

**MOBILE COUNTY PUBLIC SCHOOLS
DIVISION OF CURRICULUM & INSTRUCTION
SECOND GRADE MATHEMATICS INSTRUCTIONAL PLANNING GUIDE
2017-2018: QTR 2**

**Qtr. 2: Weeks 1-3
October 10 – October 27 (14 days)
Grade 2, Unit 4: Place Value**

UNIT OVERVIEW: EXTENDING PLACE VALUE UNDERSTANDING

In this unit, students extend their understanding of the base-ten system by viewing 10 tens as forming a new unit called a hundred. This lays the groundwork for understanding the structure of the base-ten system. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones). The extension of place value also includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. **In unit 4, these standards are to be taught in conjunction with one another and not in isolation.**

ESSENTIAL QUESTIONS:

What is the relationship between place value and understanding numbers?
How does using strategies based on place value help us add or subtract?
How do we read and write numbers to 1000?

KEY VOCABULARY:

strategies, mental math, greater than (>), less than (<), equal to (=), digit, number form, word form, expanded form, place value, ones, tens, hundreds, add/addition, subtract/subtraction, sum, equal, compose, decompose, array

Standards/Objectives

Mastery Standards

Standards Clarification

[2-NBT.2] Count within 1000; skip-count by 5s, 10s and 100s.

- Second grade students count within 120. Thus, students “count on” from any number and say the next few numbers that come afterwards.
Example: What are the next 3 numbers after 99? *100, 101, 102*. When you count back from 101, what are the first 3 numbers that you say? *100, 99, 98*.

[2-NBT.2] Count within 1,000 plus skip counting by 5s, 10s, and 100s.

[2-NBT.3] READ and WRITE numbers to 1000 using base-ten numerals, number names, and expanded form.

- Second grade students read, write and represent a number of objects with a written numeral (number form or standard form). These representations can include snap cubes, place value (base 10) blocks, pictorial representations or other concrete materials.
- Be cognizant that when reading and writing whole numbers, the word “and” should not be used (e.g., 116 is stated and written as “one hundred sixteen”).

[2-NBT.3] Read/write to 1,000 using base-ten numerals and number names including expanded form.

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<p>[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.</p> <ul style="list-style-type: none"> When comparing numbers, students draw on the understanding that 1 hundred (the smallest three-digit number) is actually greater than any amount of tens and ones represented by a two-digit number. When students truly understand this concept, it makes sense that one would compare three-digit numbers by looking at the hundreds place first. This standard focuses on comparing two numbers and using reasoning about place value to support the use of the various symbols. 	<p>[2-NBT.4] Compare 3 digit numbers using symbols.</p>
<p>[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.</p>	<p>[2-NBT.5] Fluently add & subtract within 100 with concrete drawings & number line.</p>
<p>[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.</p>	<p>[2-NBT.8] Mentally \pm 10 & 100.</p>
<p>[2-NBT.9] Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)</p>	<p>[2-NBT.9] Explain strategies and why they work.</p>
<p>Opportunity for Depth Standards</p>	<p>Standards Clarification</p>
<p>[2-OA.2] Fluently ADD and SUBTRACT within 20 using mental strategies. (See standard 6, G1, for a list of mental strategies.) By end of Grade 2, know from memory all sums of 2 one-digit numbers.</p>	<p>[2-OA.2] Fluently add and subtract within 20.</p> <p><i>Basic Fact Assessment:</i> <i>Subtraction with minuends less than or equal to 20</i></p>

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<p>[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.</p> <p>a. 100 can be thought of as a bundle of ten tens, called a “hundred.”</p> <p>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.)</p>	<p>[2-NBT.1] Embedded with NBT 2-7.</p>
<p>[2-NBT.7] ADD and SUBTRACT within 1000 using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding and subtraction three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p> <ul style="list-style-type: none"> This standard also references composing and decomposing a ten. This work should include strategies such as making a 10, making a 100, breaking apart a 10, or creating an easier problem. The standard algorithm of carrying or borrowing is not an expectation in Second Grade. 	<p>[2-NBT.7] Add and subtract within 500 using CONCRETE MODELS or DRAWINGS.</p>
Supporting Standards	Standards Clarification
<p>[2-OA.4] Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.</p>	<p>[2-OA.4] Add with arrays.</p>
Continued (not new)	
<p>OA3 Continue for reinforcement and review</p>	

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Resources for Quarter 2, Unit 4
Some tasks may need to be modified to follow MCPSS pacing.

<p>Engage New York Module 4 Topics A, B, E, F – (NBT5, NBT7, NBT8, NBT9) https://www.engageny.org/resource/grade-2-mathematics-module-4</p> <p>Module 6 Topic A, B, C – (OA4) https://www.engageny.org/resource/grade-2-mathematics-module-6</p>	<p>Georgia Standards Unit 1 - (NBT1, NBT2, NBT3, NBT4) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-1.pdf</p> <p>Unit 2 - (NBT5, OA2) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-2.pdf</p> <ul style="list-style-type: none"> • Different Paths, Same Destination • Roll Away • Mental Math • Take 100 <p>Unit 4 - (NBT7, NBT8, NBT9) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-4.pdf</p> <p>Unit 6 - (OA4) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-6.pdf</p> <ul style="list-style-type: none"> • Drink Up • Cereal Arrays • The Queen’s Dilemma • Mathemagicians • No, You Can’t • The Candy Box • Staples 	<p>North Carolina (NBT1, NBT2, NBT3, NBT4) http://commoncoretasks.ncdpi.wikispaces.net/2.NBT.1-2.NBT.4+Tasks</p> <p>(NBT 5, NBT7, NBT8, NBT9) http://commoncoretasks.ncdpi.wikispaces.net/2.NBT.5-2.NBT.9+Tasks</p> <p>(OA2) http://commoncoretasks.ncdpi.wikispaces.net/2.OA.2+Tasks</p> <p>(OA4) http://commoncoretasks.ncdpi.wikispaces.net/2.OA.3-2.OA.4+Tasks</p>	<p>Math In Focus Chapter 3 pages 61-64, 100-103, 108, 110, 114, 117-119, 121, 126, 195, 268, 269 – (NBT5, OA2) Chapter 10 Lessons 1-4 – (NBT8)</p>
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Focus Standards for Mathematical Practice
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MP.1 Make sense of problems and persevere in solving them.
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MP.2 Reason abstractly and quantitatively.
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MP.6 Attend to precision.

MP.7 Look for and make use of structure.
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Qtr. 2: Weeks 4-6
 October 30– November 17 (14 days)
 Grade 2, Unit 5: Measure and Estimate Lengths

UNIT OVERVIEW: MEASURE AND ESTIMATE LENGTHS

In this unit, students will measure and estimate lengths in standard units. They will recognize the need for standard units of measure (centimeters, meters, inches, and feet), and they will use rulers and other measurement tools with the understanding that linear measurement involves an iteration of units.

ESSENTIAL QUESTIONS:

How can we decide on appropriate units of measurement (i.e. inch, foot, centimeter, and meter)?
 How can you measure the length of an object?
 How can we tell if an estimate is reasonable?
 How can using a number line help us when we are solving math problems?

KEY VOCABULARY:

measure, length, centimeter, meter, inch, foot, ruler, yardstick, meter stick, measuring tape, standard unit, number line, estimate

Standards/Objectives

Mastery Standards

Standards Clarification

[2-MD.1] Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

[2-MD.1] Measure length/connect to number line.

[2-MD.3] Estimate lengths using units of inches, feet, centimeters, and meters.

[2-MD.3] Estimate length.

[2-MD.6] **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 within 100 on a number line diagram.

[2-MD.6] Add and subtract with a number line.

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Opportunity for Depth Standards	Standards Clarification
<p>[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</p> <ul style="list-style-type: none"> One-step word problems use one operation. As second grade students solve one step problems they use manipulatives such as snap cubes, place value materials (groupable and pre-grouped), ten frames, etc.; create drawings of manipulatives to show their thinking; or use number lines to solve and describe their strategies. They then relate their drawings and materials to equations. By solving a variety of addition and subtraction word problems, second grade students determine the unknown in all positions (Result unknown, Change unknown, and Start unknown). Rather than a letter (“n”), boxes or pictures are used to represent the unknown number. 	<p>[2-OA.1] One step problems medium types (NO 2 step problems)</p> <p><u>Compare Difference Unknown</u> (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + \square = 5$, $5 - 2 = \square$</p> <p><u>Add to Start Unknown</u> Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $\square + 3 = 5$</p> <p><u>Compare Bigger Unknown</u> (Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have?</p> <p><u>Compare Smaller Unknown</u> (Version with “fewer”): Lucy has three fewer apples than Julie. Julie has five apples. How many apples does Lucy have?</p>
<p>[2-OA.2] Fluently ADD and SUBTRACT within 20 using mental strategies. (See standard 6, G1, for a list of mental strategies.) By end of Grade 2, know from memory all sums of 2 one-digit numbers.</p>	<p>[2-OA.2] Fluently add and subtract within 20.</p> <p><i>Basic Fact Assessment:</i> <i>Subtraction with minuends less than or equal to 20</i></p>

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Resources for Quarter 2, Unit 5
Some tasks may need to be modified to follow MCPSS pacing.

<p>Engage New York Module 2 Topics A, B – (MD1, MD3) https://www.engageny.org/resource/grade-2-mathematics-module-2</p> <p>Module 7 Topic C - (MD1) https://www.engageny.org/resource/grade-2-mathematics-module-7</p>	<p>Georgia Standards Unit 2 - (OA1, OA2) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-2.pdf</p> <ul style="list-style-type: none"> • Got Milk • Number Destinations • Our Number Riddles/My Number Riddle • Building/Busting Towers of Ten • Multi-Digit Addition <p>Unit 3 - (MD1, MD3, MD6) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-3.pdf</p>	<p>Howard County (MD1) https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-1-about-the-math-learning-targets-and-increasing-rigor</p> <p>(MD3) https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-3-about-the-math-learning-targets-and-increasing-rigor</p> <p>(MD6) https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-b-6-about-the-math-learning-targets-and-increasing-rigor</p> <p>(OA1, OA2) https://hcpss.instructure.com/courses/106/pages/grade-2-year-at-a-glance</p>	<p>Math In Focus Chapter 7 – (MD1, MD2) Chapter 10 pages 17-19 – (OA1) Chapter 13 – (MD1, MD2)</p>
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Focus Standards for Mathematical Practice

MP.2 Reason abstractly and quantitatively.

MP.3 Construct viable arguments and critique the reasoning of others.

MP.5 Use appropriate tools strategically.

MP.6 Attend to precision.

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Qtr. 2: Weeks 7-9

November 27 – December 15 (15 days)

Grade 2, Unit 6: Work with Time and Money

UNIT OVERVIEW: WORK WITH TIME AND MONEY

In this unit, students extend their work with telling time to the hour and half-hour in order to tell (orally and in writing) the time indicated on both analog and digital clocks to the nearest quarter hour. They will also solve word problems involving either dollars or cents. Since students have not been introduced to decimals, problems focus on whole dollar amounts or cents.

ESSENTIAL QUESTIONS:

- What is the difference between analog and digital clocks?
- How do you show the same amount of money using different sets of coins?
- How can you use money to solve word problems?
- How is counting money useful in real life?

KEY VOCABULARY:

analog clock, digital clock, hour hand, minute hand, hour, half-hour, quarter hour, dollar bill, coins, penny, nickel, dime, quarter

Standards/Objectives

Opportunity for Depth Standards

[2-OA.2] Fluently ADD and SUBTRACT within 20 using mental strategies. (See standard 6, G1, for a list of mental strategies.) By end of Grade 2, know from memory all sums of 2 one-digit numbers.

Standards Clarification

[2-OA.2] Fluently add and subtract within 20.

*Basic Fact Assessment:
Subtraction with minuends less than or equal to 20*

Supporting Standards

[2-MD.7] TELL and WRITE time from analog and digital clocks to the nearest five minutes, using a.m and p.m.

- Students make connections between skip counting by 5s and telling time to the nearest five minutes on an analog clock.

Standards Clarification

[2-MD.7] Time to the hour, half hour, and quarter hour.

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<p>[2-MD.8] SOLVE word problems involving dollar bills, quarters, dimes, nickels and pennies, using \$ and ¢ symbols appropriately.</p> <ul style="list-style-type: none"> • This is the first time money is introduced formally as a standard. Therefore, students will need numerous experiences with coin recognition and values of coins before using coins to solve problems. • For example, 25 cents can look like a quarter, two dimes and a nickel, and it can look like 25 pennies, and still all remain 25 cents. This concept of equivalent worth takes time and requires numerous opportunities to create different sets of coins, count sets of coins, and recognize the “purchase power” of coins (a nickel can buy the same things a 5 pennies). 	<p>[2-MD.8] Identify coins and skip count by like coins; count mixed coins to \$1 (connect to 100).</p>
Additional	Standards Clarification
<p>[2-G.3] Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words <i>halves</i>, <i>thirds</i>, <i>half of</i>, <i>a third of</i>, etc.; and describe the whole as two halves, three thirds, or four fourths. Recognize that equal shares of identical wholes need not have the same shape.</p>	<p>[2-G.3] Partition circles ONLY into halves and fourths (connect to telling time).</p>

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Resources for Quarter 2, Unit 6
Some tasks may need to be modified to follow MCPSS pacing.

<p>Engage New York Module 3 Topic D – (MD8) https://www.engageny.org/resource/grade-2-mathematics-module-3</p> <p>Module 8 Topic B – (G3) https://www.engageny.org/resource/grade-2-mathematics-module-8</p>	<p>Georgia Standards Unit 2 - (OA2) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-2.pdf</p> <ul style="list-style-type: none"> • Incredible Equations • Order is Important <p>Unit 3 - (MD7) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-3.pdf</p> <ul style="list-style-type: none"> • Numberline Clock • Missed Bedtime <p>Unit 4 - (MD8) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-4.pdf</p> <ul style="list-style-type: none"> • Story Problems Revisited • What I Have and What I Need • Shopping for School Supplies <p>Unit 5 - (G3) https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-5.pdf</p> <ul style="list-style-type: none"> • Sharing Equally 	<p>Howard County (MD7, MD8 G3 connect to analog clock in MD7 activities) https://hcpss.instructure.com/courses/106/pages/grade-2-year-at-a-glance</p>	<p>Math In Focus Chapter 14 Lesson 1 – (MD7)</p>
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Focus Standards for Mathematical Practice

MP.3 Construct viable arguments and critique the reasoning of others.

MP.6 Attend to precision.

MP.7 Look for and make use of structure.