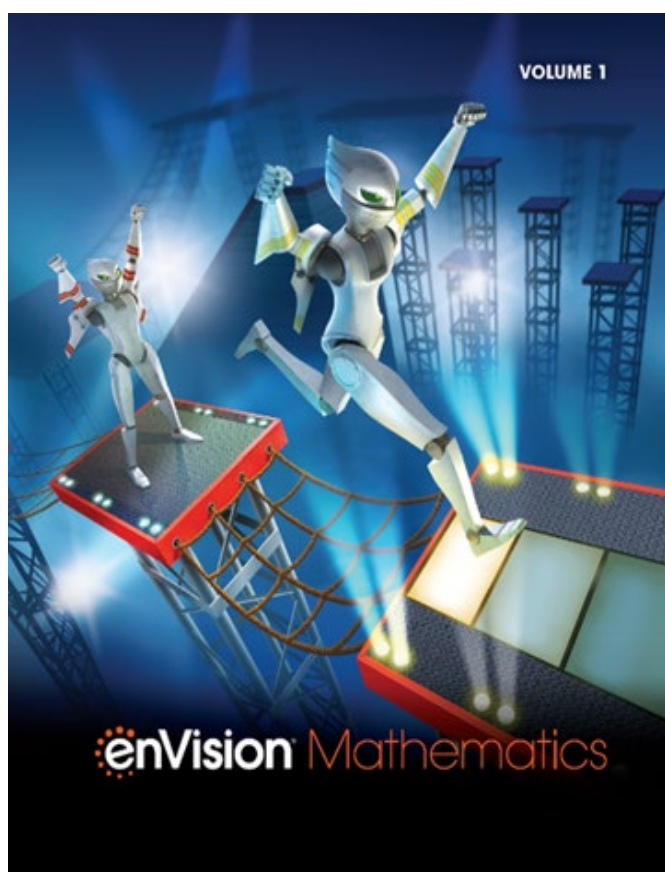


A Correlation of

enVision Mathematics

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to the
**Louisiana Student Standards
for Mathematics 2016
Grade 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 SavvasRealize.com.

Kids See the Math. Teachers See Results.

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The Number System 8.NS	
A. Know that there are numbers that are not rational, and approximate them by rational numbers	
1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually. Convert a decimal expansion that repeats eventually into a rational number by analyzing repeating patterns.	1-1 Rational Numbers as Decimals: 9-14 1-2 Understand Irrational Numbers: 15-20 Topic 1 Review: 76
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 (e.g., π^2). For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations to the hundredths place.	1-3 Compare and Order Real Numbers: 21-26 Topic 1 Review: 77
Expressions and Equations 8.EE	
A. Work with radicals and integer exponents	
1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.	1-6 Use Properties of Integer Exponents: 41-46 1-7 More Properties of Exponents: 47-52 Topic 1 Review: 78-79
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 $\sqrt{2}$ is irrational.	1-4 Evaluate Square Roots and Cube Roots: 27-32 1-5 Solve Equations Using Square Roots and Cube Roots: 33-38 Topic 1 Review: 77-78
3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9 , and determine that the world population is more than 20 times larger.	1-8 Use Powers of 10 to Estimate Quantities: 53-58 Topic 1 Review: 79

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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 (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	1-9 Understand Scientific Notation: 59-64 1-10 Operations with Numbers in Scientific Notation: 69-74 Topic 1 Review: 80
B. Understand the connections between proportional relationships, lines, and linear equations	
5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	2-5 Compare Proportional Relationships: 121-126 2-6 Connect Proportional Relationships and Slope: 127-132 Topic 2 Review: 154-155
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; derive 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 .	2-6 Connect Proportional Relationships and Slope: 127-132 2-7 Analyze Linear Equations: $y = mx$: 133-138 2-8 Understand the y -Intercept of a Line: 139-144 2-9 Analyze Linear Equations: $y = mx + b$: 145-150 Topic 2 Review: 155-156
C. Analyze and solve linear equations and pairs of simultaneous linear equations	
7. Solve linear equations in one variable.	2-1 Combine Like Terms to Solve Equations: 89-94 2-2 Solve Equations with Variables on Both Sides: 95-100 2-3 Solve Multi-Step Equations: 101-106 2-4 Equations with No Solutions and Infinitely Many Solutions: 107-114 Topic 2 Review: 152-153
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).	2-4 Equations with No Solutions and Infinitely Many Solutions: 107-114 Topic 2 Review: 153
b. Solve linear equations with rational number coefficients, including those whose solutions require expanding expressions using the distributive property and collecting like terms.	2-1 Combine Like Terms to Solve Equations: 89-94 2-2 Solve Equations with Variables on Both Sides: 95-100 2-3 Solve Multi-Step Equations: 101-106 Topic 2 Review: 152-153

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8. Analyze and solve pairs of simultaneous linear equations.	5-1 Estimate Solutions by Inspection: 267-272 5-2 Solve Systems by Graphing: 273-278 5-3 Solve Systems by Substitution: 281-286 5-4 Solve Systems by Elimination: 287-292 Topic 5 Review: 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.	5-2 Solve Systems by Graphing: 273-278 Topic 5 Review: 299
b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.	5-1 Estimate Solutions by Inspection: 267-272 5-2 Solve Systems by Graphing: 273-278 5-3 Solve Systems by Substitution: 281-286 5-4 Solve Systems by Elimination: 287-292 Topic 5 Review: 297-300
c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	5-1 Estimate Solutions by Inspection: 267-272 5-2 Solve Systems by Graphing: 273-278 5-3 Solve Systems by Substitution: 281-286 5-4 Solve Systems by Elimination: 287-292 Topic 5 Review: 297-300
Functions 8.F	
A. Define, evaluate, and compare functions	
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. (Function notation is not required in this grade level.)	3-1 Understand Relations and Functions: 165-170 3-2 Connect Representations of Functions: 171-176 Topic 3 Review: 208
2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	3-3 Compare Linear and Nonlinear Functions: 177-182 Topic 3 Review: 209

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<p>3. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; categorize functions as linear or nonlinear when given equations, graphs, or tables. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.</p>	<p>3-3 Compare Linear and Nonlinear Functions: 177-182 3-4 Construct Functions to Model Linear Relationships: 189-194 Topic 3 Review: 208-209 4-2 Analyze Linear Associations: 225-230 4-3 Use Linear Models to Make Predictions: 231-236 Topic 4 Review: 257</p>
<p>B. Use functions to model relationships between quantities</p>	
<p>4. Construct a function to model a linear relationship between two quantities. 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. 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.</p>	<p>3-4 Construct Functions to Model Linear Relationships: 189-194 Topic 3 Review: 209 4-2 Analyze Linear Associations: 225-230 4-3 Use Linear Models to Make Predictions: 231-236 Topic 4 Review: 257</p>
<p>5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.</p>	<p>3-5 Intervals of Increase and Decrease: 195-200 3-6 Sketch Functions from Verbal Descriptions: 201-206 Topic 3 Review: 210</p>
<p>Geometry 8.G</p>	
<p>A. Understand congruence and similarity using physical models, transparencies, or geometry software</p>	
<p>8.G.1: Verify experimentally the properties of rotations, reflections, and translations</p>	<p>6-1 Analyze Translations: 309-314 6-2 Analyze Reflections: 315-320 6-3 Analyze Rotations: 321-326 6-4 Compose Transformations: 327-332 Topic 6 Review: 378-379</p>
<p>a. Lines are taken to lines, and line segments to line segments of the same length.</p>	<p>6-1 Analyze Translations: 309-314 6-2 Analyze Reflections: 315-320 6-3 Analyze Rotations: 321-326 6-4 Compose Transformations: 327-332 Topic 6 Review: 378-379</p>
<p>b. Angles are taken to angles of the same measure.</p>	<p>6-1 Analyze Translations: 309-314 6-2 Analyze Reflections: 315-320 6-3 Analyze Rotations: 321-326 6-4 Compose Transformations: 327-332 Topic 6 Review: 378-379</p>

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c. Parallel lines are taken to parallel lines.	6-1 Analyze Translations: 309-314 6-2 Analyze Reflections: 315-320 6-3 Analyze Rotations: 321-326 6-4 Compose Transformations: 327-332 Topic 6 Review: 378-379
2. Explain 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. (Rotations are only about the origin and reflections are only over the y -axis and x -axis in Grade 8.)	6-5 Understand Congruent Figures: 337-342 Topic 6 Review: 380
3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the y -axis and x -axis in Grade 8.)	6-1 Analyze Translations: 309-314 6-2 Analyze Reflections: 315-320 6-3 Analyze Rotations: 321-326 6-4 Compose Transformations: 327-332 6-5 Understand Congruent Figures: 337-342 6-6 Describe Dilations: 345-350 6-7 Understand Similar Figures: 351-356 Topic 6 Review: 377-381
4. Explain 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.	6-6 Describe Dilations: 345-350 6-7 Understand Similar Figures: 351-356 Topic 6 Review: 380-381
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. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.	6-8 Angles, Lines, and Transversals: 357-364 6-9 Interior and Exterior Angles of Triangles: 365-370 6-10 Angle-Angle Triangle Similarity: 371-376 Topic 6 Review: 381-382

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B. Understand and apply the Pythagorean Theorem	
6. Explain a proof of the Pythagorean Theorem and its converse using the area of squares.	7-1 Understand the Pythagorean Theorem: 395-400 7-2 Understand the Converse of the Pythagorean Theorem: 401-406 Topic 7 Review: 422
7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	7-1 Understand the Pythagorean Theorem: 395-400 7-2 Understand the Converse of the Pythagorean Theorem: 401-406 7-3 Apply the Pythagorean Theorem to Solve Problems: 409-414 Topic 7 Review: 422-423
8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	7-4 Find Distance in the Coordinate Plane: 415-420 Topic 7 Review: 424
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	
9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	8-2 Find Volume of Cylinders: 439-444 8-3 Find Volume of Cones: 447-452 8-4 Find Volume of Spheres: 453-458 Topic 8 Review: 465-466
Statistics and Probability 8.SP	
Investigate patterns of association in bivariate data	
1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	4-1 Construct and Interpret Scatter Plots: 219-224 4-2 Analyze Linear Associations: 225-230 Topic 4 Review: 255-257
2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	4-2 Analyze Linear Associations: 225-230 4-3 Use Linear Models to Make Predictions: 231-236 Topic 4 Review: 257
3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.	4-2 Analyze Linear Associations: 225-230 4-3 Use Linear Models to Make Predictions: 231-236 Topic 4 Review: 257

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<p>4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?</p>	<p>4-4 Interpret Two-Way Frequency Tables: 239-244 4-5 Interpret Two-Way Relative Frequency Tables: 245-250 Topic 4 Review: 258</p>
<p>Standards for Mathematical Practice</p>	
<p>1. Make sense of problems and persevere in solving them.</p>	<p>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. In the textbook, 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 problem 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. The following references are a representative sample.</p> <p>1-3 Compare and Order Real Numbers: 21 Topic 1 3-Act Mathematical Modeling: Hard-Working Organs: 67 2-1 Combine Like Terms to Solve Equations: 92-93 Topic 2 3-Act Mathematical Modeling: Powering Down: 119 2-5 Compare Proportional Relationships: 126 Topic 3 3-Act Mathematical Modeling: Every Drop Counts: 187 3-4 Construct Functions to Model Linear Relationships: 192 Topic 6 3-Act Mathematical Modeling: Tricks of the Trade: 336 Topic 7 3-Act Mathematical Modeling: Go with the Flow: 393 Topic 8 3-Act Mathematical Modeling: Measure Up: 462</p>

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2. Reason abstractly and quantitatively.	<p>enVision Mathematics provides scaffolded instruction to help students develop both quantitative and also abstract reasoning. In Visual Learning examples, 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 meaning or effect of an operation, for example, rather than merely the solution. The following references are a representative sample.</p> <p>1-1 Rational Numbers as Decimals: 9-10 1-2 Understand Irrational Numbers: 16 1-3 Compare and Order Real Numbers: 24 1-4 Evaluate Square Roots and Cube Roots: 27-28 1-7 More Properties of Exponents: 50 2-1 Combine Like Terms to Solve Equations: 89 2-4 Equations with No Solutions and Infinitely Many Solutions: 112-113 2-6 Connect Proportional Relationships and Slope: 127 2-9 Analyze Linear Equations: $y = mx + b$: 145 Topic 5 3-Act Mathematical Modeling: Ups and Downs: 296 Topic 7 3-Act Mathematical Modeling: Go with the Flow: 394</p>

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<p>3. Construct viable arguments and critique the reasoning of others.</p>	<p>Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, 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 their strategies and 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 processes and those of others. The following references are a representative sample.</p> <p>1-2 Understand Irrational Numbers: 18-19 1-4 Evaluate Square Roots and Cube Roots: 30 1-5 Solve Equations Using Square Roots and Cube Roots: 38 1-6 Use Properties of Integer Exponents: 44 1-8 Use Powers of 10 to Estimate Quantities: 56 1-9 Understand Scientific Notation: 62 Topic 1 3-Act Mathematical Modeling: Hard-Working Organs: 65 1-10 Operations with Numbers in Scientific Notation: 73 3-2 Connect Representations of Functions: 175 Topic 7 3-Act Mathematical Modeling: Go with the Flow: 394</p>

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4. Model with mathematics.	<p>Students using enVision Mathematics explicitly use mathematical modeling in each Topic during the 3-Act Math lesson. The Visual Learning examples in each lesson similarly present real-world situations and demonstrate how these problems can be modeled mathematically. Additional evidence of modeling with math appears in the Practice and Problem Solving section of each lesson. The following references are a representative sample.</p> <p>Topic 2 3-Act Mathematical Modeling: Powering Down: 117-120 2-5 Compare Proportional Relationships: 125 Topic 3 STEM Project: 160 3-1 Understand Relations and Functions: 168 3-3 Compare Linear and Nonlinear Functions: 178 3-6 Sketch Functions from Verbal Descriptions: 206 Topic 4 3-Act Mathematical Modeling: Reach Out: 251-254 Topic 5 3-Act Mathematical Modeling: Ups and Downs: 293-296 Topic 6 3-Act Mathematical Modeling: Tricks of the Trade: 333-336 Topic 7 3-Act Mathematical Modeling: Go with the Flow: 391-394</p>

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5. Use appropriate tools strategically.	<p>Students become fluent in the use of a wide assortment of math tools ranging from physical objects, including manipulatives, integer chips, algebra tiles, and even pencil and paper; measuring tools, such as rulers and protractors; visual tools, including number lines and area models; and 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.</p> <p>1-9 Understand Scientific Notation: 61 Topic 1 3-Act Mathematical Modeling: Hard-working Organs: 66 Topic 2 3-Act Mathematical Modeling: Powering Down: 118 3-2 Connect Representations of Functions: 174 Topic 3 3-Act Mathematical Modeling: Every Drop Counts: 186 Topic 4 3-Act Mathematical Modeling: Reach Out: 252 Topic 5 3-Act Mathematical Modeling: Ups and Downs: 294 6-1 Analyze Translations: 309 Topic 6 3-Act Mathematical Modeling: Tricks of the Trade: 334 Topic 7 3-Act Mathematical Modeling: Go with the Flow: 392</p>

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6. Attend to precision.	<p>Students are expected to use mathematical terms and symbols with precision. Key terms are highlighted in each lesson, and important concepts are 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. Exercises in the Practice and Problem Solving sets require students to Be Precise as they appropriately use technical math vocabulary to describe a process or strategy.</p> <p>1-1 Rational Numbers as Decimals: 12 1-5 Solve Equations Using Square Roots and Cube Roots: 36 1-7 More Properties of Exponents: 52 1-8 Use Powers of 10 to Estimate Quantities: 56 1-10 Operations with Numbers in Scientific Notation: 69 Topic 2 Prepare for Reading Success: 86 Topic 2 3-Act Mathematical Modeling: Powering Down: 120 2-6 Connect Proportional Relationships and Slope: 129 Topic 3 3-Act Mathematical Modeling: Every Drop Counts: 188 Topic 6 3-Act Mathematical Modeling: Tricks of the Trade: 336</p>

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7. Look for and make use of structure.	<p>Students are encouraged to look for structure as they develop and implement solution strategies. This focus on recognizing and applying structure enables students to formalize their understanding of relationships among numbers, operations, and patterns. They continually build on this understanding and extend and apply it to algebraic and geometric constructs.</p> <p>1-1 Rational Numbers as Decimals: 11-12 1-3 Compare and Order Real Numbers: 23 1-5 Solve Equations Using Square Roots and Cube Roots: 33-34 1-6 Use Properties of Integer Exponents: 41-42 1-7 More Properties of Exponents: 47 1-8 Use Powers of 10 to Estimate Quantities: 54 1-9 Understand Scientific Notation: 59 Topic 1 3-Act Mathematical Modeling: Hard-Working Organs: 68 1-10 Operations with Numbers in Scientific Notation: 72 2-1 Combine Like Terms to Solve Equations: 90</p>
8. Look for and express regularity in repeated reasoning.	<p>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 strategy developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations.</p> <p>1-4 Evaluate Square Roots and Cube Roots: 30 Topic 1 3-Act Mathematical Modeling: Hard-Working Organs: 68 2-4 Equations with No Solutions and Infinitely Many Solutions: 112 2-5 Compare Proportional Relationships: 124 2-8 Understand the y-Intercept of a Line: 142 3-1 Understand Relations and Functions: 168 3-2 Connect Representations of Functions: 172 3-4 Construct Functions to Model Linear Relationships: 189 Topic 5 3-Act Mathematical Modeling: Ups and Downs: 296 Topic 8 3-Act Mathematical Modeling: Measure Up: 462</p>