

NC Math 1

	OVERVIEW
FIRST NINE WEEKS	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
S1:10/10/22-10/28/22	NC Check-In 1
S2: 3/6/23-3/24/23	
YL: 12/1/22-12/20/22	

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

UNIT	UNIT	PARENT/FAMILY	NORTH CAROLINA
	DURATION	RESOURCES	STANDARDS
Unit 1: Equations & Introduction to Functions	Approximately 11 Days	The focus is on lessons 1.1- 1.4 and 3.1-3.2	Construct expressions, equations, and inequalities from a given context and determine the appropriateness of the
Learning Targets:		Video Tutorials	solution.
 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 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. 		Extra practice	 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: 0 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 o 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 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:	Approximately 18 Days	The focus is on lessons 2.1, 2.3, 2.4 3.4-3.6	Identify, create, and graph linear equations and inequalities and interpret their key features.
•I can identify and interpret the		6.3	
slope and y-intercept of a linear equation.		9.7	 NC.M1.A-SSE.1a: Identify and interpret parts of a linear, exponential,



•I can calculate and interpret the rate of change (slope) numerically, graphically, and/or symbolically.Video Tutorials 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 are inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to situation is linear or nonlinear.•I can identify the set of allVideo Tutorials
numerically, graphically, and/or symbolically.Extra practiceexponents.•I can create and graph linear equations.•I can create an equation to graph horizontal and vertical lines.•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.•I can write a linear equation from a table, graph, or relation.•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.
symbolically.• 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.•I can create an equation to graph horizontal and vertical lines.• NC.M1.A-CED.1: Create equations and inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to situation is linear or nonlinear.
•I can create and graph linear equations.exponential, or quadratic expression made of multiple parts as a combination of entities to give meaning to an expression.•I can create an equation to graph horizontal and vertical lines.of entities to give meaning to an expression.•I can write a linear equation from a table, graph, or relation.•NC.M1.A-CED.1: Create equations an inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to situation is linear or nonlinear.
equations.made of multiple parts as a combination•I can create an equation to graph horizontal and vertical lines.of entities to give meaning to an expression.•NC.M1.A-CED.1: Create equations ar inequalities in one variable that from a table, graph, or relation.•NC.M1.A-CED.1: Create equations ar inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to situation is linear or nonlinear.
•I can create an equation to graph horizontal and vertical lines.of entities to give meaning to an expression.• NC.M1.A-CED.1: Create equations ar inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to situation is linear or nonlinear.of entities to give meaning to an expression.
graph horizontal and verticalexpression.lines.• NC.M1.A-CED.1: Create equations ar•I can write a linear equationinequalities in one variable thatfrom a table, graph, or relation.• I can determine if given•I can determine if givenquadratic relationships and use them tosituation is linear or nonlinear.solve problems.
lines.• NC.M1.A-CED.1: Create equations ar 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.inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to solve problems.
from a table, graph, or relation.represent linear, exponential, and•I can determine if given situation is linear or nonlinear.quadratic relationships and use them to solve problems.
from a table, graph, or relation.represent linear, exponential, and•I can determine if given situation is linear or nonlinear.quadratic relationships and use them to solve problems.
•I can determine if given quadratic relationships and use them to solve problems.
situation is linear or nonlinear. solve problems.
solutions to a linear equation by solutions of a linear inequality or a
interpreting the graph. system of linear inequalities graphical
•I can use slope to determine if as a region of the plane.
lines are parallel or • NC.M1.A-CED.2: Create and graph
perpendicular. equations in two variables to represent
•I can find the equation of a linear, exponential, and quadratic
parallel or perpendicular line relationships between quantities.
that passes through a given • NC.M1.F-BF.1a: Build a function that
point. models a relationship between two
•I can write a recursive formula quantities. Write a function that
from a sequence. (i.e. informal: describes a relationship between two
NEXT*NOW; formal: an) quantities. Build linear and exponentia
•I can use an explicit form of an functions, including arithmetic and
arithmetic sequence to write geometric sequences, given a graph, a
the recursive form and vice description of a relationship, or two
versa. ordered pairs (include reading these
•I can interpret the slope and y-
intercept of a linear function in • NC.M1.A-REI.10: Represent and solv
a given context. equations and inequalities graphically.
•I can interpret the domain and Understand that the graph of a two
range of a linear equation in variable equation represents the set o
context. all solutions to the equation.
•I can distinguish between • NC.M1.A-REI.11: Build an
association and causation. understanding of why the x-coordinate
•I can compare slopes and of the points where the graphs of two
intercepts of linear functions linear, exponential, or quadratic
given different representations.
•I can compare key features of solutions of the equation and
linear functions given different approximate solutions using a graphin
representations. technology or successive
•I can represent two variable approximations with a table of values.
data on a scatter plot. • NC.M1.G-GPE.5: Use coordinates to
•I can predict future values and prove simple geometric theorems
assess the validity of a linear algebraically. Use coordinates to prove
function. the slope criteria for parallel and
perpendicular lines and use them to
solve problems. Determine if two lines



•I can analyze patterns and find		are parallel, perpendicular, or neither.
the correlation coefficient using		Find the equation of a line parallel or
technology.		perpendicular to a given line that passes
•I can use the line of best fit to		through a given point. Determine the
analyze residuals.		explicit and recursive formula for given
•I can use technology to fit a		arithmetic sequence.
least squares regression line to a		• NC.M1.F-IF.3: Understand the
set of data.		concept of a function and use function
		-
•I can find the midpoint and		notation. Recognize that recursively and
endpoint of a line segment.		explicitly defined sequences are
•I can apply the distance		functions whose domain is a subset of
formula to find the perimeter		the integers, the terms of an arithmetic
and area of polygons.		sequence are a subset of the range and
		the terms of a geometric sequence are a
		subset of the range of an exponential
		function.
		 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.
		• NC.MI.S-ID.9: Interpret inear models. Distinguish between association and
		causation.
		• NC.M1.F-IF.7: Analyze functions using
	1	• INC.IVIT.F-IF.7. ANDIVZE IUNCUONS USING
		different representations. Analyze



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



Unit 3: Systems of Equations and Inequalities	Approximately 9 Days	The focus is on lessons 4.1-4.5	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 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. Create, solve, and interpret systems of equations in context.
 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. 		<u>Video Tutorials</u> <u>Extra practice</u>	 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



 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. I can use systems of equations to solve real world applications and interpret solutions in terms of a context. I can vrite 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. 			 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 	
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NC Math 1

	OVERVIEW
SECOND NINE WEEKS	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
S1: 12/5/22-12/20/22	NC Check-In 2
S2: 5/3/23-5/19/23	
YL: 4/17/23-5/5/23	
Late May-Early June	End of Course Test

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



interpret		context to describe functions that arise in applications
statements that		relating two quantities, including: intercepts; intervals
use function		where the function is increasing, decreasing, positive,
notation within		or negative; and maximums and minimums.
context.		 NC.M1.A-CED.1: Create equations that describe
 I can interpret 		numbers or relationships. Create equations and
the key features		inequalities in one variable that represent linear,
in context of an		exponential, and quadratic relationships and use them
exponential		to solve problems.
function given a		NC.M1.A-CED.2: Create equations that describe
graph, table, or		numbers or relationships. Create and graph equations
verbal		in two variables to represent linear, exponential, and
descriptions.		quadratic relationships between quantities.
•I can create an		 NC.M1.A-REI.10: Represent and solve equations and
exponential		inequalities graphically. Understand that the graph of
function to solve		a two variable equation represents the set of all
problems.		solutions to the equation.
•I can create and		• NC.M1.F-LE.5: Interpret expressions for functions in
graph an		terms of the situation they model. Interpret the
exponential		parameters a and b in a linear function $f(x)=ax+b$ or an
function to solve		exponential function $g(x)$ =abx in terms of a context.
problems and		• NC.M1.F-IF.6: Interpret functions that arise in
understand that		applications in terms of the context. Calculate and
the graph is the		interpret the average rate of change over a specified
set of all		interval for a function presented numerically,
solutions.		graphically, and/or symbolically.
•I can calculate		
and interpret the		Identify situations and practical domains for
rate of change		exponential functions.
over a specific		
interval given a		• NC.M1.F-LE.1: Identify situations that can be
function.		modeled with linear and exponential functions, and
•I can determine		justify the most appropriate model for a situation
and explain the		based on the rate of change over equal intervals.
rate of change		• NC.M1.F-IF.5: Interpret a function in terms of
and initial value		context by relating its domain and range to its graph
of an exponential		and, where applicable, to the quantitative relationship
function within		it describes.
context.		 NC.M1.F-IF.7: Analyze linear, exponential, and
•I can identify		quadratic functions by generating different
situations that		representations, by hand in simple cases and using
can be modeled		technology for more complicated cases, to show key
appropriately		features, including: domain and range; rate of change;
with exponential		intercepts; intervals where the function is increasing,
functions.		decreasing, positive, or negative; maximums and
•I can provide a		minimums; and end behavior.
reasonable		וווווווווווווווווווווווווווווווווווווו
domain for an		Compare interpret and explain key features of
		Compare, interpret, and explain key features of
exponential		exponential functions.
function given a		



contextual situation.• NC.M1.F-IF.8b: Analyze functions using different representations. Interpret and explain growth and decay rates for an exponential function.• I can analyze an exponential function by identifying and using the key features of different representations.• NC.M1.F-IE.8b: Analyze functions using different representations and solve problems. Compare the end behavior of linear, exponential, and quadratic quantity increasing inearly or quadratically.• NC.M1.F-IF.8b: Analyze functions using different representations.• NC.M1.F-IE.3b: Construct and compare linear and exponential models and solve problems. Compare the end behavior of linear, exponentially eventually exceeds a quantity increasing linearly or quadratically.• NC.M1.F-IF.9: compare the texpressions. Identify and interpret parts of a linear, exponential functions.• NC.M1.F-IF.9: Compare key features of two functions, and exponents.• NC.M1.F-IF.9: compare key features of two an exponential function.• NC.M1.F-IF.9: Compare key features of two functions (symbolically, graphically, numerically in tables, or by verbal descriptions).• NC.M1.F-IF.9: compare the end behavior• NC.M1.A-REI.11: Build an understanding of why the x-coordinates of the points where the graphs of two linear, exponential functions to show an increase exceeding a linear or quadratic quantity.• I can interpret expressions that represent a quantity.• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a			
 I can analyze an exponential function by identifying and using the key features of different I can interpret I can interpret I can increase I can increase I can interpret I can interpret	contextual		 NC.M1.F-IF.8b: Analyze functions using different
exponential function by identifying and using the key features of of linear or an exponential• 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-SEL1: explain growth and decay rates for an exponential function.• NC.M1.A-SSE.1a: Interpret the structure of expressions. Identify and interpret parts of a linear, exponential, or quadratic, or exponential) each with 	situation.		
function by identifying and using the key features of differentexponential 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.• I can interpret and explain growth and decay rates for an exponential function.• 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 an exponential function.• 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-REL11: Build an understanding of why the x-coordinates of the points where the graphs of two linear or quadratic quantity.• I can interpret expressions that represent a quadratic• NC.M1.F-IF.9: Compare key features of two functions to show an increase exceeding a linear or quadratic quantity.• I can interpret expressions that represent a quantity in terms• NC.M1.F-IF.11: Build linear and exponential functions using a graphing technology or successive approximations with a table of values.			
identifying and using the key features of differentend 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.representations.• 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.decay rates for an exponential function.• NC.M1.FI.F.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).• I can interpret accordinates of the points where the graphs of two linear or quadratic quantity.• 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 using a graphing technology or successive approximations with a table of values.quantity.• NC.M1.F-BF.1a: Build linear and exponential functions to show an interpret expressions that represent a quantity.• NC.M1.F-BF.1a: Build linear and exponential quantity.• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	exponential		 NC.M1.F-LE.3: Construct and compare linear and
using the key features of differentfunctions using graphs and tables to show that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically.• I can interpret and explain growth and decay rates for an exponential function.• 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.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 using a graphing technology or successive approximations with a table of values.quantity.• I can interpret expressions that represent a quantity.• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	function by		exponential models and solve problems. Compare the
features of differentquantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically.representations.• 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.decay rates for an exponential function.• 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).• I can compare functions to show an increase exceeding a linear or quadratic quantity.• NC.M1.A-REI.11: Build an understanding of why the x-coordinates of the equation and approximate solutions using a graphing technology or successive approximations with a table of values.• I can interpret expressions that represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	identifying and		end behavior of linear, exponential, and quadratic
differentquantity increasing linearly or quadratically.representations.• NC.M1.A-SSE.1a: Interpret the structure ofexplainexplaingrowth andexponential, or quadratic expression, including terms,decay rates for• NC.M1.F-IF.9: Compare key features of twofunction.• NC.M1.F-IF.9: Compare key features of twofunction.• NC.M1.A-REI.11: Build an understanding of why theof exponential• NC.M1.A-REI.11: Build an understanding of why thescoordinates of the points where the graphs of twointersect are the solutions using a graphing technology orshow an increaseintersect are the solutions with a table of values.quantity.• I can interpretexpressions that• NC.M1.F-BF.1a: Build linear and exponentialquantity in terms• NC.M1.F-BF.1a: Build linear and exponential	using the key		functions using graphs and tables to show that a
representations.• 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.decay rates for an exponential function.• 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.F-IF.9: functions to show an increase exceeding a linear or quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quadratic quantity.• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	features of		quantity increasing exponentially eventually exceeds a
•I can interpret and explain growth andexpressions. Identify and interpret parts of a linear, exponential, or quadratic expression, including terms, factors, coefficients, and exponents.decay rates for an exponential function.• 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.quadratic quadratic quadratic quantity.Write and apply exponential functions given multiple representations.• NC.M1.F-BF.1a: Build linear and exponential quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	different		quantity increasing linearly or quadratically.
and explain growth and decay rates for an exponential function.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).• I can compare the end behavior of exponential functions to show an increase exceeding a linear or quadratic expressions that represent a quadratic in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	representations.		 NC.M1.A-SSE.1a: Interpret the structure of
growth and decay rates for an exponential function.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).• 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• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	 I can interpret 		expressions. Identify and interpret parts of a linear,
decay rates for an exponential function.• 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).• I can compare the end behavior of exponential functions to show an increase exceeding a linear or quadratic quantity.• 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.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	and explain		exponential, or quadratic expression, including terms,
an exponential function.functions (linear, quadratic, or exponential) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions).• I can compare the end behavior of exponential functions to show an increase exceeding a linear or quadratic quantity.• 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.• I can interpret expressions that represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	growth and		factors, coefficients, and exponents.
function.a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions).• I can compare the end behavior of exponential functions to show an increase exceeding a linear or quadratic quantity.• 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.• I can interpret expressions that represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	decay rates for		 NC.M1.F-IF.9: Compare key features of two
•I can compare the end behavior of exponential functions to show an increase exceeding a linear or quadratic quantity.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.• I can interpret expressions that represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	an exponential		functions (linear, quadratic, or exponential) each with
the end behavior of exponential functions to show an increase exceeding a linear or quadratic quantity.• 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.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	function.		a different representation (symbolically, graphically,
of exponential functions to show an increase exceeding a linear or quadratic quantity.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.• I can interpret expressions that represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	 I can compare 		numerically in tables, or by verbal descriptions).
functions to show an increase exceeding a linear or quadratic quantity.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.quadratic quantity.Write and apply exponential functions given multiple represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	the end behavior		 NC.M1.A-REI.11: Build an understanding of why the
show an increase exceeding a linear or quadratic quantity.intersect are the solutions of the equation and approximate solutions using a graphing technology or successive approximations with a table of values.•I can interpret expressions that represent a quantity in terms•NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	of exponential		x-coordinates of the points where the graphs of two
exceeding a linear or quadratic quantity.approximate solutions using a graphing technology or successive approximations with a table of values.•I can interpret expressions that represent a quantity in termsWrite and apply exponential functions given multiple representa functions, including arithmetic and geometric	functions to		linear, exponential, or quadratic equations and
linear or quadratic quantity.successive approximations with a table of values.•I can interpret expressions that represent a quantity in termsWrite and apply exponential functions given multiple representations.• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	show an increase		intersect are the solutions of the equation and
quadratic quantity.Write and apply exponential functions given multiple•I can interpret expressions that represent a quantity in terms•NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	exceeding a		approximate solutions using a graphing technology or
quantity.Write and apply exponential functions given multiple•I can interpretrepresentaexpressions that• NC.M1.F-BF.1a: Build linear and exponentialrepresent a• NC.M1.F-BF.1a: Build linear and exponentialquantity in terms• Interpret	linear or		successive approximations with a table of values.
•I can interpret representations. expressions that • NC.M1.F-BF.1a: Build linear and exponential quantity in terms functions, including arithmetic and geometric	quadratic		
expressions that represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	quantity.		Write and apply exponential functions given multiple
represent a quantity in terms• NC.M1.F-BF.1a: Build linear and exponential functions, including arithmetic and geometric	 I can interpret 		representations.
quantity in terms functions, including arithmetic and geometric	expressions that		
	represent a		 NC.M1.F-BF.1a: Build linear and exponential
of its context. sequences, given a graph, a description of a	quantity in terms		functions, including arithmetic and geometric
	of its context.		sequences, given a graph, a description of a
•I can compare relationship, or two ordered pairs (include reading	 I can compare 		relationship, or two ordered pairs (include reading
key features of these from a table).	key features of		these from a table).
two functions, • NC.M1.F-BF.1b: Build a function that models a	two functions,		 NC.M1.F-BF.1b: Build a function that models a
linear and relationship between two quantities by combining	linear and		relationship between two quantities by combining
exponential. linear, exponential, or quadratic functions with	exponential.		linear, exponential, or quadratic functions with
•I can infer that addition and subtraction or two linear functions with	 I can infer that 		addition and subtraction or two linear functions with
since y = f(x) and multiplication.	since y = f(x) and		multiplication.
y= g(x), f(x) = g(x) • NC.M1.S.ID.6c: Represent data on two quantitative	y = g(x), f(x) = g(x)		 NC.M1.S.ID.6c: Represent data on two quantitative
represents a variables on a scatter plot, and describe how the	represents a		variables on a scatter plot, and describe how the
solution to the variables are related. Fit a function to exponential data	solution to the		variables are related. Fit a function to exponential data
system. using technology. Use the fitted function to solve	system.		using technology. Use the fitted function to solve
•I can write an problems.			
exponential	exponential		
equation from a			
table, graph, or			
relation.			
•I can write an	 I can write an 		
exponential	exponential		
function to			
represent the			
relationship			



between two quantities •I can use technology to find an appropriate function for a set of data and use it to solve problems in the context of the data.			
Unit 5: Quadratic Functions	Approximately 15 Days	The focus is on lessons 2.1-2.7	Understand the terms and properties of polynomials.
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.	Lays	 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 	 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 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 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 features, including: domain and range; rate of change; intervente in the structure is increased.
•I can identify and interpret key features of a quadratic			 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
quadratic function. •I can compare key features of two functions (linear, quadratic,			• 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).



or exponential)	• NC.I	M1.F-LE.3: Construct and compare linear,
with a different	expon	ential, and quadratic models and solve
representation	proble	ems. Compare the end behavior of linear,
(symbolically,	expon	ential, and quadratic functions using graphs and
graphically,	tables	to show that a quantity increasing exponentially
numerically in	excee	ds a quantity increasing linearly or quadratically.
tables, or by	• NC.I	M1.F-IF.6: Interpret functions that arise in
verbal	applic	ations in terms of the context. Calculate and
descriptions).	interp	ret the average rate of change over a specified
•I can compare	-	al for a function presented numerically,
two functions in		ically, and/or symbolically.
graph or table	• NC.I	M1.F-IF.8a: Analyze functions using different
form to		sentations. Use equivalent expressions to reveal
determine that a		xplain different properties of a function. Rewrite
quantity		dratic function to reveal and explain different
increasing		atures of the function.
exponentially will		M1.A-REI.10: Represent and solve equations and
eventually		alities graphically. Understand that the graph of
exceed a function		variable equation represents the set of all
increasing		ons to the equation.
linearly or		M1.F-IF2: Understand the concept of a function
quadratically.		se function notation. Use function notation to
•I can calculate		ate linear, quadratic, and exponential functions
and interpret the		outs in their domains, and interpret statements
rate of change	-	se function notation in terms of a context.
given an interval		M1.A-CED.2: Create and graph equations in two
numerically,		les to represent linear exponential, and
graphically,		atic relationships between quantities. •
and/or		1.A-CED.1: Create equations and inequalities in
symbolically.		ariable that represent linear, exponential and
•I can rewrite		atic relationships and use them to solve
quadratic	proble	
functions to		
reveal and	Under	rstand the relationship between the factors of a
interpret key		atic expression and the solutions to its related
features	-	atic equation.
•I can determine		·
and explain why	• NC.I	M1.A-SSE.3: Write an equivalent form of a
a sample set of		atic expression by factoring, where is an integer
given points are		quadratic expression, a x xa , to reveal the
solutions to a		ons of the equation or the zeros of the function
given equation		pression defines. $2 + b + c$
and its graph.		M1.A-REI.4: Solve for the real solutions of
•l can use		atic equations in one variable by taking square
function notation		and factoring.
to evaluate		M1.A-APR.3: Understand the relationship
quadratic		en zeros and factors of polynomials.
functions given		
values in their	Under	rstand the relationships among the factors of a
domains and		atic expression, the solutions of a quadratic
		ion, and the zeros of a quadratic function.
L	equal	



interpret in		
context.		 NC.M1.A-REI.1: Understand solving equations as a
•I can		process of reasoning and explain the reasoning. Justify
write/create a		a chosen solution method and each step of the solving
quadratic		process for linear and quadratic equations using
equation to		mathematical reasoning.
model the		 NC.M1.A-REI.11: Build an understanding of why the
relationship		x-coordinates of the points where the graphs of two
between two		linear, exponential, or quadratic equations and
variables.		intersect are the solutions of the equation and
 I can create and 		approximate solutions using a graphing y = f(x) y = g(x)
use a quadratic		f(x) (= g x) technology or successive approximations
equation in one		with a table of values. Build quadratic functions from
variable that		other functions and interpret the key features of a
represents a		quadratic function in context.
quadratic		 NC.M1.F-IF.4: Interpret functions that arise in
relationship and		applications in terms of the context. Interpret key
use them to solve		features of graphs, tables, and verbal descriptions in
problems.		context to describe functions that arise in applications
 I can find the 		relating two quantities, including: intercepts; intervals
factored form of		where the function is increasing, decreasing, positive,
a quadratic		or negative; and maximums and minimums.
expression given		 NC.M1.A-APR.1: Perform arithmetic operations on
the standard		polynomials. Build an understanding that operations
form to		with polynomials are comparable to operations with
determine the		integers by adding and subtracting quadratic
solutions (given a		expressions and by adding, subtracting, and
is an integer).		multiplying linear expressions.
 I can solve for 		 NC.M1.A-SSE.1b: Interpret the structure of
real solutions of		expressions. Interpret expressions that represent a
quadratic		quantity in terms of its context.
equations in one		
variable by taking		Interpret a linear, exponential, or quadratic
square roots and		expression made of multiple parts as a combination
factoring.		of entities to give meaning to an expression.
•l can		 NC.M1.F-BF.1b: Build a function that models a
understand the		relationship between two quantities by combining
relationships		linear, exponential, or quadratic functions with
between the		addition and subtraction or two linear functions with
factors, solutions		multiplication.
and zeros of a		 NC.M1.F-IF.5: Interpret a function in terms of
quadratic		context by relating its domain and range to its graph
function.		and, where applicable, to the quantitative relationship
 I can justify the 		it describes.
steps taken to		 NC.M1.A-REI.11: Build an understanding of why the
solve a quadratic		x-coordinates of the points where the graphs of two
equation.		linear, exponential, or quadratic equations and
•I can determine		intersect are the solutions of the equation and
the solutions of a		approximate solutions using a graphing $y = f(x) y = g(x)$
quadratics		f(x) (= g x) technology or successive approximations
		with a table of values.
system and		with a table of values.



understand why		 NC.M1.F-IF.7: Analyze functions using different
the x-coordinates		representations. Analyze linear, exponential, and
are the solutions		quadratic functions by generating different
of the equation		representations, by hand in simple cases and using
f(x) = g(x).		technology for more complicated cases, to show key
•I can		features, including: domain and range; rate of change;
approximate		intercepts; intervals where the function is increasing,
solutions to a		decreasing, positive, or negative; maximums and
quadratic system		minimums; and end behavior.
using graphing		• NC.M1.S-ID.8: Interpret linear models. Analyze
technology or a		patterns and describe relationships between two
table of values.		variables in context. Using technology, determine the
•I can identify		correlation coefficient of bivariate data and interpret it
and interpret key		as a measure of the strength and direction of a linear
features of		relationship. Use a scatter plot, correlation coefficient,
graphs, tables		and a residual plot to determine the appropriateness
and verbal		of using a linear function to model a relationship
descriptions in		between two variables.
context to		between two variables.
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 $y = f(y)$		
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,		
positive or		
negative,		
maximums and		
minimums, and		
end behavior.		



NC Math 1

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

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 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.