

# Bridges in Mathematics Grade 2

## Unit 2: Place Value & Measurement

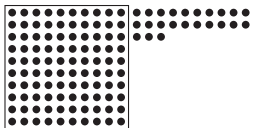
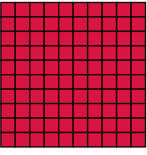
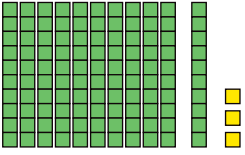
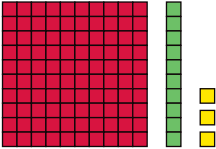
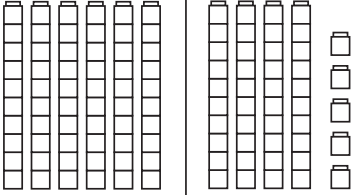
### with Jack's Beanstalks

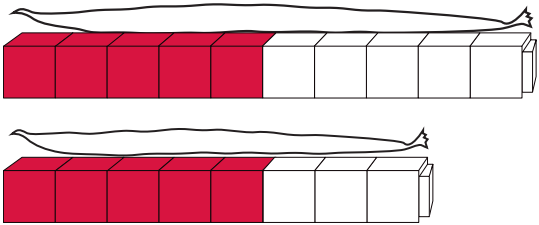
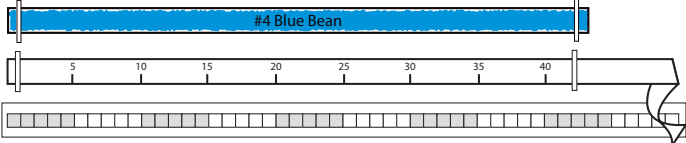
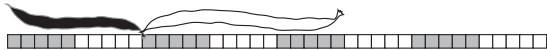



In this unit your child will:

- Identify the place and value of a 3-digit number
- Read, write, model, and compare 2- and 3-digit numbers
- Measure and compare the lengths of objects
- Model problem-solving strategies on a number line
- Practice math strategies to add and subtract fluently

Your child will learn and practice these skills by solving problems like those shown below. Keep this sheet for reference when you're helping with homework.

PROBLEMS	COMMENTS						
<p>Write the number:</p>  <table border="1" style="display: inline-table; margin-left: 20px;"> <thead> <tr> <th>Hundreds</th> <th>Tens (Rows)</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td style="width: 40px; height: 40px;"></td> <td style="width: 40px; height: 40px;"></td> <td style="width: 40px; height: 40px;"></td> </tr> </tbody> </table> <p>This number is <math>\rightarrow</math> _____</p>	Hundreds	Tens (Rows)	Ones				 $100 + 10 + 3 = 113$  $100 + 10 + 3 = 113$
Hundreds	Tens (Rows)	Ones					
<p>Write words to label the set of base ten pieces with the correct name.</p>  <p style="text-align: center;">one hundred thirteen</p>	<p>In this unit, students think about the value of a number by looking at its place. For example, the number 113 can be broken into 1 hundred, 1 ten, and 3 ones. The picture on the left above shows how we make this number with place-value pieces. Students will think of other ways to break a number into its component parts. For instance, 113 can also be thought of as 11 tens plus 3 ones (shown in place-value pieces above right).</p>						
<p><b>629</b> How many hundreds are in this number? How many tens are in this number? How many ones are in this number?</p>	<p>Students are also challenged to build numbers based on their component parts as they solve number riddles such as, "I have 2 hundreds, 4 tens and 3 ones. What number am I?" (243)</p>						
<p>Answer the riddle: I have 12 tens and 3 ones. Who am I? "12 tens is the same as 120. <math>120 + 3 = 123</math>."</p>							
<p>Identify each amount. Write the number. Show which is greater and which is less.</p>  <p style="text-align: center;"> <math>\underline{60}</math> <math>\circlearrowright</math> <math>\underline{45}</math> </p>	<p>Students determine and compare the value using the symbols for greater than, less than, and equal to. While tasks such as the one to the left appear straightforward, some second graders may count each individual square by 1s rather than efficiently counting by 10s and 1s. Others may not understand the value of the items, counting each by 1s—thus getting a quantity of 6 for the first group and a quantity of 9 for the second group. Quantities are compared using the greater than or less than symbols. Students draw 2 dots beside the number that is greater, 1 dot beside the number that is less, and then connect the dots:</p> <p style="text-align: center;"> <math>136 \begin{matrix} \bullet \\ \bullet \end{matrix} &gt; 125</math>     <math>136 \begin{matrix} \bullet \\ \bullet \end{matrix} &gt; 125</math> </p>						

PROBLEMS	COMMENTS
<p>Measure the beans.</p> 	<p>Students use cubes to measure lengths and learn about linear measurement with standard units, inches, and centimeters. They create measuring tapes marked in sections (or intervals) of 5s and 10s. This encourages them to count, total, and compare the lengths using 5s and 10s, an important concept when learning to measure as well as use a number line for computation.</p> 
<p>How much will the two beans cost in all?</p>  <p>1 green bean, 1 black bean. How much money? <u>55¢</u></p> 	<p>In a twist on the traditional Jack and the Beanstalk story, Jack has discovered a beanstalk growing very large and colorful beans. He is selling the beans at market and has priced them for a penny per cube length. Students add bean lengths together to determine the price. First they use the measuring tape, and then they move to the more abstract number line to calculate the cost.</p>

## FREQUENTLY ASKED QUESTIONS ABOUT UNIT 2

**Q:** I understand why students should know the hundreds, tens, and ones for adding and subtracting, but why do they need to know different ways to break numbers apart?

**A:** One of the key strategies developed in this unit is breaking numbers into their component parts (also known as decomposing numbers). The visual models shown in the example above help your child understand the relative size of each digit compared with other digits. For example, when comparing 53 with 35, they should understand that 53 is the larger number because it is made of 5 tens, while 35 has only 3 tens.

The ability to see and understand numbers as groups of ten and ones is also essential for learning how to add and subtract. For example, when a student understands that 5 ones plus 8 ones is the same as 1 ten and 3 ones, they can choose an easy strategy to solve  $35 + 28$ . First they add the 3 tens and 2 tens to get 5 tens, or 50, then add 1 ten and 3 ones to arrive at the sum of 63.

**Q:** How is this unit teaching my child to add 2-digit numbers?

**A:** During second grade students will learn different ways to think about adding and subtracting numbers flexibly and efficiently. When children first begin adding 2-digit numbers they will break or split numbers into tens and ones and add the parts together. For example, a student might add 35 and 22 by adding the tens, adding the ones, and then combining the results ( $30 + 20 = 50$ ,  $5 + 2 = 7$ , and  $50 + 7 = 57$ ). Other times students treat numbers as lengths on a number line, making jumps of 10s and 1s to get from one number to another.

The measuring activities in this unit help students think about combining two quantities on a measuring tape. A measuring tape is like a number line. If they're adding 35 and 22, they may start at 35, then jump 2 tens on the number line (35 to 45, 45 to 55) and then jump 2 ones (55 to 56, 57). The number line encourages students to use landmark numbers like 10, 50, and 100 and count by 10s and 100s, which is useful for mental computation. Your student will explore fluency with adding and subtracting in greater detail in Unit 3.