Eighth 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 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 about Similarity and Transformations	***NC.8.G.3*** Describe the effect of dilations about the origin, translations, rotations about the origin in 90 degree increments, and reflections across the x-axis and y-axis on two-dimensional figures using coordinates. ***8.G.1*** Incorporate into ***NC.8.G.2*** Use transformations to define congruence. ● Verify experimentally the properties of rotations, reflections, and translations that create congruent figures. ● Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations. ● Given two congruent figures, describe a sequence that exhibits the congruence between them. ***8.G.1*** Incorporate into ***NC.8.G.4*** Use transformations to define similarity. ● Verify experimentally the properties of dilations that create similar figures. ● Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. ● Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	4 Weeks Instructional Framework Resource Tools4teachers (Lessons/Tasks)
2. Reasoning About Equations and Angles	***NC.8.EE.7*** Solve real-world and mathematical problems by writing and solving equations and inequalities in one variable. ● Recognize linear equations in one variable as having one solution, infinitely many solutions, or no solutions. ● Solve linear equations and inequalities including multi-step equations and inequalities with the same variable on both sides.	2 Weeks

Eighth Grade Mathematics Curriculum Standards Matrix

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Second Six Weeks		
2. Reasoning About Equations and Angles (continued)	***NC.8.G.5*** Use informal arguments to analyze angle relationships. ● Recognize relationships between interior and exterior angles of a triangle. ● Recognize the relationships between the angles created when parallel lines are cut by a transversal. ● Recognize the angle-angle criterion for similarity of triangles. Solve real-world and mathematical problems involving angles.	3 Weeks Instructional Framework Resource Tools4teachers (Lessons/Tasks)
End of Nine Weeks: NC Check-In 1st Benchmark		
3. Functional Reasoning	***NC.8.F.1*** Understand that a function is a rule that assigns to each input exactly one output. ● Recognize functions when graphed as the set of ordered pairs consisting of an input and exactly one corresponding output. ● Recognize functions given a table of values or a set of ordered pairs. ***NC.8.F.2*** Compare properties of two linear functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). ***NC.8.F.3*** Identify linear functions from tables, equations, and graphs. ***8.EE.5*** & 8.EE.6 Incorporated into ***NC.8.F.4*** Analyze functions that model linear relationships. ● Understand that a linear relationship can be generalized by y = mx + b. ● Write an equation in slope-intercept form to model a linear relationship by determining the rate of change and the initial value, given at least two (x, y) values or a graph. ● Construct a graph of a linear relationship given an equation in slope-intercept form. ● Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of the slope and y-intercept of its graph or a table of values.	**2 Weeks** Instructional Framework Resource Tools4teachers (Lessons/Tasks

Eighth Grade Mathematics Curriculum Standards Matrix

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Third Six Weeks		
3. Functional Reasoning (continued)	***NC.8.F.3*** Identify linear functions from tables, equations, and graphs. ***8.EE.5*** & ***8.EE.6*** Incorporated into ***NC.8.F.4*** Analyze functions that model linear relationships. ● Understand that a linear relationship can be generalized by y = mx + b. ● Write an equation in slope-intercept form to model a linear relationship by determining the rate of change and the initial value, given at least two (x, y) values or a graph. ● Construct a graph of a linear relationship given an equation in slope-intercept form. ● Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of the slope and y-intercept of its graph or a table of values. ***NC.8.F.3*** Identify linear functions from tables, equations, and graphs. ***8.EE.5*** & ***8.EE.6*** Incorporated into ***NC.8.F.4*** Analyze functions that model linear relationships. ● Understand that a linear relationship can be generalized by y = mx + b. ● Write an equation in slope-intercept form to model a linear relationship by determining the rate of change and the initial value, given at least two (x, y) values or a graph. ● Construct a graph of a linear relationship given an equation in slope-intercept form. ● Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of the slope and y-intercept of its graph or a table of values. ***NC.8.F.5*** Qualitatively analyze the functional relationship between two quantities. ● Analyze a graph determining where the function is increasing or decreasing; linear or nonlinear. ● Sketch a graph that exhibits the qualitative features of a real-world function. ***NC.8.EE.8*** Analyze and solve a system of two linear equations in two variables in slope-intercept form. ● Understand that solutions to a system of two linear equations correspond to the points of intersection of their graphs because the point of intersection satisfies both equations simultaneously. Solve real-world and mathematical problems leading to systems of linear equations by graphing the equations. Solve simple cases by inspection	6 Weeks Instructional Framework Resource Tools4teachers (Lessons/Tasks
End of 2nd Nine Weeks: NC Check-In Number 2 Benchmark		

Eighth Grade Mathematics Curriculum Standards Matrix

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Fourth Six Weeks		
5. Statistical Reasoning **(incorporate Function standards as a support/re-loop in the statistics standards)**	***NC.8.SP.1*** Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Investigate and describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. ***NC.8.SP.2*** Model the relationship between bivariate quantitative data to: ● Informally fit a straight line for a scatter plot that suggests a linear association. ● Informally assess the model fit by judging the closeness of the data points to the line. ***NC.8.SP.3*** Use the equation of a linear model to solve problems in the context of bivariate quantitative data, interpreting the slope and y-intercept ***NC.8.SP.4*** Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. ● Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables	4 Weeks Instructional Framework Resource Tools4teachers (Lessons/Tasks)
6. Reasoning with Rational/Irrational Numbers (And Pathagorean Theorem)	***NC.8.NS.1*** Understand that every number has a decimal expansion. Building upon the definition of a rational number, know that an irrational number is defined as a non-repeating, non-terminating decimal. ***NC.8.NS.2*** Use rational approximations of irrational numbers to compare the size of irrational numbers and locate them approximately on a number line. Estimate the value of expressions involving: ● Square roots and cube roots to the tenths. ● π to the hundredths. ***NC.8.EE.2*** Use square root and cube root symbols to: ● Represent solutions to equations of the form x 2 = p and x 3 = p, where p is a positive rational number. ● Evaluate square roots of perfect squares and cube roots of perfect cubes for positive numbers less than or equal to 400. ***NC.8.G.6*** Explain the Pythagorean Theorem and its converse.	4 Weeks

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Fifth Six Weeks		
6. Reasoning with Rational/Irrational Numbers (And Pathagorean Theorem) (continued)	***NC.8.G.7*** Apply the Pythagorean Theorem and its converse to solve real-world and mathematical problems. ***NC.8.G.8*** Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. ***NC.8.G.9*** Understand how the formulas for the volumes of cones, cylinders, and spheres are related and use the relationship to solve real-world and mathematical problems.	4 Weeks Instructional Framework Resource Tools4teachers (Lessons/Tasks)
End of 3rd Nine Weeks: NC Check-In 3 Benchmark		
7. Reasoning about Exponents/Scientific Notation	***NC.8.EE.1*** Develop and apply the properties of integer exponents to generate equivalent numerical expressions. ***NC.8.EE.3*** Use numbers expressed in scientific notation to estimate very large or very small quantities and to express how many times as much one is than the other. ***NC.8.EE.4*** Perform multiplication and division with numbers expressed in scientific notation to solve real-world problems, including problems where both decimal and scientific notation are used.	3 Weeks Instructional Framework Resource Tools4teachers (Lessons/Tasks)

Eighth Grade Mathematics Curriculum Standards Matrix

Instructional Framework Cluster	North Carolina Standard	Recommended Duration and Resources
Sixth Six Weeks		
All Clusters	**Review all standards!**	4 Weeks Instructional Framework Resource Tools4teachers (Lessons/Tasks)
End of Grade Assessment		