4th Grade Pacing Guide

Welcome to 4th Grade Mathematics!

Our journey through the NC revised Fourth Grade Common Core Mathematics Standard Course of Study will include:

1. The planning of lessons organized by "conceptual" categories (or themes): **Operations and Algebraic Thinking (OA)**, **Number and Operations in Base Ten (NBT)**, **Numbers and Operations—Fractions (NF), Measurement and Data**
2. Eight Mathematical Practices which are the behaviors (or habits of mind) that are developed to achieve mathematical proficiency throughout the kindergarten school year.
3. All students must be able to conceptualize math concepts, follow procedural algorithms and apply essential understanding in the context of the learning; therefore, teachers are asked to consider the learners when selecting an approach to close academic gaps. The implementation of the required "**I Do; We Do; You Do**" (gradual release) instructional approach shown in "Figure 1/Link" ensures academic clarity in the processing of new content. See Figures 2 as well.
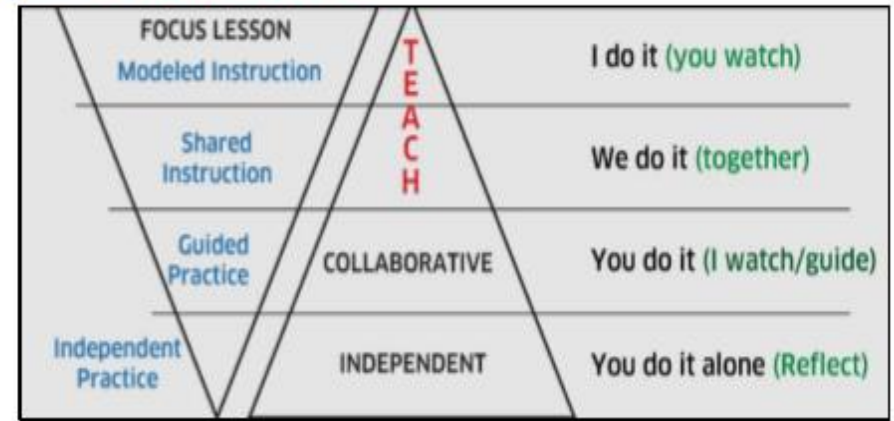
   Figure 2/Link: Concrete → Representational → Abstract Modeling Method

Road to Mastery Includes the Following:

➢ **Follow the 4th Grade Math Pacing Guide**
   (**Note:** Number means quarter taught; X means quarters NOT taught; P means performed routinely in teacher-led small groups)
➢ Instructional block consists of a minimum 90-minutes
➢ Each quarter of standards is to be clustered into 2-week units; Use of DPI Math Unpacking Guide and EOG 4th Grade Test Specification Guide
➢ Plan for whole group & collaborative small group instruction
➢ Utilize appropriate hands-on manipulatives during guided practice
➢ Student engagement should include intellectually independent & collaborative computation & problem-solving tasks
➢ Data-driven Remediation Plan includes scaffolding of content; direct instruction & anchor chart(s); use of other supplemental intervention resources;
➢ Daily 2-minute math drills to build fluent retrieval of basic math facts
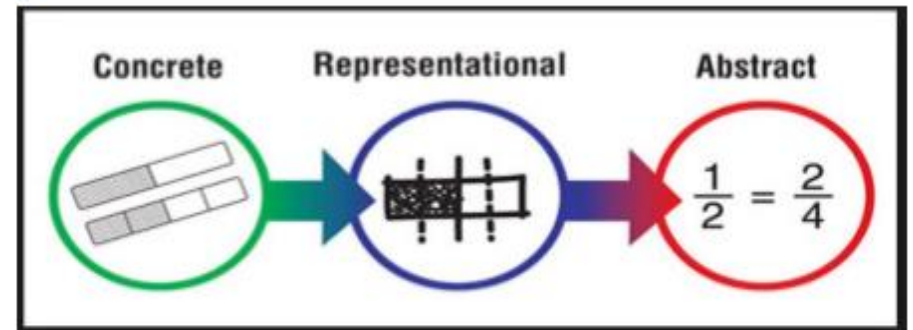➢ Quizzes, tests, and conducting of formative bi-weekly unit assessments

➢ Review for summative benchmark assessments

Figure 1: I Do; We Do; You Do Instructional Approach

Link: https://strategiesforspecialinterventions.weebly.com/i-do-we-do-you-do.html

Figure 2: Concrete to Representational to Abstract Modeling Method

Link: http://fcit.usf.edu/mathvids/strategies/category.html#teacher

"Best regards for a successful school year!
"Charting a New Course"
Halifax County Schools
2019-2020 Curriculum Support Team

Halifax County Schools: Math Pacing Guide				August 2019			
4th Grade At-A-Glance							
Operations and Algebraic Thinking (OA)							
Represent and solve problems involving multiplication and division.					Quarters		
NC.4.OA.1 Interpret a multiplication equation as a comparison. Multiply or divide to solve word problems involving multiplicative comparisons using models and equations with a symbol for the unknown number. Distinguish multiplicative comparison from additive comparison				X	2	P	P
Use the four operations with whole numbers to solve problems.				1	2	3	4
NC.4.OA.3 Solve two-step word problems involving the four operations with whole numbers. • **Use estimation strategies to assess reasonableness of answers.** • **Interpret remainders in word problems.** • **Represent problems using equations with a letter standing for the unknown quantity.**				X	2	P	P
Gain familiarity with factors and multiples.				1	2	3	4
NC.4.OA.4 Find all factor pairs for whole numbers up to and including 50 to: • **Recognize that a whole number is a multiple of each of its factors.** • **Determine whether a given whole number is a multiple of a given one-digit number.** • **Determine if the number is prime or composite.**				X	2	P	P
Generate and analyze patterns.				1	2	3	4
NC.4.OA.5 Generate and analyze a number or shape pattern that follows a given rule				1	P	P	P
Number and Operations in Base Ten (NBT)					Quarters		
Generalize place value understanding for multi-digit whole numbers. **(Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)**				1	2	3	4
NC.4.NBT.1 Explain that in a multi-digit whole number, a digit in one place represents 10 times as much as it represents in the place to its right, up to 100,000.				1	P	P	P
NC.4.NBT.2 Read and write multi-digit whole numbers up to and including 100,000 using numerals, number names, and expanded form.				1	P	P	P
NC.4.NBT.7 Compare two multi-digit numbers up to and including 100,000 based on the values of the digits in each place, using >, =, and < symbols to record the results of comparisons				1	P	P	P
Use place value understanding and properties of operations to perform multi-digit arithmetic. Quarters				1	2	3	4
NC.4.NBT.4 Add and subtract multi-digit whole numbers up to and including 100,000 using the standard algorithm with place value understanding.				1	P	P	P
NC.4.NBT.5 Multiply a whole number of up to: • three digits by a one-digit whole number with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm. (1st Quarter) • multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm. (2nd & 3rd Quarter)				1	2	3	P
NC.4.NBT.6 Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors with place value understanding using rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, and/or the relationship between multiplication and division				1	2	P	P

Numbers and Operations—Fractions (NF)	August 2019	Quarters			
Quarters Extend understanding of fractions.		**1**	**2**	**3**	**4**
NC.4.NF.1 Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.		X	2	P	P
NC.4.NF.2 Compare two fractions with different numerators and different denominators, using the denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions by: • **Reasoning about their size and using area and length models.** • **Using benchmark fractions 0, ½, and a whole.** • **Comparing common numerator or common denominators.**		X	2	P	P
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. Quarters		**1**	**2**	**3**	**4**
NC.4.NF.3 Understand and justify decompositions of fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100. • **Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.** • **Decompose a fraction into a sum of unit fractions and a sum of fractions with the same denominator in more than one way using area models, length models, and equations.** • **Add and subtract fractions, including mixed numbers with like denominators, by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.** • **Solve word problems involving addition and subtraction of fractions, including mixed numbers by writing equations from a visual representation of the problem.**		X	2	P	P
Use unit fractions to understand operations of fractions.		**1**	**2**	**3**	**4**
NC.4.NF.4 Apply and extend previous understandings of multiplication to: • **Model and explain how fractions can be represented by multiplying a whole number by a unit fraction, using this understanding to multiply a whole number by any fraction less than one.** • **Solve word problems involving multiplication of a fraction by a whole number.**		X	2	P	P
Understand decimal notation for fractions, and compare decimal fractions.		**1**	**2**	**3**	**4**
NC.4.NF.6 Use decimal notation to represent fractions. • **Express, model and explain the equivalence between fractions with denominators of 10 and 100.** • **Use equivalent fractions to add two fractions with denominators of 10 or 100.** • **Represent tenths and hundredths with models, making connections between fractions and decimals.**		X	2	P	P
NC.4.NF.7 Compare two decimals to hundredths by reasoning about their size using area and length models, and recording the results of comparisons with the symbols >, =, or <. Recognize that comparisons are valid only when the two decimals refer to the same whole. .		1	2	P	P
Measurement and Data		**Quarters**			
Solve problems involving measurement		**1**	**2**	**3**	**4**
NC.4.MD.1 Know relative sizes of measurement units. Solve problems involving metric measurement. • **Measure to solve problems involving metric units: centimeter, meter, gram, kilogram, Liter, milliliter** (4th Quarter) • **Add, subtract, multiply, and divide to solve one-step word problems involving whole-number measurements of length, mass, and capacity that are given in metric units**. (3rd & 4th Quarter)		X	X	3	4
NC.4.MD.2 Use multiplicative reasoning to convert metric measurements from a larger unit to a smaller unit using place value understanding, two-column tables, and length models.		X	X	3	4
NC.4.MD.8 Solve word problems involving addition and subtraction of time intervals that cross the hour.		X	X	3	P

Solve problems involving area and perimeter		August 2019	1	2	3	4
NC.4.MD.3 Solve problems with area and perimeter.			1	2	P	P
• **Find areas of rectilinear figures with known side lengths.**						
• **Solve problems involving a fixed area and varying perimeters and a fixed perimeter and varying areas.**						
• **Apply the area and perimeter formulas for rectangles in real world and mathematical problems.**						

Represent and interpret data. Quarters	1	2	3	4
NC.4.MD.4 Represent and interpret data using whole numbers.	1	2	P	P
• **Collect data by asking a question that yields numerical data.**				
• **Make a representation of data and interpret data in a frequency table, scaled bar graph, and/or line plot.**				
• **Determine whether a survey question will yield categorical or numerical data.**				

Understand concepts of angle and measure angles. Quarters	1	2	3	4
NC.4.MD.6 Develop an understanding of angles and angle measurement.	X	2	P	P
• **Understand angles as geometric shapes that are formed wherever two rays share a common endpoint, and are measured in degrees.**				
• **Measure and sketch angles in whole-number degrees using a protractor.**				
• **Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems.**				

Geometry (G) Quarters	Quarters			
Classify shapes based on lines and angles in two-dimensional figures.	1	2	3	4
NC.4.G.1 Draw and identify points, lines, line segments, rays, angles, and perpendicular and parallel lines	1	2	P	P
NC.4.G.2 Classify quadrilaterals and triangles based on angle measure, side lengths, and the presence or absence of parallel or perpendicular lines.	X	2	P	P
NC.4.G.3 Recognize symmetry in a two-dimensional figure, and identify and draw lines of symmetry.	1	P	P	P

Note: The Eight Mathematical Practices are to be included in students' collaborative and independent engagement work tasks as often as possible.

Eight Mathematical Practices:

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

2. Reason abstractly and quantitatively.

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

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for and make use of structure.

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