## Grade 6 | North Carolina Standard Course of Study-Mathematics Correlation to Eureka Math ${ }^{\text {2TM }}$

When the original Eureka Math ${ }^{\circledR}$ curriculum was released, it quickly became the most widely used K-5 mathematics curriculum in the country. Now, the Great Minds ${ }^{\circledR}$ teacher-writers have created Eureka Math ${ }^{2 T M}$, a groundbreaking new curriculum that helps teachers deliver exponentially better math instruction while still providing students with the same deep understanding of and fluency in math. Eureka Math ${ }^{2}$ carefully sequences mathematical content to maximize vertical alignment-a principle tested and proven to be essential in students' mastery of math-from kindergarten through high school.

While this innovative new curriculum includes all the trademark Eureka Math aha moments that have been delighting students and teachers for years, it also boasts these exciting new features:

## Teachability

Eureka Math ${ }^{2}$ employs streamlined materials that allow teachers to plan more efficiently and focus their energy on delivering highquality instruction that meets the individual needs of their students. Differentiation suggestions, slide decks, digital interactives, and multiple forms of assessment are just a few of the resources built right into the teacher materials.

## Accessibility

Eureka Math² incorporates Universal Design for Learning principles so all learners can access the mathematics and take on challenging math concepts. Student supports are built into the instructional design and are clearly identified in the Teach book. Further, the curriculum carries a focus on readability. By eliminating unnecessary words and using simple, clear sentences, the Eureka Math² teacher-writers have created one of the most readable mathematics curricula on the market. The curriculum's readability and accessibility help all students see themselves as mathematical thinkers and doers who are fully capable of owning their mathematics learning.

## Digital Engagement

The digital elements of Eureka Math ${ }^{2}$ add to students' engagement with the math. The curriculum provides teachers with digital slides for each lesson. In addition, each grade level includes wordless videos that spark students' interest and curiosity. Students at all levels work through mathematical explorations that help lead to their own mathematical discoveries. Digital lessons and videos provide opportunities for students to wonder, explore, and make sense of mathematics, which contributes to the development of a strong, positive mathematical identity.

Standards for Mathematical Practice

| MP. 1 <br> Make sense of problems and persevere in solving them. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
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| MP. 2 <br> Reason abstractly and quantitatively. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| MP. 3 <br> Construct viable arguments and critique the reasoning of others. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| MP. 4 <br> Model with mathematics. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| MP. 5 <br> Use appropriate tools strategically. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| MP. 6 <br> Attend to precision. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| MP. 7 <br> Look for and make use of structure. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| MP. 8 <br> Look for and express regularity in repeated reasoning. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |

## Ratio and Proportional Relationships

## Understand ratio concepts and use ratio reasoning to solve problems.

North Carolina Standard Course
of Study-Mathematics

## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.RP. 1

Understand the concept of a ratio and use ratio language to:

- Describe a ratio as a multiplicative relationship between two quantities.
- Model a ratio relationship using a variety of representations.


## NC.6.RP. 2

Understand that ratios can be expressed as equivalent unit ratios by finding and interpreting both unit ratios in context.

6 M1 Lesson 2: Introduction to Ratios
6 M1 Lesson 3: Ratios and Tape Diagrams
6 M1 Lesson 4: Exploring Ratios by Making Batches
6 M1 Lesson 5: Equivalent Ratios
6 M1 Lesson 8: Addition Patterns in Ratio Relationships
6 M1 Lesson 10: Multiplicative Reasoning in Ratio Relationships
6 M1 Lesson 11: Applications of Ratio Reasoning

6 M1 Lesson 15: The Value of the Ratio
6 M1 Lesson 16: Speed
6 M1 Lesson 17: Rates
6 M1 Lesson 18: Comparing Rates
6 M1 Lesson 19: Using Rates to Convert Units
6 M1 Lesson 20: Solving Rate Problems

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## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.RP. 3

Use ratio reasoning with equivalent whole-number ratios to solve real-world and mathematical problems by:

- Creating and using a table to compare ratios.
- Finding missing values in the tables.
- Using a unit ratio.
- Converting and manipulating measurements using given ratios.
- Plotting the pairs of values on the coordinate plane.

6 M1 Lesson 1: Jars of Jelly Beans
6 M1 Lesson 3: Ratios and Tape Diagrams
6 M1 Lesson 4: Exploring Ratios by Making Batches
6 M1 Lesson 5: Equivalent Ratios
6 M1 Topic B: Collections of Equivalent Ratios
6 M1 Topic C: Comparing Ratio Relationships
6 M1 Topic D: Rates
6 M4 Lesson 22: Relationship between Two Variables
6 M4 Lesson 23: Graphs of Ratio Relationships
6 M5 Lesson 8: Areas of Composite Figures in Real-World Situations
6 M5 Lesson 13: Surface Area in Real-World Situations

6 M1 Topic E: Percents

## NC.6.RP. 4

Use ratio reasoning to solve real-world and mathematical problems with percents by:

- Understanding and finding a percent of a quantity as a ratio per 100.
- Using equivalent ratios, such as benchmark percents $(50 \%, 25 \%, 10 \%, 5 \%, 1 \%)$, to determine a part of any given quantity.
- Finding the whole, given a part and the percent.


## The Number System

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

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## NC.6.NS. 1

Use visual models and common denominators to:

- Interpret and compute quotients of fractions.
- Solve real-world and mathematical problems involving division of fractions.

6 M2 Topic B: Dividing Fractions
6 M2 Topic C: Dividing Fractions Fluently

## The Number System

## Compute fluently with multi-digit numbers and find common factors and multiples.

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## NC.6.NS. 2

Fluently divide using long division with a minimum of a four-digit dividend and interpret the quotient and remainder in context.

## NC.6.NS. 3

Apply and extend previous understandings of decimals to develop and fluently use the standard algorithms for addition, subtraction, multiplication and division of decimals.

6 M2 Lesson 17: Partial Quotients
6 M2 Lesson 18: The Standard Division Algorithm
6 M2 Lesson 19: Expressing Quotients as Decimals

6 M2 Lesson 13: Decimal Addition and Subtraction
6 M2 Lesson 14: Patterns in Multiplying Decimals
6 M2 Lesson 15: Decimal Multiplication
6 M2 Topic F: Decimal Division

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## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.NS. 4

Understand and use prime factorization and the relationships between factors to:

- Find the unique prime factorization for a whole number.
- Find the greatest common factor of two whole numbers less than or equal to 100 .
- Use the greatest common factor and the distributive property to rewrite the sum of two whole numbers, each less than or equal to 100.
- Find the least common multiple of two whole numbers less than or equal to 12 to add and subtract fractions with unlike denominators.

6 M2 Topic A: Factors, Multiples, and Divisibility
6 M4 Lesson 13: The Distributive Property
6 M4 Lesson 14: Using the Distributive Property to Factor Expressions

## The Number System

## Apply and extend previous understandings of numbers to the system of rational numbers.

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of Study-Mathematics

## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.NS. 5

Understand and use rational numbers to:

- Describe quantities having opposite directions or values.
- Represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
- Understand the absolute value of a rational number as its distance from 0 on the number line to:
- Interpret absolute value as magnitude for a positive or negative quantity in a real-world context.
- Distinguish comparisons of absolute value from statements about order.


## NC.6.NS. 6

Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane.

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## NC.6.NS.6.a

On a number line:

- Recognize opposite signs of numbers as indicating locations on opposite sides of 0 and that the opposite of the opposite of a number is the number itself.
- Find and position rational numbers on a horizontal or vertical number line.


## NC.6.Ns.6.b

On a coordinate plane:

- Understand signs of numbers in ordered pairs as indicating locations in quadrants.
- Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
- Find and position pairs of rational numbers on a coordinate plane.


## NC.6.NS. 7

Understand ordering of rational numbers.

## NC.6.NS.7.a

Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
6 M3 Lesson 2: Integers
6 M3 Lesson 3: Rational Numbers
6 M3 Lesson 4: Rational Numbers in Real-World Situations
6 M3 Lesson 11: Plotting Points in the Coordinate Plane
6 M3 Lesson 12: Reflections in the Coordinate Plane
6 M3 Lesson 13: Constructing the Coordinate Plane
6 M3 Topic D: Solving Problems in the Coordinate Plane
6 M3 Lesson 3: Rational Numbers6 M3 Lesson 10: The Four Quadrants of the Coordinate Plane
6 M3 Lesson 11: Plotting Points in the Coordinate Plane
6 M3 Lesson 12: Reflections in the Coordinate Plane
6 M3 Lesson 13: Constructing the Coordinate Plane
6 M3 Topic D: Solving Problems in the Coordinate Plane
This standard is fully addressed by the lessons aligned to its subsections.
6 M3 Lesson 5: Comparing Rational Numbers

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## NC.6.NS.7.b

Write, interpret, and explain statements of order for rational numbers in real-world contexts.

## NC.6.NS. 8

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

## NC.6.NS. 9

Apply and extend previous understandings of addition and subtraction.

- Describe situations in which opposite quantities combine to make 0 .
- Understand $p+q$ as the number located a distance $q$ from $p$, in the positive or negative direction depending on the sign of $q$. Show that a number and its additive inverse create a zero pair.
- Understand subtraction of integers as adding the additive inverse, $p-q=p+(-q)$. Show that the distance between two integers on the number line is the absolute value of their difference.
- Use models to add and subtract integers from -20 to 20 and describe real-world contexts using sums and differences.

6 M3 Lesson 5: Comparing Rational Numbers
6 M3 Lesson 6: Ordering Rational Numbers

6 M3 Lesson 14: Modeling with the Coordinate Plane
6 M3 Topic D: Solving Problems in the Coordinate Plane
6 M5 Lesson 5: Perimeter and Area in the Coordinate Plane

7 M2 Topic A: Adding Rational Numbers
7 M2 Topic B: Subtracting Rational Numbers

## Expressions and Equations

## Apply and extend previous understandings of arithmetic to algebraic expressions.

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## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.EE. 1

Write and evaluate numerical expressions, with and without grouping symbols, involving whole-number exponents.

## NC.6.EE. 2

Write, read, and evaluate algebraic expressions.

- Write expressions that record operations with numbers and with letters standing for numbers.
- Identify parts of an expression using mathematical terms and view one or more of those parts as a single entity.
- Evaluate expressions at specific values of their variables using expressions that arise from formulas used in real-world problems.


## NC.6.EE. 3

Apply the properties of operations to generate equivalent expressions without exponents.

6 M4 Topic A: Numerical Expressions

## 6 M4 Lesson 7: Algebraic Expressions with Addition and Subtraction

6 M4 Lesson 8: Algebraic Expressions with Addition, Subtraction, Multiplication, and Division
6 M4 Lesson 9: Addition and Subtraction Expressions from Real-World Situations
6 M4 Lesson 11: Modeling Real-World Situations with Expressions
6 M4 Lesson 12: Applying Properties to Multiplication and Division Expressions
6 M4 Lesson 17: Equations and Solutions
6 M5 Lesson 1: The Area of a Parallelogram
6 M5 Lesson 3: The Area of a Triangle
6 M5 Lesson 12: From Nets to Surface Area
6 M5 Lesson 13: Surface Area in Real-World Situations
6 M5 Lesson 14: Designing a Box
6 M5 Lesson 16: Applying Volume Formulas
6 M4 Topic C: Equivalent Expressions Using the Properties of Operations
6 M5 Lesson 4: Areas of Triangles in Real-World Situations
6 M5 Lesson 6: Problem Solving with Area in the Coordinate Plane
6 M5 Lesson 7: Area of Trapezoids and Other Polygons

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## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.EE. 4

Identify when two expressions are equivalent and justify with mathematical reasoning.

6 M4 Topic C: Equivalent Expressions Using the Properties of Operations<br>6 M5 Lesson 7: Area of Trapezoids and Other Polygons<br>6 M5 Lesson 12: From Nets to Surface Area<br>6 M5 Lesson 17: Problem Solving with Volume

## Expressions and Equations

## Reason about and solve one-variable equations.

## North Carolina Standard Course of Study-Mathematics

## NC.6.EE. 5

Use substitution to determine whether a given number in a specified set makes an equation true.

## NC.6.EE. 6

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.

## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.EE. 7

Solve real-world and mathematical problems by writing and solving equations of the form:

- $x+p=q$ in which $p, q$ and $x$ are all nonnegative rational numbers; and,
- $p \cdot x=q$ for cases in which $p, q$ and $x$ are all nonnegative rational numbers.

6 M4 Lesson 17: Equations and Solutions
6 M4 Lesson 18: Inequalities and Solutions
6 M4 Lesson 19: Solving Equations with Addition and Subtraction
6 M4 Lesson 20: Solving Equations with Multiplication and Division
6 M4 Lesson 9: Addition and Subtraction Expressions from Real-World Situations
6 M4 Lesson 10: Multiplication and Division Expressions from Real-World Situations
6 M4 Lesson 11: Modeling Real-World Situations with Expressions
6 M4 Lesson 16: Equivalent Algebraic Expressions
6 M4 Lesson 17: Equations and Solutions
6 M4 Lesson 19: Solving Equations with Addition and Subtraction
6 M4 Lesson 20: Solving Equations with Multiplication and Division
6 M4 Lesson 21: Solving Problems with Equations
6 M5 Lesson 2: The Area of a Right Triangle

## Expressions and Equations

## Reason about one variable inequalities.

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## NC.6.EE. 8

Reason about inequalities by:

- Using substitution to determine whether a given number in a specified set makes an inequality true
- Writing an inequality of the form $x>c$ or $x<c$ to represent a constraint or condition in a real-world or mathematical problem.
- Recognizing that inequalities of the form $x>c$ or $x<c$ have infinitely many solutions.
- Representing solutions of inequalities on number line diagrams.


## Expressions and Equations

## Represent and analyze quantitative relationships between dependent and independent variables.

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## NC.6.EE. 9

Represent and analyze quantitative relationships by:

- Using variables to represent two quantities in a real-world or mathematical context that change in relationship to one another.
- Analyze the relationship between quantities in different representations (context, equations, tables, and graphs).


## Geometry

Solve real-world and mathematical problems involving area, surface area, and volume.
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6 M4 Topic E: Relating Variables by Using Tables, Graphs, and Equations

## NC.6.G. 1

Create geometric models to solve real-world and mathematical problems to:

- Find the area of triangles by composing into rectangles and decomposing into right triangles.
- Find the area of special quadrilaterals and polygons by decomposing into triangles or rectangles.

6 M5 Topic A: Areas of Polygons
6 M5 Topic B: Problem Solving with Area

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## NC.6.G. 2

Apply and extend previous understandings of the volume of a right rectangular prism to find the volume of right rectangular prisms with fractional edge lengths. Apply this understanding to the context of solving real-world and mathematical problems.

## NC.6.G. 3

Use the coordinate plane to solve real-world and mathematical problems by:

- Drawing polygons in the coordinate plane given coordinates for the vertices.
- Using coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.


## NC.6.G. 4

Represent right prisms and right pyramids using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

6 M5 Topic D: Volumes of Right Rectangular Prisms

6 M5 Lesson 5: Perimeter and Area in the Coordinate Plane
6 M5 Lesson 6: Problem Solving with Area in the Coordinate Plane

6 M5 Topic C: Nets and Surface Area
6 M5 Lesson 19: Volume and Surface Area in Real-World Situations

## Statistics and Probability

## Develop understanding of statistical variability.

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## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.SP. 1

Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

## NC.6.SP. 2

Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

6 M6 Lesson 1: Posing Statistical Questions
6 M6 Lesson 6: Selecting a Data Display
6 M6 Lesson 17: Developing a Statistical Project

6 M6 Lesson 2: Describing a Data Distribution
6 M6 Lesson 3: Creating a Dot Plot
6 M6 Lesson 4: Creating a Histogram
6 M6 Lesson 9: Variability in a Data Distribution

6 M6 Lesson 14: Using a Box Plot to Summarize a Distribution
6 M6 Lesson 18: Connecting Graphical Representations and Summary Measures
6 M6 Topic B: Mean and Mean Absolute Deviation
6 M6 Lesson 12: Using the Median to Describe the Center
6 M6 Lesson 13: Using the Interquartile Range to Describe Variability
6 M6 Lesson 15: More Practice with Box Plots
6 M6 Lesson 16: Interpreting Box Plots
6 M6 Lesson 19: Comparing Data Distributions
6 M6 Lesson 22: Presenting Statistical Projects

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## Aligned Components of Eureka Math ${ }^{2}$

## NC.6.SP.3.a

Determine the measure of center of a data set and understand that it is a single number that summarizes all the values of that data set.

- Understand that a mean is a measure of center that represents a balance point or fair share of a data set and can be influenced by the presence of extreme values within the data set.
- Understand the median as a measure of center that is the numerical middle of an ordered data set.


## NC.6.SP.3.b

Understand that describing the variability of a data set is needed to distinguish between data sets in the same scale, by comparing graphical representations of different data sets in the same scale that have similar measures of center, but different spreads.

6 M6 Topic B: Mean and Mean Absolute Deviation
6 M6 Lesson 12: Using the Median to Describe the Center
6 M6 Lesson 13: Using the Interquartile Range to Describe Variability
6 M6 Lesson 15: More Practice with Box Plots
6 M6 Lesson 16: Interpreting Box Plots
6 M6 Lesson 19: Comparing Data Distributions
6 M6 Lesson 22: Presenting Statistical Projects

## 6 M6 Topic B: Mean and Mean Absolute Deviation

6 M6 Lesson 12: Using the Median to Describe the Center
6 M6 Lesson 13: Using the Interquartile Range to Describe Variability
6 M6 Lesson 15: More Practice with Box Plots
6 M6 Lesson 16: Interpreting Box Plots
6 M6 Lesson 19: Comparing Data Distributions
6 M6 Lesson 22: Presenting Statistical Projects

## Statistics and Probability

## Summarize and describe distributions.

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## NC.6.SP. 4

Display numerical data in plots on a number line.

- Use dot plots, histograms, and box plots to represent data.
- Compare attributes of different representations of the same data.


## NC.6.SP. 5

Summarize numerical data sets in relation to their context.

## NC.6.SP.5.a

Describe the data collected by:

- Reporting the number of observations in dot plots and histograms.
- Communicating the nature of the attribute under investigation, how it was measured, and the units of measurement.

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6 \text { M6 Lesson 3: Creating a Dot Plot}
6 \text { M6 Lesson 4: Creating a Histogram}
6 \text { M6 Lesson 5: Comparing Data Displays}
6 \text { M6 Lesson 6: Selecting a Data Display}
6 M6 Lesson 14: Using a Box Plot to Summarize a Distribution
6 ~ M 6 ~ L e s s o n ~ 1 5 : ~ M o r e ~ P r a c t i c e ~ w i t h ~ B o x ~ P l o t s
6 \text { M6 Lesson 16: Interpreting Box Plots}
6 \text { M6 Lesson 19: Comparing Data Distributions}
6 \text { M6 Lesson 22: Presenting Statistical Projects}
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This standard is fully addressed by the lessons aligned to its subsections.

6 M6 Lesson 1: Posing Statistical Questions
6 M6 Lesson 2: Describing a Data Distribution
6 M6 Lesson 5: Comparing Data Displays
6 M6 Lesson 17: Developing a Statistical Project
6 M6 Lesson 21: Comparing Measures of Variability

## North Carolina Standard Course of Study-Mathematics

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## NC.6.SP.5.b

Analyze center and variability by:

- Giving quantitative measures of center, describing variability, and any overall pattern, and noting any striking deviations.
- Justifying the appropriate choice of measures of center using the shape of the data distribution.

