Fourth Grade Mathematics Curriculum Standards Matrix

Warren County Schools Standards Matrix is aligned with the *North Carolina Collaborative for mathematics Learning (NC^{2}ML) Instructional Frameworks*. The clusters and sequencing are crafted to foster student understanding over time of the connections among mathematical ideas and procedures. Standards and skills are addressed through multiple clusters with increase depth of knowledge. Please note that strikethroughs represent parts of standards that are addressed in a different cluster. The mastery of all grade level standards is an expectation by the end of the academic school year. Teachers will have to continue to keep skills sharp throughout each grading period.

Benchmark 1: Check-in 1 *(click)* Benchmark 2: Check-in 2 Benchmark 3: Check-in 3

(Standards are highlighted to indicate the Benchmark that it will be assessed on)

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
First Six Weeks		
1.Building Mathematical Community through Real Data	**Represent and interpret data.** ***NC.4.MD.4*** Represent and interpret data using whole numbers. ● 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. *Supporting Standards in this cluster:* **Use place value understanding and properties of operations to perform multi-digit arithmetic.** ***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 to 2 Weeks Instructional Framework Resource (connections to the mathematical Practice, purpose, and builds teacher understanding) Cluster 1 Tools4teachers (NC Lessons/Tasks)
2. Explore Multiplicative Comparison, Area and Perimeter, Factors and Multiples	**Represent and solve problems involving multiplication and division.** ***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. **Use the four operations with whole numbers to solve problems.** ***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. *(Remainders will not be on NC Check-In 1)* ● Represent problems using equations with a letter standing for the unknown quantity. **Gain familiarity with factors and multiples.** ***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.	3-4 weeks Instructional Framework Resource Cluster 2 Tools4teachers (Lessons/Tasks

Fourth Grade Mathematics Curriculum Standards Matrix

	Solve problems involving area and perimeter. ***NC.4.MD.3*** Solve problems with area and perimeter. ● 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.~~*(Will not be part of NC Check-In 1)*	

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
	Second Six Weeks	
3. Use Place Value Strategies to Add and Subtract Whole Numbers	**Generalize place value understanding for multi-digit whole numbers.** ***NC4.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. ***NC4.NBT.2*** Read and write multi-digit whole numbers up to and including 100,000 using numerals, number names, and expanded form. ***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. **Use place value understanding and properties of operations to perform multi-digit arithmetic.** ***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. **Use the four operations with whole numbers to solve problems.** ***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. *Supporting Standards in this cluster:* **Represent and solve problems involving multiplication and division.** ***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. **Solve problems involving measurement.** ***NC.4.MD.8*** Solve word problems involving addition and subtraction of time intervals that cross the hour.	3-4 Weeks Instructional Framework Resource Cluster 3 Tools4teachers (Lessons/Tasks
	End of Nine Weeks: NC Check-In 1st Benchmark	
4. Develop	**Use place value understanding and properties of operations to perform multi-digit**	5 – 6 Weeks

Fourth Grade Mathematics Curriculum Standards Matrix

Multiplication and Division Strategies	**arithmetic.** ***NC.4.NBT.5*** Multiply a whole number of up to three digits by a one-digit whole number, and 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. ● Interpret the factors as representing the number of equal groups and the number of objects in each group. ● Illustrate and explain strategies including arrays, repeated addition, decomposing a factor, and applying the commutative and associative properties. ***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.	(Total Cluster) 2 Weeks Instructional Framework Resource Cluster 4 Tools4teachers (Lessons/Tasks

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
	Third Six Weeks	
4. Develop Multiplication and Division Strategies *(Continued)*	**Solve problems involving area and perimeter.** ***NC.4.MD.3*** Solve problems with area and perimeter. ● 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. **Use the four operations with whole numbers to solve problems.** ***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. *Supporting Standards in this cluster:* **Represent and solve problems involving multiplication and division.** ***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.~~ **Generalize place value understanding for multi-digit whole numbers.** ***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. **Multiply and Divide within 100.** Solve two-step word problems using addition, subtraction, and multiplication, representing problems using equations with a symbol for the unknown number.	4 Weeks *(Continued)* Instructional Framework Resource Cluster 4 Tools4teachers (Lessons/Tasks

Fourth Grade Mathematics Curriculum Standards Matrix

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Fourth Six Weeks		
5. Extend the Understanding of Fractions	**Extend understanding of fractions.** ***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.	2 – 3 Weeks Instructional Framework Resource Cluster 5 Tools4teachers (Lessons/Tasks
End of 2nd Nine Weeks: NC Check-In Number 2 Benchmark		
5. Extend the Understanding of Fractions	***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	Instructional Framework Resource Cluster 5 Tools4teachers (Lessons/Tasks
6. Connect to Decimal Notation	**Understand decimal notation for fractions, and compare decimal fractions.** ***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. ***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.denominators: halves, fourths and eighths; thirds and sixths.	*2-3 Weeks* Instructional Framework Resource Cluster 6 Tools4teachers (Lessons/Tasks

Fourth Grade Mathematics Curriculum Standards Matrix

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Fifth Six Weeks		
7. Understand Operations with Fractions and Decimals	**Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.** ***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. **Use unit fractions to understand operations of fractions.** ***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. **Understand decimal notation for fractions, and compare decimal fractions.** ***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.	4-5 Weeks Instructional Framework Resource Cluster 7 Tools4teachers (Lessons/Tasks
End of 3rd Nine Weeks: NC Check-In 3 Benchmark		
8. Apply Geometric Concepts	**Classify shapes based on lines and angles in two-dimensional figures.** ***NC.4.G.1*** Draw and identify points, lines, line segments, rays, angles, and perpendicular and parallel lines. ***NC.4.G.2*** Classify quadrilaterals and triangles based on angle measure, side lengths, and the presence or absence of parallel or perpendicular lines. ***NC.4.G.3*** Recognize symmetry in a two-dimensional figure, and identify and draw lines of symmetry. **Understand concepts of angles.** ***NC.4.MD.6*** Develop an understanding of angles and angle measurement. ● 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	2-3 Weeks Instructional Framework Resource Cluster 8 Tools4teachers (Lessons/Tasks

	real-world and mathematical problems. *Supporting Standards in this cluster:* **Use the four operations with whole numbers to solve problems.** ***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. **Generate and analyze patterns.** **NC.4.OA.5** Generate and analyze a number or shape pattern that follows a given rule.	

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
	Sixth Six Weeks	
9. Use Place Value to Understand Metric Measurement **Review All Clusters**	**Solve *problems involving measurement.*** **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. ● 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. ***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. **Solve problems involving measurement.** ***NC.4.MD.8*** Solve word problems involving addition and subtraction of time intervals that cross the hour. **Understand decimal notation for fractions, and compare decimal fractions.** ***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. ***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. **Generate and analyze patterns.** ***NC.4.OA.5*** Generate and analyze a number or shape pattern that follows a given rule.	2-3 Weeks Instructional Framework Resource Cluster 9 Tools4teachers (Lessons/Tasks)

Fourth Grade Mathematics Curriculum Standards Matrix

	Supporting Standards in this cluster: **Solve problems involving area and perimeter.** ***NC.4.MD.3*** Solve problems with area and perimeter. ● 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.** ***NC.4.MD.4*** Represent and interpret data using whole numbers. ● 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. **Review all Standards**	
End of Grade Assessment		