EUREKA MATH™

GREAT MINDS

**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 which 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 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

# GRADE 7 MATHEMATICS

Many of the Grade 7 Mathematics Standards of Learning for Virginia Public Schools will require the use of *Eureka Math* content from other grade levels or supplemental materials. A detailed analysis of alignment is provided in the table below. With strategic placement of supplemental materials, *Eureka Math* can ensure students are successful in achieving the proficiencies of the Mathematics Standards of Learning for Virginia Public Schools while still benefiting from the coherence and rigor of *Eureka Math*.

# INDICATORS

Green indicates that the Virginia standard is fully addressed in *Eureka Math*.

Yellow indicates that the Virginia standard may not be completely addressed in *Eureka Math*.

Red indicates that the Virginia standard is not addressed in *Eureka Math*.

Blue indicates there is a discrepancy between the grade level at which this standard is addressed in the Virginia standards and in *Eureka Math*.

| Mathematical Process Goals | Aligned Components of *Eureka Math* |
|---|---|
| **Mathematical Problem Solving**<br>Students will apply mathematical concepts and skills and the relationships among them to solve problem situations of varying complexities. Students also will recognize and create problems from real-world data and situations within and outside mathematics and then apply appropriate strategies to determine acceptable solutions. To accomplish this goal, students will need to develop a repertoire of skills and strategies for solving a variety of problem types. A major goal of the mathematics program is to help students apply mathematics concepts and skills to become mathematical problem solvers. | This process goal is analogous to the CCSSM Standards for Mathematical Practice 1 and 2, which are specifically addressed in the following modules:<br><br>G7 M1: Ratios and Proportional Relationships<br>G7 M2: Rational Numbers<br>G7 M3: Expressions and Equations<br>G7 M4: Percent and Proportional Relationships<br>G7 M5: Statistics and Probability<br>G7 M6: Geometry |
| **Mathematical Communication**<br>Students will communicate thinking and reasoning using the language of mathematics, including specialized vocabulary and symbolic notation, to express mathematical ideas with precision. Representing, discussing, justifying, conjecturing, reading, writing, presenting, and listening to mathematics will help students to clarify their thinking and deepen their understanding of the mathematics being studied. Mathematical communication becomes visible where learning involves participation in mathematical discussions. | This process goal is analogous to the CCSSM Standards for Mathematical Practice 3 and 6, which are specifically addressed in the following modules:<br><br>G7 M2: Rational Numbers<br>G7 M3: Expressions and Equations<br>G7 M4: Percent and Proportional Relationships<br>G7 M5: Statistics and Probability<br>G7 M6: Geometry |

| Mathematical Process Goals | Aligned Components of *Eureka Math* |
|---|---|
| **Mathematical Reasoning**<br>Students will recognize reasoning and proof as fundamental aspects of mathematics. Students will learn and apply inductive and deductive reasoning skills to make, test, and evaluate mathematical statements and to justify steps in mathematical procedures. Students will use logical reasoning to analyze an argument and to determine whether conclusions are valid. In addition, students will use number sense to apply proportional and spatial reasoning and to reason from a variety of representations. | This process goal is analogous to the CCSSM Standards for Mathematical Practice 2 and 8, which are specifically addressed in the following modules:<br><br>G7 M1: Ratios and Proportional Relationships<br><br>G7 M2: Rational Numbers<br><br>G7 M3: Expressions and Equations<br><br>G7 M4: Percent and Proportional Relationships<br><br>G7 M5: Statistics and Probability |
| **Mathematical Connections**<br>Students will build upon prior knowledge to relate concepts and procedures from different topics within mathematics and see mathematics as an integrated field of study. Through the practical application of content and process skills, students will make connections among different areas of mathematics and between mathematics and other disciplines, and to real-world contexts. Science and mathematics teachers and curriculum writers are encouraged to develop mathematics and science curricula that support, apply, and reinforce each other. | This process goal is analogous to the CCSSM Standards for Mathematical Practice 4 and 5, which are specifically addressed in the following modules:<br><br>G7 M2: Rational Numbers<br><br>G7 M3: Expressions and Equations<br><br>G7 M4: Percent and Proportional Relationships<br><br>G7 M5: Statistics and Probability<br><br>G7 M6: Geometry |

| Mathematical Process Goals | Aligned Components of *Eureka Math* |
|---|---|
| **Mathematical Representations**<br>Students will represent and describe mathematical ideas, generalizations, and relationships using a variety of methods. Students will understand that representations of mathematical ideas are an essential part of learning, doing, and communicating mathematics. Students should make connections among different representations—physical, visual, symbolic, verbal, and contextual—and recognize that representation is both a process and a product. | This process goal is analogous to the CCSSM Standards for Mathematical Practice 4, which is specifically addressed in the following modules:<br><br>G7 M2: Rational Numbers<br><br>G7 M3: Expressions and Equations<br><br>G7 M5: Statistics and Probability |

| Domain | Mathematical Content Standards | | Aligned Components of *Eureka Math* |
|---|---|---|---|
| **Number and Number Sense** | **7.1**<br>The student will | | |
| | a. investigate and describe the concept of negative exponents for powers of ten; | | G8 M1 Lesson 5: Negative Exponents and the Laws of Exponents |
| | b. compare and order numbers greater than zero written in scientific notation; | | G8 M1: Integer Exponents and Scientific Notation |
| | c. compare and order rational numbers; | | G6 M3 Topic B: Order and Absolute Value |
| | d. determine square roots of perfect squares; and | | G8 M7 Topic A: Square and Cube Roots |
| | e. identify and describe absolute value of rational numbers. | | G6 M3 Lesson 11: Absolute Value—Magnitude and Distance<br>G6 M3 Lesson 13: Statements of Order in the Real World |
| **Computation and Estimation** | **7.2**<br>The student will solve practical problems involving operations with rational numbers. | | G7 M2: Rational Numbers |
| | **7.3**<br>The student will solve single-step and multistep practical problems, using proportional reasoning. | | G7 M1: Ratios and Proportional Relationships<br>G7 M4: Percent and Proportional Relationships |

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| **Measurement and Geometry** | **7.4**<br>The student will | | |
| | a. describe and determine the volume and surface area of rectangular prisms and cylinders; and | | G7 M3 Topic C: Use Equations and Inequalities to Solve Geometry Problems<br><br>G7 M6 Topic D: Problems Involving Area and Surface Area<br><br>G7 M6 Topic E: Problems Involving Volume<br><br>G8 M5: Examples of Functions from Geometry<br><br>Note: Supplemental material is necessary to address surface area of cylinders. |
| | b. solve problems, including practical problems, involving the volume and surface area of rectangular prisms and cylinders. | | G7 M3 Topic C: Use Equations and Inequalities to Solve Geometry Problems<br><br>G7 M6 Topic D: Problems Involving Area and Surface Area<br><br>G7 M6 Topic E: Problems Involving Volume<br><br>G8 M5: Examples of Functions from Geometry<br><br>Note: Supplemental material is necessary to address surface area of cylinders. |
| | **7.5**<br>The student will solve problems, including practical problems, involving the relationship between corresponding sides and corresponding angles of similar quadrilaterals and triangles. | | G7 M1 Topic D: Ratios of Scale Drawings<br><br>G7 M4 Topic C: Scale Drawings<br><br>Note: Students are formally introduced to similarity in G8 M3. |

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|---|---|---|---|
| | **7.6**<br>The student will | | |
| | a. compare and contrast quadrilaterals based on their properties; and | | G5 M5 Topic D: Drawing, Analysis, and Classification of Two-Dimensional Shapes |
| | b. determine unknown side lengths or angle measures of quadrilaterals. | | G7 M1 Topic D: Ratios of Scale Drawings<br><br>G7 M4 Topic C: Scale Drawings |
| | **7.7**<br>The student will apply translations and reflections of right triangles or rectangles in the coordinate plane. | | G8 M2: The Concept of Congruence |
| **Probability and Statistics** | **7.8**<br>The student will | | |
| | a. determine the theoretical and experimental probabilities of an event; and | | G7 M5: Statistics and Probability |
| | b. investigate and describe the difference between the experimental probability and theoretical probability of an event. | | G7 M5: Statistics and Probability |
| | **7.9**<br>The student, given data for a practical situation, will | | |
| | a. represent data in a histogram; | | G6 M6: Statistics |

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|---|---|---|---|
| | b. make observations and inferences about data represented in a histogram; and | | G6 M6: Statistics |
| | c. compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs. | | G6 M6: Statistics<br><br>Note: Supplemental material is necessary to address stem-and-leaf plots and circle graphs. |
| **Patterns, Functions, and Algebra** | **7.10**<br>The student will | | |
| | a. determine the slope, $m$, as rate of change in a proportional relationship between two quantities and write an equation in the form $y = mx$ to represent the relationship; | | G7 M1 Topic B: Unit Rate and the Constant of Proportionality<br><br>Note: The term *slope* is not formally introduced until Grade 8. |
| | b. graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in $y = mx$ form where $m$ represents the slope as rate of change; | | G8 M4 Topic B: Linear Equations in Two Variables and Their Graphs |
| | c. determine the $y$-intercept, $b$, in an additive relationship between two quantities and write an equation in the form $y = x + b$ to represent the relationship; | | G8 M4 Topic C: Slope and Equations of Lines |

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|---|---|---|
| | d. graph a line representing an additive relationship between two quantities given the $y$-intercept and an ordered pair, or given the equation in the form $y = x + b$, where $b$ represents the $y$-intercept; and | G8 M4 Topic C: Slope and Equations of Lines |
| | e. make connections between and among representations of a proportional or additive relationship between two quantities using verbal descriptions, tables, equations, and graphs. | G7 M1: Ratios and Proportional Relationships<br><br>G8 M4: Linear Equations |
| | **7.11**<br>The student will evaluate algebraic expressions for given replacement values of the variables. | G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions |
| | **7.12**<br>The student will solve two-step linear equations in one variable, including practical problems that require the solution of a two-step linear equation in one variable. | G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions<br><br>G7 M2 Lessons 22–23: Solving Equations Using Algebra<br><br>G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities<br><br>G7 M4 Lesson 10: Simple Interest<br><br>G7 M4 Lesson 11: Tax, Commissions, Fees, and Other Real-World Percent Applications<br><br>G7 M4 Lesson 17: Mixture Problems |

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|---|---|---|
| | **7.13**<br>The student will solve one- and two-step linear inequalities in one variable, including practical problems, involving addition, subtraction, multiplication, and division, and graph the solution on a number line. | G7 M3 Lesson 12: Properties of Inequalities<br>G7 M3 Lesson 13: Inequalities<br>G7 M3 Lesson 14: Solving Inequalities<br>G7 M3 Lesson 15: Graphing Solutions to Inequalities |