



Sixth Grade Mathematics Curriculum Standards Matrix

Warren County Schools Standards Matrix is aligned with the *North Carolina Collaborative for mathematics Learning (NC²ML) 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 Assessment window)

Note: Be careful not to overlook standards that will be assessment in a particular benchmark window

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
First Six Weeks		
1. Reasoning with Area and Surface Area	<p>NC.6.G.1 Create geometric models to solve real-world and mathematical problems to:</p> <ul style="list-style-type: none"> Find the area of triangles by composing into rectangles and decomposing into right triangles. Find the area of special quadrilaterals and polygons by decomposing into triangles or rectangles. <p>NC.6.G.4 Represent right prisms and right pyramids using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p>	2 Weeks Instructional Framework Resource: Cluster Tools4teachers (Lessons/Tasks)
2. Reasoning with Factors and Multiples Cluster	<p>NC.6.NS.4 Understand and use prime factorization and the relationships between factors to:</p> <ul style="list-style-type: none"> Find the unique prime factorization for a whole number. Find the greatest common factor of two whole numbers less than or equal to 100. Use the greatest common factor and the distributive property to rewrite the sum of two whole numbers, each less than or equal to 100. Find the least common multiple of two whole numbers less than or equal to 12 to add and subtract fractions with unlike denominators. 	1 week Instructional Framework Resource Cluster 2 Tools4teachers (Lessons/Tasks)
3. Ratio Reasoning Cluster	<p>NC.6.RP.1 Understand the concept of a ratio and use ratio language to:</p> <ul style="list-style-type: none"> Describe a ratio as a multiplicative relationship between two quantities. Model a ratio relationship using a variety of representations. <p>NC.6.RP.2 Understand that ratios can be expressed as equivalent unit ratios by finding and interpreting both unit ratios in context. <i>(skills will be assessed on check-in by way of RP.1)</i></p>	2 Weeks Instructional Framework Resource Cluster 3 Tools4teachers (Lessons/Tasks)



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Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Second Six Weeks		
2. Ratio Reasoning Cluster (continued)	<p>NC.6.RP.3 (all bullets) Use ratio reasoning with equivalent whole-number ratios to solve real-world and mathematical problems by</p> <ul style="list-style-type: none"> ● Creating and using a table to compare ratios. ● Finding missing values in the tables. ● Using a unit ratio ● Converting and manipulating measurements using given ratios. ● Plotting the pairs of values on the coordinate plane. <p>NC.6.RP.4 Use ratio reasoning to solve real-world and mathematical problems with percents by:</p> <ul style="list-style-type: none"> ● Understanding and finding a percent of a quantity as a ratio per 100. ● Using equivalent ratios, such as benchmark percents (50%, 25%, 10%, 5%, 1%), to determine a part of any given quantity. ● Finding the whole, given a part and the percent 	<p>3 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 2 Tools4teachers (Lessons/Tasks)</p>
End of Nine Weeks: NC Check-In 1st Benchmark		
3. Division of Fractions Conceptions Cluster	<p>NC.6.NS.1 Use visual models and common denominators to:</p> <ul style="list-style-type: none"> ● Interpret and compute quotients of fractions. ● Solve real-world and mathematical problems involving division of fractions. 	<p>2 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 3 Tools4teachers (Lessons/Tasks)</p>



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Third Six Weeks		
4. Making sense of decimal computations	<p>NC.6.NS.2 Fluently divide using long division with a minimum of a four-digit dividend and interpret the quotient and remainder in context.</p> <p>NC.6.NS.3 Apply and extend previous understandings of decimals to develop and fluently use the standard algorithms for addition, subtraction, multiplication and division of decimals.</p>	<p>3 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 4 Tools4teachers (Lessons/Tasks)</p>
5. Integer Rational Number Reasoning Cluster	<p>NC.6.NS.5 Understand and use rational numbers to:</p> <ul style="list-style-type: none"> ● Describe quantities having opposite directions or values. ● Represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ● Understand the absolute value of a rational number as its distance from 0 on the number line to: <ul style="list-style-type: none"> ○ Interpret absolute value as magnitude for a positive or negative quantity in a real world context. ○ Distinguish comparisons of absolute value from statements about order <p>NC.6.NS.6 (all bullets) Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane.</p> <p>a. On a number line:</p> <ul style="list-style-type: none"> ● Recognize opposite signs of numbers as indicating locations on opposite sides of 0 and that the opposite of the opposite of a number is the number itself. ● Find and position rational numbers on a horizontal or vertical number line. <p>NC.6.NS.7 Understand ordering of rational numbers.</p> <p>a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.</p> <p>b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.</p> <p>NC.6.NS.9 Understand additive inverses when adding and subtracting integers.</p> <ul style="list-style-type: none"> ● Describe situations in which opposite quantities combine to make 0. ● Understand $p + q$ as the number located a distance q from p, in the positive or negative direction depending on the sign of q. Show that a number and its additive inverse create a zero pair. ● Understand subtraction of integers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two integers on the number line is the absolute value of their difference. <p>Use models to add and subtract integers from -20 to 20 and describe real-world contexts using sums and differences. Commutative, associative and distributive properties</p>	<p>3 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 5 Tools4teachers (Lessons/Tasks)</p>
7. Reasoning with Algebraic Expression	<p>NC.6.EE.1 Write and evaluate numerical expressions, with and without grouping symbols, involving whole-number exponents.</p>	
End of 2nd Nine Weeks: NC Check-In Number 2 Benchmark		



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Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Fourth Six Weeks		
6. Making Sense of Coordinate Planes	<p><u>NC.6.NS.6 (all butlets)</u> Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane.</p> <p>b. On a coordinate plane:</p> <ul style="list-style-type: none"> • Understand signs of numbers in ordered pairs as indicating locations in quadrants. • Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. • Find and position pairs of rational numbers on a coordinate plane. <p><u>NC.6.NS.8 (no change)</u> Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p> <p><u>NC.6.G.3</u> Use the coordinate plane to solve real-world and mathematical problems by:</p> <ul style="list-style-type: none"> • Drawing polygons in the coordinate plane given coordinates for the vertices. <p>Using coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate</p>	<p>2 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 6 Tools4teachers (Lessons/Tasks)</p>
7. Reasoning with Algebraic Expression	<p><u>NC.6.EE.1</u> Write and evaluate numerical expressions, with and without grouping symbols, involving whole-number exponents.</p> <p><u>NC.6.EE.2</u> Write, read, and evaluate algebraic expressions.</p> <ul style="list-style-type: none"> • Write expressions that record operations with numbers and with letters standing for numbers. • Identify parts of an expression using mathematical terms and view one or more of those parts as a single entity. • Evaluate expressions at specific values of their variables using expressions that arise from formulas used in real-world problems. <p><u>NC.6.EE.3</u> Apply the properties of operations to generate equivalent expressions without exponents.</p> <p><u>NC.6.EE.4</u> Identify when two expressions are equivalent and justify with mathematical reasoning.</p> <p><u>NC.6.EE.6</u> Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.</p>	<p>3 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 7 Tools4teachers (Lessons/Tasks)</p>



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Fifth Six Weeks		
8. Reasoning with Algebraic Equations	<p><u>NC.6.EE.5 (Equations)</u> Use substitution to determine whether a given number in a specified set makes an equation true.</p> <p><u>NC.6.EE.7 (Equations)</u> Solve real-world and mathematical problems by writing and solving equations of the form:</p> <ul style="list-style-type: none"> • $x + p = q$ in which p, q and x are all nonnegative rational numbers; and, • $p \cdot x = q$ for cases in which p, q and x are all nonnegative rational numbers. <p><u>NC.6.EE.8 (Inequalities)</u> Reason about inequalities by:</p> <ul style="list-style-type: none"> • Using substitution to determine whether a given number in a specified set makes an inequality true. • Writing an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real world or mathematical problem. • Recognizing that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions. • Representing solutions of inequalities on number line diagrams. <p><u>NC.6.EE.9</u> Represent and analyze quantitative relationships by:</p> <ul style="list-style-type: none"> • Using variables to represent two quantities in a real-world or mathematical context that change in relationship to one another. <p>Analyze the relationship between quantities in different representations (context, equations, tables, and graphs).</p>	<p>4 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 8 Tools4teachers (Lessons/Tasks)</p>
End of 3rd Nine Weeks: NC Check-In 3 Benchmark		



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Sixth Six Weeks		
9. Making Sense of Volume	<p><u>NC.6.G.2</u> Apply and extend previous understandings of the volume of a right rectangular prism to find the volume of right rectangular prisms with fractional edge lengths. Apply this understanding to the context of solving real-world and mathematical problems.</p>	<p>2 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 9 Tools4teachers (Lessons/Tasks)</p>
10. Statistical Reasoning	<p><u>NC.6.SP.1 (no change)</u> Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.</p> <p><u>NC.6.SP.2 (no change)</u> Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.</p> <p><u>NC.6.SP.3</u> Understand that both a measure of center and a description of variability should be considered when describing a numerical data set.</p> <p>a. Determine the measure of center of a data set and understand that it is a single number that summarizes all the values of that data set.</p> <ul style="list-style-type: none"> • Understand that a mean is a measure of center that represents a balance point or fair share of a data set and can be influenced by the presence of extreme values within the data set. • Understand the median as a measure of center that is the numerical middle of an ordered data set. <p>b. Understand that describing the variability of a data set is needed to distinguish between data sets in the same scale, by comparing graphical representations of different data sets in the same scale that have similar measures of center, but different spreads.</p> <p><u>NC.6.SP.4</u> Display numerical data in plots on a number line.</p> <ul style="list-style-type: none"> • Use dot plots, histograms, and box plots to represent data. 	<p>2 Weeks</p> <p>Instructional Framework Resource</p> <p>Cluster 10 Tools4teachers (Lessons/Tasks)</p>
Review Standards (3 Weeks)		
End of Grade Assessment		