



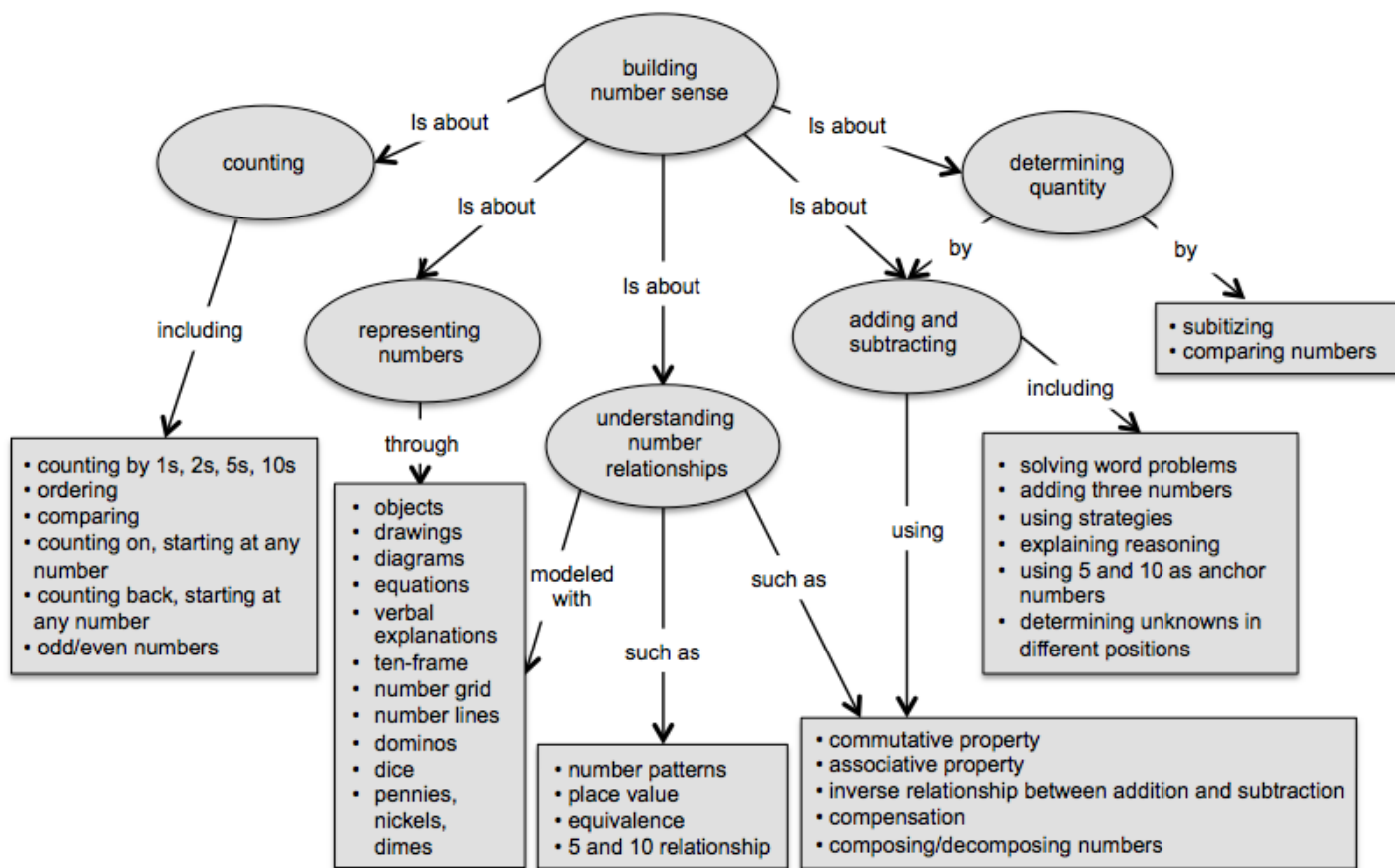
Unit: 2 - Building Number Sense (Week 6, 6 Weeks)

Common Core Initiative

Overarching Questions and Enduring Understandings

What do we know about numbers and number sentences that can help us solve problems?

Graphic Organizer



Unit Abstract

Building on past experiences in kindergarten and first grade, children work to extend counting, comparing, and ordering two-digit numbers and identifying number patterns. They identify numbers that are one more or one less, or ten more or ten less than a given number. They use concrete and visual models to make sense of place value for ones and tens, especially focusing on teen numbers and multiples of ten. They compose and decompose numbers, further developing their understanding of equivalence. The number grid (100 or 200) and number line should be prominent tools used throughout this unit to help students visualize and notice number patterns.

While students should come to this unit having solved addition and subtraction problems within 10 and should now be doing this fluently, they might not yet recognize the inverse relationship between addition and subtraction or be able to use this relationship to help them solve problems. A major focus in this unit is helping students to recognize and make sense of the inverse relationship between these operations so that they are able to solve problems efficiently, accurately, and flexibly. To this end, students solve contextualized addition and subtraction word problems with the

unknown in different positions. They should learn to make sense of the problems as they engage with a variety of problem types and subtypes (e.g., compare, total unknown, and addend unknown; see Table 1 on p. 88 of the CCSS-M or the K-5 Operations and Algebraic Thinking Progression for more details).

Engaging students with a variety of problem types and contexts helps them learn to make sense of the problem rather than grabbing numbers and then performing some operation (whether the correct operation or not). Throughout this unit the teacher needs to be attentive to how students are making sense of the problems they are trying to solve and help them learn to use appropriate and efficient strategies. When solving these word problems, children use objects, drawings, and numbers, and they explain their strategies for finding solutions. More regularly, students should be using counting on (as opposed to counting all) strategies and/or decomposition/composition strategies, particularly those using 5 and 10 as anchor numbers to convert the original problem to an equivalent, yet potentially easier problem to solve, e.g.,  $5 + 8 = (5 + 5) + 3 = 10 + 3$ . Teachers can look and listen for evidence of these strategies in students' written work (including drawings) as well as in the language they use to describe their thinking.

 [Unit Overview \(Word\)](#)

 [Unit Overview \(PDF\)](#)

Content Expectations/Standards	Unit Level Standards
<p><b>Grade 1, Operations &amp; Algebraic Thinking</b></p> <p><b>1.OA.A. Represent and solve problems involving addition and subtraction.</b></p> <ul style="list-style-type: none"> <li>1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</li> <li>1.OA.A.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</li> </ul> <p><b>1.OA.B. Understand and apply properties of operations and the relationship between addition and subtraction.</b></p> <ul style="list-style-type: none"> <li>1.OA.B.3. Apply properties of operations as strategies to add and subtract. Students need not use formal terms for these properties. <i>Examples: If <math>8 + 3 = 11</math> is known, then <math>3 + 8 = 11</math> is also known. (Commutative property of addition.) To add <math>2 + 6 + 4</math>, the second two numbers can be added to make a ten, so <math>2 + 6 + 4 = 2 + 10 = 12</math>. (Associative property of addition.)</i></li> <li>1.OA.B.4. Understand subtraction as an unknown-addend problem. For example, subtract <math>10 - 8</math> by finding the number that makes 10 when added to 8. Add and subtract within 20.</li> </ul> <p><b>1.OA.C. Add and subtract within 20.</b></p> <ul style="list-style-type: none"> <li>1.OA.C.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</li> </ul> <p><b>1.OA.D. Work with addition and subtraction equations.</b></p> <ul style="list-style-type: none"> <li>1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition</li> </ul>	

- 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.A.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

- 1.OA.B.3. Apply properties of operations as strategies to add and subtract.  
Students need not use formal terms for these properties.  
*Examples: If  $8 + 3 = 11$  is known, then  $3 + 8 = 11$  is also known. (Commutative property of addition.) To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$ . (Associative property of addition.)*
- 1.OA.B.4. Understand subtraction as an unknown-addend problem.  
For example, subtract  $10 - 8$  by finding the number that makes 10 when added to 8. Add and subtract within 20.

- 1.OA.C.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

- 1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition

and subtraction are true or false. For example, which of the following equations are true and which are false?  $6 = 6$ ,  $7 = 8 - 1$ ,  $5 + 2 = 2 + 5$ ,  $4 + 1 = 5 + 2$ .

- 1.OA.D.8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.  
*For example, determine the unknown number that makes the equation true in each of the equations  $8 + ? = 11$ ,  $5 = \_ - 3$ ,  $6 + 6 = \_$ .*

## Grade 1, Number & Operations in Base Ten

### 1.NBT.A. Extend the counting sequence.

- 1.NBT.A.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

### 1.NBT.B. Understand place value.

- 1.NBT.B.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
  - 1.NBT.B.2.a. 10 can be thought of as a bundle of ten ones — called a “ten.”
  - 1.NBT.B.2.b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

### 1.NBT.C. Use place value understanding and properties of operations to add and subtract.

- 1.NBT.C.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

## Essential/Focus Questions

1. If two people get different answers to a problem, how can you tell which answer is correct?
2. How can it help you to be able to solve a problem in more than one way?
3. How does it help you to explain your thinking to others?
4. What strategies help you add and subtract numbers? How do you use these strategies?
5. What does it mean that addition and subtraction are inverse operations?

## Key Concepts

addition  
commutative property  
compose/decompose numbers  
equation  
equivalence  
inverse operations (addition and subtraction)  
number pattern  
place value  
subtraction  
unknown

## Assessment Tasks








-  [Assessment Overview](#)
-  [Student Handout](#)

## Intellectual Processes

### Standards for Mathematical Practice

#### *Students will have opportunities to:*

- Makes sense of addition and subtraction word problems and persevere in solving them;
- Reason abstractly and quantitatively when breaking numbers apart, comparing numbers, adding and subtracting numbers;

	<ul style="list-style-type: none"> <li>• Construct viable arguments when explaining solution strategies; and</li> <li>• Look for and make use of structure by using the properties of operations to solve problems.</li> </ul>
<b>Lesson Sequence</b>	<b>Resources</b>
<ul style="list-style-type: none"> <li> <a href="#">Lesson Overview</a></li> <li> <a href="#">Student Handouts</a></li> <li> <a href="#">Sample Problems</a></li> <li> <a href="#">Monitoring Student Problem-Types and Strategies 112011</a></li> <li> <a href="#">Monitoring Student Work Add change unknown</a></li> <li> <a href="#">Professional Learning Task - Using Student Work to Reengage</a></li> </ul>	<ul style="list-style-type: none"> <li> <a href="#">Unit Resources</a></li> </ul>

[<< Previous Year](#)

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