

## ABOUT EUREKA MATH

Created by the nonprofit Great Minds, *Eureka Math*<sup>®</sup> helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students’ mastery of math.

Teachers and students using *Eureka Math* find the trademark “Aha!” moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

## ALIGNED

*Eureka Math* is the only curriculum found by EdReports.org to align fully with the Common Core State Standards for Mathematics for all grades, Kindergarten through Grade 8. Great Minds offers detailed analyses that demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at [greatminds.org/state-studies](https://greatminds.org/state-studies).

## DATA

Schools and districts nationwide are experiencing student academic growth and impressive test scores after using *Eureka Math*. See their stories and data at [greatminds.org/data](https://greatminds.org/data).

## FULL SUITE OF RESOURCES

As a nonprofit, Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at [greatminds.org/math/curriculum](https://greatminds.org/math/curriculum).

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

# North Carolina Standard Course of Study Mathematics Correlation to *Eureka Math*<sup>®</sup>

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## MATH 1

*Eureka Math* does not currently offer an integrated curriculum; however, the North Carolina Standard Course of Study for Math 1 is fully covered by the *Eureka Math* curriculum. Standards from this pathway will require the use of *Eureka Math* content from multiple high school courses. A detailed analysis of alignment is provided in the table below.

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
Number and Quantity	The Real Number System	<b>Cluster: Extend the properties of exponents to rational exponents.</b>	
		<b>NC.M1.N-RN.2</b> Rewrite algebraic expressions with integer exponents using the properties of exponents.	Algebra II M3 Topic A: Real Numbers
Algebra	Seeing Structure in Expressions	<b>Cluster: Interpret the structure of expressions.</b>	
		<b>NC.M1.A-SSE.1</b> Interpret expressions that represent a quantity in terms of its context. <ol style="list-style-type: none"> <li>Identify and interpret parts of a linear, exponential, or quadratic expression, including terms, factors, coefficients, and exponents.</li> <li>Interpret a linear, exponential, or quadratic expression made of multiple parts as a combination of entities to give meaning to an expression.</li> </ol>	Algebra I M4 Lessons 1–2: Multiplying and Factoring Polynomial Expressions  Algebra I M4 Lessons 3–4: Advanced Factoring Strategies for Quadratic Expressions  Algebra II M1 Lesson 14: Graphing Factored Polynomials  Algebra II M1 Lesson 15: Structure in Graphs of Polynomial Functions
		<b>Cluster: Write expressions in equivalent forms to solve problems.</b>	
		<b>NC.M1.A-SSE.3</b> Write an equivalent form of a quadratic expression $ax^2 + bx + c$ , where $a$ is an integer, by factoring to reveal the solutions of the equation or the zeros of the function the expression defines.	Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$  Algebra I M4 Lesson 15: Using the Quadratic Formula  Algebra II M1 Lesson 14: Graphing Factored Polynomials

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	<b>Arithmetic with Polynomial Expressions</b>	<b>Cluster: Perform arithmetic operations on polynomials.</b>	
		<p><b>NC.M1.A-APR.1</b></p> <p>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.</p>	<p>Algebra I M1 Topic B: The Structure of Expressions</p> <p>Algebra I M4 Lessons 1–2: Multiplying and Factoring Polynomial Expressions</p> <p>Algebra I M4 Lessons 3–4: Advanced Factoring Strategies for Quadratic Expressions</p>
		<b>Cluster: Understand the relationship between zeros and factors of polynomials.</b>	
		<p><b>NC.M1.A-APR.3</b></p> <p>Understand the relationships among the factors of a quadratic expression, the solutions of a quadratic equation, and the zeros of a quadratic function.</p>	<p>Algebra I M1 Lesson 17: Equations Involving Factored Expressions</p> <p>Algebra I M4 Topic A: Quadratic Expressions, Equations, Functions, and Their Connection to Rectangles</p>
	<b>Creating Equations</b>	<b>Cluster: Create equations that describe numbers or relationships.</b>	
		<p><b>NC.M1.A-CED.1</b></p> <p>Create equations and inequalities in one variable that represent linear, exponential, and quadratic relationships and use them to solve problems.</p>	<p>Algebra I M1 Lesson 18: Equations Involving a Variable Expression in the Denominator</p> <p>Algebra I M1 Topic D: Creating Equations to Solve Problems</p> <p>Algebra I M4 Lesson 6: Solving Basic One-Variable Quadratic Equations</p>

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			<p>Algebra I M4 Lesson 7: Creating and Solving Quadratic Equations in One Variable</p> <p>Algebra I M5 Lesson 6: Modeling a Context from Data</p> <p>Algebra I M5 Lesson 9: Modeling a Context from a Verbal Description</p> <p>Algebra II M1 Lesson 27: Word Problems Leading to Rational Equations</p> <p>Algebra II M3 Lesson 7: Bacteria and Exponential Growth</p> <p>Algebra II M3 Lesson 26: Percent Rate of Change</p> <p>Algebra II M3 Lesson 27: Modeling with Exponential Functions</p>
		<p><b>NC.M1.A-CED.2</b></p> <p>Create and graph equations in two variables to represent linear, exponential, and quadratic relationships between quantities.</p>	<p>Algebra I M1 Lesson 5: Two Graphing Stories</p> <p>Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables</p> <p>Algebra I M1 Lesson 23: Solution Sets to Simultaneous Equations</p> <p>Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities</p> <p>Algebra I M1 Lesson 28: Federal Income Tax</p>

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			<p>Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form,  <math>f(x) = a(x - m)(x - n)</math></p> <p>Algebra I M4 Lesson 12: Completing the Square</p> <p>Algebra I M4 Lesson 16: Graphing Quadratic Equations from the Vertex Form,  <math>y = a(x - h)^2 + k</math></p> <p>Algebra I M4 Lessons 23–24: Modeling with Quadratic Functions</p> <p>Algebra I M5: A Synthesis of Modeling with Equations and Functions</p> <p>Algebra II M1 Lesson 1: Successive Differences in Polynomials</p> <p>Algebra II M1 Lessons 16–17: Modeling with Polynomials—An Introduction</p> <p>Algebra II M1 Lessons 20–21: Modeling Riverbeds with Polynomials</p> <p>Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior</p> <p>Algebra II M2 Lesson 13: Tides, Sound Waves, and Stock Markets</p>

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		<p><b>NC.M1.A-CED.3</b></p> <p>Create systems of linear equations and inequalities to model situations in context.</p>	<p>Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by “And” or “Or”</p> <p>Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables</p> <p>Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities</p> <p>Algebra I M1 Lesson 27: Recursive Challenge Problem—The Double and Add 5 Game</p> <p>Algebra I M3 Topic B: Functions and Their Graphs</p> <p>Algebra I M3 Lesson 24: Piecewise and Step Functions in Context</p> <p>Algebra II M1 Lessons 20–21: Modeling Riverbeds with Polynomials</p> <p>Algebra II M3 Topic E: Geometric Series and Finance</p>
		<p><b>NC.M1.A-CED.4</b></p> <p>Solve for a quantity of interest in formulas used in science and mathematics using the same reasoning as in solving equations.</p>	<p>Algebra I M1 Lesson 19: Rearranging Formulas</p>
		<p><b>Cluster: Understand solving equations as a process of reasoning and explain the reasoning.</b></p>	

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	Reasoning with Equations and Inequalities	<p><b>NC.M1.A-REI.1</b></p> <p>Justify a chosen solution method and each step of the solving process for linear and quadratic equations using mathematical reasoning.</p>	<p>Algebra I M1 Lesson 12: Solving Equations</p> <p>Algebra I M1 Lesson 13: Some Potential Dangers when Solving Equations</p> <p>Algebra I M1 Lesson 17: Equations Involving Factored Expressions</p>
<p><b>Cluster: Solve equations and inequalities in one variable.</b></p>			
<p><b>NC.M1.A-REI.3</b></p> <p>Solve linear equations and inequalities in one variable.</p>		<p>Algebra I M1: Relationships Between Quantities and Reasoning with Equations and Their Graphs</p>	
<p><b>NC.M1.A-REI.4</b></p> <p>Solve for the real solutions of quadratic equations in one variable by taking square roots and factoring.</p>		<p>Algebra I M4 Lesson 5: The Zero Product Property</p> <p>Algebra I M4 Lesson 6: Solving Basic One-Variable Quadratic Equations</p> <p>Algebra I M4 Lesson 7: Creating and Solving Quadratic Equations in One Variable</p> <p>Algebra I M4 Lesson 13: Solving Quadratic Equations by Completing the Square</p>	



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		<p><b>Cluster: Solve systems of equations.</b></p>	
		<p><b>NC.M1.A-REI.5</b>            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.</p>	<p>Algebra I M1 Lesson 23: Solution Sets to Simultaneous Equations</p>
		<p><b>NC.M1.A-REI.6</b>            Use tables, graphs, or algebraic methods (substitution and elimination) to find approximate or exact solutions to systems of linear equations and interpret solutions in terms of a context.</p>	<p>Algebra I M1 Lessons 22–23: Solution Sets to Simultaneous Equations            Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities            Algebra I M4 Lesson 24: Modeling with Quadratic Functions            Algebra II M1 Lesson 30: Linear Systems in Three Variables            Algebra II M1 Lesson 31: Systems of Equations</p>

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		<b>Cluster: Represent and solve equations and inequalities graphically.</b>	
		<p><b>NC.M1.A-REI.10</b></p> <p>Understand that the graph of a two variable equation represents the set of all solutions to the equation.</p>	<p>Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables</p> <p>Algebra II M1 Lesson 36: Overcoming a Third Obstacle to Factoring—What If There Are No Real Number Solutions?</p>
		<p><b>NC.M1.A-REI.11</b></p> <p>Build an understanding of why the <math>x</math>-coordinates of the points where the graphs of two linear, exponential, and/or quadratic equations <math>y = f(x)</math> and <math>y = g(x)</math> intersect are the solutions of the equation <math>f(x) = g(x)</math> and approximate solutions using graphing technology or successive approximations with a table of values.</p>	<p>Algebra I M3 Lesson 16: Graphs Can Solve Equations Too</p> <p>Algebra II M1 Lesson 36: Overcoming a Third Obstacle to Factoring—What If There Are No Real Number Solutions?</p> <p>Algebra II M3 Lesson 24: Solving Exponential Equations</p>
		<p><b>NC.M1.A-REI.12</b></p> <p>Represent the solutions of a linear inequality or a system of linear inequalities graphically as a region of the plane.</p>	<p>Algebra I M1 Lesson 21: Solution Sets to Inequalities with Two Variables</p> <p>Algebra I M1 Lesson 22: Solution Sets to Simultaneous Equations</p> <p>Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities</p>

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<p><b>Functions</b></p>	<p><b>Interpreting Functions</b></p>	<p><b>Cluster: Understand the concept of a function and use function notation.</b></p>	
		<p><b>NC.M1.F-IF.1</b> 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:</p> <ul style="list-style-type: none"> <li>• if <math>f</math> is a function and <math>x</math> is an element of its domain, then <math>f(x)</math> denotes the output of <math>f</math> corresponding to the input <math>x</math>.</li> <li>• the graph of <math>f</math> is the graph of the equation <math>y = f(x)</math>.</li> </ul>	<p>Algebra I M3 Lesson 1: Integer Sequences—Should You Believe in Patterns? Algebra I M3 Lesson 12: The Graph of the Equation <math>y = f(x)</math></p>
		<p><b>NC.M1.F-IF.2</b> 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.</p>	<p>Algebra I M3: Linear and Exponential Functions</p>
<p><b>NC.M1.F-IF.3</b> 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.</p>	<p>Algebra I M3 Lesson 2: Recursive Formulas for Sequences Algebra I M3 Lesson 3: Arithmetic and Geometric Sequences Algebra I M3 Lesson 4: Why Do Banks Pay YOU to Provide Their Services? Algebra II M3 Lesson 26: Percent Rate of Change</p>		

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		<p><b>Cluster: Interpret functions that arise in applications in terms of the context.</b></p>	
		<p><b>NC.M1.F-IF.4</b></p> <p>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.</p>	<p>Algebra I M3 Lesson 13: Interpreting the Graph of a Function</p> <p>Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates</p> <p>Algebra I M3 Topic D: Using Functions and Graphs to Solve Problems</p> <p>Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions</p> <p>Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, <math>f(x) = a(x - m)(x - n)</math></p> <p>Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables</p> <p>Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, <math>f(x) = ax^2 + bx + c</math></p> <p>Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways</p> <p>Algebra I M5: A Synthesis of Modeling with Equations and Functions</p>

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			<p>Algebra II M1 Lessons 16–17: Modeling with Polynomials—An Introduction</p> <p>Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior</p> <p>Algebra II M2 Lesson 13: Tides, Sound Waves, and Stock Markets</p> <p>Algebra II M3 Lesson 18: Graphs of Exponential Functions and Logarithmic Functions</p> <p>Algebra II M3 Lesson 20: Transformations of the Graphs of Logarithmic and Exponential Functions</p> <p>Algebra II M3 Lesson 21: The Graph of the Natural Logarithm Function</p>

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		<p><b>NC.M1.F-IF.5</b></p> <p>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.</p>	<p>Algebra I M3 Topic B: Functions and Their Graphs</p> <p>Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, <math>f(x) = a(x - m)(x - n)</math></p> <p>Algebra I M5 Lesson 1: Analyzing a Graph</p> <p>Algebra I M5 Lesson 4: Modeling a Context from a Graph</p> <p>Algebra II M1 Lessons 16–17: Modeling with Polynomials—An Introduction</p> <p>Algebra II M3 Lesson 17: Graphing the Logarithm Function</p>
		<p><b>NC.M1.F-IF.6</b></p> <p>Calculate and interpret the average rate of change over a specified interval for a function presented numerically, graphically, and/or symbolically.</p>	<p>Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population</p> <p>Algebra I M3 Topic D: Using Functions and Graphs to Solve Problems</p> <p>Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions</p> <p>Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables</p> <p>Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, <math>f(x) = ax^2 + bx + c</math></p>

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			<p>Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways</p> <p>Algebra I M5 Lesson 4: Modeling a Context from a Graph</p> <p>Algebra II M3 Lesson 6: Euler’s Number, <math>e</math></p> <p>Algebra II M3 Lesson 27: Modeling with Exponential Functions</p>
		<p><b>Cluster: Analyze functions using different representations.</b></p> <p><b>NC.M1.F-IF.7</b></p> <p>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.</p>	<p>Algebra I M3 Lesson 11: The Graph of a Function</p> <p>Algebra I M3 Lesson 12: The Graph of the Equation <math>y = f(x)</math></p> <p>Algebra I M3 Lesson 16: Graphs Can Solve Equations Too</p> <p>Algebra 1 M3 Topic C: Transformations of Functions</p> <p>Algebra I M3 Lesson 19: Four Interesting Transformations of Functions</p> <p>Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions</p>

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			<p>Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form,  <math>f(x) = a(x - m)(x - n)</math></p> <p>Algebra I M4 Lesson 16: Graphing Quadratic Equations from the Vertex Form,  <math>y = a(x - h)^2 + k</math></p> <p>Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form,  <math>f(x) = ax^2 + bx + c</math></p> <p>Algebra I M4 Topic C: Function Transformations and Modeling</p> <p>Algebra II M1 Lesson 14: Graphing Factored Polynomials</p> <p>Algebra II M3 Lesson 18: Graphs of Exponential Functions and Logarithmic Functions</p> <p>Algebra II M3 Lesson 20: Transformations of the Graphs of Logarithmic and Exponential Functions</p> <p>Algebra II M3 Lesson 33: The Million Dollar Problem</p>



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		<p><b>NC.M1.F-IF.8</b></p> <p>Use equivalent expressions to reveal and explain different properties of a function.</p> <p>a. Rewrite a quadratic function to reveal and explain different key features of the function.</p> <p>b. Interpret and explain growth and decay rates for an exponential function.</p>	<p>Algebra I M3 Lesson 5: The Power of Exponential Growth</p> <p>Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population</p> <p>Algebra I M3 Lesson 7: Exponential Decay</p> <p>Algebra I M3 Topic D: Using Functions and Graphs to Solve Problems</p> <p>Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, <math>f(x) = a(x - m)(x - n)</math></p> <p>Algebra I M4 Topic B: Using Different Forms for Quadratic Functions</p> <p>Algebra I M4 Lesson 21: Transformations of the Quadratic Parent Function, <math>f(x) = x^2</math></p> <p>Algebra I M4 Lesson 23: Modeling with Quadratic Functions</p> <p>Algebra II M3 Lesson 23: Bean Counting</p> <p>Algebra II M3 Lesson 27: Modeling with Exponential Functions</p> <p>Algebra II M3 Topic E: Geometric Series and Finance</p>

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		<p><b>NC.M1.F-IF.9</b></p> <p>Compare key features of two functions (linear, quadratic, or exponential) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions).</p>	<p>Algebra I M3 Lesson 5: The Power of Exponential Growth</p> <p>Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population</p> <p>Algebra I M3 Lesson 7: Exponential Decay</p> <p>Algebra I M3 Topic D: Using Functions and Graphs to Solve Problems</p> <p>Algebra II M3 Lesson 23: Bean Counting</p> <p>Algebra II M3 Lesson 27: Modeling with Exponential Functions</p> <p>Algebra II M3 Topic E: Geometric Series and Finance</p>

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	<p><b>Building Functions</b></p>	<p><b>Cluster: Build a function that models a relationship between two quantities.</b></p> <p><b>NC.M1.F-BF.1</b></p> <p>Write a function that describes a relationship between two quantities.</p> <p>a. 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).</p> <p>b. 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.</p>	<p>Algebra I M3: Linear and Exponential Functions</p> <p>Algebra I M5: A Synthesis of Modeling with Equations and Functions</p> <p>Algebra II M1 Lesson 1: Successive Differences in Polynomials</p> <p>Algebra II M2 Lesson 12: Ferris Wheels—Using Trigonometric Functions to Model Cyclical Behavior</p> <p>Algebra II M3 Lesson 5: Irrational Exponents</p> <p>Algebra II M3 Lesson 6: Euler’s Number, <math>e</math></p> <p>Algebra II M3 Lesson 7: Bacteria and Exponential Growth</p> <p>Algebra II M3 Lesson 22: Choosing a Model</p> <p>Algebra II M3 Lesson 26: Percent Rate of Change</p> <p>Algebra II M3 Lesson 27: Modeling with Exponential Functions</p> <p>Algebra II M3 Lesson 28: Newton’s Law of Cooling, Revisited</p> <p>Algebra II M3 Lesson 30: Buying a Car</p> <p>Algebra II M3 Lesson 33: The Million Dollar Problem</p>
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		<p><b>NC.M1.F-BF.2</b></p> <p>Translate between explicit and recursive forms of arithmetic and geometric sequences and use both to model situations.</p>	<p>Algebra I M3 Topic A: Linear and Exponential Sequences</p> <p>Algebra II M3 Lesson 25: Geometric Sequences and Exponential Growth and Decay</p> <p>Algebra II M3 Lesson 26: Percent Rate of Change</p>
	<p><b>Linear, Quadratic and Exponential Models</b></p>	<p><b>Cluster: Construct and compare linear and exponential models and solve problems.</b></p> <p><b>NC.M1.F-LE.1</b></p> <p>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.</p>	<p>Algebra I M3 Lesson 5: The Power of Exponential Growth</p> <p>Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population</p> <p>Algebra I M3 Lesson 7: Exponential Decay</p> <p>Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates</p> <p>Algebra I M5: A Synthesis of Modeling with Equations and Functions</p>

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		<p><b>NC.M1.F-LE.3</b></p> <p>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.</p>	<p>Algebra I M3 Lesson 5: The Power of Exponential Growth</p> <p>Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population</p> <p>Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates</p> <p>Algebra I M3 Lesson 21: Comparing Linear and Exponential Models Again</p>
		<p><b>Cluster: Interpret expressions for functions in terms of the situation they model.</b></p>	
		<p><b>NC.M1.F-LE.5</b></p> <p>Interpret the parameters <math>a</math> and <math>b</math> in a linear function <math>f(x) = ax + b</math> or an exponential function <math>g(x) = b^x</math> in terms of a context.</p>	<p>Algebra I M3 Topic D: Using Functions and Graphs to Solve Problems</p> <p>Algebra II M3 Lesson 23: Bean Counting</p> <p>Algebra II M3 Topic E: Geometric Series and Finance</p>

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Geometry	Expressing Geometric Properties with Equations	<b>Cluster: Use coordinates to prove simple geometric theorems algebraically.</b>	
		<b>NC.M1.G-GPE.4</b> Use coordinates to solve geometric problems involving polygons algebraically. <ul style="list-style-type: none"> <li>• Use coordinates to compute perimeters of polygons and areas of triangles and rectangles.</li> <li>• Use coordinates to verify algebraically that a given set of points produces a particular type of triangle or quadrilateral.</li> </ul>	G8 M7 Lesson 17: Distance on the Coordinate Plane  Geometry M4 Topic C: Perimeters and Areas of Polygonal Regions in the Cartesian Plane
		<b>NC.M1.G-GPE.5</b> Use coordinates to prove the slope criteria for parallel and perpendicular lines and use them to solve problems. <ul style="list-style-type: none"> <li>• Determine if two lines are parallel, perpendicular, or neither.</li> <li>• Find the equation of a line parallel or perpendicular to a given line that passes through a given point.</li> </ul>	Geometry M4 Lesson 4: Designing a Search Robot to Find a Beacon  Geometry M4 Topic B: Perpendicular and Parallel Lines in the Cartesian Plane  Geometry M5 Lesson 19: Equations for Tangent Lines to Circles
		<b>NC.M1.G-GPE.6</b> Use coordinates to find the midpoint or endpoint of a line segment.	Geometry M4 Lesson 12: Dividing Segments Proportionately

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
<b>Statistics and Probability</b>	<b>Interpreting Categorical and Quantitative Data</b>	<b>Cluster: Summarize, represent, and interpret data on a single count or measurement variable.</b>	
		<b>NC.M1.S-ID.1</b> Use technology to represent data with plots on the real number line (histograms and box plots).	Algebra I M2: Descriptive Statistics
		<b>NC.M1.S-ID.2</b> 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.	Algebra I M2 Lesson 3: Estimating Centers and Interpreting the Mean as a Balance Point Algebra I M2 Topic B: Describing Variability and Comparing Distributions
		<b>NC.M1.S-ID.3</b> Examine the effects of extreme data points (outliers) on shape, center, and/or spread.	Algebra I M2: Descriptive Statistics

Conceptual Category	Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
		<p><b>Cluster: Summarize, represent, and interpret data on two categorical and quantitative variables.</b></p> <p><b>NC.M1.S-ID.6</b>            Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.</p> <p>a. Fit a least squares regression line to linear data using technology. Use the fitted function to solve problems.</p> <p>b. Assess the fit of a linear function by analyzing residuals.</p> <p>c. Fit a function to exponential data using technology. Use the fitted function to solve problems.</p>	<p>Algebra I M2 Lessons 12–13: Relationships Between Two Numerical Variables</p> <p>Algebra I M2 Lesson 18: Analyzing Residuals</p> <p>Algebra I M2 Lesson 19: Interpreting Correlation</p> <p>Algebra I M2 Lesson 20: Analyzing Data Collected on Two Variables</p> <p>Algebra I M2 Topic D: Numerical Data on Two Variables</p> <p>Algebra I M5 Lesson 7: Modeling a Context from Data</p>



**Conceptual  
Category**

**Domain**

**Standards for Mathematical Content**

**Aligned Components of *Eureka Math***

		<b>Cluster: Interpret linear models.</b>	
		<p><b>NC.M1.S-ID.7</b></p> <p>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.</p>	Algebra I M2 Lesson 14: Modeling Relationships with a Line
		<p><b>NC.M1.S-ID.8</b></p> <p>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.</p>	<p>Algebra I M2 Lesson 19: Interpreting Correlation</p> <p>Algebra I M2 Lesson 20: Analyzing Data Collected on Two Variables</p> <p>Algebra I M5 Lesson 7: Modeling a Context from Data</p>
		<p><b>NC.M1.S-ID.9</b></p> <p>Distinguish between association and causation.</p>	<p>Algebra I M2 Lesson 11: Conditional Relative Frequencies and Association</p> <p>Algebra I M2 Lesson 19: Interpreting Correlation</p> <p>Algebra I M2 Lesson 20: Analyzing Data Collected on Two Variables</p>