ABOUT *EUREKA MATH*

Created by the nonprofit Great Minds, *Eureka Math*® 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.

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.

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.

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

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North Carolina Standard Course of Study Mathematics Correlation to *Eureka Math*®

MATH 4

Eureka Math does not currently offer an integrated curriculum; however, the North Carolina Standard Course of Study for Math 4 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.

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Number and Quantity	**Cluster: Apply properties and operations with complex numbers.**	
	NC.M4.N.1.1 Execute procedures to add and subtract complex numbers.	Algebra II M1 Topic D: A Surprise from Geometry—Complex Numbers Overcome All Obstacles Precalculus and Advanced Topics M1 Topic A: A Question of Linearity Precalculus and Advanced Topics M1 Topic B: Complex Number Operations and Transformations
	NC.M4.N.1.2 Execute procedures to multiply complex numbers.	Precalculus and Advanced Topics M1 Topic B: Complex Number Operations and Transformations
	Apply properties and operations with matrices and vectors.	
	NC.M4.N.2.1 Execute procedures of addition, subtraction, multiplication, and scalar multiplication on matrices.	Precalculus and Advanced Topics M2 Topic B: Linear Transformations of Planes and Space
	NC.M4.N.2.2 Execute procedures of addition, subtraction, and scalar multiplication on vectors.	Precalculus and Advanced Topics M2 Topic D: Vectors in Plane and Space Precalculus and Advanced Topics M2 Topic E: First-Person Video Games–Projection Matrices

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Algebra and Functions	**Cluster: Apply properties of function composition to build new functions from existing functions.**	
	NC.M4.AF.1.1 Execute algebraic procedures to compose two functions.	Precalculus and Advanced Topics M3 Lesson 16: Function Composition
	NC.M4.AF.1.2 Execute a procedure to determine the value of a composite function at a given value when the functions are in algebraic, graphical, or tabular representations.	Precalculus and Advanced Topics M3 Lesson 17: Solving Problems by Function Composition
	Cluster: Apply properties of trigonometry to solve problems.	
	NC.M4.AF.2.1 Translate trigonometric expressions using the reciprocal and Pythagorean identities.	Precalculus and Advanced Topics M4 Lesson 7: An Area Formula for Triangles
	NC.M4. AF.2.2 Implement the Law of Sines and the Law of Cosines to solve problems.	Precalculus and Advanced Topics M4 Lesson 10: Putting the Law of Cosines and the Law of Sines to use
	NC.M4. AF.2.3 Interpret key features (amplitude, period, phase shift, vertical shifts, midline, domain, range) of models using sine and cosine functions in terms of a context.	Algebra II M2 Lesson 11: Revisiting the Graphs of the Trigonometric Functions

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Apply the properties and key features of logarithmic functions.	
	NC.M4.AF.3.1 Execute properties of logarithms to rewrite expressions and solve equations algebraically.	Algebra II M3 Lesson 4: Properties of Exponents and Radicals Algebra II M3 Lesson 10: Building Logarithmic Tables Algebra II M3 Lesson 11: The Most Important Property of Logarithms
	NC.M4.AF.3.2 Implement properties of logarithms to solve equations in contextual situations.	Algebra II M3 Lesson 28: Newton's Law of Cooling, Revisited
	NC.M4.AF.3.3 Interpret key features of a logarithmic function using multiple representations.	Algebra II M3 Lesson 18: Graphs of Exponential Functions and Logarithmic Functions Algebra II M3 Lesson 19: The Inverse Relationship Between Logarithmic and Exponential Functions Algebra II M3 Lesson 20: Transformations of the Graphs of Logarithmic and Exponential Functions Algebra II M3 Lesson 21: The Graph of the Natural Logarithm Function

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Understand the properties and key features of piecewise functions.	
	NC.M4.AF.4.1 Translate between algebraic and graphical representations of piecewise functions (linear, exponential, quadratic, polynomial, square root).	Algebra I M3 Lesson 20: Four Interesting Transformations of Functions
	NC.M4.AF.4.2 Construct piecewise functions to model a contextual situation.	Algebra I M3 Lesson 20: Four Interesting Transformations of Functions Algebra I M3 Lesson 21: Comparing Linear and Exponential Models Again Algebra I M3 Lesson 22: Modeling an Invasive Species Population Algebra II M3 Lesson 21: The Graph of the Natural Logarithm Function Algebra II M3 Lesson 22: Choosing a Model
	Understand how to model functions with regression.	
	NC.M4.AF.5.1 Construct regression models of linear, quadratic, exponential, logarithmic, & sinusoidal functions of bivariate data using technology to model data and solve problems.	Algebra I M5 Lesson 7: Modeling a Context from Data

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	NC.M4.AF.5.2 Compare residuals and residual plots of non-linear models to assess the goodness-of-fit of the model.	Algebra I M2 Lesson 15: Interpreting Residuals from a Line Algebra I M2 Lesson 16: More on Modeling Relationships with a Line Algebra I M2 Lesson 17: Analyzing Residuals
Statistics and Probability	**Cluster: Create statistical investigations to make sense of real-world phenomena.**	
	NC.M4.SP.1.1 Construct statistical questions to guide explorations of data in context.	Algebra I M2 Lesson 9: Summarizing Bivariate Categorical Data Algebra II M4 Lesson 13: Using Sample Data to Estimate a Population Characteristic Algebra II M4 Lesson 25: Ruling Out Chance Algebra II M4 Lesson 28: Drawing a Conclusion from an Experiment Precalculus and Advanced Topics M5 Lesson 11: Estimating Probability Distributions Empirically
	NC.M4.SP.1.2 Design sample surveys and comparative experiments using sampling methods to collect and analyze data to answer a statistical question.	Algebra II M4 Topic C: Drawing Conclusions Using Data from a Sample Algebra II M4 Lesson 16: Margin of Error when Estimating a Population Proportion Algebra II M4 Lesson 17: Margin of Error when Estimating a Population Proportion

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	NC.M4.SP.1.3 Organize large datasets of real-world contexts (i.e. data sets that include 3 or more measures and have sample sizes >200) using technology (e.g., spreadsheets, dynamic data analysis tools) to determine: types of variables in the data set, possible outcomes for each variable, statistical questions that could be asked of the data, and types of numerical and graphical summaries could be used to make sense of the data.	Algebra II M4 Lesson 8: Distributions—Center, Shape and Spread Algebra II M4 Lesson 17: Margin of Error When Estimating a Population Proportion Algebra II M4 Lesson 20: Margin of Error When Estimating a Population Mean Algebra II M4 Lesson 27: Ruling Out Chance
	NC.M4.SP.1.4 Interpret non-standard data visualizations from the media or scientific papers to make sense of real-world phenomena.	Algebra II M4 Lesson 30: Evaluating Reports Based on Data from an Experiment
	Apply informal and formal statistical inference to make sense of, and make decisions in, meaningful real-world contexts.	
	NC.M4.SP.2.1 Design a simulation to make a sampling distribution that can be used in making informal statistical inferences.	Algebra II M4 Lesson 15: Sampling Variability in the Sample Proportion

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	NC.M4.SP.2.2 Construct confidence intervals of population proportions in the context of the data.	Algebra II M4 Lesson 16: Margin of Error when Estimating a Population Proportion Algebra II M4 Lesson 21: Margin of Error when Estimating a Population Mean
	NC.M4.SP.2.3 Implement a one proportion z-test to determine if an observed proportion is significantly different from a hypothesized proportion.	Algebra II M4 Lesson 28: Drawing a Conclusion from an Experiment
	Apply probability distributions in making decisions in uncertainty.	
	NC.M4.SP.3.1 Implement discrete probability distributions to model random phenomena and make decisions (e.g., expected value of playing a game, etc.).	Precalculus and Advanced Topics M5 Lesson 9: Determining Discrete Probability Distributions Precalculus and Advanced Topics M5 Lesson 10: Determining Discrete Probability Distributions
	NC.M4.SP.3.2 Implement the binomial distribution to model situations and make decisions.	Precalculus and Advanced Topics M3 Lesson 4: The Binomial Theorem

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Conceptual Category	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	NC.M4.SP.3.3 Recognize from simulations of sampling distributions of sample means and proportions that a normal distribution can be used as an approximate model in certain situations.	Algebra II M4 Lessons 10–11: Normal Distribution Algebra II M4 Lesson 16: Margin of Error When Estimating a Population Proportion Algebra II M4 Lesson 19: Sampling
	NC.M4.SP.3.4 Implement the normal distribution as a probability distribution to determine the likelihood of events occurring.	Precalculus and Advanced Topics M5 Lesson 6: Probability Distribution of a Discrete Random Variable

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