<table>
<tr><td>Grade: 2

Unit 2—Place Value Concepts through 100.</td><td colspan="2">Subject: Math
Time Frame: 26 days
Domains: Operations in Algebraic Thinking, Number and Operations in Base Ten, Measurement and Data</td></tr>
<tr><td>Standards</td><td>Content Standards:
2.OA.1, 2.OA.2, 2.NBT.1, 2.NBT.2, 2.NBT.3, 2.NBT.4, 2.NBT.5, 2.NBT.6, 2.NBT.7, 2.NBT.8, 2.NBT.9,2.MD.8
http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf</td><td>Practice Standards:
MP 1, 2, 3, 4, 5, 6, 7, 8</td></tr>
<tr><td>Enduring Understandings</td><td colspan="2">1. Extend base-ten understanding to hundreds.
2. Compute sums within 1000 using place-value and the Commutative and Associative Properties of Addition.
3. Become fluent with addition within 100.
4. Understanding place value can lead to number sense and efficient strategies for computing with numbers.</td></tr>
<tr><td>Essential Questions</td><td colspan="2">1. How can I represent numbers up to 200 using place-value?
2. How can I compare two numbers using symbols (<, >, =)?
3. What strategies can I use to add two digit numbers and solve real world problems?
4. How can I solve word problems using money?
5. How does a digits position affect its value?</td></tr>
<tr><td>Vocabulary</td><td colspan="2">ones, tens, hundreds, decade numbers, Quick Tens, expanded form, Quick Hundreds, number name, is less than (<), is greater than (>), is equal to (=), New Groups Above Method, New Groups Below Method, Show All Totals Method, sum, error, penny, dime, dollar, cents symbol, dollar symbol, decimal point</td></tr>
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Priority and Supporting CCSS	Explanations and Examples*
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, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	**2.OA.1.** Word problems that are connected to students' lives can be used to develop fluency with addition and subtraction. Table 1 describes the four different addition and subtraction situations and their relationship to the position of the unknown. Examples: • Take-from example: David had 63 stickers. He gave 37 to Susan. How many stickers does David have now? 63 – 37 = __ • Add to example: David had $37. His grandpa gave him some money for his birthday. Now he has $63. How much money did David's grandpa give him? $37 +__ = $63 • Compare example: David has 63 stickers. Susan has 37 stickers. How many more stickers does David have than Susan? 63 – 37 =__ Even though the modeling of the two problems above is different, the equation, 63 - 37 = __, can represent both situations (How many more do I need to make 63?) • Take-from (Start Unknown) David had some stickers. He gave 37 to Susan. Now he has 26 stickers. How many stickers did David have before? __ - 37 = 26

*Source – Connecticut Core Standards for Mathematics as adapted from the Arizona Academic Content Standards

	It is important to attend to the difficulty level of the problem situations in relation to the position of the unknown. • Result Unknown problems are the least complex for students followed by Total Unknown and Difference Unknown • The next level of difficulty includes Change Unknown, Addend Unknown, followed by Bigger Unknown • The most difficult are Start Unknown, Both Addends Unknown, and Smaller Unknown Second grade students should work on ALL problem types regardless of the level of difficulty. Students can use interactive whiteboard or document camera to demonstrate and justify their thinking. This standard focuses on developing an algebraic representation of a word problem through addition and subtraction --the intent is not to introduce traditional algorithms or rules.

Priority and Supporting CCSS	Explanations and Examples*
2.OA.2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.	**2.OA.2.** This standard is strongly connected to all the standards in this domain. It focuses on students being able to fluently add and subtract numbers to 20. Adding and subtracting fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently.

	Mental strategies help students make sense of number relationships as they are adding and subtracting within 20. The ability to calculate mentally with efficiency is very important for all students. Mental strategies may include the following: • Counting on • Making tens (9 + 7 = 10 + 6) • Decomposing a number leading to a ten (14 – 6 = 14 – 4 – 2 = 10 – 2 = 8) • Fact families (8 + 5 = 13 is the same as 13 - 8 = 5) • Doubles • Doubles plus one (7 + 8 = 7 + 7 + 1) However, the use of objects, diagrams, or interactive whiteboards, and various strategies will help students develop fluency.

Priority and Supporting CCSS	Explanations and Examples*
2.NBT.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: **a. 100 can be thought of as a bundle of ten tens — called a "hundred."** **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).**	**2.NBT.1.** Understanding that 10 ones make one ten and that 10 tens make one hundred is fundamental to students' mathematical development. Students need multiple opportunities counting and "bundling" groups of tens in first grade. In second grade, students build on their understanding by making bundles of 100s with or without leftovers using base ten blocks, cubes in towers of 10, ten frames, etc. This emphasis on bundling hundreds will support students' discovery of place value patterns. As students are representing the various amounts, it is important that emphasis is placed on the language associated with the quantity. For example, 243 can be expressed in multiple ways such as 2 groups of one hundred, 4 groups of ten and 3 ones, as well as 24 tens with 3 ones. When students read numbers, they should read in standard form as well as using place value concepts. For example, 243 should be read as "two hundred forty-three" as well as two hundreds, 4 tens, 3 ones. A document camera or interactive whiteboard can also be used to demonstrate "bundling" of objects. This gives students the opportunity to

	communicate their counting and thinking.
2.NBT. 3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	**2.NBT. 3**. Students need many opportunities reading and writing numerals in multiple ways. Examples: • Base-ten numerals 637 (standard form) • Number names six hundred thirty seven (written form) • Expanded form 600 + 30 + 7 (expanded notation) When students say the expanded form, it may sound like this: "6 hundreds plus 3 tens plus 7 ones" OR 600 plus 30 plus 7."
2.NBT.4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	**2.NBT.4.** Students may use models, number lines, base ten blocks, interactive whiteboards, document cameras, written words, and/or spoken words that represent two three-digit numbers. To compare, students apply their understanding of place value. They first attend to the numeral in the hundreds place, then the numeral in tens place, then, if necessary, to the numeral in the ones place. Comparative language includes but is not limited to: more than, less than, greater than, most, greatest, least, same as, equal to and not equal to. Students

	use the appropriate symbols to record the comparisons.
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.	**2.NBT.5.** Adding and subtracting fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently. Students should have experiences solving problems written both horizontally and vertically. They need to communicate their thinking and be able to justify their strategies both verbally and with paper and pencil. Addition strategies based on place value for 48 + 37 may include: • Adding by place value: 40 + 30 = 70 and 8 + 7 = 15 and 70 + 15 = 85. • Incremental adding (breaking one number into tens and ones); 48 + 10 = 58, 58 + 10 = 68, 68 + 10 = 78, 78 + 7 = 85 • Compensation (making a friendly number): 48 + 2 = 50, 37 – 2 = 35, 50 + 35 = 85 Subtraction strategies based on place value for 81 - 37 may include: • Adding Up (from smaller number to larger number): 37 + 3 = 40, 40 + 40 = 80, 80 + 1 = 81, and 3 + 40 + 1 = 44. • Incremental subtracting: 81 -10 = 71, 71 – 10 = 61, 61 – 10 = 51, 51 – 7 = 44 • Subtracting by place value: 81 – 30 = 51, 51 – 7 = 44 Properties that students should know and use are: • Commutative Property of Addition (Example: 3 + 5 = 5 + 3) • Associative Property of Addition (Example: (2 + 7) + 3 = 2 + (7+3)) • Identity Property of 0 (Example: 8 + 0 = 8) Students in second grade need to communicate their understanding of why

	some properties work for some operations and not for others. • Commutative Property: In first grade, students investigated whether the Commutative Property works with subtraction. The intent was for students to recognize that taking 5 from 8 is not the same as taking 8 from 5. Students should also understand that they will be working with numbers in later grades that will allow them to subtract larger numbers from smaller numbers. This exploration of the Commutative Property continues in second grade. Associative Property: Recognizing that the Associative Property does not work for subtraction is difficult for students to consider at this grade level as it is challenging to determine all the possibilities.

Priority and Supporting CCSS	Explanations and Examples*
2.NTB.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.	**2.NTB.6**. Students demonstrate addition strategies with up to four two-digit numbers either with or without regrouping. Problems may be written in a story problem format to help develop a stronger understanding of larger numbers and their values. Interactive whiteboards and document cameras may also be used to model and justify student thinking.

2.NBT.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	**2.NBT.8**. Students need many opportunities to practice mental math by adding and subtracting multiples of 10 and 100 up to 900 using different starting points. They can practice this by counting and thinking aloud, finding missing numbers in a sequence, and finding missing numbers on a number line or hundreds chart. Explorations should include looking for relevant patterns. Mental math strategies may include: • counting on; 300, 400, 500, etc. • counting back; 550, 450, 350, etc. Examples: • 100 more than 653 is _____ (753) • 10 less than 87 is _____ (77) • "Start at 248. Count up by 10s until I tell you to stop." An interactive whiteboard or document camera may be used to help students develop these mental math skills.
2.NBT.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.	**2.NBT.9.** Students need multiple opportunities explaining their addition and subtraction thinking. Operations embedded within a meaningful context promote development of reasoning and justification. Example: Mason read 473 pages in June. He read 227 pages in July. How many pages did Mason read altogether? • Karla's explanation: 473 + 227 = _____. I added the ones together (3 + 7) and got 10. Then I added the tens together (70 + 20) and got 90. I knew that 400 + 200 was 600. So I added 10 + 90 for 100 and added 100 + 600 and found out that Mason had read 700 pages altogether. • Debbie's explanation: 473 + 227 = _____. I started by adding 200 to 473 and got 673. Then I added 20 to 673 and I got 693 and finally I added 7 to 693 and I knew that Mason had read 700 pages altogether. • Becky's explanation: I used base ten blocks on a base ten mat to help me solve this problem. I added 3 ones (units) plus 7 ones and got 10

	ones which made one ten. I moved the 1 ten to the tens place. I then added 7 tens rods plus 2 tens rods plus 1 tens rod and got 10 tens or 100. I moved the 1 hundred to the hundreds place. Then I added 4 hundreds plus 2 hundreds plus 1 hundred and got 7 hundreds or 700. So Mason read 700 books. Students should be able to connect different representations and explain the connections. Representations can include numbers, words (including mathematical language), pictures, number lines, and/or physical objects. Students should be able to use any/all of these representations as needed. An interactive whiteboard or document camera can be used to help students develop and explain their thinking.
2.MD.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. ***Example: If you have 2 dimes and 3 pennies, how many cents do you have?***	**2.MD.8.** Since money is not specifically addressed in kindergarten, first grade, or third grade, students should have multiple opportunities to identify, count, recognize, and use coins and bills in and out of context. They should also experience making equivalent amounts using both coins and bills. "Dollar bills" should include denominations up to one hundred ($1.00, $5.00, $10.00, $20.00, $100.00). Students should solve story problems connecting the different representations. These representations may include objects, pictures, charts, tables, words, and/or numbers. Students should communicate their mathematical thinking and justify their answers. An interactive whiteboard or document camera may be used to help students demonstrate and justify their thinking. Example: • Sandra went to the store and received $ 0.76 in change. What are three different sets of coins she could have received?

Resources
Math Expressions – Unit 2 Lessons 1-15 Soar to Success Math Intervention Mega Math Destination Math Common Core Mathematics-Newmark Learning- Xtramath.org Learnzillion.com Think Central

Unit Assessments
Unit Test Quick Quizzes Formative Assessments Performance Assessment

Technology: Videos, Websites, Links
https://grade2commoncoremath.wikispaces.hcpss.org/2.OA.1 https://grade2commoncoremath.wikispaces.hcpss.org/2.OA.2 https://grade2commoncoremath.wikispaces.hcpss.org/2.NBT.5 https://grade2commoncoremath.wikispaces.hcpss.org/2.NBT.6 https://grade2commoncoremath.wikispaces.hcpss.org/2.NBT.9