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| **Gwinnett County Public Schools Mathematics: Third Grade – Instructional Calendar 2013-2014 (1st Semester)** |
| **Standards for Mathematical Practice #s 1-8 taught throughout all units.** |
| 1st Quarter | 2nd Quarter |
| GCPS Unit 1 (GA Unit 1) | GCPS Unit 2 (GA Unit 2) | GCPS Unit 3 (GA Unit 3) | GCPS Unit 4 (GA Unit 4) |
| **Base Ten** | **Multiplication and Division Relationship** | **Multiplication and Division Properties** | **Addition and Multiplication Patterns** |
| 12.NBT.1 use place value understanding to round whole numbers to the nearest 10 or 10013.NBT.2 add and subtract fluently within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction14.NBT.3 multiply one-digit whole numbers by multiples of 10 in the range 10 ̶ 90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations | 1.OA.1 interpret products of whole numbers, [e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each (e.g., describe a context in which a total number of objects can be expressed as 5 x 7)]2.OA.2 interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each (e.g., describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8)3.OA.3 apply multiplication and division (products or dividends 0 - 100) to solve word problems in situations involving equal groups, arrays and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem)\*\*4.OA.4 determine the unknown whole number in a multiplication or division equation relating three whole numbers (e.g., determine the unknown number that makes the equation true in each of the equations 8 x ? = 48; 5 = □ ÷ 3, 6 x 6 = ∆)29.MD.3 draw a scaled picture graph and a scaled bar graph to represent a data set with several categories; solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs (e.g., draw a bar graph in which each square in the bar graph might represent 5 pets) | 5.OA.5 apply commutative, associative, and distributive properties as strategies to multiply and divide (e.g., If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known (commutative property of multiplication); 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 x 10 = 30 (Associative property of multiplication), knowing that 8 x 5 = 40 and 8 x 2 = 16, then one can find 8 x 7 as 8 x (5 + 2) = (8 x 5) + (8 x 2) = 40 + 16 = 56 (Distributive Property)). *Students need not use formal terms for these properties.*6.OA.6 understand division as an unknown-factor problem (e.g., find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8)7.OA.7 fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers) | 8.OA.8 solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding10.OA.9 identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operation (e.g., observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends)32.MD.5 recognize area as an attribute of plane figures and understand concepts of area measurement33.MD.5\_a. use words, pictures and/or numbers to show that "unit square" is a square with a side length of 1 unit, has an area of one square unit, and can be used to measure area of plane figures34.MD.5\_b. demonstrate that a plane figure which can be covered without gaps or overlaps by "n" unit squares is said to have an area of "n" square unit35.MD.6 measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)36.MD.7 relate area to the operations of multiplication and addition37.MD.7\_a. find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths38.MD.7\_b. multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning39.MD.7\_c. use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a x b and a x c; use area models to represent the distributive property in mathematical reasoning40.MD.7\_d. recognize area as additive; find areas of rectilinear figures (polygons all angles of which are right angles) by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems29.MD.3 draw a scaled picture graph and a scaled bar graph to represent a data set with several categories; solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs (e.g., draw a bar graph in which each square in the bar graph might represent 5 pets) |

G—Geometry, MD—Measurement and Data, NBT—Number and Operations in Base Ten, NF—Number and Operations Fractions, OA—Operations and Algebraic Thinking; \*\* See Glossary, Table 2

\*MD.3 will be assessed in 4th quarter

**Common Core Appendix: Table 2. Common multiplication and division situations.**

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| **Gwinnett County Public Schools Mathematics: Third Grade – Instructional Calendar 2013-2014 (2nd Semester)** |
| **Standards for Mathematical Practice #s 1-8 taught throughout all units.** |
| 3rd Quarter | 4th Quarter |
| GCPS Unit 5 (GA Unit 5) | GCPS Unit 6 (GA Unit 6) | GCPS Unit 7 (GA Unit 7) |
| **Geometry** | **Fractions** | **Measurement** |
| 42.G.1 understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories44.G.2 partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole (e.g., partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape) | 15.NF.1 understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b17.NF.2 recognize a fraction as a number on the number line; represent fractions on a number line diagram18.NF.2\_a. represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into "b" equal parts; recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line19.NF.2\_b. represent a fraction a/b on a number line diagram by marking off "a" lengths 1/b from 0 and recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line20.NF.3 explain equivalence of fractions in special cases and compare fractions by reasoning about their size21.NF.3\_a. recognize two fractions as equivalent (equal) if they are the same size or the same point on a number line22.NF.3\_b. recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3); explain why the fractions are equivalent by using a visual fraction model23.NF.3\_c. express whole numbers as fractions and recognize fractions that are equivalent to whole numbers (e.g., express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram)24.NF.3\_d. compare two fractions with the same numerator or the same denominator by reasoning about their size; recognize that comparisons are valid only when the two fractions refer to the same whole and record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual fraction model) | 25.MD.1 tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram27.MD.2 measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem41.MD.8 solve real world and mathematical problems involving the perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeters and different areas or the same areas with different perimeters\*29.MD.3 draw a scaled picture graph and a scaled bar graph to represent a data set with several categories; solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs (e.g., draw a bar graph in which each square in the bar graph might represent 5 pets)30.MD.4 generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units - whole numbers, halves, or quarters**Unit 8: Preview—Whole Numbers, Part 1** |

G—Geometry, MD—Measurement and Data, NBT—Number and Operations in Base Ten, NF—Number and Operations Fractions, OA—Operations and Algebraic Thinking

\*MD.3 will be assessed in 4th quarter

**Standards for Mathematical Practice - Third Grade Specific**

*Mathematical Practices are listed with each grade’s mathematical content standards to reflect the need to connect the mathematical practices to mathematical content in instruction.*

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy). ***Students are expected to:***

**1. Make sense of problems and persevere in solving them.**

In third grade, students know that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. Third graders may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, “Does this make sense?” They listen to the strategies of others and will try different approaches. They often will use another method to check their answers.

**2. Reason abstractly and quantitatively.**

Third graders should recognize that a number represents a specific quantity. They connect the quantity to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities.

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

In third grade, students may construct arguments using concrete referents, such as objects, pictures, and drawings. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?” They explain their thinking to others and respond to others’ thinking.

**4. Model with mathematics.**

Students experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. Third graders should evaluate their results in the context of the situation and reflect on whether the results make sense.

**5. Use appropriate tools strategically.**

Third graders consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. For instance, they may use graph paper to find all the possible rectangles that have a given perimeter. They compile the possibilities into an organized list or a table, and determine whether they have all the possible rectangles.

**6. Attend to precision.**

As third graders develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and in their own reasoning. They are careful about specifying units of measure and state the meaning of the symbols they choose. For instance, when figuring out the area of a rectangle they record their answers in square units.

**7. Look for and make use of structure.**

In third grade, students look closely to discover a pattern or structure. For instance, students use properties of operations as strategies to multiply and divide (commutative and distributive properties).

**8. Look for and express regularity in repeated reasoning.**

Students in third grade should notice repetitive actions in computation and look for more shortcut methods. For example, students may use the distributive property as a strategy for using products they know to solve products that they don’t know. For example, if students are asked to find the product of 7 x 8, they might decompose 7 into 5 and 2 and then multiply 5 x 8 and 2 x 8 to arrive at 40 + 16 or 56. In addition, third graders continually evaluate their work by asking themselves, “Does this make sense?”