explain their approaches, and they produce accurate answers efficiently.</p> <p>Students make 10 ($8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decompose a number leading to a ten ($13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); know $8 + 4 = 12$ and know $12 - 8 = 4$ using the relationship between addition and subtraction; create equivalent, but easier or known sums, adding $6 + 7$ by creating $6 + 6 + 1 = 12 + 1 = 13$.</p> <p>Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p>Coherence KY.K.OA.2→KY.1.OA.6→KY.2.OA.2 KY.K.OA.3 KY.1.NBT.4</p>

<p>Cluster: Work with addition and subtraction equations.</p> <p>KY.1.OA.7 Understand the meaning of the equal sign and determine if equations involving addition and subtraction are true or false.</p> <p>MP. 2, MP.3</p>	<p>Students determine 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>Coherence KY.1.OA.7→KY.2.OA.4</p>
<p><i>Supporting Standards</i></p>	
<p>Standards</p>	<p>Clarifications</p>
<p>Cluster: Represent and solve problems using addition and subtraction.</p> <p>KY.1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, by using objects, drawings and equations with a symbol for one unknown number to represent the problem.</p> <p>MP. 1, MP.4, MP.5</p>	<p>Students flexibly model or represent addition situations or context problems (involving adding three quantities and have a sum less than or equal to 20). Note: Drawings need not show detail, but accurately represent the quantities involved in the task.</p> <p>Coherence KY.1.OA.2→KY.2.NBT.6 KY.1.MD.4</p>
<p>Cluster: Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p>KY.1.OA.3 Apply properties of operations as strategies to add and subtract.</p> <p>MP. 2, MP.7</p>	<p>Students are not responsible for knowing the formal language of the different properties, but have the conceptual understanding of each property (commutative and associative property).</p> <p>Coherence KY.K.OA.2→KY.1.OA.3→KY.2.NBT.9</p>

Cluster: Work with addition and subtraction equations.

KY.1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

MP.1, MP.2

Students determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = ? - 3$, $6 + 6 = \underline{\quad}$.

**Coherence KY.1.OA.8
KY.1.OA.7**

Cluster: Understand place value.

KY.1.NBT.2 Understand the two-digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

- a. 10 can be thought of as a bundle of ten ones — called a “ten.”**
- b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight or nine ones.**
- 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).**

MP.5, MP.7

**** Within 20 only for this unit**

Students use concrete models and drawings, as well as strategies based on place value, properties of operations, and the relationship between addition and subtraction. When solving any problem, students choose to use a concrete model or a drawing. Their strategy is based on place value, properties of operations or the relationship between addition and subtraction. A written representation shows a strategy using words, pictures and/or numbers.

Coherence KY.K.NBT.1→KY.1.NBT.2→KY.2.NBT

1st Grade Mathematics



Unit 3: Adding and Subtracting:
Answering questions about Data

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Unit 3: Adding and Subtracting: Answering questions about Data

This unit focuses on building student’s conceptual understanding of statistical questions and processes. They gather and organize categorical data to answer a question about their peers. They also build on their addition and subtraction fluency by using their data representations to answer questions like “how many altogether?”, “How many in each category?,” “How many more?”? Etc. Students connect the skills they are learning to their own world and curiosity; they see themselves as mathematicians who can use their skills to solve problems and answer questions.

Duration: 25 Days

<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
<i>Priority Standards</i>	
Standards	Clarifications
<p>Cluster: Understand and apply the statistics process.</p> <p>KY.1.MD.4 Investigate questions involving categorical data.</p> <p>a. Pose a question that can be answered by gathering data.</p> <p>b. Determine strategy for gathering data from</p>	<p>Students create a table or chart to organize data.</p> <p>Coherence KY.1.MD.4→KY.2.MD.10 KY.2.MD.9</p>

<p>peers.</p> <p>c. Organize and represent data in a table/chart with up to three categories.</p> <p>d. Interpret data to answer questions about the table/chart that connects to the question posed, including 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>MP.1, MP.3, MP.4, MP.6</p>	
<p>Cluster: Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p>KY.1.OA.3 Apply properties of operations as strategies to add and subtract.</p> <p>MP. 2, MP.7</p>	<p>Students are not responsible for knowing the formal language of the different properties, but have the conceptual understanding of each property (commutative and associative property).</p> <p>Coherence KY.K.OA.2→KY.1.OA.3→KY.2.NBT.9</p>
<p>Cluster: Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p>KY.1.OA.4 Understand subtraction as an unknown-addend problem.</p> <p>MP. 2, MP.7</p>	<p>Students connect addition and subtraction as operations. (I can solve $10 - 8$ by thinking about what adds to 8 to make 10 [$__ + 8 = 10$].)</p> <p>Coherence KY.K.OA.2→KY.1.OA.4→KY.2.NBT.9</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.1.OA.6 Add and subtract within 20.</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 10) efficiently, accurately, flexibly and appropriately. Being fluent means students</p>

<p>a. Fluently add and subtract within 10. b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making 10; decomposing a number leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.</p> <p>MP.2, MP.7, MP.8</p>	<p>choose flexibly among methods and strategies to solve contextual and mathematical problems, they understand and explain their approaches, and they produce accurate answers efficiently. Students make 10 ($8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decompose a number leading to a ten ($13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); know $8 + 4 = 12$ and know $12 - 8 = 4$ using the relationship between addition and subtraction; create equivalent, but easier or known sums, adding $6 + 7$ by creating $6 + 6 + 1 = 12 + 1 = 13$. Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p>Coherence KY.K.OA.2→KY.1.OA.6→KY.2.OA.2 KY.K.OA.3 KY.1.NBT.4</p>
<p><i>Supporting Standards</i></p>	
<p>Standards</p>	<p>Clarifications</p>
<p>Cluster: Work with addition and subtraction equations.</p> <p>KY.1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.</p> <p>MP. 1, MP.2</p>	<p>Students determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = ? - 3$, $6 + 6 = \underline{\quad}$.</p> <p>Coherence KY.1.OA.8 KY.1.OA.7</p>

Cluster: Understand place value.

KY.1.NBT.2 Understand the two-digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

a. 10 can be thought of as a bundle of ten ones — called a “ten.”

b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight or nine ones.

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).

MP.5, MP.7

**** Within 20 only for this unit**

Students use concrete models and drawings, as well as strategies based on place value, properties of operations, and the relationship between addition and subtraction. When solving any problem, students choose to use a concrete model or a drawing. Their strategy is based on place value, properties of operations or the relationship between addition and subtraction. A written representation shows a strategy using words, pictures and/or numbers.

Coherence KY.K.NBT.1→KY.1.NBT.2→KY.2.NBT

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Unit 4: Numbers within 120

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Unit 4: Numbers within 120

This unit builds on students' understanding of the number system within 20 to understand place value within 120. They consider patterns and structures within the system to deepen their understanding of the relationship between numbers. The students extend their skills within the counting sequence and express values with drawings, words, and numerals. They use their deepened understanding and skills to solve mathematical and real world problems using strategies based on place value.

Duration: 30 days

<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
<i>Priority Standards</i>	
Standards	Clarifications
<p>Cluster: Extend the counting sequence.</p> <p>KY.1.NBT.1 Count and represent numbers.</p> <p>a. Count forward to and backward from 120, starting at any number less than 120.</p> <p>b. In this range, read and write numerals and represent a number of objects with a written numeral.</p> <p>MP.2, MP.5, MP.8</p>	<p>Students use strategies based on place value, properties of operations and the relationship between addition and subtraction; however, when solving any problem, students choose any strategy. A written representation shows a strategy using words, pictures and/or numbers.</p> <p>Coherence KY.K.CC.2→KY.1.NBT.1→KY.2.NBT.2</p>

<p>Cluster: Understand place value.</p> <p>KY.1.NBT.2 Understand 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>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).</p> <p>MP.5, MP.7</p>	<p>Students use concrete models and drawings, as well as strategies based on place value, properties of operations, and the relationship between addition and subtraction. When solving any problem, students choose to use a concrete model or a drawing. Their strategy is based on place value, properties of operations or the relationship between addition and subtraction. A written representation shows a strategy using words, pictures and/or numbers.</p> <p>Coherence KY.K.NBT.1→KY.1.NBT.2→KY.2.NBT.1</p>
<p>Cluster: Understand place value.</p> <p>KY.1.NBT.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>MP. 2</p>	<p>Students use tools such as objects on place value charts, tens frames, hundreds charts and number lines to compare two two-digit numbers. Students describe the comparisons using terms such as greater than, more than, less than, fewer than, equal to and same as. Students justify their reasoning. Students compare two two-digit numbers written as numerals.</p> <p>Coherence KY.K.CC.7→KY.1.NBT.3→KY.2.NBT.4</p>
<i>Supporting Standards</i>	
Standards	Clarifications
No Supporting Standards for this unit.	

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Unit 5: Adding within 100

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Unit 5: Adding and Subtracting within 100

This unit builds on students' conceptual understanding of addition and subtraction as operations within the place value system. The students apply their learning from the previous unit to develop strategies for solving problems in addition and subtraction within 100.

Duration: 25 Days

<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
<i>Priority Standards</i>	
Standards	Clarifications
<p>Cluster: Add and subtract within 20.</p> <p>KY.1.OA.6 Add and subtract within 20.</p> <p>a. Fluently add and subtract within 10.</p> <p>b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making 10; decomposing a number leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 10) efficiently, accurately, flexibly and appropriately. Being fluent means students choose flexibly among methods and strategies to solve contextual and mathematical problems, they understand and explain their approaches, and they produce accurate answers efficiently.</p> <p>Students make 10 ($8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decompose a number leading to a ten ($13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); know $8 + 4 = 12$ and know $12 - 8 = 4$ using the relationship between addition and subtraction; create equivalent, but easier or known sums, adding $6 + 7$ by</p>

<p>MP.2, MP.7, MP.8</p>	<p>creating $6 + 6 + 1 = 12 + 1 = 13$. Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p>Coherence KY.K.OA.2→KY.1.OA.6→KY.2.OA.2 KY.K.OA.3 KY.1.NBT.4</p>
<p>Cluster: Understand and apply properties of operations and the relationship between addition and subtraction. KY.1.OA.3 Apply properties of operations as strategies to add and subtract.</p> <p>MP. 2, MP.7</p>	<p>Students are not responsible for knowing the formal language of the different properties, but have the conceptual understanding of each property (commutative and associative property).</p> <p>Coherence KY.K.OA.2→KY.1.OA.3→KY.2.NBT.9</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.1.NBT.4 Add within 100 including adding a two-digit number and a one-digit number. Add a two-digit number and a multiple of 10.</p> <p>a. Add within 100 using...</p> <ul style="list-style-type: none"> • concrete models or drawings; • strategies based on place value; • properties of operations; • the relationship between addition and subtraction. <p>b. Relate the addition 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>MP.7, MP.2, MP.3</p>	<p>Students model addition examples with sums to 100 using concrete materials, pictures and numerals. Students use mental computation strategies to develop conceptual understanding and number sense around adding one- and two-digit numbers.</p> <p>Coherence KY.1.NBT.4→KY.2.NBT.5 KY.2.NBT.7</p>

<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.1.NBT.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>MP.2, MP.8</p>	<p>Students use materials and strategies to add or subtract 10 from any given number in the range 1 to 100.</p> <p>Coherence KY.1.NBT.5→KY.2.NBT.8</p>
<i>Supporting Standards</i>	
Standards	Clarifications
<p>Cluster: Understand place value.</p> <p>KY.1.NBT.2 Understand 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>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).</p> <p>MP.5, MP.7</p>	<p>Students use concrete models and drawings, as well as strategies based on place value, properties of operations, and the relationship between addition and subtraction. When solving any problem, students choose to use a concrete model or a drawing. Their strategy is based on place value, properties of operations or the relationship between addition and subtraction. A written representation shows a strategy using words, pictures and/or numbers.</p> <p>Coherence KY.K.NBT.1→KY.1.NBT.2→KY.2.NBT.1</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p>	<p>Students use strategies to subtract groups of ten from more tens. 80 – 30 can be expressed at 8 tens</p>

<p>KY.1.NBT.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences).</p> <p>a. Subtract using:</p> <ul style="list-style-type: none"> • concrete models or drawings; • strategies based on place value; • properties of operations; • the relationship between addition and subtraction <p>b. Relate the subtraction strategy to a written method and explain the reasoning used.</p> <p>MP.3, MP.5</p>	<p>with 3 tens taken away which leaves 5 tens. Students explore using hundreds chart, base ten blocks, number lines and other tools.</p> <p>Coherence KY.1.NBT.6→KY.2.NBT.8</p>
<p>Cluster: Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p>KY.1.OA.4 Understand subtraction as an unknown-addend problem.</p> <p>MP. 2, MP.7</p>	<p>Students connect addition and subtraction as operations. (I can solve $10 - 8$ by thinking about what adds to 8 to make 10 [$_ + 8 = 10$].)</p> <p>Coherence KY.K.OA.2→KY.1.OA.4→KY.2.NBT.9</p>
<p>Cluster: Work with addition and subtraction equations.</p> <p>KY.1.OA.7 Understand the meaning of the equal sign and determine if equations involving addition and subtraction are true or false.</p> <p>MP. 2, MP.3</p>	<p>Students determine 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>Coherence KY.1.OA.7→KY.2.OA.4</p>

1st Grade Mathematics



Unit 6: Adding and Subtracting:
Problems about Length

1st Grade Mathematics

Unit 6: Adding and Subtracting: Problems about length

This unit builds students' conceptual understanding of measuring using same-size (non-standard) lengths. Students develop the skill of measuring by comparing lengths of objects and measuring by composing unit lengths to determine the whole length. Students then apply their addition and subtraction strategies to the concrete context of length in order to measure indirectly.

Duration: 20 Days

<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
<i>Priority Standards</i>	
Standards	Clarifications
Cluster: Understand and apply properties of operations and the relationship between addition and subtraction. KY.1.OA.3 Apply properties of operations as strategies to add and subtract. MP. 2, MP.7	Students are not responsible for knowing the formal language of the different properties, but have the conceptual understanding of each property (commutative and associative property). Coherence KY.K.OA.2→KY.1.OA.3→KY.2.NBT.9
Cluster: Understand and apply properties of operations and the relationship between addition	Students connect addition and subtraction as operations. (I can solve $10 - 8$ by thinking about what

<p>and subtraction.</p> <p>KY.1.OA.4 Understand subtraction as an unknown-addend problem.</p> <p>MP. 2, MP.7</p>	<p>adds to 8 to make 10 [$__ + 8 = 10$].)</p> <p>Coherence KY.K.OA.2→KY.1.OA.4→KY.2.NBT.9</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.1.OA.6 Add and subtract within 20.</p> <p>a. Fluently add and subtract within 10.</p> <p>b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making 10; decomposing a number leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.</p> <p>MP.2, MP.7, MP.8</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 10) efficiently, accurately, flexibly and appropriately. Being fluent means students choose flexibly among methods and strategies to solve contextual and mathematical problems, they understand and explain their approaches, and they produce accurate answers efficiently.</p> <p>Students make 10 ($8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decompose a number leading to a ten ($13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); know $8 + 4 = 12$ and know $12 - 8 = 4$ using the relationship between addition and subtraction; create equivalent, but easier or known sums, adding $6 + 7$ by creating $6 + 6 + 1 = 12 + 1 = 13$.</p> <p>Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p>Coherence KY.K.OA.2→KY.1.OA.6→KY.2.OA.2 KY.K.OA.3 KY.1.NBT.4</p>
<p>Cluster: Measure lengths indirectly and by iterating length units.</p> <p>KY.1.MD.2 Express the length of an object as a whole number of same- size length units, by laying multiple copies of a shorter object (the length unit) end to end with no gaps or overlaps.</p> <p>MP.2, MP.5</p>	<p>Students measure numerous items with different sizes of nonstandard units. The smaller the unit, the more units needed to measure the object.</p> <p>Coherence KY.1.MD.2→KY.2.MD.</p>

Supporting Standards

Standards	Clarifications
<p>Cluster: Measure lengths indirectly and by iterating length units.</p> <p>KY.1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.</p> <p>MP.6</p>	<p>Students use nonstandard tools to estimate and measure objects. They compare lengths of three different objects.</p> <p>Coherence KY.K.MD.1→KY.1.MD.1→KY.2.MD.4</p>
<p>Cluster: Understand place value.</p> <p>KY.1.NBT.2 Understand 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>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).</p> <p>MP.5, MP.7</p>	<p>Students use concrete models and drawings, as well as strategies based on place value, properties of operations, and the relationship between addition and subtraction. When solving any problem, students choose to use a concrete model or a drawing. Their strategy is based on place value, properties of operations or the relationship between addition and subtraction. A written representation shows a strategy using words, pictures and/or numbers.</p> <p>Coherence KY.K.NBT.1→KY.1.NBT.2→KY.2.NBT.1</p>
<p>Cluster: Work with addition and subtraction equations.</p>	<p>Students determine 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>

KY.1.OA.7 Understand the meaning of the equal sign and determine if equations involving addition and subtraction are true or false.

MP. 2, MP.3

Coherence KY.1.OA.7→KY.2.OA.4

1st Grade Mathematics



Unit 7: Solving Problems with Time and Money

1st Grade Mathematics

Unit 7: Solving Problems with Time and Money

This unit provides students an opportunity to deepen their fluency in addition and counting through the context of money and time problems. They extend their understanding of time and money systems from Kindergarten to assign values to coins.

Duration: 15 Days

<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
<i>Priority Standards</i>	
Standards	Clarifications
<p>Cluster: Extend the counting sequence.</p> <p>KY.1.NBT.1 Count and represent numbers.</p> <p>a. Count forward to and backward from 120, starting at any number less than 120.</p> <p>b. In this range, read and write numerals and represent a number of objects with a written numeral.</p> <p>MP.2, MP.5, MP.8</p>	<p>Students use strategies based on place value, properties of operations and the relationship between addition and subtraction; however, when solving any problem, students choose any strategy. A written representation shows a strategy using words, pictures and/or numbers.</p> <p>Coherence KY.K.CC.2→KY.1.NBT.1→KY.2.NBT.2</p>
<i>Supporting Standards</i>	

Standards	Clarifications
<p>Cluster: Work with time and money.</p> <p>KY.1.MD.3 Assign values to time and money.</p> <p>a. Tell and write time in hours and half-hours using analog and digital clocks.</p> <p>b. Identify the coins by values (penny, nickel, dime, quarter).</p> <p>MP.6, MP.8</p>	<p>a. Students understand 60 minutes = 1 hour.</p> <p>b. A penny has a value of one cent; a nickel has a value of five cents; a dime has a value of 10 cents; a quarter has a value of 25 cents.</p> <p>Note: This standard requires students to identify coins by name along with their corresponding value only (e.g. a quarter is worth twenty five cents). In grade one, coins should not be used as models or manipulatives for the purposes of teaching place value, counting (by ones or skip counting), or addition and subtraction.</p> <p>Coherence KY.K.MD.4→KY.1.MD.3→KY.2.MD.8 KY.2.MD.7</p>
<p>Cluster: Reason with shapes and their attributes.</p> <p>KY.1.G.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths and quarters, and use the phrases half of, fourth of and quarter of. 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>MP.3, MP.6</p>	<p>Students see the relationship of taking the same shape and partitioning it into equal pieces. For example, they compare the size of the pieces when it's half of a shape or a fourth of the shape.</p>  <p>Coherence KY.K.G.6→KY.1.G.3→KY.2.G.3</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.1.OA.5 Relate counting to addition and</p>	<p>Strategies used when relating addition to subtraction: counting all (addition); counting on (addition); counting all (subtraction); counting back (subtraction);</p>

subtraction.

MP.5, MP.8

counting on (subtraction).

Counting all (addition)	Start with 1 and count to find the total number of objects	$5 + 3$ Start from 1, count up to 5, and count up 3 more: 1, 2, 3, 4, 5... 6, 7, 8
Counting on (addition)	Count from the start number rather than starting at 1	$5 + 3$ Start at 5... 6, 7, 8
Counting all (subtraction)	Remove the appropriate number of items and count the remaining items starting with 1	$8 - 5$ Start with 8 objects. Remove 5 and count the remaining items: 1, 2, 3
Counting back (subtraction)	Start with the total, count back the number being subtracted	$8 - 5$ Start at 8 and count back 5, one number at a time: 7, 6, 5, 4, 3
Count on (subtraction)	Start with the change number and count on to reach the total	$8 - 5$ Start with 5 and count up to 8 by ones (and later by larger numbers): 5... 6, 7, 8

Coherence KY.K.CC.4→KY.1.OA.5→KY.1.OA.6

Cluster: Add and subtract within 20.

KY.1.OA.6 Add and subtract within 20.

a. Fluently add and subtract within 10.

b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making 10; decomposing a number leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.

MP.2, MP.7, MP.8

Students solve addition and subtraction tasks (with sums and differences within 10) efficiently, accurately, flexibly and appropriately. Being fluent means students choose flexibly among methods and strategies to solve contextual and mathematical problems, they understand and explain their approaches, and they produce accurate answers efficiently.

Students make 10 ($8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decompose a number leading to a ten ($13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); know $8 + 4 = 12$ and know $12 - 8 = 4$ using the relationship between addition and subtraction; create equivalent, but easier or known sums, adding $6 + 7$ by creating $6 + 6 + 1 = 12 + 1 = 13$.

Note: Reaching fluency is an ongoing process that will take much of the year.

**Coherence KY.K.OA.2→KY.1.OA.6→KY.2.OA.2
KY.K.OA.3 KY.1.NBT.4**