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## Grade 7 | Kentucky Mathematics Course Standards (2019) Correlation to *Eureka Math*<sup>2</sup>® (2027)

*Eureka Math*<sup>2</sup> is a research-proven math curriculum that empowers teachers to center instructional techniques on student success. Teachers can foster more “aha!” learning moments by providing the support needed for all learners to build a more confident math mindset.

This *Eureka Math*<sup>2</sup> edition builds on a strong foundation of effective instruction. It provides teachers with guidance on delivering rigorous instruction that honors student choice and encourages confident problem-solving.

*Eureka Math*<sup>2</sup> carefully sequences mathematical content to maximize vertical alignment from kindergarten through high school. This kind of sequencing has proven to be essential in students’ mastery of math.

### Teachability

*Eureka Math*<sup>2</sup> employs streamlined materials that allow teachers to plan more efficiently and focus their energy on delivering high-quality 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 into the teacher materials.

### Accessibility

*Eureka Math*<sup>2</sup> incorporates Universal Design for Learning (UDL) principles so all learners can access the mathematics and take on challenging math concepts. UDL, Differentiation, and Multilingual Learner supports are built into the instructional design and are clearly identified in the *Teach* book.

The curriculum also carries a focus on readability. By eliminating unnecessary words and using clear sentences, the *Eureka Math*<sup>2</sup> 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.

### Math Confidence

*Eureka Math*<sup>2</sup> fosters a classroom culture of learning by encouraging student-led discourse and cognitive engagement that results in confident learners. By leveraging consistent models, routines, and progressions, teachers can remove barriers and allow all students an avenue to success. Within the digital platform, each grade includes wordless videos and digital interactives that spark students’ curiosity and help them make conceptual connections. Using the *Learn* books, students wonder, explore, and make sense of mathematics, which helps them develop a strong, positive mathematical identity.

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

## Ratios and Proportional Relationships

Analyze proportional relationships and use them to solve real-world and mathematical problems.

Kentucky Mathematics Course Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>KY.7.RP.1</b></p> <p>Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.</p>	<p>7 M1 Lesson 1: An Experiment with Ratios and Rates</p> <p>7 M1 Lesson 2: Exploring Tables of Proportional Relationships</p> <p>7 M1 Lesson 3: Identifying Proportional Relationships in Tables</p>
<p><b>KY.7.RP.2</b></p> <p>Recognize and represent proportional relationships between quantities.</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p><b>KY.7.RP.2.a</b></p> <p>Decide whether two quantities represent a proportional relationship.</p>	<p>7 M1 Lesson 1: An Experiment with Ratios and Rates</p> <p>7 M1 Lesson 2: Exploring Tables of Proportional Relationships</p> <p>7 M1 Lesson 3: Identifying Proportional Relationships in Tables</p> <p>7 M1 Lesson 4: Exploring Graphs of Proportional Relationships</p> <p>7 M1 Lesson 5: Analyzing Graphs of Proportional Relationships</p> <p>7 M1 Lesson 6: Identifying Proportional Relationships in Written Descriptions</p> <p>7 M1 Lesson 14: Extreme Bicycles</p>

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<p><b>KY.7.RP.2.b</b></p> <p>Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams and verbal descriptions of proportional relationships.</p>	<p>7 M1 Lesson 4: Exploring Graphs of Proportional Relationships</p> <p>7 M1 Lesson 5: Analyzing Graphs of Proportional Relationships</p> <p>7 M1 Lesson 6: Identifying Proportional Relationships in Written Descriptions</p> <p>7 M1 Lesson 8: Relating Representations of Proportional Relationships</p> <p>7 M1 Lesson 9: Comparing Proportional Relationships</p> <p>7 M1 Lesson 11: Constant Rates</p> <p>7 M1 Lesson 12: Multi-Step Ratio Problems, Part 1</p> <p>7 M1 Lesson 13: Multi-Step Ratio Problems, Part 2</p> <p>7 M1 Lesson 16: Using a Scale Factor</p> <p>7 M1 Lesson 18: Relating Areas of Scale Drawings</p>
<p><b>KY.7.RP.2.c</b></p> <p>Represent proportional relationships by equations.</p>	<p>7 M1 Lesson 2: Exploring Tables of Proportional Relationships</p> <p>7 M1 Lesson 3: Identifying Proportional Relationships in Tables</p> <p>7 M1 Lesson 8: Relating Representations of Proportional Relationships</p> <p>7 M1 Lesson 10: Applying Proportional Reasoning</p> <p>7 M1 Lesson 11: Constant Rates</p> <p>7 M1 Lesson 12: Multi-Step Ratio Problems, Part 1</p> <p>7 M1 Lesson 13: Multi-Step Ratio Problems, Part 2</p> <p>7 M5 Lesson 1: Proportionality and Scale Factor</p> <p>7 M5 Lesson 4: Proportion and Percent</p> <p>7 M5 Lesson 5: Common Denominators or Common Numerators</p>

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<p><b>KY.7.RP.2.d</b></p> <p>Explain what a point <math>(x, y)</math> on the graph of a proportional relationship means in terms of the situation, with special attention to the points <math>(0, 0)</math> and <math>(1, r)</math> where <math>r</math> is the unit rate.</p>	<p>7 M1 Lesson 4: Exploring Graphs of Proportional Relationships</p> <p>7 M1 Lesson 5: Analyzing Graphs of Proportional Relationships</p> <p>7 M1 Lesson 9: Comparing Proportional Relationships</p>
<p><b>KY.7.RP.3</b></p> <p>Use percents to solve mathematical and real-world problems.</p>	<p>7 M1 Lesson 7: Handstand Sprint</p> <p>7 M1 Lesson 10: Applying Proportional Reasoning</p> <p>7 M1 Lesson 11: Constant Rates</p> <p>7 M1 Lesson 12: Multi-Step Ratio Problems, Part 1</p> <p>7 M1 Lesson 13: Multi-Step Ratio Problems, Part 2</p> <p>7 M5 Lesson 2: Racing for Percents</p> <p>7 M5 Lesson 3: Percent as a Rate per 100</p> <p>7 M5 Lesson 4: Proportion and Percent</p> <p>7 M5 Lesson 5: Common Denominators or Common Numerators</p> <p>7 M5 Lesson 6: Finding Commission</p> <p>7 M5 Lesson 7: Finding Discounts</p> <p>7 M5 Lesson 8: Determining Fees</p> <p>7 M5 Lesson 9: Tax as a Fee</p> <p>7 M5 Lesson 10: Percent Increase</p> <p>7 M5 Lesson 11: Percent Decrease</p> <p>7 M5 Lesson 12: More Discounts</p> <p>7 M5 Lesson 13: What Is the Best Deal?</p> <p>7 M5 Lesson 15: Tips and Taxes</p>

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<p><b>KY.7.RP.3 <i>continued</i></b></p>	<p>7 M5 Lesson 16: Markups and Discounts</p> <p>7 M5 Lesson 17: Simple Interest and Proportionality</p> <p>7 M5 Lesson 18: Simple Interest—Solving for Unknown Values</p> <p>7 M5 Lesson 19: Applying Percent Error</p> <p>7 M5 Lesson 20: Making Money, Day 1</p> <p>7 M5 Lesson 21: Making Money, Day 2</p> <p>7 M5 Lesson 22: Making Mixtures</p> <p>7 M5 Lesson 23: Percents of Percents</p>
<p><b>KY.7.RP.3.a</b></p> <p>Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, a part and a percent, given two of these.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p><b>KY.7.RP.3.b</b></p> <p>Use proportional relationships to solve multistep ratio and percent problems.</p>	<p>7 M1 Lesson 7: Handstand Sprint</p> <p>7 M1 Lesson 10: Applying Proportional Reasoning</p> <p>7 M1 Lesson 11: Constant Rates</p> <p>7 M1 Lesson 12: Multi-Step Ratio Problems, Part 1</p> <p>7 M1 Lesson 13: Multi-Step Ratio Problems, Part 2</p> <p>7 M5 Lesson 2: Racing for Percents</p> <p>7 M5 Lesson 3: Percent as a Rate per 100</p> <p>7 M5 Lesson 4: Proportion and Percent</p> <p>7 M5 Lesson 5: Common Denominators or Common Numerators</p> <p>7 M5 Lesson 6: Finding Commission</p>

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<b>KY.7.RP.3.b <i>continued</i></b>	7 M5 Lesson 7: Finding Discounts 7 M5 Lesson 8: Determining Fees 7 M5 Lesson 9: Tax as a Fee 7 M5 Lesson 10: Percent Increase 7 M5 Lesson 11: Percent Decrease 7 M5 Lesson 12: More Discounts 7 M5 Lesson 13: What Is the Best Deal? 7 M5 Lesson 15: Tips and Taxes 7 M5 Lesson 16: Markups and Discounts 7 M5 Lesson 17: Simple Interest and Proportionality 7 M5 Lesson 18: Simple Interest—Solving for Unknown Values 7 M5 Lesson 19: Applying Percent Error 7 M5 Lesson 20: Making Money, Day 1 7 M5 Lesson 21: Making Money, Day 2 7 M5 Lesson 22: Making Mixtures 7 M5 Lesson 23: Percents of Percents

## The Number System

Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers.

Kentucky Mathematics Course Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>KY.7.NS.1</b></p> <p>Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p><b>KY.7.NS.1.a</b></p> <p>Describe situations in which opposite quantities combine to make 0.</p>	<p>7 M2 Lesson 1: Combining Opposites</p> <p>7 M2 Lesson 12: The Integer Game</p>
<p><b>KY.7.NS.1.b</b></p> <p>Understand <math>p + q</math> as the number located a distance <math> q </math> from <math>p</math>, in the positive or negative direction depending on whether <math>q</math> is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.</p>	<p>7 M2 Lesson 1: Combining Opposites</p> <p>7 M2 Lesson 2: Adding Integers</p> <p>7 M2 Lesson 3: Adding Integers Efficiently</p> <p>7 M2 Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient</p> <p>7 M2 Lesson 6: Adding Rational Numbers</p> <p>7 M2 Lesson 8: Subtracting Integers, Part 1</p>

Kentucky Mathematics Course Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>KY.7.NS.1.c</b></p> <p>Understand subtraction of rational numbers as adding the additive inverse, <math>p - q = p + (-q)</math>. Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in real-world contexts.</p>	<p>7 M2 Lesson 7: What Subtraction Means</p> <p>7 M2 Lesson 8: Subtracting Integers, Part 1</p> <p>7 M2 Lesson 9: Subtracting Integers, Part 2</p> <p>7 M2 Lesson 10: Subtracting Rational Numbers, Part 1</p> <p>7 M2 Lesson 11: Subtracting Rational Numbers, Part 2</p>
<p><b>KY.7.NS.1.d</b></p> <p>Apply properties of operations as strategies to add and subtract rational numbers.</p>	<p>7 M2 Lesson 4: KAKOOMA<sup>®</sup></p> <p>7 M2 Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient</p> <p>7 M2 Lesson 6: Adding Rational Numbers</p> <p>7 M2 Lesson 9: Subtracting Integers, Part 2</p> <p>7 M2 Lesson 10: Subtracting Rational Numbers, Part 1</p> <p>7 M2 Lesson 11: Subtracting Rational Numbers, Part 2</p> <p>7 M2 Lesson 12: The Integer Game</p>
<p><b>KY.7.NS.2</b></p> <p>Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>

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<p><b>KY.7.NS.2.a</b></p> <p>Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as <math>(-1)(-1) = 1</math> and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</p>	<p>7 M2 Lesson 13: Understanding Multiples of Negative Numbers</p> <p>7 M2 Lesson 14: Understanding the Product of Two Negative Numbers</p> <p>7 M2 Lesson 15: Multiplying Rational Numbers</p> <p>7 M2 Lesson 16: Exponential Expressions with Rational Numbers</p>
<p><b>KY.7.NS.2.b</b></p> <p>Understand that integers can be divided, provided that the divisor is not zero and every quotient of integers (with non-zero divisor) is a rational number. If <math>p</math> and <math>q</math> are integers, then <math>-\left(\frac{p}{q}\right) = \frac{-p}{q} = \frac{p}{-q}</math>. Interpret quotients of rational numbers by describing real-world contexts.</p>	<p>7 M2 Lesson 18: Understanding Negative Divisors</p> <p>7 M2 Lesson 21: Comparing and Ordering Rational Numbers</p>
<p><b>KY.7.NS.2.c</b></p> <p>Apply properties of operations as strategies to multiply and divide rational numbers.</p>	<p>7 M2 Lesson 13: Understanding Multiples of Negative Numbers</p> <p>7 M2 Lesson 14: Understanding the Product of Two Negative Numbers</p> <p>7 M2 Lesson 15: Multiplying Rational Numbers</p> <p>7 M2 Lesson 16: Exponential Expressions with Rational Numbers</p> <p>7 M2 Lesson 17: Understanding Negative Dividends</p> <p>7 M2 Lesson 18: Understanding Negative Divisors</p> <p>7 M2 Lesson 22: Multiplication and Division Expressions</p> <p>7 M2 Lesson 24: Order of Operations with Rational Numbers</p>

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<p><b>KY.7.NS.3</b></p> <p>Solve real-world and mathematical problems involving the four operations with rational numbers.</p>	<p>7 M2 Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1</p> <p>7 M2 Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2</p>
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**Expressions and Equations**

Use properties of operations to generate equivalent expressions.

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<p><b>KY.7.EE.1</b></p> <p>Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients.</p>	<p>7 M3 Lesson 1: Equivalent Expressions</p> <p>7 M3 Lesson 2: The Distributive Property and the Tabular Model</p> <p>7 M3 Lesson 3: The Distributive Property and Combining Like Terms</p> <p>7 M3 Lesson 4: Adding and Subtracting Expressions</p> <p>7 M3 Lesson 5: Factoring Expressions</p> <p>7 M3 Lesson 6: Comparing Expressions</p>
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**Kentucky Mathematics Course Standards**

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<p><b>KY.7.EE.2</b></p> <p>Understand that rewriting an expression in different forms in a problem context can clarify the problem and how the quantities in it are related.</p>	<p>7 M3 Lesson 2: The Distributive Property and the Tabular Model</p> <p>7 M3 Lesson 4: Adding and Subtracting Expressions</p> <p>7 M3 Lesson 5: Factoring Expressions</p> <p>7 M3 Lesson 6: Comparing Expressions</p> <p>7 M3 Lesson 9: Solving Equations to Determine Unknown Angle Measures</p> <p>7 M5 Lesson 10: Percent Increase</p> <p>7 M5 Lesson 11: Percent Decrease</p> <p>7 M5 Lesson 12: More Discounts</p> <p>7 M5 Lesson 14: Scale Factor—Percent Increase and Decrease</p> <p>7 M5 Lesson 15: Tips and Taxes</p> <p>7 M5 Lesson 16: Markups and Discounts</p> <p>7 M5 Lesson 23: Percents of Percents</p>
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**Expressions and Equations**

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

<b>Kentucky Mathematics Course Standards</b>	<b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>
<p><b>KY.7.EE.3</b></p> <p>Solve real-life and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.</p>	<p>7 M2 Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1</p> <p>7 M2 Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2</p> <p>7 M3 Lesson 9: Solving Equations to Determine Unknown Angle Measures</p> <p>7 M3 Lesson 10: Problem Solving with Unknown Angle Measures</p> <p>7 M3 Lesson 11: Dominoes and Dominoes</p> <p>7 M3 Lesson 16: Using Equations to Solve Rate Problems</p> <p>7 M3 Lesson 17: Using Equations to Solve Problems</p>
<p><b>KY.7.EE.4</b></p> <p>Use variables to represent quantities in a real-world or mathematical problem and construct equations and inequalities to solve problems by reasoning about the quantities.</p>	<p>7 M3 Lesson 11: Dominoes and Dominoes</p> <p>7 M3 Lesson 12: Solving Equations Algebraically and Arithmetically</p> <p>7 M3 Lesson 13: Solving Equations—Puzzles</p> <p>7 M3 Lesson 16: Using Equations to Solve Rate Problems</p> <p>7 M3 Lesson 17: Using Equations to Solve Problems</p> <p>7 M3 Lesson 18: Understanding Inequalities and Their Solutions</p> <p>7 M3 Lesson 19: Using Equations to Solve Inequalities</p> <p>7 M3 Lesson 21: Solving Two-Step Inequalities</p> <p>7 M3 Lesson 22: Solving Problems Involving Inequalities</p> <p>7 M3 Lesson 23: Inequalities vs. Equations</p>

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<p><b>KY.7.EE.4.a</b></p> <p>Solve word problems leading to equations of the form <math>px + q = r</math> and <math>p(x + q) = r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Solve equations of these forms. Graph the solution set of the equality and interpret it in context of the problem.</p>	<p>7 M3 Lesson 7: Angle Relationships and Unknown Angle Measures</p> <p>7 M3 Lesson 8: Strategies to Determine Unknown Angle Measures</p> <p>7 M3 Lesson 12: Solving Equations Algebraically and Arithmetically</p> <p>7 M3 Lesson 13: Solving Equations—Puzzles</p> <p>7 M3 Lesson 14: Solving Equations—Scavenger Hunt</p> <p>7 M3 Lesson 15: Solving Equations Fluently</p> <p>7 M3 Lesson 16: Using Equations to Solve Rate Problems</p>
<p><b>KY.7.EE.4.b</b></p> <p>Solve word problems leading to inequalities of the form <math>px + q &gt; r</math>, <math>px + q &lt; r</math>, <math>px + q \geq r</math>, <math>px + q \leq r</math>; where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Graph the solution set of the inequality and interpret it in context of the problem.</p>	<p>7 M3 Lesson 18: Understanding Inequalities and Their Solutions</p> <p>7 M3 Lesson 19: Using Equations to Solve Inequalities</p> <p>7 M3 Lesson 20: Preserving and Reversing</p> <p>7 M3 Lesson 21: Solving Two-Step Inequalities</p> <p>7 M3 Lesson 22: Solving Problems Involving Inequalities</p> <p>7 M3 Lesson 23: Inequalities vs. Equations</p>

**Geometry****Draw, construct and describe geometrical figures and describe the relationships between them.**

<b>Kentucky Mathematics Course Standards</b>	<b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>
<p><b>KY.7.G.1</b></p> <p>Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.</p>	<p>7 M1 Lesson 15: Scale Drawings</p> <p>7 M1 Lesson 16: Using a Scale Factor</p> <p>7 M1 Lesson 17: Finding Actual Distances from a Scale Drawing</p> <p>7 M1 Lesson 18: Relating Areas of Scale Drawings</p> <p>7 M1 Lesson 19: Scale and Scale Factor</p> <p>7 M1 Lesson 20: Creating Multiple Scale Drawings</p> <p>7 M5 Lesson 1: Proportionality and Scale Factor</p> <p>7 M5 Lesson 14: Scale Factor—Percent Increase and Decrease</p>
<p><b>KY.7.G.2</b></p> <p>Draw (freehand, with ruler and protractor and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.</p>	<p>7 M4 Lesson 1: Sketching, Drawing, and Constructing Geometric Figures</p> <p>7 M4 Lesson 2: Constructing Parallelograms and Other Quadrilaterals</p> <p>7 M4 Lesson 3: Side Lengths of a Triangle</p> <p>7 M4 Lesson 4: Angles of a Triangle</p> <p>7 M4 Lesson 5: Constructing Quadrilaterals and Triangles</p> <p>7 M4 Lesson 6: Unique Triangles</p> <p>7 M4 Lesson 7: Two Angles and One Side</p> <p>7 M4 Lesson 8: Two Sides and One Angle</p> <p>7 M4 Lesson 9: Constructing a Circle</p>
<p><b>KY.7.G.3</b></p> <p>Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</p>	<p>7 M4 Lesson 22: Understanding Planes and Cross Sections</p> <p>7 M4 Lesson 23: Cross Section Scavenger Hunt</p>

## Geometry

Solve real-life and mathematical problems involving angle measure, area, surface area and volume.

Kentucky Mathematics Course Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>KY.7.G.4</b></p> <p>Use formulas for area and circumference of circles and their relationships.</p>	<p>7 M4 Lesson 10: The Outside of a Circle</p> <p>7 M4 Lesson 11: The Inside of a Circle</p> <p>7 M4 Lesson 12: Exploring the Area and Circumference of a Circle</p> <p>7 M4 Lesson 13: Finding Areas of Circular Regions</p> <p>7 M4 Lesson 14: Composite Figures with Circular Regions</p> <p>7 M4 Lesson 15: Watering a Lawn</p>
<p><b>KY.7.G.4.a</b></p> <p>Apply the formulas for the area and circumference of a circle to solve real-world and mathematical problems.</p>	<p>7 M4 Lesson 10: The Outside of a Circle</p> <p>7 M4 Lesson 11: The Inside of a Circle</p> <p>7 M4 Lesson 12: Exploring the Area and Circumference of a Circle</p> <p>7 M4 Lesson 13: Finding Areas of Circular Regions</p> <p>7 M4 Lesson 14: Composite Figures with Circular Regions</p> <p>7 M4 Lesson 15: Watering a Lawn</p>
<p><b>KY.7.G.4.b</b></p> <p>Explore and understand the relationship between the radius, diameter, circumference and area of a circle.</p>	<p>7 M4 Lesson 10: The Outside of a Circle</p> <p>7 M4 Lesson 11: The Inside of a Circle</p> <p>7 M4 Lesson 12: Exploring the Area and Circumference of a Circle</p> <p>7 M4 Lesson 13: Finding Areas of Circular Regions</p> <p>7 M4 Lesson 14: Composite Figures with Circular Regions</p> <p>7 M4 Lesson 15: Watering a Lawn</p>

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<p><b>KY.7.G.5</b></p> <p>Apply properties of supplementary, complementary, vertical and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p>	<p>7 M3 Lesson 7: Angle Relationships and Unknown Angle Measures</p> <p>7 M3 Lesson 8: Strategies to Determine Unknown Angle Measures</p> <p>7 M3 Lesson 10: Problem Solving with Unknown Angle Measures</p>
<p><b>KY.7.G.6</b></p> <p>Solve problems involving area of two-dimensional objects and surface area and volume of three-dimensional objects.</p>	<p>7 M4 Lesson 14: Composite Figures with Circular Regions</p> <p>7 M4 Lesson 16: Solving Area Problems by Composition and Decomposition</p> <p>7 M4 Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms</p> <p>7 M4 Lesson 18: Surface Area of Right Prisms</p> <p>7 M4 Lesson 20: Surface Areas of Right Pyramids</p> <p>7 M4 Lesson 21: Surface Area of Other Solids</p> <p>7 M4 Lesson 24: Volume of Prisms</p> <p>7 M4 Lesson 25: Volume of Composite Solids</p> <p>7 M4 Lesson 26: Designing a Fish Tank</p>

### Kentucky Mathematics Course Standards

### Aligned Components of *Eureka Math*<sup>2</sup>

<p><b>KY.7.G.6.a</b></p> <p>Solve real-world and mathematical problems involving area of two-dimensional objects composed of triangles, quadrilaterals and other polygons.</p>	<p>7 M4 Lesson 14: Composite Figures with Circular Regions</p> <p>7 M4 Lesson 16: Solving Area Problems by Composition and Decomposition</p> <p>7 M4 Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms</p> <p>7 M4 Lesson 18: Surface Area of Right Prisms</p> <p>7 M4 Lesson 20: Surface Areas of Right Pyramids</p> <p>7 M4 Lesson 21: Surface Area of Other Solids</p> <p>7 M4 Lesson 24: Volume of Prisms</p> <p>7 M4 Lesson 25: Volume of Composite Solids</p> <p>7 M4 Lesson 26: Designing a Fish Tank</p>
<p><b>KY.7.G.6.b</b></p> <p>Solve real-world and mathematical problems involving volume and surface area, using nets as needed, of three-dimensional objects including cubes, pyramids and right prisms.</p>	<p>7 M4 Lesson 14: Composite Figures with Circular Regions</p> <p>7 M4 Lesson 16: Solving Area Problems by Composition and Decomposition</p> <p>7 M4 Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms</p> <p>7 M4 Lesson 18: Surface Area of Right Prisms</p> <p>7 M4 Lesson 20: Surface Areas of Right Pyramids</p> <p>7 M4 Lesson 21: Surface Area of Other Solids</p> <p>7 M4 Lesson 24: Volume of Prisms</p> <p>7 M4 Lesson 25: Volume of Composite Solids</p> <p>7 M4 Lesson 26: Designing a Fish Tank</p>

## Statistics and Probability

Use random sampling to draw inferences about a population.

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<p><b>KY.7.SP.0</b></p> <p>Create displays, including circle graphs (pie charts), scaled pictographs and bar graphs, to compare and analyze distributions of categorical data from both matching and different-sized samples.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>
<p><b>KY.7.SP.1</b></p> <p>Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.</p>	<p>7 M6 Lesson 11: Populations and Samples</p> <p>7 M6 Lesson 12: Selecting a Sample</p> <p>7 M6 Lesson 13: Variability Between Samples</p> <p>7 M6 Lesson 14: Sampling Variability When Estimating a Population Mean</p>
<p><b>KY.7.SP.2</b></p> <p>Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p><b>KY.7.SP.2.a</b></p> <p>Generate multiple samples of categorical data of the same size to gauge the variation in estimates or predictions.</p>	<p>7 M6 Lesson 13: Variability Between Samples</p> <p>7 M6 Lesson 16: Sampling Variability When Estimating a Population Proportion</p>

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<p><b>KY.7.SP.2.b</b></p> <p>Generate multiple samples (or simulated samples) of numerical data to gauge the variation in estimates or predictions.</p>	<p>7 M6 Lesson 13: Variability Between Samples</p> <p>7 M6 Lesson 14: Sampling Variability When Estimating a Population Mean</p> <p>7 M6 Lesson 15: Sampling Variability and the Effect of Sample Size</p>
<p><b>KY.7.SP.2.c</b></p> <p>Gauge how far off an estimate or prediction might be related to a population character of interest.</p>	<p>7 M6 Lesson 13: Variability Between Samples</p> <p>7 M6 Lesson 14: Sampling Variability When Estimating a Population Mean</p> <p>7 M6 Lesson 15: Sampling Variability and the Effect of Sample Size</p> <p>7 M6 Lesson 16: Sampling Variability When Estimating a Population Proportion</p>

## Statistics and Probability

Draw informal comparative inferences about two populations.

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<p><b>KY.7.SP.3</b></p> <p>Describe the degree of visual overlap (and separation) from the graphical representations of two numerical data distributions (box plots, dot plots) with similar variabilities with similar contexts (same variable), measuring the difference between the centers (medians or means) by expressing this difference as a multiple of a measure of variability (interquartile range when comparing medians or the mean absolute deviation when comparing means).</p>	<p>6 M6 Lesson 16: Interpreting Box Plots</p> <p>7 M6 Lesson 17: Comparing Sample Means</p> <p>7 M6 Lesson 18: Comparing Population Means</p> <p>7 M6 Lesson 19: Memory Games</p> <p><i>Supplemental material is needed to address measuring the difference between medians by expressing this difference as a multiple of the interquartile range.</i></p>

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<p><b>KY.7.SP.4</b></p> <p>Calculate and use measures of center (mean and median) and measures of variability (interquartile range when comparing medians and mean absolute deviation when comparing means) for numerical data from random samples to draw informal comparative inferences about two populations.</p>	<p>7 M6 Lesson 17: Comparing Sample Means</p> <p>7 M6 Lesson 18: Comparing Population Means</p> <p>7 M6 Lesson 19: Memory Games</p> <p><i>Supplemental material is needed to address drawing informal comparative inferences about two populations by using the median and interquartile range.</i></p>

### Statistics and Probability

Investigate chance processes and develop, use, and evaluate probability models.

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<p><b>KY.7.SP.5</b></p> <p>Describe the probability of a chance event is a number between 0 and 1, which tells how likely the event is, from impossible (0) to certain (1). A probability near 0 indicates an unlikely event, a probability around <math>\frac{1}{2}</math> indicates an event that is neither unlikely nor likely and a probability near 1 indicates a likely event.</p>	<p>7 M6 Lesson 1: What is Probability?</p>

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<p><b>KY.7.SP.6</b></p> <p>Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency and predict the approximate relative frequency given the probability.</p>	<p>7 M6 Lesson 2: Empirical Probability</p> <p>7 M6 Lesson 3: Outcomes of Chance Experiments</p> <p>7 M6 Lesson 6: Outcomes That Are Not Equally Likely</p> <p>7 M6 Lesson 8: Picking Blue</p>
<p><b>KY.7.SP.7</b></p> <p>Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.</p>	<p>7 M6 Lesson 7: The Law of Large Numbers</p>
<p><b>KY.7.SP.7.a</b></p> <p>Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events.</p>	<p>7 M6 Lesson 4: Theoretical Probability</p> <p>7 M6 Lesson 7: The Law of Large Numbers</p>
<p><b>KY.7.SP.7.b</b></p> <p>Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.</p>	<p>7 M6 Lesson 7: The Law of Large Numbers</p> <p>7 M6 Lesson 8: Picking Blue</p>

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<p><b>KY.7.SP.8</b> Find probabilities of compound events using organized lists, tables, tree diagrams and simulation.</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p><b>KY.7.SP.8.a</b> Explain just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.</p>	<p>7 M6 Lesson 5: Multistage Experiments</p>
<p><b>KY.7.SP.8.b</b> Represent sample spaces for compound events described in everyday language using methods such as organized lists, tables and tree diagrams.</p>	<p>7 M6 Lesson 5: Multistage Experiments</p>
<p><b>KY.7.SP.8.c</b> Design and use a simulation to generate frequencies for compound events.</p>	<p>7 M6 Lesson 9: Probability Simulations 7 M6 Lesson 10: Simulations with Random Number Tables</p>