

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

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

UNIT OVERVIEW: DEVELOPING ADDITION AND SUBTRACTION STRATEGIES

Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take apart, and compare situations. They will use these models to develop meaning for the operations of addition and subtraction and to develop strategies to solve arithmetic problems with these operations.

Essential Questions

- What happens when we join two quantities or take one from another?
- How can we find the total when we join two quantities?
- How can we find what is left when we take one quantity from another?
- How can we find the difference when we compare one quantity to another?
- How can we represent problem situations?

Key Vocabulary

- addend • total • missing part • sum • equal to • minus • subtract • add
- adding to • in all • counting all • counting on • counting back
- taking from • putting together • taking apart • and (to describe + sign)
- unknown • equal • make ten

Standards/Objectives

Mastery Standards

[1-OA.3] Apply properties of operations as strategies to add and subtract.

- 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.**)
- **Example: Cubes**
 A student uses 2 colors of cubes to make as many different combinations of 8 as possible. When recording the combinations, the student records that 3 green cubes and 5 blue cubes equals 8 cubes in all. In addition, the student notices that 5 green cubes and 3 blue cubes also equals 8 cubes.
- **Example: Number Balance**
 A student uses a number balance to investigate the commutative property. “If 8 and 2 equals 10, then I think that if I put a weight on 2 first this time and then on 8, it’ll also be 10.”

Standards Clarification

[1-OA.3] Commutative Property

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<p>[1-OA.4] Understand subtraction as an unknown-addend problem.</p> <ul style="list-style-type: none">• For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20.• For Sums to 10 Think-Addition uses known addition facts to solve for the unknown part or quantity within a problem. When students use this strategy, they think, “What goes with this part to make the total?” The think-addition strategy is particularly helpful for subtraction facts with sums of 10 or less.• For example, when working with the problem $9 - 5 =$ and what makes nine?”, rather than relying on a counting approach in which the student counts 9, counts off 5, and then counts what’s left. When subtraction is presented in a way that encourages students to think using addition, they use known addition facts to solve a problem.• Example: $10 - 2 = \square$ Student: “2 and what make 10? I know that 8 and 2 make 10. So, $10 - 2 = 8$.”	<p>[1-OA.4] Add and subtract within 10</p>
<p>[1-OA.5] Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</p> <ul style="list-style-type: none">• When solving addition and subtraction problems to 20, First Graders often use counting strategies, such as counting all, counting on, and counting back, before fully developing the essential strategy of using 10 as a benchmark number. Once students have developed counting strategies to solve addition and subtraction problems, it is very important to move students toward strategies that focus on composing and decomposing number using ten as a benchmark number, particularly since counting becomes a hindrance when working with larger numbers. By the end of First Grade, students are expected to use the strategy of 10 to solve problems.	<p>[1-OA.5] Counting on/back within 20</p>

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Opportunity for Depth Standards	Standards Clarification
<p>[1-OA.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.</p>	<p>[1-OA.1] (Medium Type) within 15.</p> <p><u>Compare Difference Unknown</u> (“How many more?” & “How many fewer?”): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy?</p> <p>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 Change Unknown</u> Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + \square = 5$</p> <p><u>Put Together/Take Apart Addend Unknown</u> Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + \square = 5$, $5 - 3 = \square$</p>
<p>[1-OA.6] Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on;</p> <ul style="list-style-type: none"> • making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); • decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); • using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); • and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$) 	<p>[1-OA.6] Add and subtract within 10.</p> <p>Instructional focus on make 10, plus 3 & plus 4. BUILDING FLUENCY</p> <p><i>Basic Fact Assessment: Addition facts to 10</i></p>

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Resources Quarter 2 Unit 4			
<i>Some task may need to be modified to keep children within 15</i>			
<p>Engage NY Module 1 Topic H (Lessons 31 & 32), I (Lessons 35-37), and J – (OA4, OA5, OA6) https://www.engageny.org/resource/grade-1-mathematics-module-1</p> <p>Module 2 Topic B – (OA1, OA3) https://www.engageny.org/resource/grade-1-mathematics-module-2</p>	<p>Georgia Standards Unit 3 – (OA1, OA3, OA4, OA5, OA6) https://www.georgiastandards.org/Georgia-Standards/Frameworks/1st-Math-Unit-3.pdf</p>	<p>K-5 Math Resources – (OA1, OA3, OA4, OA5, OA6) http://www.k-5mathteachingresources.com/1st-grade-number-activities.html</p>	<p>Math in Focus Chapter 3, Lessons 2 & 3 - (OA1) <i>Addition Story Problems</i> Chapter 4, Lesson 1 - (OA5) <i>Subtraction</i> Chapter 4, Lessons 2 & 3 - (OA1) <i>Subtraction Story Problems</i> Chapter 4, Lesson 4 - (OA6) <i>Fact Families</i></p>
<p>Xtra Math https://xtramath.org/#/home/index <i>Free, individualized web based program that helps to build student fluency (1.OA.6)</i></p>			
Focus Standards for Mathematical Practice			
MP.1 Make sense of problems ad persevere in solving them.			
MP.3 Construct viable arguments and critique the reasoning of others.			
MP.4 Model with mathematics.			
MP.6 Attend to precision.			
MP.7 Look for and make use of structure.			

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 2017-2018: QTR 2

Qtr. 2: Weeks 4-6
 October 30 - November 17 (14 days)
 Grade 1, Unit 5

UNIT OVERVIEW: USING PLACE VALUE TO READ, WRITE, REPRESENT & COMPARE NUMBERS

Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. **They compare whole numbers (at least to 100)** to develop understanding of and solve problems involving their relative sizes. **They think of whole numbers between 10 and 100 in terms of tens and ones** (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). **Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.**

Essential Questions

- How are the operations of addition and subtraction alike and different?
- How does using 10 as a benchmark help us compose numbers?
- How do we represent a collection of objects using tens and ones?
- How can we represent a number in a variety of ways?

Key Vocabulary

- addition • subtraction • counting on • strategy • benchmark • compare
- compose • decompose • equal to • less than • more than • number line
- place value: tens & ones • ten frames • same as • equation
- same amount/quantity • true • false

Standards/Objectives

Mastery Standards

[1-OA.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?

$6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

- In order to determine whether an equation is true or false, First Grade students must first understand the meaning of the equal sign. This is developed as students solve numerous joining and separating situations with mathematical tools, rather than symbols. Once the concepts of joining, separating, and “the same amount/quantity as” are developed concretely, students learn that the equal sign does not mean “the answer comes next”, but that the symbol signifies an equivalent relationship that the left side ‘has the same value as’ the right side of the equation.

Standards Clarification

[1-OA.7] Understand the equal sign means “is the same as”

$6 = 6$
 $7 = 8 - 1$
 $5 + 2 = 2 + 5$
 $3 + 3 = 5 + 1$

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<p>[1-NBT.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.</p> <ul style="list-style-type: none"> • First graders develop accurate counting strategies that build on the understanding of how the numbers in the counting sequence are related—each number is one more (or one less) than the number before (or after). In addition, first grade students read and write numerals to represent a given amount. 	<p>[1-NBT.1] Count to 80, starting at any number less than 80.</p>
<p>[1-NBT.3] Compare 2 two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, & $<$.</p> <ul style="list-style-type: none"> • First Grade students use their understanding of groups and order of digits to compare two numbers by examining the amount of tens and ones in each number. After numerous experiences verbally comparing two sets of objects using comparison vocabulary (e.g., 42 is more than 31. 23 is less than 52, 61 is the same amount as 61.), first grade students connect the vocabulary to the symbols: greater than ($>$), less than ($<$), equal to ($=$). 	<p>[1-NBT.3] Compare numbers with symbols.</p> <p>Example: Compare these two numbers. 42 __ 45</p>
<p>Opportunity for Depth Standards</p>	<p>Standards Clarification</p>
<p>[1-NBT.2] Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</p> <ol style="list-style-type: none"> 10 can be thought of as a bundle of ten ones — called a “ten.” The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). 	<p>[1-NBT.2] tens/ones</p>

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[1-NBT.4] Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

- First Grade students use concrete materials, models, drawings and place value strategies to add within 100. They do so by being flexible with numbers as they use the base-ten system to solve problems. The standard algorithm of carrying or borrowing is neither an expectation nor a focus in First Grade.

[1-NBT.4] Add **within 50** using models and drawings

[1-OA.6] Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as **counting on**;

- **making ten** (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$);
- **decomposing a number leading to a ten** (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$);
- **using the relationship between addition and subtraction** (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$);
- **and creating equivalent but easier or known sums** (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$)

[1-OA.6] Add and subtract **within 10**.

Instructional focus on **make 10, plus 3 & plus 4. BUILDING FLUENCY**

Basic Fact Assessment: Addition facts to 10

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Resources Quarter 2 Unit 5

Some tasks (INBT.1) may need to be modified to keep children within the 1-80 range for 2nd Quarter.

<p>Engage NY Module 4 Topics A, (Omit Lesson 5), B (Lessons 8-10), C – (NBT1, NBT2, NBT3, NBT4, OA7) https://www.engageny.org/resource/grade-1-mathematics-module-4</p>	<p>Georgia Standards Unit 1 - (NBT1) https://www.georgiastandards.org/Georgia-Standards/Frameworks/1st-Math-Unit-1.pdf Unit 2 – (NBT1) https://www.georgiastandards.org/Georgia-Standards/Frameworks/1st-Math-Unit-2.pdf Unit 3 – (OA7) https://www.georgiastandards.org/Georgia-Standards/Frameworks/1st-Math-Unit-3.pdf Unit 5 – (NBT2, NBT3, NBT4) https://www.georgiastandards.org/Georgia-Standards/Frameworks/1st-Math-Unit-5.pdf</p>	<p>Supplemental Resource North Carolina Wiki Spaces http://maccss.ncdpi.wikispaces.net/file/view/CCSSMathTasks-Grade1.pdf/593328526/CCSSMathTasks-Grade1.pdf <i>Handful of Cubes</i> (1NBT2) <i>Number Bingo</i> (NBT3) <i>Place Value & Arrow Cards</i> (NBT2) <i>Place Value Step 2 & Arrow Cards</i> (NBT2) <i>Tall Towers</i> (NBT2) <i>Greater Than, Less Than, Equal to</i> (NBT3) <i>Spin to Win</i> (NBT3)</p>	<p>Math in Focus Chapter 12, Lessons 2 - (NBT2) <i>Place Value</i> Chapter 12, Lesson 3 - (NBT1) <i>Counting and Number Sense</i> Chapter 13, Lesson 1 - (NBT4) <i>Addition within 40</i> Chapter 16, Lessons 1 (Day 1) & 2 - (NBT2) <i>Counting and Place Value</i></p>
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Focus Standards for Mathematical Practice

- MP.1 Make sense of problems and persevere in solving them.
- MP.2 Reason abstractly and quantitatively.
- MP.3 Construct viable arguments and critique the reasoning of others.
- MP.4 Model with mathematics.
- MP.7 Look for and make use of structure.

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Qtr. 2: Weeks 7-9
 November 27 - December 15 (15 Days)
 Grade 1, Unit 6

UNIT OVERVIEW: GEOMETRY AND DATA

Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

Essential Questions

- What are attributes?
- What is a 2-dimensional shape? What is a 3-dimensional shape?
- How are shapes alike and different?
- How can we use tally marks to help represent data in a table or chart?
- How do tables and charts help us organize our thinking?
- How can we use counting to compare objects in a set?

Key Vocabulary

- attribute • circle • cone • cube • cylinder
- rectangular prism • sphere • pyramid • triangle • partition
- two-dimensional • plane shapes • geometric solid • three-dimensional
- vertex (vertices) • faces • trapezoid • square • rectangle • orientation
- chart • compare • counting on • data • equal to • less than • more than
- number line • same • table • tally mark • most • least • different
- category

Standards/Objectives

Opportunity for Depth Standards

- [1-OA.6]** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as **counting on**;
- **making ten** (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$);
 - **decomposing a number leading to a ten** (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$);
 - **using the relationship between addition and subtraction** (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$);
 - and **creating equivalent but easier or known sums** (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$)

Standards Clarification

- [1-OA.6]** Add and subtract **within 10**.
- Instructional focus on **make 10, plus 3 & plus 4. BUILDING FLUENCY**
- Basic Fact Assessment: Addition facts to 10*

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Supporting Standards	Standards Clarification
<p>[1-MD.4] Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</p> <ul style="list-style-type: none"> In first grade, students will sort items into collections up to three categories. They will pose questions about the number of items in each category, the total number of items, and compare the number of items in categories. This standard lends itself to the integration of first grade geometry concepts. For example, provide categories for students to sort identical collections of different geometric shapes. After their shapes have been sorted, questions should be posed. <i>How many triangles are in the collection? How many rectangles are there? How many triangles and rectangles are there? Which category has the most items? How many more? Which category has the least? How many less?</i> 	<p>[1-MD.4] Working with pictographs and tally charts.</p>
Additional	Standards Clarification
<p>[1-G.1] Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.</p> <ul style="list-style-type: none"> First Grade students use their beginning knowledge of defining and non-defining attributes of shapes to identify, name, build and draw shapes (including triangles, squares, rectangles, and trapezoids). They understand that defining attributes are always-present features that classify a particular object (e.g., number of sides, angles, etc.). They also understand that nondefining attributes are features that may be present, but do not identify what the shape is called (e.g., color, size, orientation, etc.) 	<p>[1-G.1] Plane Shapes.</p>

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<p>[1-G.2] Compose two dimensional shapes (rectangles, squares, trapezoids, triangles, half circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.</p> <ul style="list-style-type: none"> As first graders create composite shapes, a figure made up of two or more geometric shapes, they begin to see how shapes fit together to create different shapes. They also begin to notice shapes within an already existing shape. They may use such tools as pattern blocks, tangrams, attribute blocks, or virtual shapes to compose different shapes. 	<p>[1-G.2] 2D and 3D shapes.</p>
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Resources Quarter 2 Unit 6

<p>Engage NY Module 3 Topic D – (MD4) https://www.engageny.org/resource/grade-1-mathematics-module-3</p> <p>Module 5 Topics A, B – (G1, G2) https://www.engageny.org/resource/grade-1-mathematics-module-5</p>	<p>Georgia Standards Unit 1 – (MD4) https://www.georgiastandards.org/Georgia-Standards/Frameworks/1st-Math-Unit-1.pdf</p> <p>Task 3: How Many are Here today? Task 9: Graphing with Classmates Task 10: Trashcan Basketball Task 13: Favorite Sports</p> <p>Unit 6 – (MD4, G1, G2) https://www.georgiastandards.org/Georgia-Standards/Frameworks/1st-Math-Unit-6.pdf</p> <p>Task 2: What are Attributes? Task 6: Pattern Block Pictures</p>	<p>Howard County – (G1, G2, MD4) https://hcpss.instructure.com/courses/9414/pages/grade-1-year-at-a-glance</p> <p><i>(Scroll to find standard)</i></p>	<p>Math in Focus Chapter 5, Lessons 1-4 – (G1, G2) <i>Plane & Solid Shapes</i></p> <p>Chapter 11, Lessons 1-3 - (MD4) <i>Pictographs and Charts</i></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.7 Look for and make use of structure.