

## 2 2nd Grade Unit 2

Unit Title: Numbers Within 100: Addition, Subtraction, Time, and Money			Estimated Time
Essential Standards: 2.OA.1, 2.NBT.5, 2.MD.7, 2.MD.8 Supporting Standards: 2.OA.2, 2.NBT.2, 2.NBT.9 <a href="#">End of Unit Common Assessment</a>			
FCPS Supporting Links			Additional Supporting Links
<a href="#">Pacing Guide</a> <a href="#">Standards Progression</a> <a href="#">FCPS Math Guidance Document</a> <a href="#">Elementary Intellectual Preparation Cycle</a> <a href="#">Trauma-Informed Strategies</a>			<a href="#">Kentucky Academic Standards</a> <a href="#">Achieve the Core Progression Documents</a> <ul style="list-style-type: none"> <li><a href="#">Operations and Algebraic Thinking</a></li> <li><a href="#">Numbers and Operations in Base T</a></li> <li><a href="#">Measurement and Data</a></li> </ul> <a href="#">Literary Connections</a> <a href="#">Target of the Standards</a> - conceptual, pro <a href="#">Multilingual Glossary of Vocabulary</a> <a href="#">Unit 2 Language Support for English Learn</a> <a href="#">Manipulative List*</a> *Must be logged into i-Ready to access this link.
Big Ideas			
<ul style="list-style-type: none"> <li>We can use what we know about tens and ones to help us add numbers by place value.</li> <li>Adding or subtracting from a tens number can make a problem easier. Therefore, knowing how to break apart the nearest ten can help us solve addition and subtraction problems.</li> <li>We can extend the math strategies we use when adding and subtracting within 20 to adding and subtracting within 100.</li> <li>Models can represent word problems. Knowing how to create a good model will help us solve one- or two-step word problems.</li> <li>We can use what we know about skip counting to help us tell time to the nearest 5 minutes and solve word problems involving time.</li> <li>It is important to actively participate in discussions by asking questions and rephrasing or building on class members' ideas.</li> </ul> <p><i>*For more information, view the <a href="#">Math Background pages 137m-137p</a> in the Teacher's Guide (must be logged into i-Ready to access this link).</i></p>			
Essential Questions			Common Preconceptions/Misconceptions
How can objects, drawings, and equations help us make sense of and solve word problems? How can you solve for an unknown in an addition or subtraction equation? What math strategies can we use to add and subtract within 100? How do we choose the best strategy for solving a real-life math problem? How can we use our understanding of skip counting, addition, and subtraction to help us solve word problems involving time and money?			<ul style="list-style-type: none"> <li>Story Problems - <a href="#">KEYWORDS</a> can be misleading because they can have multiple meanings. For example, "There are 12 girls and 8 boys in our class. How many more girls than boys?" Students may see the keywords "more" and assume this is an addition problem. However, the best routine, such as the 3 reads of number of students, best helps "mathematize" the situation.</li> <li>Students may not recognize when a problem is a missing-addend problem. To tackle this, support students in identifying the unknown in the situation. Ask them to describe what they are looking for to solve the problem. To help students realize that the total is not known in that case, they need to find a missing addend.</li> </ul>

<p>How do we use the cent (¢) and dollar (\$) symbols appropriately?</p>	<ul style="list-style-type: none"> <li>Students may not know where to begin or not at the end of an equation. Help students connect equations to what they know about money and bonds in order to rewrite equations and solve at the end.</li> <li>Students may misread the time when looking at the hour hand between numbers. Give students a visual of the hour hand moves over the course of the hour so that students notice that it is not 9:00, for example, when the hand has reached the 9 and then the 12. A clock at the 9:00 hour until the hand has reached the 12. A clock can be helpful for this.</li> </ul>
<b>Standards for Mathematical Practices</b>	<b>Kentucky Interdisciplinary Literacy Practices</b>
<p><a href="#">MP.1. Make sense of problems and persevere in solving them.</a>  <a href="#">MP.2. Reason abstractly and quantitatively.</a>  <a href="#">MP.3. Construct viable arguments and critique the reasoning of others.</a>  <a href="#">MP.4. Model with mathematics.</a>  <a href="#">MP.5. Use appropriate tools strategically.</a>  <a href="#">MP.6. Attend to precision.</a>  <a href="#">MP.7. Look for and make use of structure.</a>  <a href="#">MP.8. Look for and express regularity in repeated reasoning.</a></p>	<ol style="list-style-type: none"> <li>1. Recognize that text is anything that communicates information.</li> <li>2. Employ, develop, and refine schema to understand and interpret text.</li> <li>3. View literacy experiences as transactional and transformative.</li> <li>4. Utilize receptive and expressive language to understand self, others, and the world.</li> <li>5. Apply strategic practices, with scaffolding, to approach new literacy tasks independently, to approach new literacy tasks.</li> <li>6. Collaborate with others to create new meaning.</li> <li>7. Utilize digital resources to learn and share.</li> <li>8. Engage in specialized, discipline-specific literacy practices.</li> <li>9. Apply high-level cognitive processes to analyze and synthesize about text.</li> <li>10. Develop a literacy identity that promotes lifelong learning.</li> </ol>
<b>Essential Standards</b>	<b>Sample Learning Intentions &amp; Success Criteria</b>
<p><b>! Indicates a misalignment with Kentucky Standards</b>  <b>◆ Indicates a consideration for differentiation</b></p>	
<b>Cluster: Represent and solve problems involving addition and subtraction.</b>	
<p><b>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 unknown number to represent the problem.</b>  <b>MP.1, MP.2, MP.4</b></p> <p><input type="checkbox"/> Conceptual    <input type="checkbox"/> Procedural    <input type="checkbox"/> Application</p> <p>Students flexibly model or represent addition and subtraction situations or context problems (involving sums and differences within 100).</p>	<p>We are learning to add and subtract within 100 so that we can make sense of problems and persevere in solving them.</p> <p>I know I am successful when...</p> <ul style="list-style-type: none"> <li>I can use drawings and models to represent one-step and two-step word problems within 100.</li> <li>I can identify the unknown number in a word problem and represent it with a symbol.</li> <li>I can solve for an unknown number in a word problem.</li> </ul>

Note: Drawings need not show detail, but accurately represent the quantities involved in the task. [See Table 1 in Appendix A.](#)

Students master all word problem subtypes including the four difficult ones:

- add to-start unknown
- take from-start unknown
- put together/take apart-addend unknown
- compare-bigger unknown/smaller unknown

Coherence [K.1.OA.1](#)→ KY.2.OA.1→ [KY.3.OA.8](#)

Supporting Standards: [2.NBT.9](#)

any position using drawings and equations.

Attending to the Standards for Mathematical Practice

When reading/interpreting word problems, students recognize a number (eight or 8) represents a quantity (eight) that is happening to these quantities in the context of the problem (MP.2). Students experiment in different ways to solve. Students think of questions to ask themselves, such as “Which diagram could help me?” Students work in groups to solve subtraction stories using concrete objects/pictures to demonstrate different situations and write an addition or subtraction equation to match their stories (MP.1).

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


**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. MP.2, MP.8**

☐ Conceptual    ☐ Procedural    ☐ Application

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.

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 many ways.

We are learning about mental math strategies so we can add and subtract fluently within 100.

I know I am successful when...

- I can add and subtract based on place value.
- When adding, I can break apart two-digit numbers to add tens to tens and ones to ones.
- I can determine when grouping a ten is necessary and carry out the regrouping to find a sum.
- I can determine when decomposing ten is necessary and carry out the decomposition to find the difference.
- I can add and subtract using the relationship between addition and subtraction.

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: [2.OA.2](#), [2.NBT.9](#)

### Attending to the Standards for Mathematical Practice

Students notice their knowledge of tens and ones can be used to solve addition problems. For example, decomposing ones:  $20 + 40 + 4 + 2$  (MP. 8). For other problems, students choose to use a counting up/back strategy. For  $57 - 18$ , students use a number line and jump back 20 (to 37) and then up 2 (to 39). Students select among their repertoire of strategies based on the problem (MP.1, MP.2). These strategies are extended to adding strings of numbers as well as larger numbers. Students critique the strategies shared by others and reflect on which strategies are efficient for the problem posed. Students notice when numbers are added or subtracted in the base-ten system, like units are added or subtracted (ones are added, tens to hundreds) and use this pattern to solve problems mentally (MP.8).

### Cluster: Work with time and money.

#### **KY.2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. MP.5, MP.6**

☐ Conceptual   ☐ Procedural   ☐ Application

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.

[KY.2.NBT.2](#)

Coherence [KY.1.MD.3](#)→KY.2.MD.7→[KY.3.MD.1](#)

Supporting Standards: [2.NBT.2](#)

We are learning to use analog and digital clocks so we can tell and write time.

I know I am successful when...

- I can explain the difference between a.m. and p.m.
- I can correctly use a.m. or p.m. when telling time.
- I can tell time on a digital clock to the nearest five minutes.
- I can tell time on an analog clock to the nearest five minutes.
- I can show the time on an analog clock to the nearest five minutes.
- I can write the time to the nearest five minutes.

#### **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). MP.1, MP.5**

☐ Conceptual   ☐ Procedural   ☐ Application

Students add or subtract two coin values or dollar values, but not both in the same problem.

We are learning to add and subtract within 100 so we can solve word problems involving money.

I know I am successful when:

- I can identify coins by name and value
- I can count on, skip count, or add to find the total value of a collection/set of coins.

<ul style="list-style-type: none"> <li>For example, if you have 6 dimes and 3 pennies, how many cents do you have? Students would understand that 6 dimes are equal to 60 cents and 3 pennies are equal to 3 cents. Together, they would total 63 cents.</li> <li>If Mary had \$31 and Tommy gave her \$22 for her birthday, how much money does Mary have now? <math>\\$31 + \\$22 = \\$53</math>.</li> </ul> <p>Note: Students are not introduced to decimals until grade 4.</p> <p style="text-align: center;"><a href="#">KY.2.OA.1</a></p> <p>Coherence <a href="#">KY.1.MD.3</a> → KY.2.MD.8</p> <p>Supporting Standards: <a href="#">2.NBT.2</a></p>	<ul style="list-style-type: none"> <li>I can solve word problems involving coins or dollars.</li> <li>I can use the \$ and ¢ symbols appropriately.</li> </ul>
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### Attending to the Standards for Mathematical Practice

Students connect skip-counting by fives and five-minute intervals on the clock (MP.8). Students attend to precision minutes and hours are determined on analog and digital clocks, as well as whether to label the time as a.m. or p.m. sense of authentic problems involving money, using actual coins or representations of coins and use these coins (MP.1). As students solve such problems, they write equations to represent the situation, using units (\$) or (¢) to compare quantities (MP.4).

Supporting Standards	Sample Learning Intentions & Success Criteria
<p><b>KY.2.OA.2 Fluently add and subtract within 20 using mental strategies. MP.2, MP.7, MP.8</b></p> <p><input type="checkbox"/> Conceptual   <input type="checkbox"/> Procedural   <input type="checkbox"/> Application</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, they produce accurate answers efficiently, and appropriately use mental strategies that include:</p> <ul style="list-style-type: none"> <li>Count on</li> <li>Make 10             <ul style="list-style-type: none"> <li><math>8 + 6 = 8 + 2 + 4 = 10 + 4 = 14</math></li> </ul> </li> <li>Decompose a number leading to a ten             <ul style="list-style-type: none"> <li><math>13 - 4 = 13 - 3 - 1 = 10 - 1 = 9</math></li> </ul> </li> <li>Use the relationship between addition and subtraction             <ul style="list-style-type: none"> <li><i>I know <math>8 + 4 = 12</math> and I also know <math>12 - 8 = 4</math></i></li> </ul> </li> <li>Create equivalent, but easier or known sums             <ul style="list-style-type: none"> <li><i>I can add <math>6 + 7</math> by creating <math>6 + 6 + 1 = 12 + 1 = 13</math></i></li> </ul> </li> </ul> <p>Note: Reaching fluency is an ongoing process that will take much of the year</p>	<p>We are learning about mental math strategies so we can add and subtract fluently within 20.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> <li>I can use a counting-on strategy to add and subtract.</li> <li>I can compose and decompose addends to make a ten to help me add and subtract.</li> <li>I can use doubles facts to add and subtract.</li> <li>I can use known doubles facts to help me solve near doubles facts.</li> <li>I can use reasoning to choose the most efficient strategy when adding and subtracting.</li> <li>I can explain my reasoning for choosing the strategy I used to solve problem.</li> </ul>

<p style="text-align: right;"><a href="#">KY.2.NBT.5</a></p> <p>Coherence <a href="#">KY.1.OA.6</a> → KY.2.OA.2</p>	
<p><b>KY.2.NBT.2 Count forwards and backward within <del>1000</del> 500; skip-count by 5s, 10s, and 100s. MP.8, MP.1, MP.6</b></p> <p><input type="checkbox"/> Conceptual    <input type="checkbox"/> Procedural    <input type="checkbox"/> Application</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 <a href="#">KY.1.NBT.1</a> → KY.2.NBT.2</p>	<p>We are learning about counting so that we can count forwards and backward by 5s, 10s, and 100s within 500.</p> <p>I know I am successful when...</p> <ul style="list-style-type: none"> <li>• I can count forward and backward by 1s starting at any number to 500.</li> <li>• I can skip count forward and backward by 5s within 500.</li> <li>• I can skip count forward and backward by 10s within 500.</li> <li>• I can skip count forward and backward by 100s within 500.</li> </ul>
<p><b>KY.2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations. MP.3, MP.7</b></p> <p><input type="checkbox"/> Conceptual    <input type="checkbox"/> Procedural    <input type="checkbox"/> Application</p> <p>Students support explanations with drawings and/or objects built on place value and properties of operations.</p> <p>Coherence <a href="#">KY.1.OA.3</a> → KY.2.NBT.9</p>	<p>We are learning about mental math strategies so we can fluently add and subtract within 100.</p> <p>I know I am successful when:</p> <ul style="list-style-type: none"> <li>• I can explain my reasoning for choosing the strategy I used to solve a problem.</li> <li>• I can explain why my strategy worked for a problem.</li> <li>• I can support my explanation with drawings and/or objects built on place value and properties of operations.</li> </ul>