Gwinnett County Public Schools Mathematics: Grade 3 CCGPS – At A Glance 2014-2015

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.	4 Model with mathematics.	7 Look for and make use of structure.
2 Reason abstractly and quantitatively.	5 Use appropriate tools strategically.	8 Look for and express regularity in repeated reasoning.
3 Construct viable arguments and critique the reasoning of others.	6 Attend to precision.	

1st 9 weeks: Units 1-2

Unit 1: Base Ten

Use place value understanding and properties of operations to perform multi-digit arithmetic.

- **AKS: 12.NBT.1** use place value understanding to round whole numbers to the nearest 10 or 100
- **AKS: 13.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 subtraction
- **AKS: 14.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

Unit 2: Multiplication and Division Relationships

Represent and solve problems involving multiplication and division.

- **AKS: 1.OA.1** interpret products of whole numbers
- **AKS: 2.OA.2** interpret whole-number quotients of whole numbers
- **AKS: 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
- **AKS: 4.OA.4** determine the unknown whole number in a multiplication or division equation relating three whole numbers

Represent and interpret data.

- **AKS: 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

2nd 9 weeks: Units 3-4

Unit 3: Multiplication and Division Properties

Understand properties of multiplication and the relationship between multiplication and division.

- **AKS: 5.OA.5** apply commutative, associative, and distributive properties as strategies to multiply and divide
- **AKS: 6.OA.6** understand division as an unknown-factor problem

Multiply and divide within 100.

- **AKS: 7.OA.7** fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division

Unit 4: Addition and Multiplication Patterns

Adding and Subtracting fractions

- **AKS: 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 rounding.
- **AKS: 10.OA.9** identify arithmetic patterns and explain them using properties of operation

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

- **AKS: 32.MD.5** recognize area as an attribute of plane figures and understand concepts of area measurement.
- **AKS: 33.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 figures.
- **AKS: 34.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 units.
- **AKS: 35.MD.6** measure areas by counting unit squares
- **AKS: 36.MD.7** relate area to the operations of multiplication and addition.
- **AKS: 37.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 lengths.
- **AKS: 38.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 reasoning.
- **AKS: 39.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 reasoning.
- **AKS: 40.MD.7_d.** Recognize area as additive; find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Represent and interpret data.

- **AKS: 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

Unit 5: Geometry

Reason with shapes and their attributes

- AKS: 42.G.1 understand that shapes in different categories may share attributes, and that the shared attributes can define a larger category. Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
- AKS: 44.G.2 partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole

Unit 6: Fractions

Develop understanding of fractions as numbers.

- 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/b
- 17.NF.2 recognize a fraction as a number on the number line; represent fractions on a number line diagram
- 18.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 line
- 19.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 line
- 20.NF.3 explain equivalence of fractions in special cases and compare fractions by reasoning about their size
- 21.NF.3_a. recognize two fractions as equivalent (equal) if they are the same size or the same point on a number line
- 22.NF.3_b. recognize and generate simple equivalent fractions; explain why the fractions are equivalent by using a visual fraction model
- 23.NF.3_c. express whole numbers as fractions and recognize fractions that are equivalent to whole numbers
- 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

Unit 7: Measurement

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

- **AKS: 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 problems on a number line diagram
- **AKS: 27.MD.2** measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters. Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, 3.g., by using drawings (such as a beaker with a measurement scale) to represent the problem
- **AKS: 41.MD.8** solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters
- **AKS: 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