

## Unit B - Climbing the Beanstalk

### Overview

In the second unit, students build upon their operational sense with number relationships to 20 developed in the first unit as they explore base ten concepts and models within 1,000. Students focus on the first three place value units: ones, tens, and hundreds. Students use models for grouping including tallying with bundled objects, counters, base ten area pieces, and the number line. They solve word problems involving addition and subtraction within 100 using splitting strategies and the open number line. In addition, students recognize that subtraction is finding the distance between 2 points on a number line.

**21<sup>st</sup> Century Capacities:** Product Creation, Synthesizing

### Stage 1 - Desired Results

#### ESTABLISHED GOALS/ STANDARDS

MP 1 Make sense of problems and persevere while solving them.  
MP 3 Construct viable arguments and critique the reasoning of others.  
MP4 Model with Mathematics.

CCSS.MATH.CONTENT.2.OA.A.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, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.<sup>1</sup>  
CCSS.MATH.CONTENT.2.OA.B.2 Fluently add and subtract within 20 using mental strategies.<sup>2</sup> By end of Grade 2, know from memory all sums of two one-digit numbers.  
CCSS.MATH.CONTENT.2.OA.C.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  
CCSS.MATH.CONTENT.2.NBT.A.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

#### *Transfer:*

*Students will be able to independently use their learning in new situations to...*

1. Build models in order to visualize, compose or decompose quantities.
2. Apply their knowledge of place value to solve problems in novel situations using a variety of strategies. (Synthesizing)
3. Justify how the composition and decomposition of numbers clarifies relationships in order to perform operations and solve problems. (Product Creation)

#### *Meaning:*

**UNDERSTANDINGS:** *Students will understand that:*

1. Recognition of patterns and structures fosters efficiency in solving problems
2. Utilizing tools to model problem solving helps to visualize mathematics and show my thinking
3. The placement of a digit within a given number determines the value, or the unit that the digit represents.
4. There are flexible ways of representing and recognizing quantities

**ESSENTIAL QUESTIONS:** *Students will explore & address these recurring questions:*

- A. How can I use models and strategies to help me to solve this problem? How do I know if it's right?
- B. Is this the most efficient way to solve this problem? How do I know?
- C. How does the placement of a digit affect its value?
- D. How do I show my thinking? (using representations e.g. words, numbers, models)

## Grade 2 Math Curriculum

CCSS.MATH.CONTENT.2.NBT.A.1.A 100 can be thought of as a bundle of ten tens — called a "hundred."	<b>Acquisition:</b>	
<p>CCSS.MATH.CONTENT.2.NBT.A.1.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).</p> <p>CCSS.MATH.CONTENT.2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.</p> <p>CCSS.MATH.CONTENT.2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.</p> <p>CCSS.MATH.CONTENT.2.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p>CCSS.MATH.CONTENT.2.NBT.B.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>CCSS.MATH.CONTENT.2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p>CCSS.MATH.CONTENT.2.NBT.B.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>CCSS.MATH.CONTENT.2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.<sup>1</sup></p> <p>CCSS.MATH.CONTENT.2.MD.A.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>CCSS.MATH.CONTENT.2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p> <p>CCSS.MATH.CONTENT.2.MD.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.</p>	<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. Subtraction is closely related to addition and may be thought of finding the difference between two points on a number line.</li> <li>2. Our number system is organized in groups of ten</li> <li>3. Numbers can be decomposed in various ways</li> <li>4. Problems can be approached in different ways</li> <li>5. <u>Vocabulary</u>: estimation, difference, sum, compare, place value, greater than, equation, less than, regroup</li> </ol>	<p><i>Students will be skilled at...</i></p> <ol style="list-style-type: none"> <li>1. Using models for representing 2- and 3-digit numbers with manipulatives</li> <li>2. Using models such as the open number line and base ten models are tools for solving addition and subtraction problems.</li> <li>3. Counting and organizing objects into readily identifiable groupings of 10 objects.</li> <li>4. Adding and subtracting two-digit numbers with models.</li> <li>5. Decomposing numbers by place value</li> <li>6. Adding numbers by regrouping sets of tens and ones</li> <li>7. Identifying numbers based on their component parts</li> <li>8. Writing numbers in standard and expanded notation.</li> <li>9. "Skip-jumping" as a strategy by moving in both directions on the number line by increments of 1, 5, and 10.</li> <li>10. Thinking creatively and informally to strategize when problem solving</li> </ol>