

2nd Grade Mathematics
Units of Instruction
2022-2023



2nd Grade Mathematics

Unit 1: Adding and Subtracting within 100 30 Days	Unit 2: Adding and Subtracting: Length 35 Days	Unit 3: Adding and Subtracting: Time and Money 25 Days	Unit 4: Numbers to 1000 30 Days	Unit 5: Adding and subtracting within 1000 30 Days	Unit 6: Equal shares and equal groups 30 Days
2.OA.1 2.OA.2 2.NBT.5 2.MD.6 2.OA.3 2.NBT.9	2.OA.1 2.OA.2 2.NBT.5 2.MD.1 2.MD.4 2.MD.2 2.MD.3 2.MD.5 2.MD.9 2.MD.10	2.OA.1 2.OA.2 2.NBT.5 2.MD.7 2.MD.8	2.NBT.1 2.NBT.2 2.NBT.3 2.NBT.4	2.NBT.1 2.NBT.3 2.NBT.5 2.NBT.7 2.NBT.8 2.OA.2 2.NBT.6 2.NBT.9	2.OA.2 2.NBT.2 2.OA.3 2.OA.4 2.G.1 2.G.2 2.G.3
*Fluency Standards (taught all year long): 2.OA.2, 2.NBT.5					

Priority: 2.OA.1, 2.OA.2, 2.NBT.1, 2.NBT.2, 2.NBT.3, 2.NBT.4, 2.NBT.5, 2.NBT.7, 2.NBT.8, 2.MD.1, 2.MD.4, 2.MD.6

2nd Grade Mathematics



Unit 1: Adding and Subtracting Within 100

Grade 2 Mathematics

Unit 1: Adding and Subtracting Within 100

This unit focuses on extending students' understanding of addition and subtraction from previous grade levels. Students look for patterns and structures in order to understand additional and subtraction as operations and can explain why strategies work for values within 100. The students represent addition and subtraction relationships on number lines. They use this understanding to deepen their procedural fluency and to solve mathematical and real world problems. The students will continue to work towards fluency in these strategies throughout the year.

Duration: 30 Days

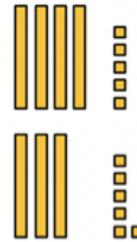
<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend 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: Represent and solve problems involving addition and subtraction.</p> <p>KY.2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, by using</p>	<p>Students flexibly model or represent addition and subtraction situations or context problems (involving sums and differences within 100).</p> <p>Note: Drawings need not show detail, but accurately represent the quantities involved in the task. See Table 1 in Appendix A.</p> <p>Students master all word problem subtypes including the four difficult ones:</p> <ul style="list-style-type: none"> ● add to-start unknown ● take from-start unknown

<p>drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>MP.1, MP.2 and MP.4</p>	<ul style="list-style-type: none"> • put together/take apart-addend unknown • compare-bigger unknown/smaller unknown <p>Coherence KY.1.OA.1→KY.2.OA.1→KY.3.OA.8</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.2.OA.2 Fluently add and subtract within 20 using mental strategies.</p> <p>MP.2, MP.7, MP.8</p>	<p>Students determine addition and subtraction strategies 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 and appropriately use mental strategies that include:</p> <ul style="list-style-type: none"> • counting on • making ten • decomposing a number leading to a ten • using the relationship between addition and subtraction • creating equivalent but easier or known sums. <p>Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p style="text-align: center;">KY.2.NBT.5</p> <p>Coherence KY.1.OA.6→KY.2.OA.2</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction.</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 100) 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>Note: Reaching fluency is an ongoing process that will</p>

MP.2, MP.8

take much of the year.

Students are not expected to use an algorithm for addition and subtraction until grade 4.



$$45 + 36 =$$

Students can solve this problem in many ways.

Student one counted the tens first, so 10, 20, 30, 40, 50, 60, 70. Then they counted the ones, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81. So $45+36=81$

Student two broke 36 into $30+1+5$. Then gave 5 from 36 to the 45 to make 50 because 50 is a friendly number. Then added $30+50$ to make 80. Finally added 1 to 80 to get 81. So $45+36=81$.

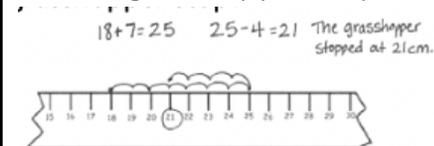
Coherence KY.1.NBT.4→KY.2.NBT.5→KY.3.NBT.2

Cluster: Relate addition and subtraction to length.

KY.2.MD.6 Represent whole numbers as lengths from 0 on a number line with equally spaced points corresponding to the numbers 0, 1, 2, ... and represent whole-number sums and differences within 100 on a number line.

MP.3, MP.4

Students show their thinking of adding and subtracting quantities using a number line. For example, a grasshopper jumped 7 cm forward and 4 cm back and then stopped. If the grasshopper started at 18 cm, where did the grasshopper stop?



Coherence KY.2.MD.6→KY.3.NF.2

Supporting Standards

Standards

Clarifications

Cluster: Work with equal groups of objects to gain foundation for multiplication.

KY.2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members; write an equation to express an even number as a sum of two equal addends.

MP.2, MP.7

Students understand a number can be broken apart by pairing objects to see if there are leftovers (odd) or not (even).



Coherence KY.1.OA.7→KY.2.OA.3→KY.3.OA.9

Cluster: Use place value understanding and properties of operations to add and subtract.

KY.2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.

MP.3, MP.7

Students support explanations with drawings and/or objects built on place value and properties of operations.

KY.1.OA.4
Coherence KY.1.OA.3→KY.2.NBT.9

2nd Grade Mathematics



Unit 2: Adding and Subtracting:
Length

2nd Grade Mathematics

Unit 2: Adding and Subtracting: Length

This unit focuses on real world problems involving length. Students extend their understanding of length to measure objects with common appropriate tools. They connect length to the addition and subtraction strategies they are developing in order to solve problems involving length within 100. The students also extend their understanding of the statistics process to develop a statistical question involving lengths. They measure to collect data and display the data in an appropriate organizer. Finally, they use addition and subtraction strategies to answer questions from their data display.

Duration: 35

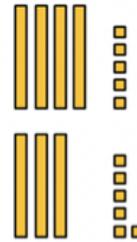
<i>Standards for Mathematical Practice</i>	
MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics.	MP.5. Use appropriate tools strategically. MP.6. Attend 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: Represent and solve problems involving addition and subtraction.</p> <p>KY.2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, by using</p>	<p>Students flexibly model or represent addition and subtraction situations or context problems (involving sums and differences within 100).</p> <p>Note: Drawings need not show detail, but accurately represent the quantities involved in the task. See Table 1 in Appendix A.</p> <p>Students master all word problem subtypes including the four difficult ones: • add to-start unknown</p>

<p>drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>MP.1, MP.2 and MP.4</p>	<ul style="list-style-type: none"> • take from-start unknown • put together/take apart-addend unknown • compare-bigger unknown/smaller unknown <p>Coherence KY.1.OA.1→KY.2.OA.1→KY.3.OA.8</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.2.OA.2 Fluently add and subtract within 20 using mental strategies.</p> <p>MP.2, MP.7, MP.8</p>	<p>Students determine addition and subtraction strategies 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 and appropriately use mental strategies that include:</p> <ul style="list-style-type: none"> • counting on • making ten • decomposing a number leading to a ten • using the relationship between addition and subtraction • creating equivalent but easier or known sums. <p>Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p style="text-align: center;">KY.2.NBT.5</p> <p>Coherence KY.1.OA.6→KY.2.OA.2</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction.</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 100) 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>

MP.2, MP.8

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

Students are not expected to use an algorithm for addition and subtraction until grade 4.



$$45 + 36 =$$

Students can solve this problem in many ways.

Student one counted the tens first, so 10, 20, 30, 40, 50, 60, 70. Then they counted the ones, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81. So $45+36=81$

Student two broke 36 into $30+1+5$. Then gave 5 from 36 to the 45 to make 50 because 50 is a friendly number. Then added $30+50$ to make 80. Finally added 1 to 80 to get 81. So $45+36=81$.

Coherence KY.1.NBT.4→KY.2.NBT.5→KY.3.NBT.2

Cluster: Measure and estimate lengths in standard unit.

KY.2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks and measuring tapes.

MP.5, MP.6

Students are exposed to different situations where they choose the appropriate tool(s) to measure.

Coherence KY.1.MD.2→KY.2.MD.1→KY.3.MD.5

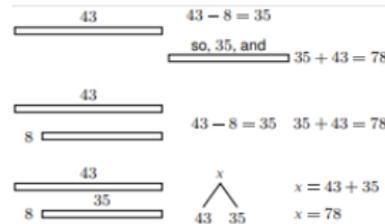
<p>Cluster: Measure and estimate lengths in standard unit.</p> <p>KY.2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of either a customary or metric standard length unit.</p> <p>MP.5, MP.6</p>	<p>Students measure using appropriate tools and standard unit lengths to find the difference between the lengths.</p> <p>Coherence KY.2.MD.3→KY.2.MD.4→KY.2.MD.5</p>
<p><i>Supporting Standards</i></p>	
<p>Standards</p>	<p>Clarifications</p>
<p>Cluster: Measure and estimate lengths in standard unit.</p> <p>KY.2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.</p> <p>MP.3, MP.5</p>	<p>Students measure an object using two different units and describe how the two measurements relate to the size of the unit chosen. (Students measure a door in inches and then in feet. Students relate the size and amount of each unit to discover more inches than feet are needed to measure the door.)</p> <p>Coherence KY.1.MD.2→KY.2.MD.2</p>
<p>Cluster: Measure and estimate lengths in standard unit.</p> <p>KY.2.MD.3 Estimate lengths using units of inches, feet, yards, centimeters and meters.</p> <p>MP.2, MP.6</p>	<p>Students understand estimates are not exact answers or unreasonable guesses. Estimates are based on prior knowledge and the ability to reason about the appropriateness of their estimates.</p> <p>Coherence KY.1.MD.2→KY.2.MD.3</p>

Cluster: Relate addition and subtraction to length.

KY.2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units by using drawings and equations with a symbol for the unknown number to represent the problem.

MP.1, MP.4

Students use concrete models and/or representations such as drawings of rulers to make sense of adding and subtracting word problems involving length. For example, a girl had a 43 cm section of a necklace and another section that was 8 cm shorter than the first. How long would the necklace be if she combined the two sections?



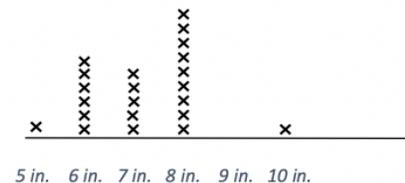
Coherence KY.2.MD.5→KY.3.MD.2

Cluster: Understand and apply the statistics process.

KY.2.MD.9 Investigate questions involving measurements.

- Identify a statistical question focused on measurements.
- 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 dot plot, where the horizontal scale is marked off in whole-number units.

Students gather information from a statistical question, generate measurements of objects from the nearest whole-number unit and create a dot plot like the one below. For example, as a class, how long are our feet



with our shoes on?

Coherence KY.2.MD.9→KY.3.MD.4

MP.1, MP.6	
<p>Cluster: Understand and apply the statistics process.</p> <p>KY.2.MD.10 Create a pictograph 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 using information presented in a bar graph.</p> <p>MP.2, MP.6</p>	<p>See Table 1 in Appendix A.</p> <p>Coherence KY.1.MD.4→KY.2.MD.10→KY.3.MD.3</p>

2nd Grade Mathematics



Unit 3: Adding and Subtracting: Time and Money

2nd Grade Mathematics

Unit 3: Adding and Subtracting: Time and Money

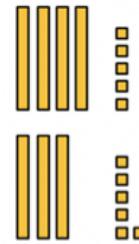
This unit extends students' understanding of measuring length and number lines to reading analog clocks to within 5 minutes. They make connections between counting strategies and skip counting. They also apply addition and subtraction strategies within 100 to solve problem about money. This unit provides an opportunity for students to deepen their fluency within 100 within meaningful, real world contexts.

Duration: 25 Days

<i>Standards for Mathematical Practice</i>	
<p>MP.1. Make sense of problems and persevere in solving them.</p> <p>MP.2. Reason abstractly and quantitatively.</p> <p>MP.3. Construct viable arguments and critique the reasoning of others.</p> <p>MP.4. Model with mathematics.</p>	<p>MP.5. Use appropriate tools strategically.</p> <p>MP.6. Attend to precision.</p> <p>MP.7. Look for and make use of structure.</p> <p>MP.8. Look for and express regularity in repeated reasoning.</p>
<i>Priority Standards</i>	
Standards	Clarifications
<p>Cluster: Represent and solve problems involving addition and subtraction.</p> <p>KY.2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, by using drawings and equations with a symbol for the</p>	<p>Students flexibly model or represent addition and subtraction situations or context problems (involving sums and differences within 100).</p> <p>Note: Drawings need not show detail, but accurately represent the quantities involved in the task. See Table 1 in Appendix A.</p> <p>Students master all word problem subtypes including the four difficult ones:</p> <ul style="list-style-type: none"> • add to-start unknown • take from-start unknown • put together/take apart-addend unknown

<p>unknown number to represent the problem.</p> <p>MP.1, MP.2 and MP.4</p>	<ul style="list-style-type: none"> • compare-bigger unknown/smaller unknown <p>Coherence KY.1.OA.1→KY.2.OA.1→KY.3.OA.8</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.2.OA.2 Fluently add and subtract within 20 using mental strategies.</p> <p>MP.2, MP.7, MP.8</p>	<p>Students determine addition and subtraction strategies 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 and appropriately use mental strategies that include:</p> <ul style="list-style-type: none"> • counting on • making ten • decomposing a number leading to a ten • using the relationship between addition and subtraction • creating equivalent but easier or known sums. <p>Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p style="text-align: center;">KY.2.NBT.5</p> <p>Coherence KY.1.OA.6→KY.2.OA.2</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction.</p> <p>MP.2, MP.8</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 100) 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>Note: Reaching fluency is an ongoing process that will take much of the year.</p>

Students are not expected to use an algorithm for addition and subtraction until grade 4.



$$45 + 36 =$$

Students can solve this problem in many ways.

Student one counted the tens first, so 10, 20, 30, 40, 50, 60, 70. Then they counted the ones, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81. So $45+36=81$

Student two broke 36 into $30+1+5$. Then gave 5 from 36 to the 45 to make 50 because 50 is a friendly number. Then added $30+50$ to make 80. Finally added 1 to 80 to get 81. So $45+36=81$.

Coherence KY.1.NBT.4→KY.2.NBT.5→KY.3.NBT.2

Supporting Standards

Standards

Clarifications

<p>Cluster: Work with time and money.</p> <p>KY.2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</p> <p>MP.5, MP.6</p>	<p>Students orally tell and write the time from both types of clocks to the nearest five minutes. Realizing that a clock can be seen as a number line.</p> <p>KY.2.NBT.2</p> <p>Coherence KY.1.MD.3→KY.2.MD.7→KY.3.MD.1</p>
<p>Cluster: Work with time and money.</p> <p>KY.2.MD.8 Solve word problems with adding and subtracting within 100, (not using dollars and cents simultaneously) using the \$ and ¢ symbols appropriately (not including decimal notation).</p> <p>MP.1, MP.5</p>	<p>Students add or subtract two coin values or dollar values, but not both in the same problem.</p> <ul style="list-style-type: none">• For example, if you have 6 dimes and 3 pennies, how many cents do you have? Students would understand 6 dimes is equal to 60 cents and 3 pennies is equal to 3 cents. Together, they would total 63 cents.• If Mary had \$31 and Tommy gave her \$22 for her birthday, how much money does Mary have now? $\\$31 + \\$22 = \\$53$ <p>Note: Students are not introduced to decimals until grade 4.</p> <p>KY.2.OA.1</p> <p>Coherence KY.1.MD.3→KY.2.MD.8</p>

2nd Grade Mathematics



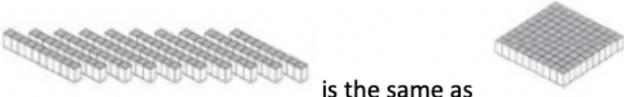
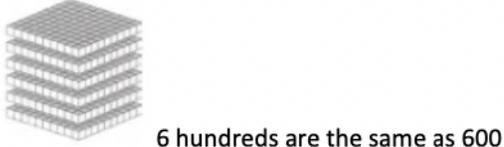
Unit 4: Numbers to 1000

2nd Grade Mathematics

Unit 4: Numbers within 1000

This unit builds on previous grade level study of the number system to extend students' understanding of place value to numbers within 1000. Students use concrete, representational, and numerical models of number to read, write, and compare numbers and to explain the relationships between numbers.

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: Understand place value.</p> <p>KY.2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones.</p> <p>Understand the following as special cases:</p> <p>a. 100 can be thought of as a bundle of ten tens — called a “hundred.”</p> <p>b. The numbers 100, 200, 300, 400, 500, 600, 700,</p>	<p>Students unitize or understand 10 tens as a group or unit called 1 hundred.</p> <div style="text-align: center;">  <p>is the same as</p> </div> <div style="text-align: center;">  <p>6 hundreds are the same as 600</p> </div>

<p>800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</p> <p>MP.2, MP.7</p>	<p>Coherence KY.1.NBT.2→KY.2.NBT.1→KY.3.NBT.1</p>
<p>Cluster: Understand place value.</p> <p>KY.2.NBT.2 Count forwards and backwards within 1000; skip-count by 5s, 10s and 100s.</p> <p>MP.8, MP. 1, MP. 6</p>	<p>Students start at various numbers to skip-count. Some use tools such as base ten blocks, hundreds charts, number lines and money.</p> <p>Coherence KY.1.NBT.1→KY.2.NBT.2</p>
<p>Cluster: Understand place value.</p> <p>KY.2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names and expanded form.</p> <p>MP.7</p>	<p>739, seven hundred thirty-nine, $700 + 30 + 9$</p> <p>Coherence KY.1.NBT.1→KY.2.NBT.3</p>
<p>Cluster: Understand place value.</p> <p>KY.2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>MP.2, MP.6</p>	<p>Students use base ten blocks, hundred charts and/or number lines when comparing two three-digit numbers using the symbols $<$, $>$, and $=$.</p> <p>Coherence KY.1.NBT.3→KY.2.NBT.4</p>
<p style="text-align: center;"><i>Supporting Standards</i></p>	

Standards	Clarifications
No Supporting Standards for this unit.	

2nd Grade Mathematics



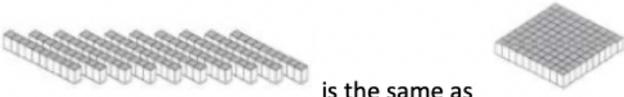
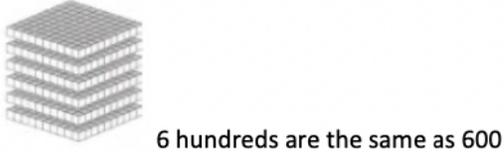
Unit 5: Adding and Subtracting
within 1000

2nd Grade Mathematics

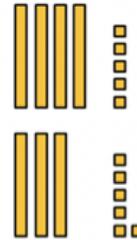
Unit 5: Adding and Subtracting within 1000

This unit builds on the work of the last unit to deepen students' understanding of the relationship between place value and addition/subtraction strategies. Students use concrete, representational and abstract models of number to develop and explain strategies for adding and subtracting within 1000.

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: Understand place value.</p> <p>KY.2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones.</p> <p>Understand the following as special cases:</p> <p>a. 100 can be thought of as a bundle of ten tens — called a “hundred.”</p> <p>b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six,</p>	<p>Students unitize or understand 10 tens as a group or unit called 1 hundred.</p> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <p>Coherence KY.1.NBT.2→KY.2.NBT.1→KY.3.NBT.1</p>

<p>seven, eight, or nine hundreds (and 0 tens and 0 ones).</p> <p>MP.2, MP.7</p>	
<p>Cluster: Understand place value.</p> <p>KY.2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names and expanded form.</p> <p>MP.7</p>	<p>739, seven hundred thirty-nine, $700 + 30 + 9$</p> <p>Coherence KY.1.NBT.1→KY.2.NBT.3</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction.</p> <p>MP.2, MP.8</p>	<p>Students solve addition and subtraction tasks (with sums and differences within 100) 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>Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p>Students are not expected to use an algorithm for addition and subtraction until grade 4.</p>



$$45 + 36 =$$

Students can solve this problem in many ways.

Student one counted the tens first, so 10, 20, 30, 40, 50, 60, 70. Then they counted the ones, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81. So $45+36=81$

Student two broke 36 into $30+1+5$. Then gave 5 from 36 to the 45 to make 50 because 50 is a friendly number. Then added $30+50$ to make 80. Finally added 1 to 80 to get 81. So $45+36=81$.

Coherence KY.1.NBT.4→KY.2.NBT.5→KY.3.NBT.2

Cluster: Use place value understanding and properties of operations to add and subtract.

KY.2.NBT.7 Add and subtract within 1000.

a. Represent and solve addition and subtraction problems using...

- concrete models or drawings;
- strategies based on place value;
- properties of operations;
- the relationship between addition and subtraction and;
- relate drawings and strategies to expressions or Equations.

b. Understand that in adding or subtracting

Students model with concrete tools to build on previous place value understandings. For example, students can see the relationship of addition and subtraction by counting up from 87 to get to 243 and realize that there is a difference of 156.

Coherence KY.1.NBT.4→KY.2.NBT.7→KY.3.NBT.2

<p>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.</p> <p>MP.1, MP.5</p>	
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.2.NBT.8 Mentally add 10 or 100 to a given number 100–900 and mentally subtract 10 or 100 from a given number 100–900.</p> <p>MP.7, MP.8</p>	<p>Students use a variety of tools and strategies to add or subtract 10 or 100 from a three-digit number in the range of 100-900.</p> <p>KY.1.NBT.6</p> <p>Coherence KY.1.NBT.5→ KY.2.NBT.8→KY.3.NBT.2</p>
<p><i>Supporting Standards</i></p>	
<p>Standards</p>	<p>Clarifications</p>
<p>Cluster: Add and subtract within 20.</p> <p>KY.2.OA.2 Fluently add and subtract within 20 using mental strategies.</p> <p>MP.2, MP.7, MP.8</p>	<p>Students determine addition and subtraction strategies 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 and appropriately use mental strategies that include:</p> <ul style="list-style-type: none"> • counting on • making ten • decomposing a number leading to a ten • using the relationship between addition and subtraction • creating equivalent but easier or known sums.

	<p>Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p style="text-align: center;">KY.2.NBT.5 Coherence KY.1.OA.6→KY.2.OA.2</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p>MP.2, MP.7</p>	<p>Note: Students are not expected to know a standard algorithm until grade 4.</p> <p style="text-align: center;">Coherence KY.1.OA.2→KY.2.NBT.6</p>
<p>Cluster: Use place value understanding and properties of operations to add and subtract.</p> <p>KY.2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.</p> <p>MP.3, MP.7</p>	<p>Students support explanations with drawings and/or objects built on place value and properties of operations.</p> <p style="text-align: center;">KY.1.OA.4 Coherence KY.1.OA.3→KY.2.NBT.9</p>

2nd Grade Mathematics



Unit 6: Equal Shares and Equal Groups

2nd Grade Mathematics

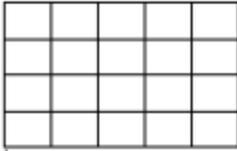
Unit 6: Equal Shares and Equal Groups

This unit uses shapes and partitioning of shapes to develop conceptual understanding of equal groups and shares that will be students' first steps towards multiplication. Students connect their addition/subtraction strategies to efficient ways of counting objects arranged in arrays.

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: Add and subtract within 20.</p> <p>KY.2.OA.2 Fluently add and subtract within 20 using mental strategies.</p> <p>MP.2, MP.7, MP.8</p>	<p>Students determine addition and subtraction strategies 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 and appropriately use mental strategies that include:</p> <ul style="list-style-type: none"> ● counting on ● making ten ● decomposing a number leading to a ten ● using the relationship between addition and subtraction ● creating equivalent but easier or known

	<p>sums. Note: Reaching fluency is an ongoing process that will take much of the year.</p> <p style="text-align: center;">KY.2.NBT.5 Coherence KY.1.OA.6→KY.2.OA.2</p>
<p>Cluster: Understand place value.</p> <p>KY.2.NBT.2 Count forwards and backwards within 1000; skip-count by 5s, 10s and 100s.</p> <p>MP.8, MP. 1, MP. 6</p>	<p>Students start at various numbers to skip-count. Some use tools such as base ten blocks, hundreds charts, number lines and money.</p> <p>Coherence KY.1.NBT.1→KY.2.NBT.2</p>
<i>Supporting Standards</i>	
Standards	Clarifications
<p>Cluster: Work with equal groups of objects to gain foundation for multiplication.</p> <p>KY.2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members; write an equation to express an even number as a sum of two equal addends.</p> <p>MP.2, MP.7</p>	<p>Students understand a number can be broken apart by pairing objects to see if there are leftovers (odd) or not (even).</p>  <p>Coherence KY.1.OA.7→KY.2.OA.3→KY.3.OA.9</p>
<p>Cluster: Work with equal groups of objects to gain foundation for multiplication.</p>	<p>Students model using rectangular arrays to determine the number of objects and discuss their reasoning. For example the array shows</p>

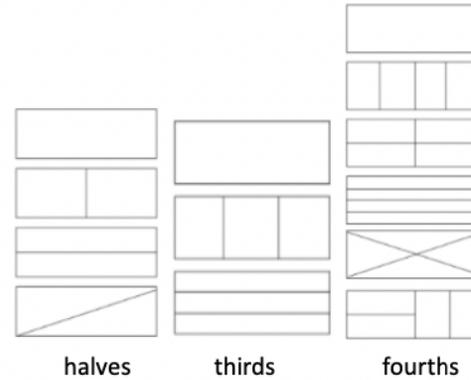
<p>KY.2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.</p> <p>MP.2, MP.4</p>	<p>$4 + 4 + 4 + 4 + 4 = 20$ or $5 + 5 + 5 + 5 = 20$</p>  <p>Coherence KY.1.OA.7→KY.2.OA.4→KY.3.OA.1</p>
<p>Cluster: Reason with shapes and their attributes.</p> <p>KY.2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or sides. Identify triangles, quadrilaterals, pentagons, hexagons and cubes (identify number of faces).</p> <p>MP.4, MP.7</p>	<p>Sizes are compared directly or visually, not compared by measuring.</p> <p>Coherence KY.1.G.1→KY.2.G.1→KY.3.G.1</p>
<p>Cluster: Reason with shapes and their attributes.</p> <p>KY.2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p> <p>MP.6, MP.8</p>	<p>The rectangle should not be divided up into anything larger than 5 rows and 5 columns to correlate with KY.2.OA.4.</p> <p>Coherence KY.2.G.2→KY.3.MD.6</p>

Cluster: Reason with shapes and their attributes.

KY.2.G.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.

MP.2, MP.3

Students explore rectangles and circles being partitioned in multiple ways to recognize that equal shares may be different shapes within the same whole.



Coherence KY.1.G.3→KY.2.G.3→KY.3.NF.1