

## Grade 2

<b>Unit</b>  <b>2.4</b>	<b>Operations and Algebraic Thinking</b> <i>(Add and Subtract within 1000; NBT.9 Moved to 4.4)</i>	<b>Lesson</b>  <b>1 of 4</b>	<b>Day</b>  <b>1 - 3</b>
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### Lesson Focus

1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
<b>2.NBT.6</b> Add up to four 2-digit numbers using strategies based on place value and properties of operations.	<ul style="list-style-type: none"> <li>•Find sums for three and four 2-digit numbers.</li> <li>•Explain and defend their choice of strategy and grouping of numbers for addition.</li> </ul>	<b>SMP3</b> Construct viable arguments and critique the reasoning of others. <b>SMP7</b> Look for and make use of structure.	<ul style="list-style-type: none"> <li>•What strategies can you use to find the sum of three or four 2-digit numbers?</li> </ul>
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
<ul style="list-style-type: none"> <li>•Add up to two 2-digit numbers using strategies based on place value and properties of operations.</li> <li>•Understand that when 3 numbers are added, the sum is not affected by the grouping (Associative Property).</li> </ul>	Properties of Operations: <ul style="list-style-type: none"> <li>•Commutative Property</li> <li>•Associative Property</li> </ul>	<ul style="list-style-type: none"> <li>•Regrouping</li> <li>•Place value understanding</li> </ul>	<b>OnCore</b> Lessons 50 & 51 Student pages 99 – 102 <b>Investigations</b> Unit 6 Game: <i>Get to 100 &amp; Collect \$1.00</i> <b>NOTE:</b> Game could be changed to Get to 200, Collect \$2.00 etc. <b>K-5 Math Resources</b> <a href="#">Addition Word Problems</a> Additional worksheets generated from mathaide.com

### Instruction

9. Instruction Practices (What are the teachers doing)	10. Learning Practices (What are the students doing)
Teachers will guide students to use their previous knowledge of adding two 2-digit numbers to find the sum of three and four 2-digit numbers using strategies based on place value (including the standard algorithm) and properties of operations. Teachers will remind students that when adding 3 numbers the sum is not affected by the grouping (Associative Property) or the order (Commutative Property) you choose. While there is no single right way to group and add digits, teachers will ask students to explain and defend their choices. Teachers use OnCore Lessons 50 & 51 along with the additional worksheets created from mathaide.com. Addition word problems or the Investigations games may also be used to teach this concept.	Students will activate their previous knowledge of adding two 2-digit numbers to find the sum of three and four 2-digit numbers using strategies based on place value (including the standard algorithm) and properties of operations. They will be reminded that the order or grouping in which you place numbers to add will not affect the sum of the numbers. Students will be asked to explain and defend the way they choose to order or group the numbers they add to help improve their understanding. They will practice this concept with pages from OnCore, K-5 Math Resources, generated worksheets or with the Investigations games <i>Get to 100</i> or <i>Collect \$1.00</i> .

## Grade 2

Unit <b>2.4</b>	Unit Title <b>Operations and Algebraic Thinking</b> <i>(Add and Subtract within 1000; NBT.9 moved to 4.4)</i>	Lesson <b>2 of 4</b>	Day <b>4 - 7</b>
<b>Lesson Focus</b>			
1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
<p><b>2.OA.1</b> Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.<sup>1</sup></p> <p><sup>1</sup>See Table 1 Addition and Subtraction Situations</p>	<ul style="list-style-type: none"> <li>•Solve one and two-step word problems involving addition and subtraction within 100 involving different situations and unknowns in all positions.</li> <li>•Use drawings and equations with a symbol for the unknown to represent a problem.</li> <li>•Analyze word problems to determine what operation to use to solve it.</li> </ul>	<p><b>SMP1</b> Make sense of problems and persevere in solving them.</p> <p><b>SMP6</b> Attend to precision.</p> <p><b>SMP7</b> Look for and make use of structure.</p>	<ul style="list-style-type: none"> <li>•What steps do you take to solve a math word problem?</li> <li>•How does using a drawing or equation with a symbol for the unknown help you represent and solve the problem?</li> <li>•What type of problem situation does the problem pose and how do you know? For example, is it a putting together (+) or taking apart (-) problem.</li> </ul>
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
<p>Understand how to solve a single step word problem using place value models, drawings and bar models.</p>	<p>Symbol, unknown (variable) Equation Bar model</p>	<p>Misinterpreting the problem situation.</p> <p>Incorrectly placing the symbol/unknown/variable.</p>	<p><b>OnCore</b> Lesson 7 Student pages 13 &amp; 14</p> <p><b>K-5 Math Resources:</b></p> <p><a href="#">Add to: Change Unknown Problems (to 100)</a></p> <p><a href="#">Add to: Start Unknown Problems (to 100)</a></p> <p><a href="#">Take From: Change Unknown Problems (to 100)</a></p> <p><a href="#">Take From: Start Unknown Problems (to 100)</a></p> <p><a href="#">Word Problems (One Step)</a></p> <p><a href="#">Word Problems (Two Step)</a></p>

## ***Instruction***

### **9. Instruction Practices (What are the teachers doing)**

Teachers will guide students to solve one and two-step word problems involving addition and subtraction within 100 involving different situations and unknowns in all positions. They will use the K-5 Math Resources to teach examples of 4 different situational problems. Teachers will guide students to analyze word problems to determine what operation to use to solve it. Using the word problems provided, they will help students to break down the problem, restate it, act it out, make a drawing or write an equation for the unknown as a representation of the problem. Teachers will encourage many different strategies, including the use of the bar model (part/part/whole) as in On Core Lesson 7.

### **10. Learning Practices (What are the students doing)**

Students will solve one and two step word problems involving addition and subtraction within 100 involving different situations and unknowns in all positions. They will practice at least 4 different situations using the K-5 math resources. Students will spend time analyzing word problems to determine what operation they will use to solve it. They will break down the problem, restate it, act it out, make a drawing or write and equations for the unknown as a representation of the problem. They will be encouraged to use different strategies, including the bar model (part/part/whole) OnCore pages 13 7 14. Students will share their strategies, methods, and critique the reasoning of other.

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<b>Unit</b> <b>2.4</b>	<b>Unit Title</b> <b>Operations and Algebraic Thinking</b> <i>(Add and Subtract within 1000; NBT.9 moved to 4.4)</i>	<b>Lesson</b> <b>3 of 4</b>	<b>Day</b> <b>8 -12</b>
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### Lesson Focus

1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
<p><b>2.NBT.7 Add</b> and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p>	<p>Add within 1000 using different strategies:</p> <ul style="list-style-type: none"> <li>•by drawings based on place value blocks.</li> <li>•by breaking apart the 3-digit addends using the expanded form place value concept.</li> <li>•standard algorithm with possible regrouping of ones.</li> <li>• standard algorithm with possible regrouping of ones and tens.</li> <li>•composing or decomposing numbers.</li> </ul> <p>Relate the strategies to a written method to show the sum.</p>	<p><b>SMP1</b> Make sense of problems and persevere in solving them.  <b>SMP3</b> Construct viable arguments and critique the reasoning of others.  <b>SMP6</b> Attend to precision.  <b>SMP7</b> Look for and make use of structure.</p>	<ul style="list-style-type: none"> <li>•How do you break apart (use expanded form) addends to add hundreds, tens, and ones.</li> <li>•Explain how you regroup ones and/or tens to help with addition.</li> <li>•How do you know when to regroup?</li> <li>•How do you show regrouping using drawings of place value blocks?</li> </ul>
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
<ul style="list-style-type: none"> <li>•Identify the ones, tens and hundreds in a three-digit number.</li> <li>•Understand how to write 3-digit numbers in expanded form.</li> <li>•Know how to add 3-digit numbers without grouping before adding with regrouping.</li> </ul>	<p>Place value drawings            Base ten blocks            Expanded form/break apart numbers            Regrouping            Compose            Decompose</p>	<p>Difficulty with regrouping.</p>	<p><b>OnCore</b> Lessons 52 – 56            Student pages 103 – 112  <b>K-5 Math Resources</b>  <a href="#">3-digit Addition Split (Expanded Form)</a>  <b>Investigation Snap-ins</b> Unit 8            Session 5A.1, 5A.2            Student pages C84-97 (#1&amp;2)            Unit 9 C120</p>

## ***Instruction***

### **9. Instruction Practices (What are the teachers doing)**

Teachers will guide students to add within 1000 using different strategies. These strategies include place value drawings, expanded form, composing and decomposing numbers, and the standard algorithm with and without grouping. They will guide students to relate each strategy to a written method, including equations with an unknown. Teachers will remind students that when adding three digit numbers, one adds ones to ones, tens to tens and hundreds to hundreds with place value understanding. Teachers will utilize the OnCore Lessons 52 – 56, Investigations Snap-ins for Unit 8 and the K-5 Math Resource Lesson “3-digit Addition Split”.

### **10. Learning Practices (What are the students doing)**

Students will add within 1000 using different strategies. These strategies include place value drawings, expanded form, composing and decomposing numbers, and the standard algorithm with and without grouping. They will relate each strategy to a written method, including equations with an unknown. Students will use place value understanding to remember that when adding 3-digit numbers you add ones to ones, tens to tens, and hundreds to hundreds. Students will practice this concept using OnCore pages 103 – 112, Investigations Snap-ins C84-97, 120 and if needed the K-5 math Resource 3-digit Addition Split.

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### Lesson Focus

1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
<p><b>2.NBT.7</b> Add and <b>subtract</b> within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p>	<p>Subtract within 1000 using different strategies:</p> <ul style="list-style-type: none"> <li>•making a model/base ten drawing to solve a problem.</li> <li>•standard algorithm with possible regrouping of tens, hundreds and both tens and hundreds.</li> <li>•when there is a zeros in the minuend (number you subtract from)</li> <li>•compose or decompose to form friendly numbers.</li> <li>•decompose a multiple of ten in the minuend before subtracting.</li> </ul> <p>Relate the strategies to a written method to show the sum.</p>	<p><b>SMP1</b> Make sense of problems and persevere in solving them.  <b>SMP3</b> Construct viable arguments and critique the reasoning of others.  <b>SMP6</b> Attend to precision.  <b>SMP7</b> Look for and make use of structure.</p>	<ul style="list-style-type: none"> <li>• How do you (make a model) draw quick pictures of base ten blocks to show subtracting 3-digit numbers?</li> <li>•When do you regroup tens or hundreds in subtractions?</li> <li>•How do you regroup when there is a zero in the tens place?</li> <li>•What strategy can you use when there is a zero in the ones and tens place?</li> <li>• How do you know when to regroup in a subtraction problem?</li> </ul>
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
<ul style="list-style-type: none"> <li>•Understand that in a vertical subtraction problem, the greater number is at the top.</li> <li>•Understand that when there is a zero in the <b>tens place</b> there are zero tens. But do not mistake that the number 207 is made up of 2 hundreds or 20 tens.</li> </ul>	<p>Regrouping Decompose Compose</p>	<ul style="list-style-type: none"> <li>•Difficulty with regrouping.</li> <li>•Understand that when there is a zero in the tens place that the number is still made up of tens. For example, <math>207 = 2 \text{ hundreds} + 0 \text{ tens} + 7 \text{ ones}</math>. But 207 is also made up of 20 tens + 7 ones.</li> </ul>	<p><b>K-5 Math Resources</b>            3-digit Subtraction Split (Expanded Form)            Friendly Numbers  <b>OnCore</b> Lessons 57 – 61            Student pages 113 – 132  <b><i>Multiples of 10 in Minuend</i></b>            Regrouping with Zeros from mathaides.com  <b>Investigation Snap-ins</b> Unit 8            Session 5A.3, 5A.4            Student pages C90 – 109            Unit 9 C123</p>

## ***Instruction***

### **9. Instruction Practices (What are the teachers doing)**

Teachers will guide students to subtract within 1000 using different strategies. These strategies include making a model/drawing of base 10 blocks, composing or decomposing to form friendly numbers, standard algorithm with or without regrouping, and decompose a multiple of 10 in the minuend before subtracting (AFT Thinking Math Strategy). They will guide students to relate each strategy to a written method, including equations with an unknown. Teachers will remind students that when subtracting three digit numbers, one subtracts ones from ones, tens from tens and hundreds from hundreds with place value understanding. Teachers will utilize the K-5 Math Resources, OnCore Lessons 57 – 61, Investigations Snap-in and the AFT strategy when there is multiples of tens in the minuend.

### **10. Learning Practices (What are the students doing)**

Students will subtract within 1000 using different strategies. These strategies include making a model/drawing of base 10 blocks, composing or decomposing to form friendly numbers, standard algorithm with or without regrouping, and decompose a multiple of 10 in the minuend before subtracting (AFT Thinking Math Strategy). They will relate each strategy to a written method, including equations with an unknown. Students will understand that when subtracting three digit numbers, one subtracts ones from ones, tens from tens and hundreds from hundreds with place value understanding. They will practice using K-5 Math Resources, OnCore pages 113 – 122 , Investigations Snap-in and the AFT strategy when there is multiples of tens in the minuend.