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A Correlation of

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to the

Kentucky Academic Standards for Mathematics 2019 Grades 6-8
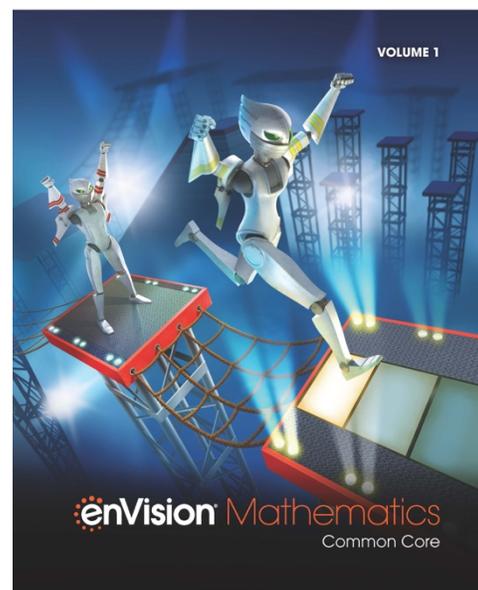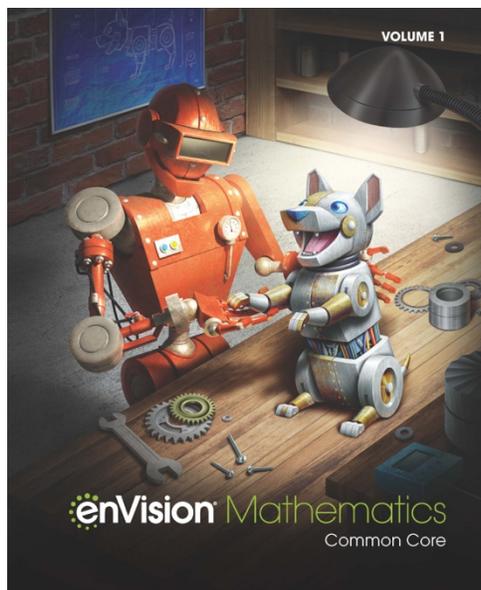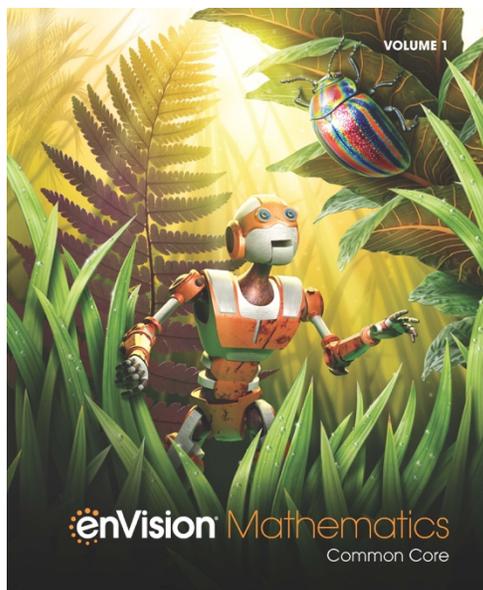
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Introduction

The new enVision® Mathematics ©2021 is the latest offering of the nationally recognized Grades K-12 series, created for print, digital, and blended instruction. Problem-Based Learning connects with Visual Learning to deep conceptual understanding. Interactive multimedia experiences engage learners in student choice and solving rich problems. Extensive customization and differentiation options empower every teacher and student.

UNDERSTANDING
A simple lesson design provides a clear, intentional pathway. Starting on a firm foundation of conceptual understanding, students can connect and apply math ideas in amazing ways. High-interest math projects invite all students to be active participants.

A simple lesson design provides a clear, intentional pathway.

STEP 1 Problem-Based Learning
STEP 2 Visual Learning
STEP 3 Assess and Differentiate

ASSESSMENT
The enVision Assessment Suite offers options to move students toward mastery of state standards while driving instructional differentiation.

DIAGNOSTIC Assessment
Reading Test, Diagnostic Test (Math Diagnosis and Intervention System), Review What You Know
FORMATIVE Assessment
SCOUT Observational Assessment used during Solve & Share, Do You Understand? And Convince Me! Guide Practice, Quick Check
SUMMATIVE Assessment
Topic Assessments, Topic Performance Assessments, Examview Test Generator, Fluency Assessments, Cumulative/Benchmarks Assessments, Progress Monitoring Assessments

INSTRUCTIONAL SUPPORT
Gain a new perspective on your teaching with embedded strategies, methods, and a wide range of Professional Development opportunities in print and digital formats.

Ideas, Inspiration, and Teaching Methods
Math background for every Topic and Lesson serves as an easy-to-access math methods course.

Make every lesson perfect for you. Access all digital content, assessments, and management tools at PearsonRealize.com.

Kids See the Math. Teachers See Results.

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Standards for Mathematical Practice	
MP.1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages online. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **SE/TE:** 38, 43, 50, 54, 55, 56, 79, 80, 140, 149, 165, 214, 215, 272, 320, 371, 378, 384, 418, 431, 442, 446, 454, 473
MP.2. Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **SE/TE:** 20, 26, 37, 38, 43, 44, 73, 78, 106, 109, 133, 154, 172, 190, 196, 222, 272, 283, 302, 304, 318, 331, 350, 351, 363, 372, 410, 441, 500

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MP.3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program explicitly call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own process and those of others. **SE/TE:** 54, 55, 72, 80, 85, 92, 108, 111, 126, 128, 140, 142, 156, 165, 166, 188, 238, 239, 250, 272, 302, 308, 318, 324, 332, 364, 441, 448, 502
MP.4. Model with mathematics.	Students using enVision Mathematics explicitly use mathematical modeling in each Topic during the 3-Act Math lesson. The Visual Learning Bridge also often presents real-world situations, demonstrating how these problems can be modeled mathematically. **SE/TE:** 44, 135, 142, 149, 155, 156, 164, 195, 201, 203, 204, 223, 230, 252, 288, 289, 290, 298, 304, 326, 378, 422, 448, 473, 486, 487, 488, 493, 505, 508, 514
MP.5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, integer chips, algebra tiles, and even pencil and paper, to digital tools, such as graphing calculators, Online Math Tools, and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **SE/TE:** 104, 109, 110, 229, 230, 250, 251, 278, 288, 289, 290, 376, 416, 432, 446, 448, 486, 487, 488, 492, 493, 494, 513, 514

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MP.6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms are highlighted in each lesson and important concepts presented in the Concept Summary. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **SE/TE:** 25, 37, 43, 49, 50, 56, 109, 141, 202, 213, 215, 296, 297, 298, 303, 309, 319, 325, 331, 363, 371, 378, 382, 405, 406, 411, 412, 417, 423, 430, 447, 448, 452, 453, 454, 508, 513
MP.7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. For example, as students mature in their mathematical thinking, they see structure when working with problems that can be represented with the Distributive Property. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **SE/TE:** 44, 50, 86, 103, 104, 110, 156, 164, 166, 171, 172, 244, 245, 246, 330, 351, 364, 370, 384, 424, 430, 453, 479
MP.8. Look for and express regularity in repeated reasoning.	Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. **SE/TE:** 19, 50, 127, 128, 166, 270, 271, 276, 277, 282, 283, 284, 310, 432

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Ratios and Proportional Relationships	
Cluster: Understanding ratio concepts and use ratio reasoning to solve problems.	
KY.6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	**SE:** 267-272, 333-338 **TE:** 267A-272B, 333-338
KY.6.RP.2 Understand the concept of a unit rate a/b associated with a ratio a:b with B ≠ 0 and use rate language in the context of a ratio relationship.	**SE:** 293-298, 333-338 **TE:** 293A-298B, 333-338
KY.6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems.	**SE:** 267-272, 273-278, 279-284, 285-290, 293-298, 299-304, 305-310, 315-320, 321-326, 327-332, 333-338 **TE:** 267A-272B, 273A-278B, 279A-284B, 285A-290B, 293A-298B, 299A-304B, 305A-310B, 315A-320B, 321A-326B, 327A-332B, 333-338
a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	**SE:** 267-272, 273-278, 279-284, 285-290, 293-298, 299-304, 305-310, 333-338 **TE:** 267A-272B, 273A-278B, 279A-284B, 285A-290B, 293A-298B, 299A-304B, 305A-310B, 333-338
b. Solve rate problems including those involving unit pricing and constant speed.	**SE:** 293-298, 299-304, 305-310, 333-338 **TE:** 293A-298B, 299A-304B, 305A-310B, 333-338
c. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	**SE:** 315-320, 321-326, 327-332, 333-338 **TE:** 315A-320B, 321A-326B, 327A-332B, 333-338
The Number System	
Cluster: Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	
KY.6.NS.1 Interpret and compute quotients of fractions and solve word problems involving division of fractions by fractions.	**SE:** 33-38, 39-44, 45-50, 51-56, 57-60 **TE:** 33A-38B, 39A-44B, 45A-50B, 51A-56B, 57-60

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Cluster: Compute fluently with multi-digit numbers and find common factors and multiples.	
KY.6.NS.2 Fluently divide multi-digit numbers using an algorithm.	**SE:** 15-20, 57-60 **TE:** 15A-20B, 57-60
a. Convert a rational number to a decimal using long division.	**SE:** 15-20, 57-60 **TE:** 15A-20B, 57-60
b. Know that the decimal form of a rational number terminates in 0s or eventually repeats.	**SE:** 15-20, 57-60 **TE:** 15A-20B, 57-60
KY.6.NS.3 Fluently add, subtract, multiply and divide multi-digit decimals using an algorithm for each operation.	**SE:** 9 -14, 15-20, 57-60 **TE:** 9A-14B, 15A-20B, 57-60
KY.6.NS.4 Use the distributive property to express a sum of two whole numbers 1 – 100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	**SE:** 129-136, 173-176 **TE:** 129A-136B, 173-176
Cluster: Apply and extend previous understanding of numbers to the system of rational numbers.	
KY.6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	**SE:** 69-74, 111-114 **TE:** 69A-74B, 111-114
KY.6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes, using appropriate range and intervals, to represent points on the line and in the plane, that include negative numbers and coordinates.	**SE:** 69-74, 75-80, 89-94, 111-114, 419-424, 455-460 **TE:** 69A-74B, 75A-80B, 89A-94B, 111-114, 419A-424B, 455-460
a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize 0 is its own opposite and the opposite of a positive number is a negative, and the opposite of a negative number is a positive, such as $-(-3)=3$.	**SE:** 69-74, 111-114 **TE:** 69A-74B, 111-114

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b. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	**SE:** 69-74, 75-80, 89-94, 111-114, 419-424, 455-460 **TE:** 69A-74B, 75A-80B, 89A-94B, 111-114, 419A-424B, 455-460
c. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize the similarity between whole numbers, their negative opposites and their positions on a number line, ordered pairs differ only by signs and their locations on one or both axes.	**SE:** 89-94, 111-114 **TE:** 89A-94B, 111-114
KY.6.NS.7 Understand ordering and absolute value of rational numbers.	**SE:** 75-80, 81-86, 111-114 **TE:** 75A-80B, 81A-86B, 111-114
a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.	**SE:** 75-80, 111-114 **TE:** 75A-80B, 111-114
b. Write, interpret and explain statements of order for rational numbers in real-world contexts.	**SE:** 75-80, 111-114 **TE:** 75A-80B, 111-114
c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.	**SE:** 81-86, 111-114 **TE:** 81A-86B, 111-114
d. Distinguish comparisons of absolute value from statements about order.	**SE:** 81-86, 111-114 **TE:** 81A-86B, 111-114
KY.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.	**SE:** 99-104, 105-110, 111-114, 419-424, 455-460 **TE:** 99A-104B, 105A-110B, 111-114, 419A-424B, 455-460

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Expression and Equations	
Cluster: Apply and extend previous understandings of arithmetic to algebraic expressions.	
KY.6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.	**SE:** 123-128, 137-142, 173-176 **TE:** 123A-128B, 137A-142B, 173-176
KY.6.EE.2 Write, read and evaluate expressions in which letters stand for numbers.	**SE:** 145-150, 173-176, 401-406, 407-412, 413-418, 419-424, 437-442, 443-448, 449-454, 455-460 **TE:** 145A-150B, 173-176, 401A-406B, 407A-412B, 413A-413B, 419A-424B, 437A-442B, 443A-448B, 449A-454B, 455-460
a. Write expressions that record operations with numbers and with letters standing for numbers.	**SE:** 145-150, 173-176, 437-442, 443-448, 449-454, 455-460 **TE:** 145A-150B, 173-176, 437A-442B, 443A-448B, 449A-454B, 455-460
b. Identify parts of an expression using mathematical terms (sums, term, product, factor, quotient, coefficient); view one or more parts of an expression in a single entity.	**SE:** 145-150, 173-176 **TE:** 145A-150B, 173-176
c. Evaluate expressions for specific values of their variables, including values that are non-negative rational numbers. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	**SE:** 151-156, 173-176, 401-406, 407-412, 413-418, 419-424, 437-442, 443-448, 449-454, 455-460 **TE:** 151A-156B, 173-176, 401A-406B, 407A-412B, 413A-413B, 419A-424B, 437A-442B, 443A-448B, 449A-454B, 455-460
KY.6.EE.3 Apply the properties of operations to generate equivalent expressions.	**SE:** 137-142, 161-166, 167-172, 173-176 **TE:** 137A-142B, 161A-166B, 167A-172B, 173-176
KY.6.EE.4 Identify when two expressions are equivalent when the two expressions name the same number regardless of which value is substituted into them.	**SE:** 137-142, 161-166, 173-176, 191-196, 253-258 **TE:** 137A-142B, 161A-166B, 173-176, 191A-196B, 253-258

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Cluster: Reason about and solve one-variable equation and inequalities.	
KY.6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	**SE:** 185-190, 219-224, 225-230, 253-258 **TE:** 185A-190B, 219A-224B, 225A-230B, 253-258
KY.6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or depending on the purpose at hand, any number in a specified set.	**SE:** 145-150, 151-156, 173-176, 197-202, 203-208, 209-216, 253-258, 437-442, 443-448, 449-454, 455-460 **TE:** 145A-150B, 151-156B, 173-176, 197A-202B, 203A-208B, 209A-216B, 253-258, 437A-442B, 443A-448B, 449A-454B, 455-460
KY.6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	**SE:** 191-196, 197-202, 203-208, 209-216, 253-258 **TE:** 191A-196B, 197A-202B, 203A-208B, 209A-216B, 253-258
KY.6.EE.8 Write an inequality of the form $x>c$, $x<c$, $x≥c$, or $x≤c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of these forms have infinitely many solutions; represent solutions of such inequalities on vertical and horizontal number lines.	**SE:** 219-224, 225-230, 253-258 **TE:** 219A-224B, 225A-230B, 253-258
Cluster: Represent and analyze quantitative relationships between dependent and independent variables.	
KY.6.EE.9 Use variables to represent two quantities in a real-world problem that changes in relationship to one another;	**SE:** 235-240, 241-246, 247-252, 253-258 **TE:** 235A-240B, 241A-246B, 247A-252B, 253-258
a. Appropriately recognize one quantity as the dependent variable and the other as the independent variable.	**SE:** 235-240, 241-246, 247-252, 253-258 **TE:** 235A-240B, 241A-246B, 247A-252B, 253-258
b. Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable.	**SE:** 235-240, 241-246, 247-252, 253-258 **TE:** 235A-240B, 241A-246B, 247A-252B, 253-258

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c. Analyze the relationship between the dependent and independent variables using graphs and tables and relate these to the question.	**SE:** 235-240, 241-246, 247-252, 253-258 **TE:** 235A-240B, 241A-246B, 247A-252B, 253-258

Geometry	
Cluster: Solve real-world and mathematical problems involving area, surface area and volume.	
KY.6.G.1 Find the area of right triangles, other triangles, special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and quadrilaterals; apply these techniques in the context of solving real-world and mathematical problems.	**SE:** 401-406, 407-412, 413-418, 419-424, 455-460 **TE:** 401A-406B, 407A-412B, 413A-413B, 419A-424B, 455-460
KY.6.G.2 Find the volume of a right rectangular prism with rational number edge lengths. Apply the formulas V = lwh and V = Bh to find volumes of right rectangular prisms with rational number edge lengths in the context of solving real-world and mathematical problems.	**SE:** 449-454, 455-460 **TE:** 449A-454B, 455-460
KY.6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	**SE:** 105-110, 111-114, 419-424, 455-460 **TE:** 105A-110B, 111-114, 419A-424B, 455-460
KY.6.G.4 Classify three-dimensional figures including cubes, prisms, pyramids, cones and spheres.	**SE:** 427-432, 437-442, 443-448, 455-460 **TE:** 427A-432B, 437A-442B, 443A-448B, 455-460

Statistics and Probability	
Cluster: Develop understanding of the process of statistical reasoning.	
KY.6.SP.0 Apply the four-step investigative process for statistical reasoning.	**SE:** 469-474, 475-482, 483-488, 489-494, 497-502, 509-514, 519-522 **TE:** 469A-474B, 475A-482B, 483A-488B, 489A-494B, 497A-502B, 509A-514B, 519-522
a. Formulate Questions: Formulate a statistical question as one that anticipates variability and can be answered with data.	**SE:** 469-474, 519-522 **TE:** 469A-474B, 519-522

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b. Collect Data: Design and use a plan to collect appropriate data to answer a statistical question.	**SE:** 509-514, 519-522 **TE:** 509A-514B, 519-522
c. Analyze Data: Select appropriate graphical methods and numerical measures to analyze data by displaying variability within a group, comparing individual to individual and comparing individual to group.	**SE:** 469-474, 475-482, 483-488, 489-494, 497-502, 509-514, 519-522 **TE:** 469A-474B, 475A-482B, 483A-488B, 489A-494B, 497A-502B, 509A-514B, 519-522
d. Interpret Results: Draw logical conclusions and make generalizations from the data based on the original question.	**SE:** 475-482, 489-494, 497-502, 503-508, 509-514, 519-522 **TE:** 475A-482B, 489A-494B, 497A-502B, 503A-508B, 509A-514B, 519-522
Cluster: Develop understanding of statistical variability.	
KY.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.	**SE:** 469-474, 519-522 **TE:** 469A-474B, 519-522
KY.6.SP.2 Understand that a set of numerical data collected to answer a statistical question has a distribution which can be described by its center, spread and overall shape.	**SE:** 509-514, 519-522 **TE:** 509A-514B, 519-522
KY.6.SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number to describe a typical value, while a measure of variation describes how the values in the distribution vary.	**SE:** 475-482, 519-522 **TE:** 475A-482B, 519-522
Cluster: Summarize and describe distributions.	
KY.6.SP.4 Display the distribution of numerical data in plots on a number line, including dot plots, histograms and box plots.	**SE:** 469-474, 483-488, 489-494, 497-502, 509-514, 519-522 **TE:** 469A-474B, 483A-488B, 489A-494B, 497A-502B, 509A-514B, 519-522

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KY.6.SP.5 Summarize numerical data sets in relation to their context, such as by:	**SE:** 475-482, 489-494, 497-502, 503-508, 509-514, 519-522 **TE:** 475A-482B, 489A-494B, 497A-502B, 503A-508B, 509A-514B, 519-522
a. Reporting the number of observations.	**SE:** 489-494, 519-522 **TE:** 489A-494B, 519-522
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	**SE:** 509-514, 519-522 **TE:** 509A-514B, 519-522
c. Determining quantitative measures of center (median and/or mean) to describe distribution of numerical data.	**SE:** 475-482, 497-502, 503-508, 509-514, 519-522 **TE:** 475A-482B, 497A-502B, 503A-508B, 509A-514B, 519-522
d. Describing distributions of numerical data qualitatively relating to shape (using terms such as cluster, mode(s), gap, symmetric, uniform, skewed-left, skewed-right and the presence of outliers) and quantitatively relating to spread/variability (using terms such as range and interquartile range).	**SE:** 503-508, 519-522 **TE:** 503A-508B, 519-522
e. Relating the choice of measures of center and variability to the shape of the data distribution.	**SE:** 503-508, 519-522 **TE:** 503A-508B, 519-522

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Standards for Mathematical Practice	
MP.1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages online. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **SE/TE:** 14, 32, 46, 69, 93, 130, 148, 153, 159, 160, 168, 178, 212, 218, 220, 225, 243, 274, 278, 279, 328, 330. 344, 373, 377, 378, 379, 388, 461
MP.2. Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **SE/TE:** 12, 13, 30, 31, 37, 56, 68, 105, 106, 128, 129, 152, 166, 184, 212, 329, 335, 378, 384, 454, 456

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MP.3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program explicitly call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own process and those of others. **SE/TE:** 26, 31, 36, 45, 64, 68, 98, 105, 112, 146, 148, 152, 154, 158, 166, 183, 214, 244, 292, 309, 327, 335, 336, 337, 350, 372, 378, 384, 440, 460, 480
MP.4. Model with mathematics.	Students using enVision Mathematics explicitly use mathematical modeling in each Topic during the 3-Act Math lesson. The Visual Learning Bridge also often presents real-world situations, demonstrating how these problems can be modeled mathematically. **SE/TE:** 12, 25, 26, 30, 38, 50, 63, 70, 93, 111, 122, 160, 201, 225, 272, 273, 274, 286, 287, 288, 292, 293, 294, 308, 374, 402, 410, 440, 441, 442, 447, 480
MP.5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, integer chips, algebra tiles, and even pencil and paper, to digital tools, such as graphing calculators, Online Math Tools, and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **SE/TE:** 12, 13, 25, 122, 128, 286, 287, 288, 292, 293, 294, 308, 402, 410, 440, 441, 442, 447, 480

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Kentucky Academic Standards for Mathematics Grade 7	enVision Mathematics, ©2021 Grade 7
MP.6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms are highlighted in each lesson and important concepts presented in the Concept Summary. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **SE/TE:** 18, 20, 45, 51, 106, 146, 147, 168, 182, 201, 236, 308, 327, 391, 392, 435, 455, 456, 461, 468, 469, 470, 478, 479, 480, 484, 485, 486, 490, 491, 492
MP.7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. For example, as students mature in their mathematical thinking, they see structure when working with problems that can be represented with the Distributive Property. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **SE/TE:** 19, 38, 44, 57, 58, 62, 90, 123, 177, 200, 218, 242, 248, 250, 266, 272, 274, 454
MP.8. Look for and express regularity in repeated reasoning.	Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. **SE/TE:** 99, 182, 200, 206, 207, 218, 219, 220, 225, 403, 404, 470, 475

Kentucky Academic Standards for Mathematics Grade 7	enVision Mathematics, ©2021 Grade 7
Ratios and Proportional Relationships	
Cluster: Analyze proportional relationships and use them to solve real-world and mathematical problems.	
KY.7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	**SE:** 89-94, 95-100, 131-134 **TE:** 89A-94B, 95A-100B, 131-134
KY.7.RP.2 Recognize and represent proportional relationships between quantities.	**SE:** 101-106, 107-112, 119-124, 131-134, 143-148, 149-154, 155-160, 185-188, 331-338, 357-360, 375-380, 417-422 **TE:** 101A-106B, 107-112B, 119A-124B, 131-134, 143A-143B, 149A-149B, 155A-160B, 185-188, 331A-338B, 375A-380B, 417-422
a. Decide whether two quantities represent a proportional relationship.	**SE:** 101-106, 119-124, 131-134, 143-148, 185-188 **TE:** 101A-106B, 119A-124B, 131-134, 143A-143B, 185-188
b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams and verbal descriptions of proportional relationships.	**SE:** 107-112, 119-124, 131-134, 143-148, 185-188 **TE:** 107A-112B, 119A-124B, 143-148, 143A-143B, 185-188
c. Represent proportional relationships by equations.	**SE:** 107-112, 131-134, 149-154, 155-160, 185-188, 331-338, 357-360, 375-380, 417-422 **TE:** 107A-112B, 131-134, 149A-149B, 155A-160B, 185-188, 331A-338B, 375A-380B, 417-422
d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.	**SE:** 119-124, 131-134 **TE:** 119A-124B, 131-134
KY.7.RP.3 Use percents to solve mathematical and real-world problems.	**SE:** 143-148, 149-154, 155-160, 163-168, 173-178, 185-189 **TE:** 148A-148B, 154A-154B, 160A-160B, 168A-168B, 178A-178B, 185-189

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Kentucky Academic Standards for Mathematics Grade 7	enVision Mathematics, ©2021 Grade 7
a. 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.	**SE:** 143-148, 149-154, 185-189 **TE:** 148A-148B, 154A-154B, 185-189
b. Use proportional relationships to solve multistep ratio and percent problems.	**SE:** 89-94 95-100, 125-130, 131-134, 143-148, 149-154, 155-160, 163-168, 173-178, 179-184, 185-188 **TE:** 89A-94B, 95A-100B, 125A-130B, 131-134, 143A-143B, 149A-149B, 155A-160B, 163A-168B, 173A-178B, 179A-184B, 185-188
The Number System	
Cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers.	
KY.7.NS.1 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.	**SE:** 9-14, 21-26, 27-32, 33-38, 75-80 **TE:** 9A-14B, 21A-26B, 27A-32B, 33A-38B, 75-80
a. Describe situations in which opposite quantities combine to make 0.	**SE:** 9-14, 75-80 **TE:** 9A-14B, 75-80
b. Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q 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.	**SE:** 21-26, 33-38, 75-80 **TE:** 21A-26B, 33A-38B, 75-80
c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. 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.	**SE:** 27-32, 33-38, 75-80 **TE:** 27A-32B, 33A-38B, 75-80
d. Apply properties of operations as strategies to add and subtract rational numbers.	**SE:** 21-26, 27-32, 33-38, 75-80 **TE:** 21A-26B, 27A-32B, 33A-38B, 75-80

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Kentucky Academic Standards for Mathematics Grade 7	enVision Mathematics, ©2021 Grade 7
KY.7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	**SE:** 15-20, 41-46, 47-52, 53-58, 59-64, 75-80 **TE:** 15A-20B, 41A-46B, 47A-52B, 53A-58B, 59A-64B, 75-80
a. 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 (−1)(−1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	**SE:** 41-46, 47-52, 75-80 **TE:** 41A-46B, 47A-52B, 75-80
b. 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 p and q are integers, then −(p/q) = (−p)/q = p/(−q). Interpret quotients of rational numbers by describing real-world contexts.	**SE:** 53-58, 59-64, 75-80 **TE:** 53A-58B, 59A-64B, 75-80
c. Apply properties of operations as strategies to multiply and divide rational numbers.	**SE:** 41-46, 47-52, 53-58, 59-64, 75-80 **TE:** 41A-46B, 47A-52B, 53A-58B, 59A-64B, 75-80
KY.7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.	**SE:** 65-70, 75-80, 481-486, 487-492, 493-498 **TE:** 65A-70B, 75-80, 481A-486B, 487A-492B, 493-498
Expressions and Equations	
Cluster: Use properties of operations to generate equivalent expressions.	
KY.7.EE.1 Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients.	**SE:** 203-208, 209-214, 215-220, 221-226, 233-238, 239-244, 251-254 **TE:** 203A-208B, 209A-214B, 215A-220B, 221A-226B, 233A-238B, 239A-244B, 251-254
KY.7.EE.2 Understand that rewriting an expression in different forms in a problem context can clarify the problem and how the quantities in it are related.	**SE:** 215-220, 221-226, 233-238, 239-244, 245-250, 251-254 **TE:** 215A-220B, 221A-226B, 233A-238B, 239A-244B, 245A-250B, 251-254

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Kentucky Academic Standards for Mathematics Grade 7	enVision Mathematics, ©2021 Grade 7
Cluster: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	
KY.7.EE.3 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.	**SE:** 65-70, 75-80, 197-202, 251-254, 269-274, 275-280, 311-314, 331-338, 357-360, 369-374, 387-392, 417-422, 465-470, 481-486, 487-492, 493-498 **TE:** 65A-70B, 75-80, 197A-202B, 251-254, 269A-274B, 275A-280B, 311-314, 331A-338B, 357-360, 369A-374B, 387A-392B, 417-422, 465A-470B, 481A-486B, 487A-492B, 493-498
KY.7.EE.4 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.	**SE:** 197-202, 251-254, 263-268, 269-274, 275-280, 283-288, 289-294, 299-304, 305-310, 311-314, 457-462, 465-470, 481-486, 487-492, 493-498 **TE:** 197A-202B, 251-254, 263A-263B, 269A-274B, 275A-280B, 283A-288B, 289A-294B, 299A-304B, 305A-310B, 311-314, 457A-462B, 465A-470B, 481A-486B, 487A-492B, 493-498
a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q and r are specific rational numbers. Solve equations of these forms. Graph the solution set of the equality and interpret it in context of the problem.	**SE:** 197-202, 251-254, 263-268, 269-274, 275-280, 311-314, 457-462, 465-470, 481-486, 487-492, 493-498 **TE:** 197A-202B, 251-254, 263A-263B, 269A-274B, 275A-280B, 311-314, 457A-462B, 465A-470B, 481A-486B, 487A-492B, 493-498
b. Solve word problems leading to inequalities of the form $px + q > r$, $px + q < r$, $px + q \geq r$, $px + q \leq r$; where p, q and r are specific rational numbers. Graph the solution set of the inequality and interpret it in context of the problem.	**SE:** 283-288, 289-294, 299-304, 305-310, 311-314 **TE:** 283A-288B, 289A-294B, 299A-304B, 305A-310B, 311-314
Geometry	
Cluster: Draw, construct and describe geometrical figures and describe the relationships between them.	
KY.7.G.1 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.	**SE:** 431-436, 493-498 **TE:** 431A-436B, 493-498

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KY.7.G.2 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.	**SE:** 437-442, 443-450, 493-498 **TE:** 437A-424B, 443A-450B, 493-498
KY.7.G.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	**SE:** 475-480, 493-498 **TE:** 475A-480B, 493-498
Cluster: Solve real-life and mathematical problems involving angle measure, area, surface area and volume.	
KY.7.G.4 Use formulas for area and circumference of circles and their relationships.	**SE:** 457-462, 465-470, 493-498 **TE:** 457A-462B, 465A-470B, 493-498
a. Apply the formulas for the area and circumference of a circle to solve real-world and mathematical problems.	**SE:** 457-462, 465-470, 493-498 **TE:** 457A-462B, 465A-470B, 493-498
b. Explore and understand the relationship between the radius, diameter, circumference and area of a circle.	**SE:** 457-462, 465-470, 493-498 **TE:** 457A-462B, 465A-470B, 493-498
KY.7.G.5 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.	**SE:** 451-456, 493-498 **TE:** 451A-456B, 493-498
KY.7.G.6 Solve problems involving area of two-dimensional objects and surface area and volume of three-dimensional objects.	**SE:** 481-486, 487-492, 493-498 **TE:** 481A-486B, 487A-492B, 493-498
a. Solve real-world and mathematical problems involving area of two-dimensional objects composed of triangles, quadrilaterals and other polygons.	**SE:** 481-486, 487-492, 493-498 **TE:** 481A-486B, 487A-492B, 493-498

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Kentucky Academic Standards for Mathematics Grade 7	enVision Mathematics, ©2021 Grade 7
b. 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.	**SE:** 481-486, 487-492, 493-498 **TE:** 481A-486B, 487A-492B, 493-498
Statistics and Probability	
Cluster: Use random sampling to draw inferences about a population.	
KY.7.SP.0 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.	**SE:** 119-124, 131-135 **TE:** 124A-124B, 131-135 This standard is also covered in depth in enVision Mathematics, ©2021 Grade 6. Please see: See the following pages: **SE:** 469-474, 483-488, 489-494, 497-502, 509-514, 519-522 **TE:** 469A-474B, 483A-488B, 489A-494B, 497A-502B, 509A-514B, 519-522
KY.7.SP.1 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.	**SE:** 323-330, 331-338, 357-360 **TE:** 323A-330B, 331A-338B, 357-360
KY.7.SP.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.	**SE:** 331-338, 357-360 **TE:** 331A-338B, 357-360
a. Generate multiple samples of categorical data of the same size to gauge the variation in estimates or predictions.	**SE:** 331-338, 357-360 **TE:** 331A-338B, 357-360
b. Generate multiple samples (or simulated samples) of numerical data to gauge the variation in estimates or predictions.	**SE:** 331-338, 357-360 **TE:** 331A-338B, 357-360
c. Gauge how far off an estimate or prediction might be related to a population character of interest.	**SE:** 331-338, 357-360 **TE:** 331A-338B, 357-360

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Cluster: Draw informal comparative inferences about two populations.	
KY.7.SP.3 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).	**SE:** 341-346, 347-352, 357-360 **TE:** 341A-346B, 347A-352B, 357-360
KY.7.SP.4 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.	**SE:** 341-346, 347-352, 357-360 **TE:** 341A-346B, 347A-352B, 357-360
Cluster: Investigate chance processes and develop, use and evaluate probability models.	
KY.7.SP.5 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 1/2 indicates an event that is neither unlikely nor likely and a probability near 1 indicates a likely event.	**SE:** 369-374, 417-422 **TE:** 369A-374B, 417-422
KY.7.SP.6 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.	**SE:** 375-380, 381-386, 417-422 **TE:** 375A-380B, 381A-386B, 417-422
KY.7.SP.7 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.	**SE:** 381-386, 387-392, 417-422 **TE:** 381A-386B, 387A-392B, 417-422
a. Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events.	**SE:** 381-386, 387-392, 417-422 **TE:** 381A-386B, 387A-392B, 417-422

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b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	**SE:** 387-392, 417-422 **TE:** 387A-392B, 417-422
KY.7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams and simulation.	**SE:** 399-404, 405-410, 411-416, 417-422 **TE:** 399A-404B, 405A-410B, 411A-416B, 417-422
a. 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.	**SE:** 405-410, 417-422 **TE:** 405A-410B, 417-422
b. Represent sample spaces for compound events described in everyday language using methods such as organized lists, tables and tree diagrams.	**SE:** 399-404, 417-422 **TE:** 399A-404B, 417-422
c. Design and use a simulation to generate frequencies for compound events.	**SE:** 411-416, 417-422 **TE:** 411A-416B, 417-422

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Kentucky Academic Standards for Mathematics Grade 8	enVision Mathematics, ©2021 Grade 8
Standards for Mathematical Practice	
MP.1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages online. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **SE/TE:** 92, 93, 126, 150, 192, 204, 235, 243, 320, 330, 413, 438, 443, 444, 457
MP.2. Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **SE/TE:** 14, 18, 20, 24, 50, 74, 98, 104, 112, 113, 130, 137, 180, 194, 224, 248, 276, 286, 319, 324, 326, 340, 348, 355, 374, 419, 438, 442

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MP.3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program explicitly call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own process and those of others. **SE/TE:** 18, 19, 24, 30, 32, 36, 38, 46, 51, 56, 58, 62, 73, 111, 113, 132, 150, 169, 174, 193, 200, 228, 248, 271, 276, 284, 286, 290, 340, 349, 374, 375, 398, 437
MP.4. Model with mathematics.	Students using enVision Mathematics explicitly use mathematical modeling in each Topic during the 3-Act Math lesson. The Visual Learning Bridge also often presents real-world situations, demonstrating how these problems can be modeled mathematically. **SE/TE:** 26, 46, 94, 98, 99, 125, 137, 138, 143, 148, 149, 168, 174, 175, 176, 193, 204, 205, 206, 222, 223, 242, 276, 277, 278, 292, 312, 313, 318, 319, 320, 331, 341, 342, 349, 354, 355, 356, 406, 418
MP.5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, integer chips, algebra tiles, and even pencil and paper, to digital tools, such as graphing calculators, Online Math Tools, and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **SE/TE:** 94, 144, 148, 149, 174, 175, 176, 204, 205, 206, 223, 276, 277, 278, 312, 313, 318, 319, 320, 341, 342, 354, 355, 356

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MP.6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms are highlighted in each lesson and important concepts presented in the Concept Summary. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **SE/TE:** 12, 25, 31, 36, 56, 57, 286, 354, 361, 362, 363, 364, 368, 369, 370, 375, 376, 399, 400, 404, 405, 406, 419, 436, 437, 438, 442, 443, 444, 450, 451, 452, 456, 457, 458
MP.7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. For example, as students mature in their mathematical thinking, they see structure when working with problems that can be represented with the Distributive Property. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **SE/TE:** 12, 52, 72, 93, 99, 104, 105, 111, 136, 148, 169, 170, 198, 242, 270, 285, 361, 398, 404, 412, 450
MP.8. Look for and express regularity in repeated reasoning.	Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. **SE/TE:** 31, 45, 51, 63, 131, 250, 291, 330, 399, 405, 413, 457

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The Number System	
Cluster: Know that there are numbers that are not rational and approximate them by rational numbers.	
KY.8.NS.1 Understand informally that every number has a decimal expansion; the rational numbers are those with decimal expansions that terminate in 0s or eventually repeat. Know that other numbers are called irrational.	**SE:** 9-14, 15-20, 75-80 **TE:** 9A-14B, 15A-20B, 75-80
KY.8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram and estimate the value of expressions.	**SE:** 21-26, 75-80 **TE:** 21A-26B, 75-80
Expressions and Equations	
Cluster: Work with radicals and integer exponents.	
KY.8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.	**SE:** 41-46, 47-52, 75-80 **TE:** 41A-46B, 47A-52B, 75-80
KY.8.EE.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that perfect squares and perfect cubes are rational.	**SE:** 27-32, 33-38, 75-80 **TE:** 27A-32B, 33A-38B, 75-80
KY.8.EE.3 Use numbers expressed in the form of a single digit times an integer power of 10 (Scientific Notation) to estimate very large or very small quantities and express how many times larger or smaller one is than the other.	**SE:** 53-58, 75-80 **TE:** 53A-58B, 75-80
KY.8.EE.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.	**SE:** 59-64, 69-74, 75-80 **TE:** 59A-64B, 69A-74B, 75-80

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Cluster: Understand the connections between proportional relationships, lines and linear equations.	
KY.8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	**SE:** 121-126, 151-156 **TE:** 121A-126B, 151-156
KY.8.EE.6 Use similar triangles to explain why the slope, m, is the same between any two distinct points on a non-vertical line in the coordinate plane; know the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	**SE:** 127-132, 133-138, 139-144, 145-150, 151-156 **TE:** 127A-132B, 133A-138B, 139A-144B, 145A-150B, 151-156
Cluster: Analyze and solve linear equations and pairs of simultaneous linear equations.	
KY.8.EE.7 Solve linear equations in one variable.	**SE:** 89-94, 95-100, 101-106, 107-114, 151-156 **TE:** 89A-94B, 95A-100B, 101A-106B, 107A-114B, 151-156
a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	**SE:** 107-114, 151-156 **TE:** 107A-114B, 151-156
b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and combining like terms.	**SE:** 89-94, 95-100, 101-106, 151-156 **TE:** 89A-94B, 95A-100B, 101A-106B, 151-156
KY.8.EE.8 Analyze and solve a system of two linear equations.	**SE:** 267-272, 273-278, 281-286, 287-292, 297-300 **TE:** 267A-272B, 273A-273B, 281A-286B, 287A-292B, 297-300
a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously; understand that a system of two linear equations may have one solution, no solution, or infinitely many solutions.	**SE:** 273-278, 297-300 **TE:** 273A-273B, 297-300

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b. Solve systems of two linear equations in two variables algebraically by using substitution where at least one equation contains at least one variable whose coefficient is 1 and by inspection for simple cases.	**SE:** 267-272, 281-286, 287-292, 297-300 **TE:** 267A-272B, 281A-286B, 287A-292B, 297-300
c. Solve real-world and mathematical problems leading to two linear equations in two variables.	**SE:** 267-272, 273-278, 281-286, 287-292, 297-300 **TE:** 267A-272B, 273A-273B, 281A-286B, 287A-292B, 297-300

Functions	
Cluster: Define, evaluate and compare functions.	
KY.8.F.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	**SE:** 165-170, 171-176, 207-210 **TE:** 165A-170B, 171A-176B, 207-210
KY.8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	**SE:** 177-182, 189-194, 207-210 **TE:** 177A-182B, 189A-194B, 207-210
KY.8.F.3 Understand properties of linear functions.	**SE:** 177-182, 207-210, 225-230, 231-236, 255-258 **TE:** 177A-182B, 207-210, 225A-230B, 231A-236B, 255-258
a. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line.	**SE:** 177-182, 207-210, 225-230, 231-236, 255-258 **TE:** 177A-182B, 207-210, 225A-230B, 231A-236B, 255-258
b. Identify and give examples of functions that are not linear.	**SE:** 177-182, 207-210, 225-230, 231-236, 255-258 **TE:** 177A-182B, 207-210, 225A-230B, 231A-236B, 255-258

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Cluster: Use functions to model relationships between quantities.	
KY.8.F.4 Construct a function to model a linear relationship between two quantities.	**SE:** 189-194, 207-210, 225-230, 231-236, 255-258 **TE:** 189A-194B, 207-210, 225A-230B, 231A-236B, 255-258
a. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph.	**SE:** 178-182, 189-194, 207-211 **TE:** 182A-182B, 194A-194B, 207-211
b. Interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values.	**SE:** 178-182, 189-194, 207-211 **TE:** 182A-182B, 194A-194B, 207-211
KY.8.F.5 Use graphs to represent functions.	**SE:** 195-200, 201-206, 207-210 **TE:** 195A-200B, 201A-206B, 207-210
a. Describe qualitatively the functional relationship between two quantities by analyzing a graph.	**SE:** 195-200, 201-206, 207-210 **TE:** 195A-200B, 201A-206B, 207-210
b. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	**SE:** 195-200, 201-206, 207-210 **TE:** 195A-200B, 201A-206B, 207-210
Geometry	
Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software.	
KY.8.G.1 Verify experimentally the properties of rotations, reflections and translations: ● Lines are congruent to lines. ● Line segments are congruent to line segments of the same length. ● Angles are congruent to angles of the same measure. ● Parallel lines are congruent to parallel lines.	**SE:** 309-314, 315-320, 321-326, 327-332, 377-382 **TE:** 309A-314B, 315A-320B, 321A-326B, 327A-332B, 377-382

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KY.8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections and translations. Given two congruent figures, describe a sequence that exhibits the congruence between them.	**SE:** 337-342, 377-382 **TE:** 337A-342B, 377-382
KY.8.G.3 Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.	**SE:** 309-314, 315-320, 321-326, 327-332, 337-342, 345-350, 351-356, 377-382 **TE:** 309A-314B, 315A-320B, 321A-326B, 327A-332B, 337A-342B, 345A-350B, 351A-356B, 377-382
KY.8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations and dilations. Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	**SE:** 345-350, 351-356, 377-382 **TE:** 345A-350B, 351A-356B, 377-382
KY.8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal and the angle-angle criterion for similarity of triangles.	**SE:** 357-364, 365-370, 371-376, 377-382 **TE:** 357A-364B, 365A-370B, 371A-376B, 377-382
Cluster: Understand and apply the Pythagorean Theorem.	
KY.8.G.6 Explain a proof of the Pythagorean Theorem and its converse.	**SE:** 395-400, 401-406, 421-424 **TE:** 395A-400B, 401A-406B, 421-424
KY.8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	**SE:** 395-400, 401-406, 409-414, 421-424 **TE:** 395A-400B, 401A-406B, 409A-414B, 421-424
KY.8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	**SE:** 415-420, 421-424 **TE:** 415A-420B, 421-424

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Cluster: Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.	
KY.8.G.9 Apply the formulas for the volumes and surface areas of cones, cylinders and spheres and use them to solve real-world and mathematical problems.	**SE:** 433-438, 439-444, 447-452, 453-458, 463-466 **TE:** 433A-438B, 439A-444B, 447A-452B, 453A-458B, 463-466
Statistics and Probability	
Cluster: Investigate patterns of association in bivariate data.	
KY.8.SP.1 Construct and interpret scatter plots for bivariate numerical data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association and nonlinear association.	**SE:** 219-224, 255-258 **TE:** 219A-224B, 255-258
KY.8.SP.2 Know that lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a line and informally assess the model fit by judging the closeness of the data points to the line.	**SE:** 225-230, 255-258 **TE:** 225A-230B, 255-258
KY.8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate numerical data, interpreting the slope and intercept.	**SE:** 231-236, 255-258 **TE:** 231A-236B, 255-258

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