

<b>Title: How Many? Telling Stories with Big Numbers, Data and Measurement</b>		<b>Estimated Time Frame: 35-40 days</b>
Essential Standards: 2.OA.1, 2.OA.2, 2.NBT.1, 2.NBT.2, 2.NBT.5, 2.MD.1, 2.MD.2, 2.MD.3, 2.MD.4, <i>Supporting Standards: 2.NBT.9, 2.MD.6, 2.MD.8, 2.MD.9</i>		
<b>Big Idea(s)</b> <a href="#">CRA explanations for 2nd grade Unit 2</a>		
<p>THE BASE TEN NUMERATION SYSTEM- The base ten numeration system is a scheme for recording numbers using digits 0-9, groups of ten, and place value.</p> <p>OPERATIONS- Understanding, representing, and solving problems involving addition and subtraction</p>		
<b>Essential Questions:</b>		<b>Common Misconceptions:</b>
<ul style="list-style-type: none"> <li>• How can numbers be put together and taken apart to solve problems?</li> <li>• How do models help to solve problems in math?</li> <li>• How do I choose the best strategy for solving a problem?</li> </ul>		<ul style="list-style-type: none"> <li>• Focus should be given to the context of story problems versus teaching to use keywords to solve them. Students should identify the relationship between the numbers and the operation needed for solving the problem.</li> <li>• Students are typically not mathematically aware in 2<sup>nd</sup> grade to understand the “why” behind “trading”. Students were given opportunities to physically put items together and take them apart in the Unit 1 Framework. That can be scaffolded to the concept of trading (dot strips or sticker strips).</li> <li>• Be mindful of teacher assumptions that students make sense of patterns in the base ten numeration system (If <math>8+2=10</math> the same can be said of <math>18+2</math>, <math>28+2</math>, etc). In these instances the “next ten” is made.</li> </ul>

Standards for Mathematical Practice (bolded practices are emphasized in this unit)	Kentucky Interdisciplinary Literacy Practices	
<p><b>MP.1. Make sense of problems and persevere in solving them.</b></p> <p><b>MP.2. Reason abstractly and quantitatively.</b></p> <p>MP.3. Construct viable arguments and critique the reasoning of others.</p> <p><b>MP.4. Model with mathematics.</b></p> <p><b>MP.5. Use appropriate tools strategically.</b></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>	<ol style="list-style-type: none"> <li>1. Recognize that text is anything that communicates a message.</li> <li>2. Employ, develop, and refine schema to understand and create text.</li> <li>3. View literacy experiences as transactional, interdisciplinary and transformational.</li> <li>4. Utilize receptive and expressive language arts to better understand self, others, and the world.</li> <li>5. Apply strategic practices, with scaffolding and then independently, to approach new literacy tasks.</li> <li><b>6. Collaborate with others to create new meaning.</b></li> <li><b>7. Utilize digital resources to learn and share with others.</b></li> <li><b>8. Engage in specialized, discipline specific literacy practices.</b></li> <li><b>9. Apply high level cognitive processes to think deeply and critically about text.</b></li> <li>10. Develop a literacy identity that promotes lifelong learning.</li> </ol>	
Essential Standards: KAS Content Standards <a href="#">CRA explanations for 2nd grade Unit 2</a>	Prerequisite Skills & Essential Vocabulary	Sample Learning Intentions* & Sample Success Criteria*
<p><b>KY.2.OA.1</b> Use addition and subtraction within 400 50 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. Coherence K.1.OA.1→ KY.2.OA.1→ KY.3.OA.8</p>	<p>Partitions of 10 so students understand how many more are needed to get to the next multiple of ten when adding within 100.</p> <ul style="list-style-type: none"> <li>• Sum</li> <li>• Difference</li> <li>• Compare</li> <li>• Total</li> <li>• Take apart</li> <li>• Put together</li> </ul>	<p>I am learning to solve one-step word problems within 50.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>• use manipulatives, drawings, equations, to solve one-step word problems within 50.</li> <li>• make a model to show how I solved a word problem.</li> <li>• solve one-step word problems with an unknown</li> </ul>

<p><b>End Goal in Quarter 2: Solve one-step and two-step word problems by adding and subtracting within 50 with unknowns in all positions.</b>  <b>Suggested progression for the year, not intended to go through all these in one unit: <a href="#">see chart</a></b></p> <ol style="list-style-type: none"> <li>1. numberless word problems</li> <li>2. Add to/Take from with result unknown</li> <li>3. Put together, take apart with result unknown</li> <li>4. Put together, take apart with addend unknown</li> <li>5. Add to, take from with change unknown</li> <li>6. Comparison problems with difference unknown</li> <li>7. Put together, take apart with both addends unknown</li> <li>8. Comparison problems with bigger unknown, then smaller unknown</li> <li>9. Add to, take from with start unknown</li> <li>10. Comparison problems with bigger unknown, then smaller unknown</li> </ol>	<ul style="list-style-type: none"> <li>● Unknown</li> <li>● Addend</li> <li>● Symbol</li> <li>● Value</li> </ul>	<p>number.</p>
<p><b>KY.2.OA.2 Fluently add and subtract within 20 using mental strategies.</b>                  End goal in Unit 2: Students should be able to add and subtract within 20 <u>fluently</u>.  <b>Suggested progression (<a href="#">Progression Poster</a>):</b></p> <ol style="list-style-type: none"> <li>1. Larger doubles (6+6, 7+7, 8+8, 9+9, 10+10)</li> <li>2. Ten-plus sums (10+2, 10+3)</li> <li>3. Larger five-plus sums (5+6, 5+8)</li> </ol> <p>Coherence KY.1.OA.6→ KY.2.OA.2</p>	<p>Subitizing within 5 and 10                  Fluently add and subtract within 10</p> <ul style="list-style-type: none"> <li>● Double</li> <li>● Equal</li> <li>● Partition</li> <li>● Combine</li> <li>● Difference</li> <li>● Sum</li> <li>● Subitize</li> <li>● Patterns</li> <li>● Value</li> <li>● Teen</li> <li>● Decompose</li> </ul>	<p>I am learning to add and subtract within 20 mentally.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>● add doubles.</li> <li>● use doubles to subtract.</li> <li>● add ten plus a given number.</li> <li>● add 5 to numbers greater than 5.</li> <li>● decompose a teen number into 10 and some more.</li> <li>● combine numbers to make 20.</li> </ul>

<p><b>KY.2.NBT.1</b> Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones. Understand the following as special cases:  <b>a.</b> 100 can be thought of as a bundle of ten tens — called a “hundred.”  <b>b.</b> The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).  Coherence KY.1.NBT.2→ KY.2.NBT.1→KY.3.NBT.1</p> <p><b>End goal in Unit 2: within numbers to 500</b></p> <p><b>Suggested progression (<a href="#">Progression Poster</a>):</b>  1. build numbers 100-250 using sticks and bundles  2. build numbers 100-250 using stickers  3. build numbers 250-500 using sticks and bundles  4. build numbers 250-500 using stickers</p> <p><b>Hundreds, Tens, Ones charts can cause misconceptions when introduced before conceptual understanding is solid.</b></p>	<p>Understands a two-digit number represents amounts of tens and ones as well as 10 tens is the same as one hundred. Students build off previous experiences with grouping items.</p> <ul style="list-style-type: none"> <li>● Digit (base-ten numerals)</li> <li>● Compare</li> <li>● Equal</li> <li>● Hundred</li> <li>● Ten</li> <li>● One</li> </ul>	<p>I am learning to understand place value to the hundreds.</p> <p>I can ...</p> <ul style="list-style-type: none"> <li>● build numbers within 500.</li> <li>● bundle sticks (or use stickers) to make a given number.</li> <li>● count and organize collections of items beyond 100.</li> <li>● build numbers in more than one way (ex. 24 ones, 2 tens &amp; 4 ones).</li> <li>● represent a picture of a quantity with numbers. (ex. write a number to represent a picture of 2</li> </ul>
<p><b>KY.2.NBT.2</b> Count forwards and backwards within 1000; skip-count by 5s, 10s and 100s.  Coherence KY.1.NBT.1→ KY.2.NBT.2</p> <p><b>End goal in Unit 2: Students should be able to count forward and backward by 1s, 10s and 100s within 500. Students should be able to skip count by 5s starting at any multiple within 100.</b></p> <p><b>Suggested progression:</b>  1. Count forward and backward by 1’s starting at any number to 500.</p>	<p>Counting, writing, and reading numbers to 100 and beyond</p> <ul style="list-style-type: none"> <li>● Forward</li> <li>● Backward</li> <li>● Skip-count</li> <li>● Place value</li> </ul>	<p>I am learning to count forward and backward within 1,000.</p> <p>I can ...</p> <ul style="list-style-type: none"> <li>● count to 120 by 1s.</li> <li>● Count backward from 120 by 1s.</li> <li>● Count backward from any number by 1s.</li> <li>● Count to 120 by 10s.</li> <li>● Skip count backwards by 10s.</li> </ul>

<ol style="list-style-type: none"> <li>2. Skip count by 10's forward and backward on the decade to 500.</li> <li>3. Skip count by 10's forward and backward off the decade to 500.</li> <li>4. Skip count by 5s from any multiple of 5 with 100.</li> </ol>		<ul style="list-style-type: none"> <li>● Skip count backwards from any number by 10s.</li> <li>● Skip count to 120 by 5s.</li> <li>● Skip count backwards by 5s.</li> <li>● Skip count backwards from any number by 5s.</li> <li>● skip count forward by 100s</li> <li>● skip count backward by 100s</li> <li>● skip count forward by 100s from any number</li> <li>● skip count backward by 100s from any number</li> </ul>
<p><b>KY.2.NBT.5</b> Fluently add and subtract within 100 using strategies based on place value, properties of operations and/or the relationship between addition and subtraction. Coherence KY.1.NBT.4→ KY.2.NBT.5→KY.3.NBT.2</p> <p><b>End goal in Unit 2: Students can add and subtract within 100 using visuals.</b></p> <p><b>Suggested progression (<a href="#">Progression Poster</a>): (for the entire year) Choose the best number range for your students based on where they are in the progression.:</b></p> <ol style="list-style-type: none"> <li>1. Use materials to add and subtract within 20.</li> <li><b>2. Use visuals to add and subtract within 20.</b></li> <li>3. Screen/ flash visuals to add and subtract within 20.</li> <li>4. Mentally add and subtract within 20.</li> <li>5. Use materials to add and subtract within 50.</li> <li><b>6. Use visuals to add and subtract within 50.</b></li> <li>7. Screen/ flash visuals to add and subtract within 50.</li> <li>8. Mentally add and subtract within 50.</li> <li>9. Use materials to add and subtract within 50.</li> <li><b>10. Use visuals to add and subtract within 100.</b></li> <li>11. Screen/ flash visuals to add and subtract within 100.</li> </ol>	<p>Developing an understanding of the structure of the number system (+/-1, +/-2, +/- 10, number strings: eg. 7+2, 17+2, 27+2)</p> <ul style="list-style-type: none"> <li>● subitize</li> <li>● add</li> <li>● subtract</li> <li>● flash</li> <li>● take away</li> <li>● minus</li> <li>● plus</li> <li>● stickers</li> <li>● bundles</li> <li>● visualize</li> </ul>	<p>I am learning to add and subtract within 100.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>● use materials (ten frames, sticks and bundles, stickers, bead racks, bead strings) to add and subtract within 100.</li> <li>● add and subtract using visual representations of numbers within 100.</li> </ul>

12. Mentally add and subtract within 100.		
<p><b>KY.2.MD.1</b> Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks and measuring tapes. Coherence KY.1.NBT.4→ KY.2.NBT.5→KY.3.NBT.2</p>	<p>Measuring with nonstandard units.</p> <ul style="list-style-type: none"> <li>● measure</li> <li>● length</li> <li>● meter</li> <li>● ruler</li> <li>● yardstick</li> <li>● meter stick</li> </ul>	<p>I am learning to measure the length of an object using appropriate tools.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>● identify tools to measure such as rulers, yardsticks, meter sticks and measuring tapes.</li> <li>● identify the purpose of each tool.</li> <li>● measure the length of an object using the appropriate tool.</li> </ul>
<p><b>KY.2.MD.2</b> 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. Coherence KY.1.NBT.4→ KY.2.NBT.5→KY.3.NBT.2</p>	<p>Measuring with nonstandard units.</p> <ul style="list-style-type: none"> <li>● twice</li> <li>● measure</li> <li>● length</li> <li>● unit</li> <li>● compare</li> <li>● relate</li> <li>● same</li> <li>● different</li> </ul>	<p>I am learning to measure an object using different units and describe the relationship between different units.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>● measure the length of an object twice.</li> <li>● measure an object with a chosen unit.</li> <li>● describe the difference between the two units measuring the same object.</li> </ul>
<p><b>KY.2.MD.3</b> Estimate lengths using units of inches, feet, yards, centimeters and meters. Coherence KY.1.MD.2→ KY.2.MD.3</p>	<ul style="list-style-type: none"> <li>● estimate</li> <li>● length</li> <li>● unit</li> <li>● inches</li> <li>● feet yards</li> </ul>	<p>I am learning to estimate lengths using different units.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>● estimate lengths using</li> </ul>

	<ul style="list-style-type: none"> <li>centimeters</li> <li>meters</li> </ul>	<p>inches.</p> <ul style="list-style-type: none"> <li>estimate lengths using feet.</li> <li>estimate lengths using yards</li> <li>estimate lengths using centimeters.</li> <li>estimate lengths using meters.</li> </ul>
<p><b>KY.2.MD.4</b> Measure to determine how much longer one object is than another, expressing the length difference in terms of either a customary unit or metric standard length unit. Coherence KY.2.MD.3→ KY.2.MD.4→ KY.2.MD.5</p>	<ul style="list-style-type: none"> <li>measure</li> <li>objects</li> <li>difference</li> <li>unit</li> <li>metric</li> <li>standard</li> </ul>	<p>I am learning to measure two objects and compare the lengths.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>measure two objects and find the difference in length in standard units</li> </ul>
<p><b>Supporting Standards:</b></p>		
<p><b>KY.2.NBT.9</b> Explain why addition and subtraction strategies work, using place value and the properties of operations. Coherence KY.1.OA.3→ KY.2.NBT.9</p> <p><b>Suggested progression (<a href="#">Progression Poster</a>):</b></p> <ol style="list-style-type: none"> <li>understand place value</li> <li>add and subtract using place value (scaffold with materials and models)</li> <li>students explain their strategies they use to solve the problem</li> </ol>	<p>Students connect addition and subtraction as operations.</p> <ul style="list-style-type: none"> <li>add</li> <li>subtract</li> <li>plus</li> <li>minus</li> <li>difference</li> <li>place</li> <li>value</li> <li>total</li> </ul>	<p>I am learning to explain the strategy I used to solve a problem.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>solve problems using place value.</li> <li>solve problems using the relationship between addition and subtraction.</li> </ul>
<p><b>KY.2.MD.6</b> 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.</p>	<ul style="list-style-type: none"> <li>number line</li> <li>sum</li> <li>difference</li> <li>add</li> <li>subtract</li> <li>points</li> </ul>	<p>I am learning to create and use a number line.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>represent numbers 0-25 on a number line.</li> <li>represent numbers 0-50 on a</li> </ul>

<p>Coherence KY.2.MD.6→KY.3.NF.2</p> <p><b>Suggested Progression:</b></p> <ol style="list-style-type: none"> <li>1. 0-25</li> <li>2. 0-50</li> <li>3. 0-75</li> <li>4. 0-100</li> </ol>	<ul style="list-style-type: none"> <li>• equal</li> <li>• space</li> </ul>	<p>number line.</p> <ul style="list-style-type: none"> <li>• represent numbers 0-75 on a number line.</li> <li>• represent numbers 0-100 on a number</li> </ul>
<p><b>KY.2.MD.8</b> Solve word problems with adding and subtracting within 100, (not using dollars and cents simultaneously) using the \$ and ¢ symbols appropriately (not including decimal notation).                  KY.2.OA.1                  Coherence KY.1.MD.3→ KY.2.MD.8</p> <p><b>Goal by end of Unit: Add same value coins within 50 ¢, increase the range throughout the year and make a combination of coins to represent a value.</b></p>	<p>Students identify coin names and values.</p> <ul style="list-style-type: none"> <li>• total value</li> <li>• set</li> </ul>	<p>I am learning to solve problems using money.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>• find the total value of a set of coins.</li> </ul>
<p><b>KY.2.MD.9</b> Investigate questions involving measurements.</p> <ol style="list-style-type: none"> <li>a. Identify a statistical question focused on measurements.</li> <li>b. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object.</li> <li>c. Show the measurements by making a dot plot, where the horizontal scale is marked off in whole-number increments.</li> </ol> <p>Coherence KY.2.MD.9→KY.3.MD.4</p>	<p>Students create a table or chart to organize data.</p> <p>measurement data                  Lengths                  Unit                  Nearest                  dot plot                  Investigate</p>	<p>I am learning to investigate questions involving measurements.</p> <p>I can...</p> <ul style="list-style-type: none"> <li>• Identify questions about measurements.</li> <li>• create data by measuring lengths of several objects.</li> <li>• measure objects to the nearest whole unit.</li> <li>• Show measurement data on a dot plot.</li> </ul>
<p>*Disclaimer: Success Criteria is the evidence students must produce to demonstrate learning. These examples are not comprehensive.</p>		



Needed Manipulatives and Tools	Visuals
number lines (student made or open/empty) Five-frame Ten-frame Bundles and sticks (craft sticks and rubber bands or hair bands) counting collections ( <a href="#">video example</a> ) Towers of Unifix cubes Hundreds Charts Bead racks/ bead strings Coins Math Journal <a href="#">Progression Poster</a>	five- and ten-frame images images of sticks and bundles sticker images images of coin, coin cards
<b>Anchor Materials/Resources</b>	
Investigations Unit 3 Investigations Unit 4 Investigations Unit 6  <a href="#">KCM Website for Primary Mathematics Support</a> **great source for additional workshop tasks  <a href="#">Math Learning Center Math Apps</a>  <a href="#">Counting Collections</a> - video  <a href="#">Choral Counting &amp; Counting Collections</a> by Megan L. Franke, Elham Kazemi, and Angela Chan Turrou Stenhouse Publishers  <a href="#">Number Talks / Number Strings</a>  <a href="#">Numberless Word Problems</a>  <a href="#">Unit 1-Illustrative Mathematics</a>	

[Math Tools](#)

[Progression Poster](#)  
[Number Talk Images](#)  
[Greg Tang Math](#)

**Summative Assessment**

While we do not have a Common Assessment for 2nd grade, we recommend using the Investigations Open Response type questions that match the benchmarks/standards. There are rubrics with explanations and student work examples of:

- Exceeds expectations
- Meets expectations
- Partially expectations
- Does not meet expectations