North Carolina Department of Public Instruction
INSTRUCTIONAL SUPPORT TOOLS
FOR ACHIEVING NEW STANDARDS

2nd Grade Mathematics ● Unpacked Contents
For the new Standard Course of Study that will be effective in all North Carolina schools in the 2018-19 School Year.

This document is designed to help North Carolina educators teach the 2nd Grade Mathematics Standard Course of Study. NCDPI staff are continually updating and improving these tools to better serve teachers and districts.

What is the purpose of this document?
The purpose of this document is to increase student achievement by ensuring educators understand the expectations of the new standards. This document may also be used to facilitate discussion among teachers and curriculum staff and to encourage coherence in the sequence, pacing, and units of study for grade-level curricula. This document, along with on-going professional development, is one of many resources used to understand and teach the NC SCOS.

What is in the document?
This document includes a detailed clarification of each standard in the grade level along with a *sample* of questions or directions that may be used during the instructional sequence to determine whether students are meeting the learning objective outlined by the standard. These items are included to support classroom instruction and are not intended to reflect summative assessment items. The examples included may not fully address the scope of the standard. The document also includes a table of contents of the standards organized by domain with hyperlinks to assist in navigating the electronic version of this instructional support tool.

How do I send Feedback?
Please send feedback to us at feedback@dpi.state.nc.us and we will use your input to refine our unpacking of the standards. Thank You!

Just want the standards alone?
You can find the standards alone at http://www.ncpublicschools.org/curriculum/mathematics/scos/.

Standards for Mathematical Practice

Practice	Explanation and Example
1. Make sense of problems and persevere in solving them.	Mathematically proficient students in Second Grade examine problems and tasks, can make sense of the meaning of the task and find an entry point or a way to start the task. Second Grade students also develop a foundation for problem solving strategies and become independently proficient on using those strategies to solve new tasks. In Second Grade, students' work continues to use concrete manipulatives and pictorial representations as well as mental mathematics. Second Grade students also are expected to persevere while solving tasks; that is, if students reach a point in which they are stuck, they can reexamine the task in a different way and continue to solve the task. Lastly, mathematically proficient students complete a task by asking themselves the question, "Does my answer make sense?"
2. Reason abstractly and quantitatively.	Mathematically proficient students in Second Grade make sense of quantities and relationships while solving tasks. This involves two processes- decontexualizing and contextualizing. In Second Grade, students represent situations by decontextualizing tasks into numbers and symbols. For example, in the task, "There are 25 children in the cafeteria and they are joined by 17 more children. How many students are in the cafeteria? " Second Grade students translate that situation into an equation, such as: 25 + 17 = __ and then solve the problem. Students also contextualize situations during the problem solving process. For example, while solving the task above, students can refer to the context of the task to determine that they need to subtract 19 since 19 children leave. The processes of reasoning also other areas of mathematics such as determining the length of quantities when measuring with standard units.
3. Construct viable arguments and critique the reasoning of others.	Mathematically proficient students in Second Grade accurately use definitions and previously established solutions to construct viable arguments about mathematics. During discussions about problem solving strategies, students constructively critique the strategies and reasoning of their classmates. For example, while solving 74 - 18, students may use a variety of strategies, and after working on the task, can discuss and critique each others' reasoning and strategies, citing similarities and differences between strategies.
4. Model with mathematics.	Mathematically proficient students in Second Grade model real-life mathematical situations with a number sentence or an equation, and check to make sure that their equation accurately matches the problem context. Second Grade students use concrete manipulatives and pictorial representations to provide further explanation of the equation. Likewise, Second Grade students are able to create an appropriate problem situation from an equation. For example, students are expected to create a story problem for the equation 43 + 17 = ___ such as "There were 43 gumballs in the machine. Tom poured in 17 more gumballs. How many gumballs are now in the machine?"
5. Use appropriate tools strategically.	Mathematically proficient students in Second Grade have access to and use tools appropriately. These tools may include snap cubes, place value (base ten) blocks, hundreds number boards, number lines, rulers, and concrete geometric shapes (e.g., pattern blocks, 3-d solids). Students also have experiences with educational technologies, such as calculators and virtual manipulatives, which support conceptual understanding and higher-order thinking skills. During classroom instruction, students have access to various mathematical tools as well as paper, and determine which tools are the most appropriate to use. For example, while measuring the length of the hallway, students can explain why a yardstick is more appropriate to use than a ruler.
6. Attend to precision.	Mathematically proficient students in Second Grade are precise in their communication, calculations, and measurements. In all mathematical tasks, students in Second Grade communicate clearly, using grade-level appropriate vocabulary accurately as well as giving precise explanations and reasoning regarding their process of finding solutions. For example, while measuring an object, care is taken to line up the tool correctly in order to get an accurate measurement. During tasks involving number sense, students consider if their answer is reasonable and check their work to ensure the accuracy of solutions.
7. Look for and make use of structure.	Mathematically proficient students in Second Grade carefully look for patterns and structures in the number system and other areas of mathematics. For example, students notice number patterns within the tens place as they connect skip count by 10s off the decade to the corresponding numbers on a 100s chart. While working in the Numbers in Base Ten domain, students work with the idea that 10 ones equals a ten, and 10 tens equals 1 hundred. In addition, Second Grade students also make use of structure when they work with subtraction as missing addend problems, such as 50- 33 = __ can be written as 33+ __ = 50 and can be thought of as," How much more do I need to add to 33 to get to 50?"

8. Look for and express regularity in repeated reasoning.	Mathematically proficient students in Second Grade begin to look for regularity in problem structures when solving mathematical tasks. For example, after solving two digit addition problems by decomposing numbers (33+ 25 = 30 + 20 + 3 +5), students may begin to generalize and frequently apply that strategy independently on future tasks. Further, students begin to look for strategies to be more efficient in computations, including doubles strategies and making a ten. Lastly, while solving all tasks, Second Grade students accurately check for the reasonableness of their solutions during and after completing the task.

Return to Standards

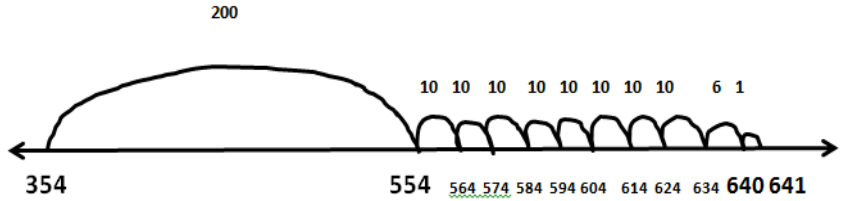
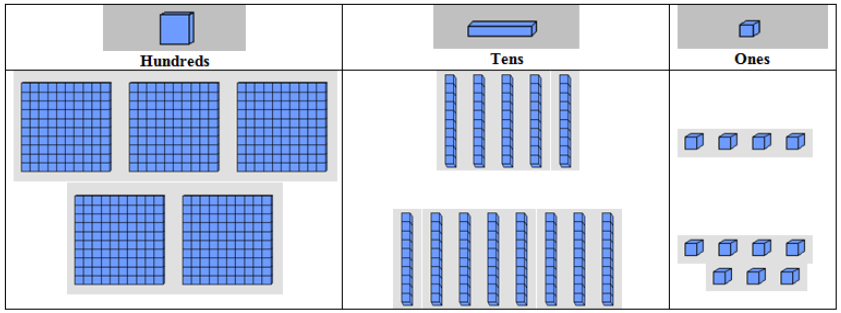
Use place value understanding and properties of operations. **NC.2.NBT.6** Add up to three two-digit numbers using strategies based on place value and properties of operations.	
Clarification	**Checking for Understanding**
This standard builds upon NC.2.NBT.5 as students apply their understanding of place value and the properties of operations to add a string of up to three two-digit numbers. Students recognize that numbers may be grouped and added in any order (associative property), and combine numbers in ways that make adding easier. Students explain why strategies work as they apply their knowledge of place value and the properties of operations in their explanation. Students may use drawings or objects to support their explanation. The standard algorithm of carrying or borrowing is neither an expectation nor a focus in Second Grade. Students develop strategies for addition and subtraction in Grades K-3.	43 + 34 + 57 = __ Student A *Associative Property* *I saw the 43 and 57 and added them first. I know 3 plus 7 equals 10, so when I added them 100 was my answer. Then I added 34 and had 134.* *So, 43 + 57 + 34 = 134* Student B *Place Value Strategies* *I broke up all of the numbers into tens and ones. First, I added the tens. 40 + 30 + 50 = 120. Then I added the ones. 3 + 4 + 7 = 14. That meant I had 1 ten and 4 ones. So, 120 + 10 is 130. 130 and 4 more is 134.* *So, 43 + 34 + 57 = 134* Student C *Place Value Strategies and Associative Property* *I broke up all the numbers into tens and ones. First, I added up the tens. 40 + 30 + 50. I changed the order of the numbers to make adding easier. I know that 40 + 50 equals 90. I took 10 from the 30, so that 90 + 10 equals 100. I added the 20 that was left to get 120.* *Then I added up the ones. 3 + 4 + 7. I changed the order of the numbers to make adding easier. I know that 3 plus 7 equals 10. 10 plus 4 equals 14.* *I then combined my tens and my ones. 120 plus 14 (1 ten and 4 ones) equals 134.*

Return to Standards

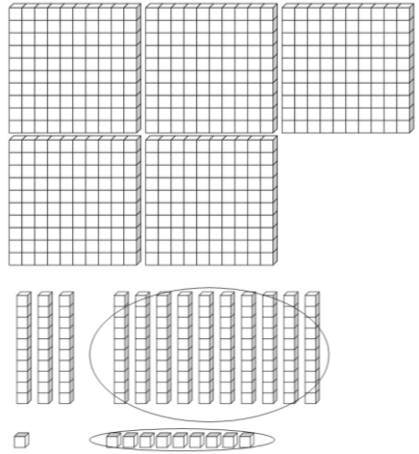
Use place value understanding and properties of operations.

NC.2.NBT.7 Add and subtract, within 1,000, relating the strategy to a written method, using:

- Concrete models or drawings
- Strategies based on place value
- Properties of operations
- Relationship between addition and subtraction

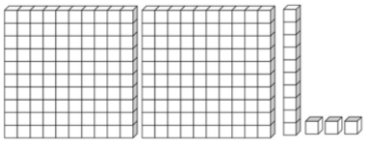
Clarification	**Checking for Understanding**
This standard calls for students to extend their understanding of addition and subtraction to add and subtract two 3-digit numbers. They use concrete materials, models, drawings, place value strategies, and properties of operations to add within 1,000. Students are expected to explain their reasoning using pictures, numbers, or words. The standard algorithm of carrying or borrowing is neither an expectation nor a focus in Second Grade. Students develop strategies for addition and subtraction in Grades K-3.	354 + 287 = __ Student A *I started at 354 and jumped 200. I landed on 554. I then made 8 jumps of 10 and landed on 634. I then jumped 6 to land on 640. Then I jumped 1 more and landed on 641. 354 + 287 = 641*  Student B *I used place value blocks and a place value mat.* *I broke up both of the numbers and placed them on the place value mat.* *First, I added the ones.4 + 7 = 11.* *Then I added the tens. 50 + 80 = 130.* *Then I added the hundreds. 300 + 200 = 500.* *Then I combined my answers. 500 + 130 = 630. 630 + 11= 641.* 

Student C
I used place value blocks. I made a pile of 354. I then added 287. That gave me 5 hundreds, 13 tens and 11 ones. I noticed that I could trade some pieces. I had 11 ones and traded 10 ones for a ten. I then had 14 tens, so I traded 10 tens for a hundred. I ended up with 6 hundreds, 4 tens and 1 one.
So, 354 + 287 = 641

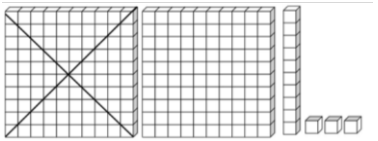


213 - 124 = __

Student: *I used place value blocks. I made a pile of 213.*

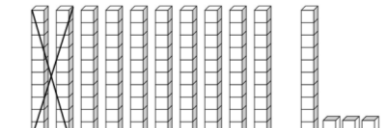


I then started taking away blocks. First, I took away a hundred which left me with 1 hundred and thirteen.

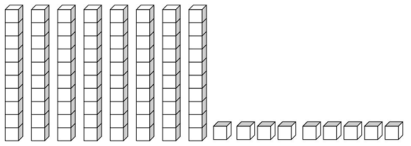


Now, I only need to take away 24. I need to take away 2 tens but I only had 1 ten so I traded in my last hundred for 10 tens. Then I took two tens away leaving me with no hundreds and 9 tens and 3 ones.

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



Return to Standards

Use place value understanding and properties of operations. **NC.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.	
Clarification	**Checking for Understanding**
In this standard, students build on the work from NC.1.NBT.5 where they mentally found 10 more and 10 less than any two-digit number. Standard NC.2.NBT.8 builds on this work as students mentally add and subtract 10 or 100 from a given number between 100 and 900. As students engage in various experiences with concrete objects and representations, they realize that when one adds or subtracts 10 or 100 that only the tens place or the digit in the hundreds place changes by 1. Students discover patterns and connect the digit change with the amount changed, which leads into solving problems mentally. Opportunities to solve problems in which students cross hundreds are also provided once students have become comfortable adding and subtracting within the same hundred.	Within the same hundred: What is 10 more than 218? What is 241 – 10? Across hundreds: 293 + 10 = ☐ What is 10 less than 206?

Return to Standards