Middle School Teaching and Learning

2022-2023 Scope and Sequence

Math – Grade 8 NC Math 1

FIRST & SECOND NINE WEEKS	OVERVIEW
	The first semester begins with work on equations building from grade 8. Students then work with graphing functions and systems of equations and inequalities on the coordinate plane. They analyze functions and systems within real world contexts.
ASSESSMENTS	
ASSESSMENT WINDOW	**ASSESSMENT NAME**
September 6-October 4	AimsWeb Plus Universal Screener
December 1-20	NC Check-In 1

See the bottom of this document for a detailed description of the assessments as well as the parent/family resources.

UNIT	UNIT DURATION	PARENT/FAMILY RESOURCES	NORTH CAROLINA STANDARDS
Unit 1: Equations & Introduction to Functions **Learning Targets:** •I can identify parts of an expression including terms, constants, coefficients, and exponents. •I can find the solution of an equation or an inequality. •I can justify my chosen solution method when solving equations. •I can find and graph the solution of an inequality. •I can create an equation and inequality in one variable to solve a problem. •I can solve an equation and inequality for a given variable. •I can evaluate using function notation. •I can identify domain and range when given a relation, table, or graph. •I can identify key features of graphs and tables including increasing, decreasing, maximums and minimums.	Approximately 11 Days	The focus is on lessons 1.1-1.4 and 3.1-3.2 Video Tutorials Extra practice	**Construct expressions, equations, and inequalities from a given context and determine the appropriateness of the solution.** ● NC.M1.A-SSE.1a : Interpret expressions that represent a quantity in terms of its context. Identify and interpret parts of a linear, exponential, or quadratic expression, including terms, factors, coefficients, and exponents. ● NC.M1.A-REI.3: Solve linear equations and inequalities in one variable. ● NC.M1.A-REI.1: Understand solving equations as a process of reasoning and explain the reasoning. Justify a chosen solution method and each step of the solving process for linear and quadratic equations using mathematical reasoning. ● NC.M1.A-REI.12: Represent the solutions of a linear inequality or a system of linear inequalities graphically as a region of the plane. ● NC.M1.A-CED.1: Create equations that describe numbers or relationships. Create equations and inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to solve problems. ● NC.M1.A-CED.4: Create equations that describe numbers or relationships. Solve for a quantity of interest in formulas used in science and mathematics using the same reasoning as in solving equations. **Distinguish key features of a function given multiple representations.**

			● NC.M1.F-IF.1: Understand the concept of a function and use function notation. Build an understanding that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range by recognizing that: ○ if f is a function and x is an element of its domain, then denotes the output of f(x) f corresponding to the input x ○ the graph of is the graph of the equation . f y = f(x) ● NC.M1.F-IF.2: Understand the concepts of a functions and use function notation. Use function notation to evaluate linear, quadratic, and exponential functions for inputs in their domains, and interpret statements that use function notation in terms of a context. ● NC.M1.F-IF.4: Interpret functions that arise in applications in terms of the context. Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: intercepts; intervals where the function is increasing, decreasing, positive, or negative; and maximums and minimums. ● NC.M1.F-IF.6: Interpret functions that arise in applications in terms of the context. Calculate and interpret the average rate of change over a specified interval for a function presented numerically, graphically, and/or symbolically.
Unit 2: Linear Functions **Learning Targets:** •I can identify and interpret the slope and y-intercept of a linear equation. •I can calculate and interpret the rate of change (slope) numerically, graphically, and/or symbolically. •I can create and graph linear equations. •I can create an equation to graph horizontal and vertical lines.	Approximately 18 Days	The focus is on lessons 2.1, 2.3, 2.4 3.4-3.6 6.3 9.7 Video Tutorials Extra practice	**Identify, create, and graph linear equations and inequalities and interpret their key features**. ● NC.M1.A-SSE.1a: Identify and interpret parts of a linear, exponential, or quadratic expression, including terms, factors, coefficients, and exponents. ● NC.M1.A-SSE.1b: Interpret a linear, exponential, or quadratic expression made of multiple parts as a combination of entities to give meaning to an expression. ● NC.M1.A-CED.1: Create equations and inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to solve problems.

•I can write a linear equation from a table, graph, or relation. •I can determine if given situation is linear or nonlinear. •I can identify the set of all solutions to a linear equation by interpreting the graph. •I can use slope to determine if lines are parallel or perpendicular. •I can find the equation of a parallel or perpendicular line that passes through a given point. •I can write a recursive formula from a sequence. (i.e. informal: NEXT*NOW; formal: an) •I can use an explicit form of an arithmetic sequence to write the recursive form and vice versa. •I can interpret the slope and y-intercept of a linear function in a given context. •I can interpret the domain and range of a linear equation in context. •I can distinguish between association and causation. •I can compare slopes and intercepts of linear functions given different representations. •I can compare key features of linear functions given different representations. •I can represent two variable data on a scatter plot. •I can predict future values and assess the validity of a linear function. •I can analyze patterns and find the correlation coefficient using technology. •I can use the line of best fit to analyze residuals. •I can use technology to fit a least squares regression line to a set of data.			● NC.M1.A-REI.12: Represent the solutions of a linear inequality or a system of linear inequalities graphically as a region of the plane. ● NC.M1.A-CED.2: Create and graph equations in two variables to represent linear, exponential, and quadratic relationships between quantities. ● NC.M1.F-BF.1a: Build a function that models a relationship between two quantities. Write a function that describes a relationship between two quantities. Build linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two ordered pairs (include reading these from a table). ● NC.M1.A-REI.10: Represent and solve equations and inequalities graphically. Understand that the graph of a two variable equation represents the set of all solutions to the equation. ● NC.M1.A-REI.11: Build an understanding of why the x-coordinates of the points where the graphs of two linear, exponential, or quadratic equations and intersect are the solutions of the equation and approximate solutions using a graphing technology or successive approximations with a table of values. ● NC.M1.G-GPE.5: Use coordinates to prove simple geometric theorems algebraically.Use coordinates to prove the slope criteria for parallel and perpendicular lines and use them to solve problems. Determine if two lines are parallel, perpendicular, or neither. Find the equation of a line parallel or perpendicular to a given line that passes through a given point. Determine the explicit and recursive formula for given arithmetic sequence. ● NC.M1.F-IF.3: Understand the concept of a function and use function notation. Recognize that recursively and explicitly defined sequences are functions whose domain is a subset of the integers, the terms of an arithmetic sequence are a subset of the range and the terms of a geometric sequence are a subset of the range of an exponential function.

•I can find the midpoint and endpoint of a line segment. •I can apply the distance formula to find the perimeter and area of polygons.			● NC.M1.F-BF.2: Build a function that models a relationship between two quantities. Translate between explicit and recursive forms of arithmetic and geometric sequences and use both to model situations. ● NC.M1.A-REI.1: Understand solving equations as a process of reasoning and explain the reasoning. Justify a chosen solution method and each step of the solving process for linear and quadratic equations using mathematical reasoning. **Understand and compare key features of linear functions.** ● NC.M1.F-LE.5: Interpret expressions for functions in terms of the situation they model. Interpret the parameters a and b in a linear function f(x)=ax+b or an exponential function g(x)=abx in terms of a context. ● NC.M1.F-IF.5: Interpret functions that arise in applications in terms of the context. Interpret a function in terms of the context by relating its domain and range to its graph and, where applicable, to the quantitative relationship it describes. ● NC.M1.S-ID.9: Interpret linear models. Distinguish between association and causation. ● NC.M1.F-IF.7: Analyze functions using different representations. Analyze linear, exponential, and quadratic functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; rate of change; intercepts; intervals where the function is increasing, decreasing, positive, or negative; maximums and minimums; and end behavior. ● NC.M1.F-IF.9:Compare key features of two functions (linear, quadratic, or exponential) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions). **Assess the line of best fit for a given set of data by using the correlation coefficient,**

			residuals, and the least squares regression line. ● NC.M1.S-ID.6a: Summarize, represent, and interpret data on two categorical and quantitative variables. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a least squares regression line to linear data using technology. Use the fitted function to solve problems. ● NC.M1.S-ID.6b: Summarize, represent, and interpret data on two categorical and quantitative variables. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Assess the fit of a linear function by analyzing residuals. ● NC.M1.S-ID.7: Interpret linear models. Interpret in context the rate of change and the intercept of a linear model. Use the linear model to interpolate and extrapolate predicted values. Assess the validity of a predicted value. ● NC.M1.S-ID.8: Interpret linear models. Analyze patterns and describe relationships between two variables in context. Using technology, determine the correlation coefficient of bivariate data and interpret it as a measure of the strength and direction of a linear relationship. Use a scatter plot, correlation coefficient, and a residual plot to determine the appropriateness of using a linear function to model a relationship between two variables. **Use geometric properties to classify & prove figures in the coordinate plane.** ● NC.M1.G-GPE.5: Use coordinates to prove simple geometric theorems algebraically.Use coordinates to prove the slope criteria for parallel and perpendicular lines and use them to solve problems. Determine if two lines are parallel, perpendicular, or neither. Find the equation of a line parallel or perpendicular to a given line that passes through a given point. ● NC.M1.G-GPE.6: Use coordinates to prove simple geometric theorems algebraically. Use coordinates to find the midpoint or endpoint of a line segment.

			● NC.M1.G-GPE.4: Use coordinates to prove simple geometric theorems algebraically. Use coordinates to solve geometric problems involving polygons algebraically. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles. Use coordinates to verify algebraically that a given set of points produces a particular type of triangle or quadrilateral.
Unit 3: Systems of Equations and Inequalities **Unit 3:** Systems of Equations and Inequalities **Learning Targets:** •I can write systems of linear equations to model situations. •I can demonstrate that the two-variable linear equation that represents the sum of the linear equations in a system contains the solution of the system. •I can replace one equation with the sum of that equation and a multiple of the other to create a system with the same solutions as the original system. •I can transform a given system into an equivalent system that has the same solution as the original system. •I can find exact solutions to systems of linear equations by elimination. •I can find approximate or exact solutions to systems of linear equations by graphing and by using graphing technology. •I can find exact solutions to systems of linear equations by the substitution method. •I can infer that since y = f(x) and y= g(x), f(x) = g(x) represents a solution to the system.	Approximately 9 Days	The focus is on lessons 4.1-4.5 Video Tutorials Extra practice	**Create, solve, and interpret systems of equations in context.** ● NC.M1.A-CED.3: Create systems of linear equations and inequalities to model situations in context. ● NC.M1.A-REI.5: Explain why replacing one equation in a system of linear equations by the sum of that equation and a multiple of the other produces a system with the same solutions. ● NC.M1.A-REI.6: Solve systems of equations using tables, graphs, or algebraic methods (substitution and elimination) to find the approximate or exact solutions to systems of linear equations and interpret solutions in terms of a context. ● NC.M1.A-REI.11: Build and understanding of why the x-coordinates of the points where the graphs of two linear, exponential, or quadratic equations y=f(x) and y=g(x) intersect are the solutions of the equation f(x) = g(x) and approximate solutions using a graphing technology or successive approximations with a table of values. Create, solve, and interpret systems of inequalities in context. ● NC.M1.A-REI.12: Solve and represent the solutions of a linear inequality or a system of linear inequalities graphically as a region of the plane.

•I can use systems of equations to solve real world applications and interpret solutions in terms of a context. •I can write systems of linear inequalities to model situations. •I can represent the solutions of a linear inequality graphically as a region of the plane. •I can represent the solutions of a system of linear inequalities graphically as a region of the plane.			

Middle School Teaching and Learning

2022-2023 Scope and Sequence

Math – Grade 8 NC Math 1

THIRD & FOURTH NINE WEEKS	OVERVIEW
	The second semester continues with two new types of functions, exponential and quadratic. These functions will model real world contexts and students will analyze them in graphs, tables, and equations. In unit 5, students learn to factor quadratic equations and analyze key features of all types of functions and make comparisons. The year ends with a unit on statistics which includes data displays and standard deviation.

ASSESSMENTS	
ASSESSMENT WINDOW	**ASSESSMENT NAME**
	NC Check-In 1
January 3-February 2	aimsweb Plus Universal Screener
April 17-May 5	NC Check-In 1
Early June	End of Course Test

See the bottom of this document for a detailed description of the assessments as well as the parent/family resources.

UNIT	UNIT DURATION	PARENT/FAMILY RESOURCES	NORTH CAROLINA STANDARDS
Unit 4: Exponential Functions **Learning Targets:** •I can rewrite algebraic expressions involving integer exponents using the properties of exponents. •I can recognize that recursively and explicitly defined sequences are linear or exponential. •I can translate between explicit and recursive forms of geometric sequences and use both to model situations. •I can use function notation to evaluate exponential functions and interpret statements that use function notation within context. •I can interpret the key features in context of an exponential function given a graph, table, or verbal descriptions. •I can create an exponential function to solve problems. •I can create and graph an exponential function to solve problems and	Approximately 14 Days	The focus is on lessons 5.2-5.4 Video Tutorials Extra practice	**Understand and apply the properties of exponents.** ● NC.M1.N-RN.2: Extend the properties of exponents. Rewrite algebraic expressions with integer exponents using the properties of exponents. **Determine the explicit and recursive formula for given geometric sequences.** ● NC.M1.F-IF.3: Recognize that recursively and explicitly defined sequences are functions whose domain is a subset of the integers, the terms of an arithmetic sequence are a subset of the range of a linear function, and the terms of a geometric sequence are a subset of the range of an exponential function. ● NC.M1.F-BF.2: Translate between explicit and recursive forms of arithmetic and geometric sequences and use both to model situations. **Evaluate, create, and interpret exponential functions in context.** ● NC.M1.F-IF.2: Understand the concepts of a functions and use function notation. Use function notation to evaluate linear, quadratic, and exponential functions for inputs in their domains, and interpret

understand that the graph is the set of all solutions. •I can calculate and interpret the rate of change over a specific interval given a function. •I can determine and explain the rate of change and initial value of an exponential function within context. •I can identify situations that can be modeled appropriately with exponential functions. •I can provide a reasonable domain for an exponential function given a contextual situation. •I can analyze an exponential function by identifying and using the key features of different representations. •I can interpret and explain growth and decay rates for an exponential function. •I can compare the end behavior of exponential functions to show an increase exceeding a linear or quadratic quantity. •I can interpret expressions that represent a quantity in terms of its context. •I can compare key features of two functions, linear and exponential. •I can infer that since y = f(x) and y= g(x), f(x) = g(x) represents a solution to the system. •I can write an exponential equation from a table, graph, or relation. •I can write an exponential function to represent the relationship between two quantities •I can use technology to find an appropriate function			statements that use function notation in terms of a context. ● NC.M1.F-IF.4: Interpret functions that arise in applications in terms of the context. Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: intercepts; intervals where the function is increasing, decreasing, positive, or negative; and maximums and minimums. ● NC.M1.A-CED.1: Create equations that describe numbers or relationships. Create equations and inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to solve problems. ● NC.M1.A-CED.2: Create equations that describe numbers or relationships. Create and graph equations in two variables to represent linear, exponential, and quadratic relationships between quantities. ● NC.M1.A-REI.10: Represent and solve equations and inequalities graphically. Understand that the graph of a two variable equation represents the set of all solutions to the equation. ● NC.M1.F-LE.5: Interpret expressions for functions in terms of the situation they model. Interpret the parameters a and b in a linear function f(x)=ax+b or an exponential function g(x)=abx in terms of a context. ● NC.M1.F-IF.6: Interpret functions that arise in applications in terms of the context. Calculate and interpret the average rate of change over a specified interval for a function presented numerically, graphically, and/or symbolically. **Identify situations and practical domains for exponential functions.** ● NC.M1.F-LE.1: Identify situations that can be modeled with linear and exponential functions, and justify the most appropriate model for a situation based on the rate of change over equal intervals. ● NC.M1.F-IF.5: Interpret a function in terms of context by relating its domain and range to its graph and, where applicable, to the quantitative relationship it describes.

for a set of data and use it to solve problems in the context of the data			● NC.M1.F-IF.7: Analyze linear, exponential, and quadratic functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; rate of change; intercepts; intervals where the function is increasing, decreasing, positive, or negative; maximums and minimums; and end behavior. **Compare, interpret, and explain key features of exponential functions.** ● NC.M1.F-IF.8b: Analyze functions using different representations. Interpret and explain growth and decay rates for an exponential function. ● NC.M1.F-LE.3: Construct and compare linear and exponential models and solve problems. Compare the end behavior of linear, exponential, and quadratic functions using graphs and tables to show that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically. ● NC.M1.A-SSE.1a: Interpret the structure of expressions. Identify and interpret parts of a linear, exponential, or quadratic expression, including terms, factors, coefficients, and exponents. ● NC.M1.F-IF.9: Compare key features of two functions (linear, quadratic, or exponential) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions). ● NC.M1.A-REI.11: Build an understanding of why the x-coordinates of the points where the graphs of two linear, exponential, or quadratic equations and intersect are the solutions of the equation and approximate solutions using a graphing technology or successive approximations with a table of values. **Write and apply exponential functions given multiple representations.** ● NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic

			and geometric sequences, given a graph, a description of a relationship, or two ordered pairs (include reading these from a table). ● NC.M1.F-BF.1b: Build a function that models a relationship between two quantities by combining linear, exponential, or quadratic functions with addition and subtraction or two linear functions with multiplication. ● NC.M1.S.ID.6c: Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to exponential data using technology. Use the fitted function to solve problems.
Unit 5: Quadratic Functions **Learning Targets:** •I can add and subtract quadratic expressions. •I can add, subtract, and multiply linear expressions. •I can rewrite algebraic expressions with integer exponents using the properties of exponents. •I can identify and interpret the meanings of a, b, and c in a quadratic expression in standard form and explain what the graph and table would look like. •I can identify and interpret key features of a quadratic function. •I can compare key features of two functions (linear, quadratic, or exponential) with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions). •I can compare two functions in graph or table form to determine that a quantity increasing exponentially will eventually exceed a function increasing linearly or quadratically.	Approximately 15 Days	The focus is on lessons 2.1-2.7 Math 2, lessons 3.1-3.5 Math 2, lessons 4.1, 4.2, 4.4-4.5 Video Tutorials for Math 1 topics Video Tutorials for Math 2 topics Extra practice for Math 1 topics Extra practice for Math 2 topics	**Understand the terms and properties of polynomials.** ● NC.M1.A-APR.1: Perform arithmetic operations on polynomials. Build an understanding that operations with polynomials are comparable to operations with integers by adding and subtracting quadratic expressions and by adding, subtracting, and multiplying linear expressions. ● NC.M1.A-SSE.1a: Interpret the structure of expressions. Interpret expressions that represent a quantity in terms of its context. Identify and interpret parts of a linear, exponential, or quadratic expression, including terms, factors, coefficients, and exponents. ● NC.M1.A-SSE.1b: Interpret the structure of expressions. Interpret expressions that represent a quantity in terms of its context. Interpret a linear, exponential, or quadratic expression made of multiple parts as a combination of entities to give meaning to an expression. **Understand how changing the coefficients of a quadratic expression affect the key features of its related quadratic function.** ● NC.M1.F-IF.7: Analyze functions using different representations. Analyze linear, exponential, and quadratic functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key

•I can calculate and interpret the rate of change given an interval numerically, graphically, and/or symbolically. •I can rewrite quadratic functions to reveal and interpret key features •I can determine and explain why a sample set of given points are solutions to a given equation and its graph. •I can use function notation to evaluate quadratic functions given values in their domains and interpret in context. •I can write/create a quadratic equation to model the relationship between two variables. •I can create and use a quadratic equation in one variable that represents a quadratic relationship and use them to solve problems. •I can find the factored form of a quadratic expression given the standard form to determine the solutions (given a is an integer). •I can solve for real solutions of quadratic equations in one variable by taking square roots and factoring. •I can understand the relationships between the factors, solutions and zeros of a quadratic function. •I can justify the steps taken to solve a quadratic equation. •I can determine the solutions of a quadratics system and understand why the x-coordinates are the solutions of the equation f(x) = g(x).			features, including: domain and range; rate of change; intercepts; intervals where the function is increasing, decreasing, positive, or negative; maximums and minimums; and end behavior. ● NC.M1.F-IF.9: Analyze functions using different representations. Compare key features of two functions (linear, quadratic, or exponential) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions). ● NC.M1.F-LE.3: Construct and compare linear, exponential, and quadratic models and solve problems. Compare the end behavior of linear, exponential, and quadratic functions using graphs and tables to show that a quantity increasing exponentially exceeds a quantity increasing linearly or quadratically. ● NC.M1.F-IF.6: Interpret functions that arise in applications in terms of the context. Calculate and interpret the average rate of change over a specified interval for a function presented numerically, graphically, and/or symbolically. ● NC.M1.F-IF.8a: Analyze functions using different representations. Use equivalent expressions to reveal and explain different properties of a function. Rewrite a quadratic function to reveal and explain different key features of the function. ● NC.M1.A-REI.10: Represent and solve equations and inequalities graphically. Understand that the graph of a two variable equation represents the set of all solutions to the equation. ● NC.M1.F-IF2: Understand the concept of a function and use function notation. Use function notation to evaluate linear, quadratic, and exponential functions for inputs in their domains, and interpret statements that use function notation in terms of a context. ● NC.M1.A-CED.2: Create and graph equations in two variables to represent linear exponential, and quadratic relationships between quantities. ● NC.M1.A-CED.1: Create equations and inequalities in one variable that represent linear, exponential and quadratic

•I can approximate solutions to a quadratic system using graphing technology or a table of values. •I can identify and interpret key features of graphs, tables and verbal descriptions in context to describe functions relating two quantities to include: intercepts, intervals where the function is increasing, decreasing, positive, or negative, and maximums and minimums. •I can create quadratic expressions by adding, subtracting, and multiplying linear expressions or combining two or more quadratic expressions. •I can interpret parts of a quadratic expression to give meaningful context to the expression. •I can build a function that models a relationship between two quantities by combining linear, exponential, or quadratic functions with addition and subtraction or two linear functions with multiplication. •I can interpret and describe a function by relating its domain and range to its graph. •I can identify and describe the meaning of the intersection of the functions y = f(x) and y = g(x) for two quadratic equations. •I can analyze key features of quadratic functions in different representations to include: domain and range, rate of change, intercepts, intervals where the function is increasing, decreasing,			relationships and use them to solve problems. **Understand the relationship between the factors of a quadratic expression and the solutions to its related quadratic equation.** ● NC.M1.A-SSE.3: Write an equivalent form of a quadratic expression by factoring, where is an integer of the quadratic expression, a x xa , to reveal the solutions of the equation or the zeros of the function the expression defines. 2 + b + c ● NC.M1.A-REI.4: Solve for the real solutions of quadratic equations in one variable by taking square roots and factoring. ● NC.M1.A-APR.3: Understand the relationship between zeros and factors of polynomials. **Understand the relationships among the factors of a quadratic expression, the solutions of a quadratic equation, and the zeros of a quadratic function.** ● NC.M1.A-REI.1: Understand solving equations as a process of reasoning and explain the reasoning. Justify a chosen solution method and each step of the solving process for linear and quadratic equations using mathematical reasoning. ● NC.M1.A-REI.11: Build an understanding of why the x-coordinates of the points where the graphs of two linear, exponential, or quadratic equations and intersect are the solutions of the equation and approximate solutions using a graphing y = f(x) y = g(x) f(x) (= g x) technology or successive approximations with a table of values. Build quadratic functions from other functions and interpret the key features of a quadratic function in context. ● NC.M1.F-IF.4: Interpret functions that arise in applications in terms of the context. Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: intercepts; intervals where the function is increasing, decreasing, positive, or negative; and maximums and minimums.

positive or negative, maximums and minimums, and end behavior.			● NC.M1.A-APR.1: Perform arithmetic operations on polynomials. Build an understanding that operations with polynomials are comparable to operations with integers by adding and subtracting quadratic expressions and by adding, subtracting, and multiplying linear expressions. ● NC.M1.A-SSE.1b: Interpret the structure of expressions. Interpret expressions that represent a quantity in terms of its context. **Interpret a linear, exponential, or quadratic expression made of multiple parts as a combination of entities to give meaning to an expression.** ● NC.M1.F-BF.1b: Build a function that models a relationship between two quantities by combining linear, exponential, or quadratic functions with addition and subtraction or two linear functions with multiplication. ● NC.M1.F-IF.5: Interpret a function in terms of context by relating its domain and range to its graph and, where applicable, to the quantitative relationship it describes. ● NC.M1.A-REI.11: Build an understanding of why the x-coordinates of the points where the graphs of two linear, exponential, or quadratic equations and intersect are the solutions of the equation and approximate solutions using a graphing y = f(x) y = g(x) f(x) (= g x) technology or successive approximations with a table of values. ● NC.M1.F-IF.7: Analyze functions using different representations. Analyze linear, exponential, and quadratic functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; rate of change; intercepts; intervals where the function is increasing, decreasing, positive, or negative; maximums and minimums; and end behavior. ● NC.M1.S-ID.8: Interpret linear models. Analyze patterns and describe relationships between two variables in context. Using technology, determine the correlation coefficient of bivariate data and interpret it as a measure of the strength and direction

			of a linear relationship. Use a scatter plot, correlation coefficient, and a residual plot to determine the appropriateness of using a linear function to model a relationship between two variables.
Unit 6: Statistics **Learning Targets:** •I can analyze patterns and describe relationships between two variables in context by using technology to determine the correlation coefficient to interpret the strength and direction of a linear relationship. •I can use a scatter plot, correlation coefficient, and a residual plot to determine the appropriateness of using a linear function to model a relationship between two variables. •I can use technology to represent data with histograms or box plots on the real number line. •I can use statistics to compare median and mean of two or more different data sets. •I can use statistics to compare interquartile range and standard deviation of two or more different data sets. •I can interpret differences in the shape, center, and spread of data sets. •I can explain the effect of an outlier on the shape, center, and spread	Approximately 9 Days	The focus is on lessons 10.1-10.4 Video Tutorials Extra practice	**Understand how to summarize, represent, interpret and compare data on a single count or measurement variable.** ● NC.M1.S-ID.1: Summarize, represent, and interpret data on a single count or measurement variable. Use technology to represent data with plots on the real number line (histograms and box plots). ● NC.M1.S-ID.2: Summarize, represent, and interpret data on a single count or measurement variable. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. Interpret differences in shape, center, and spread in the context of the data sets. ● NC.M1.S-ID.3: Summarize, represent, and interpret data on a single count or measurement variable. Examine the effects of extreme data points (outliers) on shape, center, and/or spread.

aimsWeb Plus

aimswebPlus is a universal screening assessment given to all students three times a year. Universal screeners are quick, standardized assessments that measure academic skills for reading and math. These measures help schools inform instruction, identify students at risk, and help teachers determine why the student may be at risk.

NC Check-Ins Mathematics

NC Check-Ins are interim assessments aligned to North Carolina content standards in mathematics for NC Math 1 and NC Math 3 and are developed by The North Carolina Department of Public Instruction (NCDPI). There are two NC Check-Ins that can be administered in both the yearlong and semester format. Each NC Check-In focuses on a selected subset of course-level content standards.

The main purpose of NC Check-Ins is to provide students, teachers, and parents with immediate in depth action-data and a reliable estimate of students' current performance on the selected subset of content standards. A secondary purpose is derived from NC Check-Ins' strong relationship with course-level end-of-course (EOC) summative assessments.

NC Math 1 NC Check-Ins Assessed Standards	
1	**2**
A-REI.3	A-CED.1
F-IF.2	A-REI.6
F-IF.4	F-BF.1
F-IF.6	F-IF.5
G-GPE.5	F-IF.8
S-ID.7	F-IF.9

Parent/Family Materials

These materials are designed to give parents support for each lesson in our NC Math 1 units. There are video tutorials from our online textbook, envision, as well as additional problems and answers for the topics that can be used for extra practice. Please note that North Carolina's Math 1 standards can be found in the enVision Math 1 and Math 2 books, which is why this resource contains links to both texts.