

South Carolina College- and Career-Ready Standards for Mathematics



Support Document

2nd Grade

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As support for implementing the *South Carolina College- and Career-Ready Standards for Mathematics*, the standards for each grade K-5 have been grouped into possible units. In the *Table of Contents* below, the titles for those possible units are listed in a column under each grade. To see which standards are addressed in each unit for this grade and to read a brief description of the focus for each unit in this grade, click on the *Overview of Units* in the [Table of Contents](#). The completed units for this grade are hyperlinked from/to the *Table of Contents* and the *Overview of Units*. The purpose of this document is to provide guidance as to how all the standards at this grade may be grouped into units and how those units might look. Since this document is merely guidance, districts should implement the standards in a manner that addresses the district curriculum and the needs of students.

Acknowledgments

“Jean Baptiste Massieu, famous deaf educator, made a statement that is now considered a French proverb. *Gratitude is the memory of the heart*. Indeed, appreciation comes when you feel grateful from the depths of your heart. The head keeps an account of all the benefits you received and gave. But the heart records the feelings of appreciation, humility, and generosity that one feels when someone showers you with kindness.” It is with sincere appreciation that we humbly acknowledge the dedication, hard work and generosity of time provided by the following individuals who are making the K-5 Mathematics Support Document possible. (<http://quotations.about.com/od/ThankYou/a/Gratitude-Quotes.htm>)

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Table of Contents for Grades K-5

	K	1st	2nd	3rd	4th	5th
	Overview of Units	Overview of Units	Overview of Units	Overview of Units	Overview of Units	Overview of Units
Unit 1	Counting and Cardinality	Composing and Decomposing Numbers Through 10	Place Value Concepts	Conceptual Understanding of Multiplication & Division	Place Value, Addition, & Subtraction with Whole Numbers	Expressions, Equations, & the Coordinate Plane
Unit 2	Understanding Relationship of Counting and Quantity	Addition and Subtraction Strategies	Developing Concepts Addition/ Subtraction	Place Value	Algebraic Thinking	Place Value
Unit 3	Count and Compare	Understanding Place Value	Fluency and Word Problems Addition/ Subtraction	Addition & Subtraction	Multiplication & Division of Whole Numbers	Operations with Whole and Decimal Numbers
Unit 4	Composing and Decomposing Numbers	Applying Place Value Concepts	Developing an Understanding of Multiplication	Application of Multiplication & Division	Fraction Equivalence	Adding and Subtracting Fractions
Unit 5	Addition and Subtraction	Comparisons and Data	Attributes Polygons and Fractional Parts	Conceptual Understanding of Fractions	Adding, Subtracting, & Multiplying with Fractions	Multiplying with Fractions
Unit 6	Patterns and Positions	Geometry and Equal Shares	Measurement Length	Data Analysis	Decimal Concepts	Dividing with Fractions
Unit 7	Two Dimensional and Three Dimensional Geometry	Measurement, Time, and Money	Measurement Time and Money	Identification and Classification of Geometric Shapes	Conversions & Problem Solving with Measurement	Classifying 2D Shapes
Unit 8	Foundations of Measurement		Creating and Understanding Data	Problem Solving with Measurement	Geometric Classifications & Line Symmetry	Perimeter, Area, and Volume
Unit 9	Understanding Graphs and Data			Fluency with Multiplication & Division	Angle Measurement	Converting Measurements within a Single System

Grade Two Overview of Units

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Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Place Value Concepts	Developing Concepts Addition/ Subtraction	Fluency and Word Problems Addition/ Subtraction	Developing an Understanding of Multiplication	Attributes Polygons and Fractional Parts	Measurement <i>Length</i>	Measurement <i>Time and Money</i>	Creating and Understanding Data
Standards	Standards	Standards	Standards	Standards	Standards	Standards	Standards
2.NSBT.1 2.NSBT.2 2.NSBT.3 2.NSBT.4 2.ATO.3	2.NSBT.5 2.NSBT.6 2.NSBT.7 2.NSBT.8 2.MDA.5	2.ATO.2 2.ATO.1 2.ATO.4	2.ATO.4 2.G.2	2.G.1 2.G.3	2.MDA.1 2.MDA.2 2.MDA.3 2.MDA.4	2.MDA.6 2.MDA.7	2.MDA.8 2.MDA.9 2.MDA.10
Unit Focus	Unit Focus	Unit Focus	Unit Focus	Unit Focus	Unit Focus	Unit Focus	Unit Focus
Unit 1 will focus on the development of numeracy and place value concepts for the one's, ten's and hundred's places at a concrete (manipulative) level. Students will then use this conceptual understanding to 1) decompose numbers, 2) expand numbers, and 3) compare numbers.	After students have fully developed place value concepts, students will use those concepts in Unit 2 to add and subtract four 2-digit numbers, and two 3 digit numbers (through 999). Students are expected to use place value strategies, concrete models, and properties of operations to develop their own strategies. Standard algorithms are not to be introduced at this early level of development.	In Unit 2, students developed models for addition and subtraction. Unit 3 requires students to use those strategies to solve one and two step word problems and to demonstrate fluency with addition and subtraction through 20.	Unit 4 requires students to begin the development of multiplication concepts (as repeated addition and as the area of a rectangular array). Students are not expected to use the multiplication sign (X). Students will instead use repeated addition equations. For example,  $3+3+3+3=15$	Students must be able to identify shapes based upon specified attributes (number of angles, number of equal faces) in Unit 5 . They will also use the terms "halves", "fourths", "half of" and "fourth of" to describe geometric shapes that have been equally divided. <i>Students are not expected to use the fractional symbols with numerators and denominators.</i>	In Unit 6 , students will use rulers, yardsticks, meter sticks, and measuring tapes to: 1) measure the length of an object in customary and metric units, 2) compare the lengths of two measured objects, and 3) measure the same object using different units of measurements (feet vs. inches) and explain why the measurements differ.	Unit 7 requires students to solve money story word problems in dollars, quarters, dimes, nickels, and pennies. Students must also be able to tell time to the nearest 5 minutes interval on analog clocks.	In previous Unit 6 students learned to measure length using measuring tools; in Unit 8 , students will organize measurement data into line plots marked into whole number units. Students will also collect data to create, represent, and draw conclusions from picture graphs and bar graphs with a single unit scale.

Place Value Concepts

Content Standards with Clarifying Notes

Open Bullets Indicate Clarifying Notes

- **2.NSBT.1** Understand place value through 999 by demonstrating that:
 - a. 100 can be thought of as a bundle (group) of 10 tens called a “hundred”; b. the hundreds digit in a three-digit number represents the number of hundreds, the tens digit represents the number of tens, and the ones digit represents the number of ones; c. three-digit numbers can be decomposed in multiple ways (e.g., 524 can be decomposed as 5 hundreds, 2 tens and 4 ones or 4 hundreds, 12 tens, and 4 ones, etc.)
 - *Second graders should come to see a set/group of 10 tens as a new unit called 100 (hundred).*
 - *It is important to note that 3 digit numbers can be decomposed in multiple ways (as a basis for later concepts of addition/subtraction regrouping).*
- **2.NSBT.2** Count by tens and hundreds to 1,000 starting with any number
 - *example: “Count by 10’s starting at 350” (350, 360, 370, 380, etc)*
 - *example: “Count by 100’s starting at 350” (350, 450, 550, 650, etc)*
- **2.NSBT.3** Read, write and represent numbers through 999 using concrete models, standard form, and equations in expanded form
 - *concrete models could be diagrams/pictures or actual manipulatives*
 - *standard form is numerical form (e.g. 387)*
 - *equations in expanded form (e.g. $300 + 80 + 7 = 387$) [note: expanded form does NOT have to occur in any sequential order (e.g. $80 + 7 + 300 = 387$)]*
- **2.NSBT.4** Compare two numbers with up to three digits using words and symbols (i.e., $>$, $=$, or $<$)
 - *Students should be required to compare numbers with words (greater than, less than, equal to) as well as symbols.*
- **2.ATO.3** Determine whether a number through 20 is odd or even using pairings of objects, counting by twos, or finding two equal addends to represent the number (e.g., $3 + 3 = 6$).
 - *The focus of this standard is based on the conceptual understanding of even and odd numbers. An even number is an amount that can be made of two equal parts with no leftovers. An odd number is one that is not even or cannot be made of two equal parts. **The number endings of 0, 2, 4, 6, and 8 are only an interesting and useful pattern or observation and should not be used as the definition of an even number.** (Van de Walle & Lovin, 2006, p. 292)*

New Academic Vocabulary for this Unit

- number value
- = (equal to)
- < (less than)
- > (greater than)
- even number
- number place
- expanded form

Prior Knowledge Required for this Unit

In first grade, students used concrete models to represent numbers up to 100 in expanded form. First graders also demonstrated that ten ones are thought of as a bundle. In second grade, students should use the correct terminology that 100 ones or 10 tens = one hundred (100).

First graders also learned to count forward by ones to 120; starting at any number as well as by 5's and 10's to 100, starting at any number. In this unit, students are required to count by 10's or 100's starting at any number to 1,000.

Subsequent Knowledge Related to this Unit

In this Unit, students will develop conceptual understandings of place value through 999; this understanding will lead to students developing strategies for addition and subtraction based on place value in the next unit-- Unit 2.

In 3rd grade, students will then use knowledge of place value to round numbers to nearest 10's and 100's. They will also learn to multiply one-digit numbers by multiples of 10 using knowledge of place value.

It is important that students develop place value concepts to use in rounding as well as for addition/subtraction because students are not expected to use addition/subtraction standard algorithms until 4th grade.

Relationship Among Standards in this Unit

The various standards in the unit were combined to develop place value concepts especially in decomposing numbers to represent place values. These conceptual understandings will help students develop addition and subtraction strategies especially when regrouping is needed.

Expanded form (125 can be written as $100 + 20 + 5$) is a valuable skill when students use place value strategies to add and subtract large numbers in **2.NSBT.7**.

Students will also use place value knowledge to develop definitions for odd and even numbers in standard **2.ATO.3**. When students pull numbers apart, separating the 10's and 1's place, they will see that the "tens" is always divisible by two (can be halved), therefore the one's place number must determine if the overall number is even or odd.

If students are able to write out numbers in expanded form (**2.NSBT.3**), this could assist them with skip counting by 100's and by 10's in 2.NSBT 2 as they should be able to see which number is increasing (ex: count by 100's starting at 482; $(400 + 80 + 2)$. $(500 + 80 + 2)$, $(600 + 80 + 2)$)

Potential Instructional Strategies/ Lessons

2. ATO. 3 Odd and Even Numbers

(Adapted from <https://www.teachervision.com/math/lesson-plan/48936.html>)

Objective

In this lesson, the concept of odd and even numbers is explored using manipulatives. A hundreds chart is used to show the alternating pattern of odd and even numbers, and students are asked to extend the pattern to identify additional odd and even numbers. Students will identify odd and even numbers and patterns in number sequences.

Materials

Provide each student with:

- 2 copies of a hundreds chart
 - (link to printable hundred's chart) http://www.mcps.org/FBE_Files/100.pdf
- 50 counters
- 2 green crayons

Procedure

Show students how to tell whether a number from 1 to 6 is even or odd using counters. Explain that if the number of counters can be arranged so each counter is paired with another, the number is even. Further explain that if there is an unpaired counter, or a counter is left over, then the number is odd. Model this process for students, and then have them use counters to find which numbers are odd or even. Have students use the green crayon to color the squares with the numbers they identify as even on their hundreds charts. Ask students to continue to use this method to find all the even numbers up to 20, recording them on

the charts using a green crayon.

Ask students to describe patterns they see on their charts, and elicit that every other number is green, or even. Have students use their green crayons to continue the pattern on the charts up to the number 50. Ask students to circle one even number and one odd number between 20 and 50 on their charts. Then ask students to have their partner use counters to verify their choices. Encourage students to arrange the counters in groups of 10. Discuss their findings.

Extension: Discuss how the chart has alternating stripes, or columns, and ask students what is the same in each green-colored column (the digit in the ones place in each number) and what is different (the digit in the tens place). Elicit that the digit in the ones place in each even number is 0, 2, 4, 6, or 8. Write several numbers between 50 and 100 on the chalkboard, and ask students to identify whether each is odd or even.

2.NSBT.3 Introduction to Writing Expanded Form (adapted from <http://illuminations.nctm.org/Lesson.aspx?id=3691>)

- Printable Expanded Place Value Form Cards
 - <http://illuminations.nctm.org/uploadedFiles/Content/Lessons/Resources/3-5/PlaceValueCards%20AS.pdf>
- Printable Spinner
 - <http://illuminations.nctm.org/uploadedFiles/Content/Lessons/Resources/3-5/Spinner.pdf>

Objectives:

Determine the value of each digit in a three-digit number.

Compose and decompose numbers using standard and expanded form.

Use place value to compare the values of numbers

Materials:

Base ten blocks

Cardstock

Place Value Playing Cards Activity Sheet

Spinners

Paper clip and pencil for spinner

Before class, copy the Place Value Playing Cards Activity Sheet and Spinner Activity Sheet on cardstock. Students will work in pairs, so make a copy for each pair

of students.

Procedure:

To introduce standard form, write the words "three hundred forty-five" on the board. Write just the words, not the numeral. Ask a volunteer to come to the board and write the words using digits. State that this number, 345, is written in standard form. Explain that standard form is simply the numerical form of a number. To get students to think about what this number means, have them write everything they know about the number in standard form. To focus students' thoughts, encourage them to make observations about each digit and what that digit represents in the number. Discuss their answers.

Students may make these observations about 345:

- It has three digits.
- It includes ones, tens, hundreds.
- It has a 3 in the hundreds place.
- It has a 4 in the tens place.
- It has a 5 in the ones place.
- It is a number written in standard form.
- It is greater than 340 but less than 350.

Organize students into pairs. Hand out the base ten blocks. Ask groups to model the number 345 using the fewest base ten blocks possible. Remind students that a flat represents 100, a rod represents 10, and a unit represents 1. Groups should end up with 3 flats, 4 rods, and 5 units.

With the entire class, count the value of the blocks. Ask, "How many flats do you have?" [3.] "What is the total value?" [300.] Explain that 3 hundreds is worth 300 while you count the flats aloud, "100, 200, 300." Write "300" on the board. Do the same with the rods and the units, writing "+ 40" and "+ 5" on the same line as 300. That is, when you've finished counting, the following should appear on the board:

$$300 + 40 + 5$$

Tell students that what you have written on the board is the *expanded form* of 345. Provide a few more examples of numbers in standard form, and have students work together to create the numbers using base ten blocks before they write down the expanded form.

Group students into pairs and pass out the sets of place value cards, one set to each pair. Explain that pairs will play a game. The first student uses the place value cards to compose a number in expanded form, and shows it to the second student. The second student writes the standard form of the number on a slip of paper and shows it to the first student so he or she can confirm or reject. Have students reverse roles.

In the following period, collect the place value cards and redistribute the number cards (excluding the "+" symbols), passing out the cards as evenly as possible so that each student has only 1 or 2 cards in his or her hands. For example, if you have 28 students, each student would get 1 card. If you have fewer students,

some students may get 2 cards. If you have more than 28 students, pair students so that all may participate. Have a volunteer use their paper clip, pencil, and spinner to generate a 3-digit number—for example, 6, 3, and 5. Ask students to use each of the numbers exactly once to create the greatest number possible in their notebooks.

Ask, "If we put each number in the hundreds place, what would be the value of each number?" For the example roll, students would hold up the 600, 300, and 500 cards, and walk to the front of the room. Discuss which of the numbers is the greatest. [600] Students with the 300 and 500 cards may then sit down. Do the same with the 30 and 50 cards to pick the tens. [50] That will leave 3 in the ones place.

Take the three cards (600, 50, 3) and stack them together (so the 5 overlaps the 0 in the tens place of 600, and the 3 overlaps the 0 in the ones place of 50) to show that standard form is 653. Ask, "How do we know this is the largest number?" Try to elicit that the digit with the greatest value, 6, is in the hundreds place.



As time allows, continue this activity with other numbers. Have students overlap the cards to solidify the composition of numbers. Because math is not a spectator sport, it would be good if each student's numbers are used at least once during this activity. To keep kids interested, you can alternatively ask for the least number that could be formed, or the largest odd number, or the least even number, or other types of numbers.

Assessment Options

1. As students work with the base ten blocks, observe if they are correctly identifying the value of the blocks. For example, if they have 3 tens rods, are they counting by tens to identify the value as 30?
2. Give each student an index card and a spinner. Have each student spin a number 3 times and write all 3 digits on the top of his or her card. Have students write the greatest number they can make with those 3 digits in both standard and expanded form. Ask them to write an explanation on the index card of how they know this is the biggest number they can make with those digits.

2.NSBT.3 Building Base-Ten Numbers

(Adapted from https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_2_Unit1Framework.pdf)

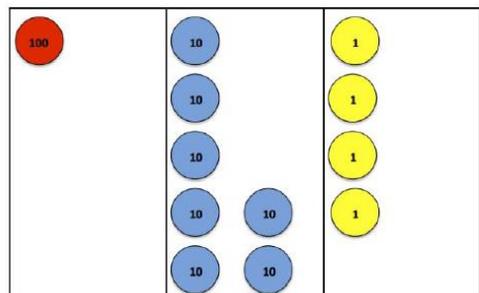
Your task is to build numbers and identify them. Use dice and base ten blocks or models to complete this exercise.

1. Roll all 3 dice at once.
2. Create the smallest number possible, using all three dice.
3. Create the largest number possible, using all three dice.
4. Using the smallest number of base ten pieces possible, draw (or build) a model of each number you recorded. Have the flats represent hundreds, the rods represent tens, and the unit cubes represent ones. Use words to write how each of the two numbers is spoken. Write the numbers in expanded notation.
5. Repeat the same exercise two more times and record.
6. When you have completed all your rolls, put a star beside the greatest number you rolled. Then put a check beside the smallest number you rolled. Explain how you know what the largest and smallest numbers are possible when using three dice.

Roll #1

Smallest Number	Model with Drawings	Expanded Notation (ex. $200 + 30 + 6$)
Largest Number	Model with Drawings	Expanded Notation

2.NSBT.4 Comparing 3 digit numbers. (Downloadable PDF file (save to your desktop) https://www.engageny.org/file/92856/download/math-g2-m3-topic-f-lesson-16.pdf?token=4V10IbATvJHPuoDgsDpR17T5Vlcw8ql_OTWFyrHcDKs)



In this 60 minute lesson, students use Place Value Disks (created from colored construction paper) to represent 3 digit numbers.

- o printable place value chart: http://lrt.ednet.ns.ca/PD/BLM/pdf_files/place_value_charts/02_to_hundreds.pdf

Resources

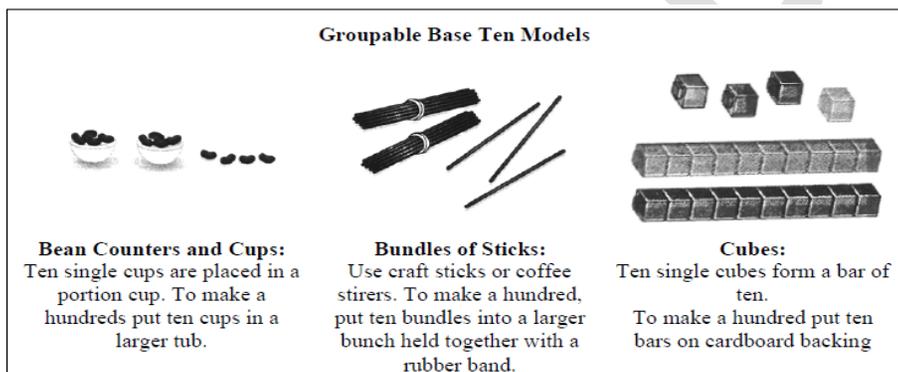
Videos:

- **2.NSBT.1** Place Value Video
 - <https://youtu.be/omkDLmfvetk>
- **2.NSBT.1** How to decompose numbers video
 - <https://learnzillion.com/lessons/2465-add-by-decomposing-numbers>
- **2.NSBT.3** How to write Expanded Form Video
 - <https://learnzillion.com/lessons/3685-read-and-write-numbers-in-expanded-form-using-arrow-cards>

Websites:

- **2.NSBT.1** interactive game (penguins and place value)
 - http://www.bbc.co.uk/schools/starship/maths/games/place_the_penguin/big_sound/full.shtml
- **2.ATO.3** printable 100's chart
 - http://www.mcps.org/FBE_Files/100.pdf
- **2.NSBT.3** printable Flat/Rod/Unit sheet
 - http://www.mathatube.com/files/base_ten_blocks-flats-rods-units-2.pdf
- **2.NSBT.3** interactive game where students find numbers in expanded form
 - <http://www.topmarks.co.uk/place-value/place-value-charts>

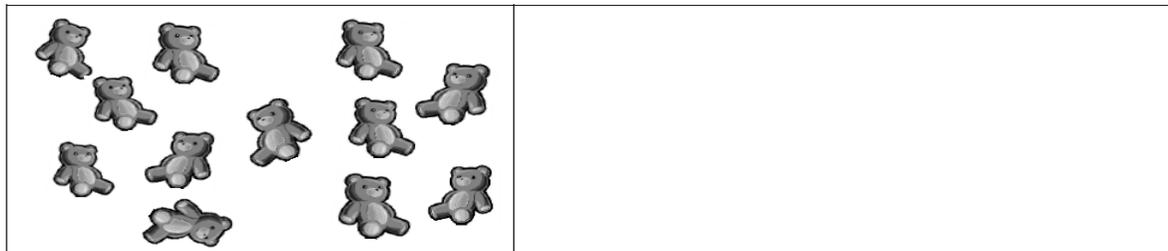
Images:



- image from https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_2_Unit1Framework.pdf

Sample Formative Assessment Tasks/Questions

Does the picture below show an even or an odd number of teddy bears? Explain your thinking using pictures, numbers, or words in the box on the right.



Problem:

Mr. Robert asked Anna to help another second grader learn about even and odd numbers. He handed Anna 16 red counters and 19 blue counters to help her show and explain ways to identify even and odd numbers to her classmate. What could Anna show and say to her classmate?

Is 16 an even or odd number?	Is 19 an even or odd number?
Draw and explain. 	Draw and explain.
16 is an _____ number because _____ <small>(even or odd)</small> _____ _____ _____	19 is an _____ number because _____ <small>(even or odd)</small> _____ _____ _____

Possible ways to formatively assess:

2.ATO.3: (Adapted <https://www.georgiastandards.org/Common-Core/Common>)

Even or Odd: (adapted from <https://www.engageny.org/file/118071/download/math-g2-m6-end-of-module-assessment.pdf?token=TFaZc-yoTKtp6HQiQods-R1xg7xclclcfDgGP8yOMM>)

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Developing Concepts Addition/Subtraction

Content Standards with Clarifying Notes

Open Bullets Indicate Clarifying Notes

- **2.NSBT.5** Add and subtract **fluently** through 99 using knowledge of place value and properties of operations
 - Fluently and fluency describe a student's ability to compute with accuracy, flexibility, and efficiency (Kilpatrick, Swafford, & Findell, 2001).
 - The standard algorithm for carrying and borrowing is not a focus or expectation for second grade; students should be encouraged first to develop strategies based on place value and properties of operations first, then the standard algorithm will be introduced later in 4th grade.
 - Students are expected to fluently add and subtract two digit numbers; therefore students should be given ample opportunities to independently solve 2 digit equations.
- **2.NSBT.6** Add up to four two-digit numbers using strategies based on knowledge of place value and properties of operations

Example: $67 + 25 = \underline{\quad}$

Place Value Strategy:
I broke both 67 and 25 into tens and ones. 6 tens plus 2 tens equals 8 tens. Then I added the ones. 7 ones plus 5 ones equals 12 ones. I then combined my tens and ones. 8 tens plus 12 ones equals 92.

Decomposing into Tens:
I decided to start with 67 and break 25 apart. I knew I needed 3 more to get to 70, so I broke off a 3 from the 25. I then added my 20 from the 22 left and got to 90. I had 2 left. 90 plus 2 is 92. So, $67 + 25 = 92$

Commutative Property:
I broke 67 and 25 into tens and ones so I had to add $60+7+20+5$. I added 60 and 20 first to get 80. Then I added 7 to get 87. Then I added 5 more. My answer is 92.

- **2.NSBT.7** Add and subtract through 999 using concrete models, drawings, and symbols which convey strategies connected to place value understanding.
- **2.NSBT.8** Determine the number that is 10 or 100 more or less than a given number through 1,000 and explain the reasoning verbally and in writing
 - This standard focuses ONLY on adding and subtracting 10 or 100 from a given number. Students are not expected to explain reasoning for adding or subtracting numbers that are multiples of 10 or 100 (e.g. 40 or 300).
- **2.MDA.5** 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 through 99 on a number line diagram.
 - Students will use number lines with whole numbers as both a means of solving addition and subtraction, but also as an introduction to using rulers

New Academic Vocabulary for this Unit

- number line
- commutative property
- associative property

Prior Knowledge Required for this Unit

In Unit 1 (Place Value) students decompose numbers into expanded form; they will use this knowledge to construct their own addition and

subtraction strategies. *(Teacher Note: Standard algorithms for addition and subtraction are not introduced until 4th grade).*

In 1st grade, students applied commutative and associative properties of addition to find sums of two or three addends (through 20). In this unit, 2nd graders will use these same properties of addition (as well as subtraction) to construct methods for adding multi-digit numbers and up to four 2-digit numbers. (ex. $35 + 26 + 18 + 89$).

Subsequent Knowledge Related to this Unit

In the next unit, Unit 3-- Fluency and Word Problems Addition/ Subtraction, students will use the conceptual strategies they develop in this Unit 2 for addition and subtraction to build fluency (computations performed flexibly and efficiently) and skill application (using addition and subtraction within real world problems and scenarios).

In third grade, students will apply properties of operations (commutative, associative, and distributive) to multiply and divide.

Relationship Among Standards in this Unit

2.NBTS.6 and 2.NBTS.7 both require students to build conceptual number sense with addition and subtraction using strategies they invent themselves. Teachers are not expected to give students algorithms to use which may by-pass students' ability to construct number sense based on place value and properties of operations.

2.MDA.5 introduces a number line as an operational tool (for addition and subtraction) for whole numbers 0 - 99. Students also use a hundred's chart in this unit to grasp adding or subtracting 10 from a number to find patterns in the resulting answer in standard 2.NSTB.8.

Potential Instructional Strategies

Students should be given ample opportunities to use manipulatives (either concrete or virtual) to generate strategies for addition and subtraction. Virtual manipulatives can be used for whole group lessons, or for independent work if students have access to technology

- virtual manipulatives website:
 - http://nlvm.usu.edu/en/nav/frames_asid_154_g_1_t_1.html?from=category_g_1_t_1.html

After allowing students chances to manipulate models, move students to pictorial stage. Initially, provide students with copies of flats/rods/units

they can use to add or subtract (see Flats/Rods/Units under Resources)

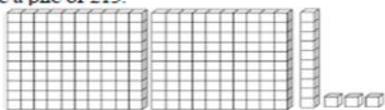
(adapted from N.C. Instructional Support Tools)

2.NSBT.7 Allow students to solve equations with manipulatives (flats/rods/units) (adapted from N.C. Instructional Support Tools)

Example: $213 - 124 = \underline{\quad}$

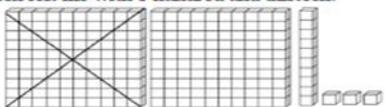
Student A

I used place value blocks. I made a pile of 213.

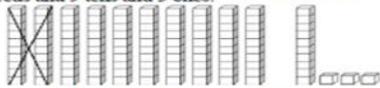


I then started taking away blocks.

First, I took away a hundred which left me with 1 hundred and thirteen.



Now, I only need to take away 24.
I need to take away 2 tens but I only had 1 ten so I traded in my last hundred for 10 tens. Then I took two tens away leaving me with no hundreds and 9 tens and 3 ones.



I then had to take 4 ones away but I only have 3 ones. I traded in a ten for 10 ones. I then took away 4 ones.



This left me with no hundreds, 8 tens and 9 ones. My answer is 89. $213 - 124 = 89$

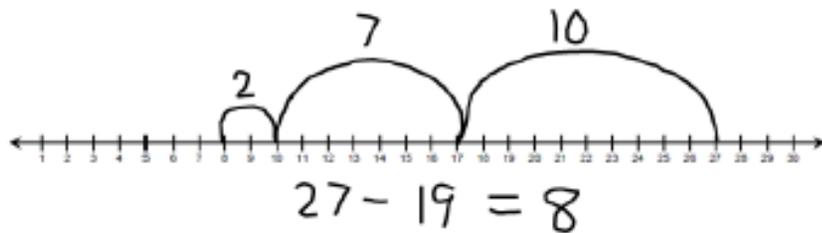


2.MDA.5 Have students solve subtraction equations (or word problems) using a number line

- printable number line:
 - http://lrt.ednet.ns.ca/PD/BLM/pdf_files/number_lines/number_lines_number_2.pdf

Example: There were 27 students on the bus. 19 got off the bus. How many students are on the bus?

Student A: I used a number line. I started at 27. I broke up 19 into 10 and 9. That way, I could take a jump of 10. I landed on 17. Then I broke the 9 up into 7 and 2. I took a jump of 7. That got me to 10. Then I took a jump of 2. That's 8. So, there are 8 students now on the bus.



(adapted from N.C. Instructional Support Tools)

2.NSTB.8 Determining 10 more or 10 less than a given number in Number Talk Discussion

(adapted from https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_2_Unit2Framework.pdf)

MATERIALS

- 200 chart per student (*printable 200's chart in Word format*: http://lrt.ednet.ns.ca/PD/BLM/word_files/number_charts/1%20-200_chart.doc)
- Class 200 Chart
- Transparent counters or highlighters

Procedure:

Gather students in the meeting area. Display the class the 200 chart. Give each student a 200 chart. Select a starting number. Have students place a transparent counter on it or highlight it. Give students directions one at a time using the terms add 10, subtract 10, add 1, subtract 1, 10 more, 10 less, 1 more, and 1 less. After each clue, give students the opportunity to count up using their chart, if they need to and then have students move their transparent counter to the new number.

Model this with the class, using only 3 or 4 directions. When the last direction has been given, ask students what number their transparent counter is on.

Sample direction set:

- *Place your counter on 16.*
- *Add 10. (students should move their counter to 26)*
- *Subtract 1. (students should move their counter to 25)*
- *Move ahead 10 more. (students should move their counter to 35)*
- *What number is the counter covering? (35)*

Resources

Videos:

- 2. NSBT.7 video adding numbers using decomposing (place value)
 - <https://learnzillion.com/lessons/2465-add-by-decomposing-numbers>

- 2.MDA.5: video explaining number lines with addition
 - <https://learnzillion.com/lessons/2687-add-by-using-a-number-line>
- 2.NSBT.6: video demonstrating adding 4 digit numbers
 - <https://learnzillion.com/lessons/2804-add-up-to-four-2-digit-numbers-using-place-value>

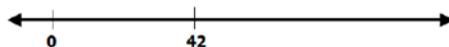
Worksheets/Printables

- 2.NSBT. 7 printable sheet with Flat/Rod/Units
 - http://www.mathatube.com/files/base_ten_blocks-flats-rods-units-2.pdf

Sample Formative Assessment Tasks/Questions

2.MDA.5 Sample Task Adapted from http://schools.nyc.gov/NR/rdonlyres/CAC1375E-6DF9-475D-97EE-E94BAB0BEFAB/0/NYCDOEG2MathCarolsNumbers_Final.pdf

Carol's teacher drew a number line on the board.

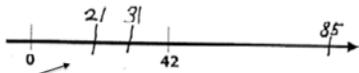


3. About where would 85 be? Place 85 on the number line where it belongs.
4. About where would 21 be? Place 21 on the number line where it belongs.
5. About where would 31 be? Place 31 on the number line where it belongs.

Tell Carol how you knew where to place 31 and why.

Sample Answer:

Carol's teacher drew a number line on the board.



1. About where would 85 be? Place 85 on the number line where it belongs.
2. About where would 21 be? Place 21 on the number line where it belongs.
3. About where would 31 be? Place 31 on the number line where it belongs.

Tell Carol how you knew where to place 31 and why.

You place the 31 in the middle and a little smaller because 31 is ten more than 21 and is 11 less than 42.

2.NSTB.7 and 2.NSTB.8 Addition Strategies / 10 more/less than a number

(adapted from NYS Common Core mathematics curriculum)

Susan and James solved $125 + 32$ in different ways. Explain why both ways are correct.

<p><i>Susan's Way:</i></p> $125 + 32$ $125 \xrightarrow{+10} 135 \xrightarrow{+10} 145 \xrightarrow{+10} 155 \xrightarrow{+2} 157$	<p><i>James' Way:</i></p> $125 + 32$ $125 + 30 + 2 = 157$
<p>Explanation:</p>	<p>Explanation:</p>

2.NSTB.7 Comparing different strategies for adding (adapted from NYS Common Core mathematics curriculum)

Linda and Keith added $127 + 59$ differently. Explain why Linda's work and Keith's work are both correct.

<p><i>Linda's work:</i></p> $\begin{array}{r} 127 \\ + 59 \\ \hline 16 \\ 70 \\ + 100 \\ \hline 186 \end{array}$	<p><i>Keith's work:</i></p> $\begin{array}{r} 127 \\ + 59 \\ \hline 186 \end{array}$
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