ABOUT EUREKA MATH

Created by the nonprofit Great Minds, Eureka Math® helps teachers deliver unparalleled math instruction that provides students with a deep understanding of 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
Indiana Academic Standards for Mathematics Correlation to *Eureka Math*®

**GRADE 5 MATHEMATICS**

The majority of the Grade 5 Indiana Academic Standards for Mathematics are fully covered by the Grade 5 *Eureka Math* curriculum. The areas where the Grade 5 Indiana Academic Standards for Mathematics and Grade 5 *Eureka Math* do not align 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 that students are successful in achieving the proficiencies of the Indiana Academic Standards for Mathematics while still benefiting from the coherence and rigor of *Eureka Math*.

**INDICATORS**

- **GREEN** indicates the Indiana standard is addressed in *Eureka Math*.
- **YELLOW** indicates the Indiana standard may not be completely addressed in *Eureka Math*.
- **RED** indicates the Indiana standard is not addressed in *Eureka Math*.
- **BLUE** indicates there is a discrepancy between the grade level at which this standard is addressed in Indiana and in *Eureka Math*.
### Process Standards for Mathematics

**PS.1: Make sense of problems and persevere in solving them.**

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway, rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” and “Is my answer reasonable?” They understand the approaches of others to solving complex problems and identify correspondences between different approaches. Mathematically proficient students understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

### Aligned Components of *Eureka Math*

Lessons in every module engage students in making sense of problems and persevering in solving them as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 1, which is specifically addressed in the following modules:

- **G5 M2:** Multi-Digit Whole Number and Decimal Fraction Operations
- **G5 M3:** Addition and Subtraction of Fractions
- **G5 M5:** Addition and Multiplication with Volume and Area
- **G5 M6:** Problem Solving with the Coordinate Plane
**PS.2: Reason abstractly and quantitatively.**

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

Lessons in every module engage students in reasoning abstractly and quantitatively as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 2, which is specifically addressed in the following modules:

- G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations
- G5 M4: Multiplication and Division of Fractions and Decimal Fractions
- G5 M5: Addition and Multiplication with Volume and Area
- G5 M6: Problem Solving with the Coordinate Plane
### PS.3: Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They analyze situations by breaking them into cases and recognize and use counterexamples. They organize their mathematical thinking, justify their conclusions and communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose.

Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. They justify whether a given statement is true always, sometimes, or never. Mathematically proficient students participate and collaborate in a mathematics community. They listen to or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

### Lessons in every module engage students in constructing viable arguments and critiquing the reasoning of others as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 3, which is specifically addressed in the following modules:

- G5 M3: Addition and Subtraction of Fractions
- G5 M4: Multiplication and Division of Fractions and Decimal Fractions
- G5 M5: Addition and Multiplication with Volume and Area
- G5 M6: Problem Solving with the Coordinate Plane
**Process Standards for Mathematics**

**PS.4: Model with mathematics.**
Mathematically proficient students apply the mathematics they know to solve problems arising in everyday life, society, and the workplace using a variety of appropriate strategies. They create and use a variety of representations to solve problems and to organize and communicate mathematical ideas. Mathematically proficient students apply what they know and are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

**Aligned Components of *Eureka Math***

Lessons in every module engage students in modeling with mathematics as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 4, which is specifically addressed in the following modules:

- G5 M4: Multiplication and Division of Fractions and Decimal Fractions
- G5 M5: Addition and Multiplication with Volume and Area
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<td><strong>PS.5: Use appropriate tools strategically.</strong></td>
<td>Lessons in every module engage students in using appropriate tools strategically as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 5, which is specifically addressed in the following modules:</td>
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</table>
| Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Mathematically proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. Mathematically proficient students identify relevant external mathematical resources, such as digital content, and use them to pose or solve problems. They use technological tools to explore and deepen their understanding of concepts and to support the development of learning mathematics. They use technology to contribute to concept development, simulation, representation, reasoning, communication and problem solving. | G5 M3: Addition and Subtraction of Fractions  
G5 M4: Multiplication and Division of Fractions and Decimal Fractions |
### Process Standards for Mathematics

**PS.6: Attend to precision.**

Mathematically proficient students communicate precisely to others. They use clear definitions, including correct mathematical language, in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They express solutions clearly and logically by using the appropriate mathematical terms and notation. They specify units of measure and label axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently and check the validity of their results in the context of the problem. They express numerical answers with a degree of precision appropriate for the problem context.

### Aligned Components of *Eureka Math*

Lessons in every module engage students in attending to precision as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 6, which is specifically addressed in the following modules:

- G5 M1: Place Value and Decimal Fractions
- G5 M5: Addition and Multiplication with Volume and Area
- G5 M6: Problem Solving with the Coordinate Plane
### Process Standards for Mathematics

**PS.7: Look for and make use of structure.**

Mathematically proficient students look closely to discern a pattern or structure. They step back for an overview and shift perspective. They recognize and use properties of operations and equality. They organize and classify geometric shapes based on their attributes. They see expressions, equations, and geometric figures as single objects or as being composed of several objects.

### Aligned Components of Eureka Math

Lessons in every module engage students in looking for and making use of structure as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 7, which is specifically addressed in the following modules:

- G5 M1: Place Value and Decimal Fractions
- G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations
- G5 M3: Addition and Subtraction of Fractions
- G5 M4: Multiplication and Division of Fractions and Decimal Fractions
- G5 M5: Addition and Multiplication with Volume and Area
- G5 M6: Problem Solving with the Coordinate Plane
Process Standards for Mathematics

Aligned Components of Eureka Math

PS.8: Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated and look for general methods and shortcuts. They notice regularity in mathematical problems and their work to create a rule or formula. Mathematically proficient students maintain oversight of the process, while attending to the details as they solve a problem. They continually evaluate the reasonableness of their intermediate results.

Lessons in every module engage students in looking for and expressing regularity in repeated reasoning as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 8, which is specifically addressed in the following modules:

- G5 M1: Place Value and Decimal Fractions
- G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations
- G5 M3: Addition and Subtraction of Fractions
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| Number Sense      | 5.NS.1  
Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using >, =, and < symbols. | G4 M5 Topic C: Fraction Comparison  
G4 M5 Lesson 26: Compare fractions greater than 1 by reasoning using benchmark fractions.  
G4 M5 Lesson 27: Compare fractions greater than 1 by creating common numerators or denominators.  
G4 M5 Lesson 28: Solve word problems with line plots.  
G4 M6 Topic C: Decimal Comparison                                                                 |
|                   | 5.NS.2  
Explain different interpretations of fractions, including: as parts of a whole, parts of a set, and division of whole numbers by whole numbers. | G5 M4 Topic B: Fractions as Division  
*Note: Supplemental materials may be necessary to completely address this standard.*                                                                 |
|                   | 5.NS.3  
Recognize the relationship that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right, and inversely, a digit in one place represents 1/10 of what it represents in the place to its left. | G5 M1 Topic A: Multiplicative Patterns on the Place Value Chart  
G5 M2 Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication  
G5 M2 Lesson 16: Use divide by 10 patterns for multi-digit whole number division. |
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| **5.NS.4** | Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. | G5 M1 Topic A: Multiplicative Patterns on the Place Value Chart  
G5 M1 Topic E: Multiplying Decimals  
G5 M2 Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication  
G5 M2 Lesson 16: Use divide by 10 patterns for multi-digit whole number division.  
G5 M2 Lesson 24: Divide decimal dividends by multiples of 10, reasoning about the placement of the decimal point and making connections to a written method. |
<p>| <strong>5.NS.5</strong> | Use place value understanding to round decimal numbers up to thousandths to any given place value. | G5 M1 Topic C: Place Value and Rounding Decimal Fractions |
| <strong>5.NS.6</strong> | Understand, interpret, and model percents as part of a hundred (e.g., by using pictures, diagrams, and other visual models). | G6 M1 Topic D: Percent |</p>
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<td><strong>Computation</strong></td>
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<td><strong>5.C.1</strong></td>
<td>Multiply multi-digit whole numbers fluently using a standard algorithmic approach.</td>
<td>G5 M2 Topic B: The Standard Algorithm for Multi-Digit Whole Number Multiplication</td>
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<td>G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication</td>
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<tr>
<td><strong>5.C.2</strong></td>
<td>Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning used.</td>
<td>G5 M2 Topic E: Mental Strategies for Multi-Digit Whole Number Division</td>
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<td>G5 M2 Topic F: Partial Quotients and Multi-Digit Whole Number Division</td>
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<td>G5 M2 Topic H: Measurement Word Problems with Multi-Digit Division</td>
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<td><strong>5.C.3</strong></td>
<td>Compare the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</td>
<td>G5 M4 Topic F: Multiplication with Fractions and Decimals as Scaling and Word Problems</td>
</tr>
<tr>
<td><strong>5.C.4</strong></td>
<td>Add and subtract fractions with unlike denominators, including mixed numbers.</td>
<td>G5 M3: Addition and Subtraction of Fractions</td>
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| 5.C.5  | Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number. | G5 M4 Topic C: Multiplication of a Whole Number by a Fraction  
G5 M4 Lesson 10: Compare and evaluate expressions with parentheses.  
G5 M4 Topic E: Multiplication of a Fraction by a Fraction  
G5 M4 Topic H: Interpretation of Numerical Expressions |
| 5.C.6  | Explain why multiplying a positive number by a fraction greater than 1 results in a product greater than the given number. Explain why multiplying a positive number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence, $a/b = (n \times a) / (n \times b)$, to the effect of multiplying $a/b$ by 1. | G5 M4 Topic F: Multiplication with Fractions and Decimals as Scaling and Word Problems |
| 5.C.7  | Use visual fraction models and numbers to divide a unit fraction by a non-zero whole number and to divide a whole number by a unit fraction. | G5 M4 Lesson 25: Divide a whole number by a unit fraction.  
G5 M4 Lesson 26: Divide a unit fraction by a whole number. |
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| 5.C.8  | Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning. | G5 M1: Place Value and Decimal Fractions  
G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations  
G5 M4 Lessons 17–18: Relate decimal and fraction multiplication.  
G5 M4 Lesson 29: Connect division by a unit fraction to division by 1 tenth and 1 hundredth.  
G5 M4 Lessons 30–31: Divide decimal dividends by non-unit decimal divisors. |
| 5.C.9  | Evaluate expressions with parentheses or brackets involving whole numbers using the commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property. | G5 M2 Lesson 3: Write and interpret numerical expressions, and compare expressions using a visual model.  
G5 M2 Lesson 4: Convert numerical expressions into unit form as a mental strategy for multi-digit multiplication.  
G5 M4 Lesson 10: Compare and evaluate expressions with parentheses.  
G5 M4 Topic H: Interpretation of Numerical Expressions |
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<td>Algebraic Thinking</td>
<td>5.AT.1</td>
<td>G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations</td>
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<td></td>
<td>Solve real-world problems involving multiplication and division of whole numbers (e.g., by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.</td>
<td>G5 M3 Lesson 7: Solve two-step word problems.</td>
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<td>5.AT.2</td>
<td>G5 M3 Lesson 9: Add fractions making like units numerically.</td>
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<td>Solve real-world problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators (e.g., by using visual fraction models and equations to represent the problem). Use benchmark fractions and number sense of fractions to estimate mentally and assess whether the answer is reasonable.</td>
<td>G5 M3 Topic D: Further Applications</td>
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| 5.AT.3 | Solve real-world problems involving multiplication of fractions, including mixed numbers (e.g., by using visual fraction models and equations to represent the problem). | G5 M4 Topic D: Fraction Expressions and Word Problems  
G5 M4 Lesson 16: Solve word problems using tape diagrams and fraction-by-fraction multiplication.  
G5 M4 Lesson 24: Solve word problems using fraction and decimal multiplication.  
G5 M5 Lessons 14–15: Solve real-world problems involving area of figures with fractional side lengths using visual models and/or equations. |
| 5.AT.4 | Solve real-world problems involving division of unit fractions by non-zero whole numbers, and division of whole numbers by unit fractions (e.g., by using visual fraction models and equations to represent the problem). | G5 M4 Lesson 27: Solve problems involving fraction division.  
G5 M4 Lesson 28: Write equations and word problems corresponding to tape and number line diagrams.  
G5 M4 Topic H: Interpretation of Numerical Expressions |
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<td>5.AT.5</td>
<td>Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g., by using equations, models or drawings and strategies based on place value or properties of operations to represent the problem).</td>
<td>G5 M1: Place Value and Decimal Fractions&lt;br&gt;G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations&lt;br&gt;G5 M4 Lessons 17–18: Relate decimal and fraction multiplication.&lt;br&gt;G5 M4 Lesson 29: Connect division by a unit fraction to division by 1 tenth and 1 hundredth.&lt;br&gt;G5 M4 Lessons 30–31: Divide decimal dividends by non-unit decimal divisors.</td>
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<td>5.AT.6</td>
<td>Graph points with whole number coordinates on a coordinate plane. Explain how the coordinates relate the point as the distance from the origin on each axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</td>
<td>G5 M6 Topic A: Coordinate Systems&lt;br&gt;G5 M6 Lesson 7: Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs.&lt;br&gt;G5 M6 Lesson 14: Construct parallel line segments, and analyze relationships of the coordinate pairs.&lt;br&gt;G5 M6 Lesson 16: Construct perpendicular line segments, and analyze relationships of the coordinate pairs.</td>
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| 5.AT.7   | Represent real-world problems and equations by graphing ordered pairs in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. | G5 M6 Lesson 14: Construct parallel line segments, and analyze relationships of the coordinate pairs.  
G5 M6 Lesson 16: Construct perpendicular line segments, and analyze relationships of the coordinate pairs.  
G5 M6 Topic D: Problem Solving in the Coordinate Plane |
| 5.AT.8   | Define and use up to two variables to write linear expressions that arise from real-world problems, and evaluate them for given values. | G5 M6 Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules  
G5 M6 Lesson 18: Draw symmetric figures on the coordinate plane. |
| Geometry | 5.G.1                                                                                           | G7 M3 Lesson 16: The Most Famous Ratio of All  
G7 M6 Topic B: Constructing Triangles |
<p>|          | Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter. |                                                                                                   |</p>
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<td>5.G.2</td>
<td>Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.</td>
<td>G5 M5 Topic D: Drawing, Analysis, and Classification of Two-Dimensional Shapes</td>
</tr>
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</table>
| Measurement | 5.M.1                                                                                              | G5 M1 Lesson 4: Use exponents to denote powers of 10 with application to metric conversions.  
G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication  
G5 M4 Topic C: Multiplication of a Whole Number by a Fraction  
G5 M4 Lesson 19: Convert measures involving whole numbers, and solve multi-step word problems.  
G5 M4 Lesson 20: Convert mixed unit measurements, and solve multi-step word problems. |
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<tr>
<td>5.M.2</td>
<td>Find the area of a rectangle with fractional side lengths by modeling with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.</td>
<td>G5 M5 Topic C: Area of Rectangular Figures with Fractional Side Lengths</td>
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</table>
| 5.M.3  | Develop and use formulas for the area of triangles, parallelograms, and trapezoids. Solve real-world and other mathematical problems that involve perimeter and area of triangles, parallelograms, and trapezoids, using appropriate units for measures. | G6 M5: Area, Surface Area, and Volume Problems  
*Note: Supplemental material is necessary to incorporate the area formula for trapezoids.* |
| 5.M.4  | Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths or multiplying the height by the area of the base. | G5 M5 Lesson 3: Compose and decompose right rectangular prisms using layers.  
G5 M5 Lesson 4: Use multiplication to calculate volume.  
G5 M5 Lesson 5: Use multiplication to connect volume as packing with volume as filling. |
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<tr>
<td>5.M.5</td>
<td>Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems.</td>
<td>G5 M5 Lesson 7: Solve word problems involving the volume of rectangular prisms with whole number edge lengths.</td>
</tr>
<tr>
<td>5.M.6</td>
<td>Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems and other mathematical problems.</td>
<td>G5 M5 Topic B: Volume and the Operations of Multiplication and Addition</td>
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<td>Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.</td>
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<td>5.DS.2</td>
<td>G6 M6: Statistics Note: <em>Supplemental material is necessary to address mode.</em></td>
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<td>Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.</td>
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