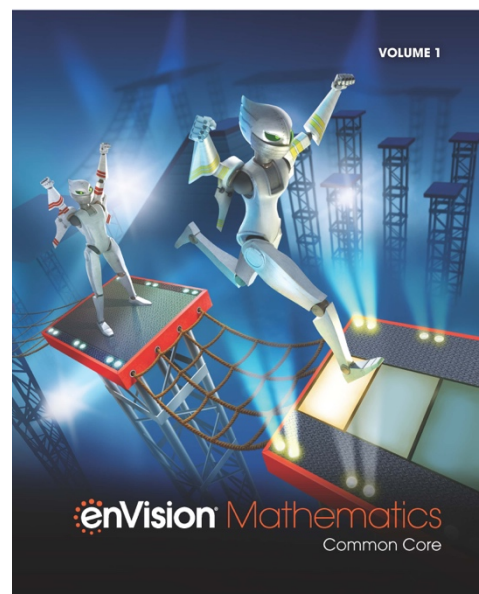
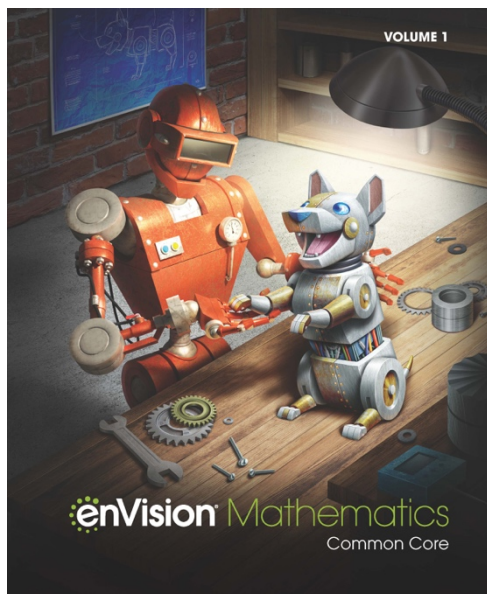
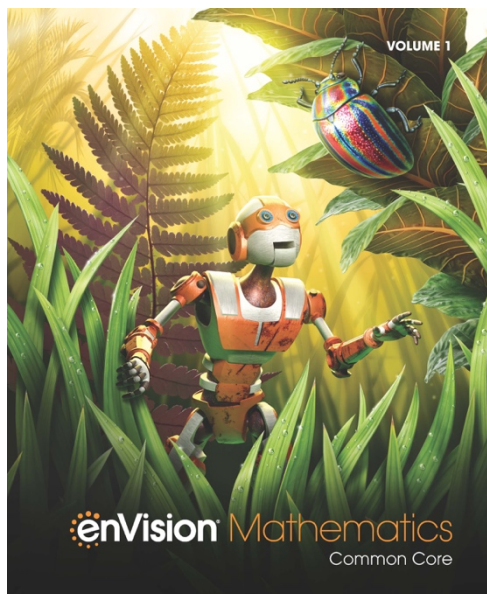


A Correlation of

enVision Mathematics

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to the
**Louisiana Student Standards
for Mathematics 2016**

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 SavvasRealize.com.

Kids See the Math. Teachers See Results.

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Louisiana Student Standards for Mathematics	enVision Mathematics, ©2021 Grade 6 Lessons
Ratios and Proportional Relationships 6.RP	
Understand ratio concepts and use ratio reasoning to solve problems	
1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”	5-1 Understand Ratios: 267-272 Topic 5 Review: 333-338
2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”	5-5 Understand Rates and Unit Rates: 293-298 Topic 5 Review: 333-338
3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	5-1 Understand Ratios: 267-272 5-2 Generate Equivalent Ratios: 273-278 5-3 Compare Ratios: 279-284 5-4 Represent and Graph Ratios: 285-290 5-5 Understand Rates and Unit Rates: 293-298 5-6 Compare Unit Rates: 299-304 5-7 Solve Unit Rate Problems: 305-310 5-8 Ratio Reasoning: Convert Customary Units: 315-320 5-9 Ratio Reasoning: Convert Metric Units: 321-326 5-10 Relate Customary and Metric Units: 327-332 Topic 5 Review: 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.	5-1 Understand Ratios: 267-272 5-2 Generate Equivalent Ratios: 273-278 5-3 Compare Ratios: 279-284 5-4 Represent and Graph Ratios: 285-290 5-5 Understand Rates and Unit Rates: 293-298 5-6 Compare Unit Rates: 299-304 Topic 5 Review: 333-338
b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?	5-5 Understand Rates and Unit Rates: 293-298 5-6 Compare Unit Rates: 299-304 5-7 Solve Unit Rate Problems: 305-310 Topic 5 Review: 333-338

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c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	6-1 Understand Percent: 347-352 6-2 Relate Fractions, Decimals, and Percents: 353-358 6-3 Represent Percents Greater Than 100 and Less Than 1: 359-364 6-4 Estimate to Find Percent: 367-372 6-5 Find the Percent of a Number: 373-378 6-6 Find the Whole Given a Part and the Percent: 379-384 Topic 6 Review: 389-392
d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	5-8 Ratio Reasoning: Convert Customary Units: 315-320 5-9 Ratio Reasoning: Convert Metric Units: 321-326 5-10 Relate Customary and Metric Units: 327-332 Topic 5 Review: 333-338
The Number System 6.NS	
A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions	
1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$ -cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?	1-4 Understand Division with Fractions: 33-38 1-5 Divide Fractions by Fractions: 39-44 1-6 Divide Mixed Numbers: 45-50 1-7 Solve Problems with Rational Numbers: 51-56 Topic 1 Review: 57-60
B. Compute fluently with multi-digit numbers and find common factors and multiples	
2. Fluently divide multi-digit numbers using the standard algorithm.	1-2 Fluently Divide Whole Numbers and Decimals: 15-20 Topic 1 Review: 57-60
3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	1-1 Fluently Add, Subtract, and Multiply Decimals: 9-14 1-2 Fluently Divide Whole Numbers and Decimals: 15-20 Topic 1 Review: 57-60

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4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. 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. For example, express $36 + 8$ as $4(9 + 2)$.	3-2 Find Greatest Common Factor and Least Common Multiple: 129-136 Topic 3 Review: 173-176
C. Apply and extend previous understandings of numbers to the system of rational numbers	
5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	2-1 Understand Integers: 69-74 2-2 Represent Rational Numbers on the Number Line: 75-80 Topic 2 Review: 111-114
6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	2-2 Represent Rational Numbers on the Number Line: 75-80 2-4 Represent Rational Numbers on the Coordinate Plane: 89-94 Topic 2 Review: 111-114 7-4 Find Areas of Polygons: 422-424 Topic 7 Review: 457
a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.	2-1 Understand Integers: 69-74 2-2 Represent Rational Numbers on the Number Line: 75-80 Topic 2 Review: 111-114
b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	2-4 Represent Rational Numbers on the Coordinate Plane: 89-94 Topic 2 Review: 111-114
c. 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.	2-1 Understand Integers: 69-74 2-2 Represent Rational Numbers on the Number Line: 75-80 2-4 Represent Rational Numbers on the Coordinate Plane: 89-94 Topic 2 Review: 111-114 7-4 Find Areas of Polygons: 421-424 Topic 7 Review: 457

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7. Understand ordering and absolute value of rational numbers.	2-2 Represent Rational Numbers on the Number Line: 75-80 2-3 Absolute Values of Rational Numbers: 81-86 Topic 2 Review: 111-114
a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.	2-2 Represent Rational Numbers on the Number Line: 75-80 Topic 2 Review: 111-114
b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C .	2-2 Represent Rational Numbers on the Number Line: 75-80 Topic 2 Review: 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. For example, for an account balance of -30 dollars, write $ -30 = 30$ to describe the size of the debt in dollars.	2-3 Absolute Values of Rational Numbers: 81-86 Topic 2 Review: 111-114
d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.	2-2 Represent Rational Numbers on the Number Line: 75-80 2-3 Absolute Values of Rational Numbers: 81-86 Topic 2 Review: 111-114
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.	2-4 Represent Rational Numbers on the Coordinate Plane: 89-94 2-5 Find Distances on the Coordinate Plane: 99-104 2-6 Represent Polygons on the Coordinate Plane: 105-110 Topic 2 Review: 111-114 7-4 Find Areas of Polygons: 421-424 Topic 7 Review: 457

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Expressions and Equations 6.EE	
A. Apply and extend previous understandings of arithmetic to algebraic expression	
1. Write and evaluate numerical expressions involving whole-number exponents.	3-1 Understand and Represent Exponents: 123-128 3-3 Write and Evaluate Numerical Expressions: 137-142 Topic 3 Review: 173-176
2. Write, read, and evaluate expressions in which letters stand for numbers.	3-4 Write Algebraic Expressions: 145-150 3-5 Evaluate Algebraic Expressions: 151-156 Topic 3 Review: 173-176 7-1 Find Areas of Parallelograms and Rhombuses: 402-406 7-2 Solve Triangle Area Problems: 407-412 7-3 Find Areas of Trapezoids and Kites: 413-418 7-4 Find Areas of Polygons: 420-421 7-6 Find Surface Areas of Prisms: 438-442 7-7 Find Surface Areas of Pyramids: 443-448 7-8 Find Volume of Prisms with Fractional Edge Lengths: 451-454 Topic 7 Review: 455-460
a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as $5 - y$.	3-4 Write Algebraic Expressions: 145-150 Topic 3 Review: 173-176 7-6 Find Surface Areas of Prisms: 437-442 7-7 Find Surface Areas of Pyramids: 443-448 7-8 Find Volume of Prisms with Fractional Edge Lengths: 449-454 Topic 7 Review: 455-460
b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.	3-4 Write Algebraic Expressions: 145-150 3-6 Generate Equivalent Expressions: 161-166 3-7 Simplify Algebraic Expressions: 167-172

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<p>c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.</p>	<p>3-4 Write Algebraic Expressions: 145-150 3-5 Evaluate Algebraic Expressions: 151-156 Topic 3 Review: 173-176 7-1 Find Areas of Parallelograms and Rhombuses: 402-406 7-2 Solve Triangle Area Problems: 407-412 7-3 Find Areas of Trapezoids and Kites: 413-418 7-4 Find Areas of Polygons: 420-421 7-6 Find Surface Areas of Prisms: 438-442 7-7 Find Surface Areas of Pyramids: 443-448 7-8 Find Volume of Prisms with Fractional Edge Lengths: 451-454 Topic 7 Review: 455-460</p>
<p>3. Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.</p>	<p>3-3 Write and Evaluate Numerical Expressions: 137-142 3-6 Generate Equivalent Expressions: 161-166 3-7 Simplify Algebraic Expressions: 167-172 Topic 3 Review: 173-176</p>
<p>4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.</p>	<p>3-3 Write and Evaluate Numerical Expressions: 137-142 3-6 Generate Equivalent Expressions: 161-166 3-7 Simplify Algebraic Expressions: 167-172 Topic 3 Review: 173-176</p>
<p>B. Reason about and solve one-variable equations and inequalities</p>	
<p>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.</p>	<p>4-1 Understand Equations and Solutions: 185-190 4-6 Understand and Write Inequalities: 219-224 4-7 Solve Inequalities: 225-230 Topic 4 Review: 253-258</p>

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<p>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.</p>	<p>3-4 Write Algebraic Expressions: 145-150 3-5 Evaluate Algebraic Expressions: 151-156 Topic 3 Review: 173-176 4-3 Write and Solve Addition and Subtraction Equations: 197-202 4-4 Write and Solve Multiplication and Division Equations: 203-208 4-5 Write and Solve Equations with Rational Numbers: 209-216 Topic 4 Review: 253-258 7-6 Find Surface Areas of Prisms: 437-442 7-7 Find Surface Areas of Pyramids: 443-448 7-8 Find Volume of Prisms with Fractional Edge Lengths: 449-454 Topic 7 Review: 455-460</p>
<p>7. Solve real-world and mathematical problems by writing and solving equations and inequalities of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. Inequalities will include $<$, $>$, \leq, and \geq.</p>	<p>4-2 Apply Properties of Equality: 191-196 4-3 Write and Solve Addition and Subtraction Equations: 197-202 4-4 Write and Solve Multiplication and Division Equations: 203-208 4-5 Write and Solve Equations with Rational Numbers: 209-216 Topic 4 Review: 253-258</p>
<p>8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p>	<p>4-6 Understand and Write Inequalities: 219-224 4-7 Solve Inequalities: 225-230 Topic 4 Review: 253-258</p>
C. Represent and analyze quantitative relationships between dependent and independent variables	
<p>9. Use variables to represent two quantities in a real-world problem that change in relationship to one another. 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. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.</p>	<p>4-8 Understand Independent and Dependent Variables: 235-240 4-9 Use Patterns to Write and Solve Equations: 241-246 4-10 Relate Tables, Graphs, and Equations: 247-252 Topic 4 Review: 253-258</p>

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Geometry 6.G	
A. Solve real-world and mathematical problems involving area, surface area, and volume	
1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	7-1 Find Areas of Parallelograms and Rhombuses: 401-406 7-2 Solve Triangle Area Problems: 407-412 7-3 Find Areas of Trapezoids and Kites: 413-418 7-4 Find Areas of Polygons: 419-424 Topic 7 Review: 455-460
2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	7-8 Find Volume of Prisms with Fractional Edge Lengths: 449-454 Topic 7 Review: 460
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.	2-6 Represent Polygons on the Coordinate Plane: 105-110 Topic 2 Review: 114 7-4 Find Areas of Polygons: 421-424 Topic 7 Review: 457
4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	7-5 Represent Solid Figures Using Nets: 427-432 7-6 Find Surface Areas of Prisms: 437-442 7-7 Find Surface Areas of Pyramids: 443-448 Topic 7 Review: 459-460
Statistics and Probability 6.SP	
A. Develop understanding of statistical variability	
1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.	8-1 Recognize Statistical Questions: 469-474 Topic 8 Review: 519-522
2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	8-7 Summarize Data Distributions: 509-514 Topic 8 Review: 519-522

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3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	8-2 Summarize Data Using Mean, Median, Mode, and Range: 475-482 8-5 Summarize Data Using Measures of Variability: 497-502 Topic 8 Review: 519-522
B. Summarize and describe distributions	
4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	8-1 Recognize Statistical Questions: 470-471, 473-474 8-3 Display Data in Box Plots: 483-488 8-4 Display Data in Frequency Tables and Histograms: 489-494 8-5 Summarize Data Using Measures of Variability: 497-502 8-6 Choose Appropriate Statistical Measures: 504, 506-507 8-7 Summarize Data Distributions: 509-514 Topic 8 Review: 519-522
5. Summarize numerical data sets in relation to their context, such as by:	
a. Reporting the number of observations.	8-4 Display Data in Frequency Tables and Histograms: 489-494 Topic 8 Review: 519-522
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	Topic 8 STEM Project: 464 8-6 Choose Appropriate Statistical Measures: 503-508 8-7 Summarize Data Distributions: 509-514 Topic 8 Review: 519-522
c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	8-2 Summarize Data Using Mean, Median, Mode, and Range: 475-482 8-5 Summarize Data Using Measures of Variability: 497-502 8-6 Choose Appropriate Statistical Measures: 503-508 8-7 Summarize Data Distributions: 509-514 Topic 8 Review: 519-522
d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	8-6 Choose Appropriate Statistical Measures: 503-508 Topic 8 Review: 519-522

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Standards for Mathematical Practice	
<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>Topic 1 3-Act Mathematical Modeling, Video: 31 1-6 Divide Mixed Numbers: 50 2-2 Represent Rational Numbers on the Number Line: 80 2-4 Represent Rational Numbers on the Coordinate Plane: 89 3-2 Find Greatest Common Factor and Least Common Multiple: 135 3-3 Write and Evaluate Numerical Expressions: 141 3-6 Generate Equivalent Expressions: 165 4-5 Write and Solve Equations with Rational Numbers: 214-215 4-9 Use Patterns to Write and Solve Equations: 244 Topic 8 3-Act Mathematical Modeling: 518</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>Topic 1 3-Act Mathematical Modeling, Video: 31-32 1-5 Divide Fractions by Fractions: 42 1-6 Divide Mixed Numbers: 48 1-7 Solve Problems with Rational Numbers: 56 2-3 Absolute Values of Rational Numbers: 84-85 2-6 Represent Polygons on the Coordinate Plane: 108 3-1 Understand and Represent Exponents: 124 3-2 Find Greatest Common Factor and Least Common Multiple: 135 3-4 Write Algebraic Expressions: 148 4-1 Understand Equations and Solutions: 188</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 Fluently Divide Whole Numbers and Decimals: 20 1-7 Solve Problems with Rational Numbers: 54-55 2-1 Understand Integers: 72 3-1 Understand and Represent Exponents: 128 3-3 Write and Evaluate Numerical Expressions: 140 Topic 3 3-Act Mathematical Modeling: 160 4-8 Understand Independent and Dependent Variables: 238 5-8 Ratio Reasoning: Convert Customary Units: 319 Topic 7 3-Act Mathematical Modeling: 436 8-6 Choose Appropriate Statistical Measures: 507</p>
<p>4 Model with mathematics.</p>	<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 1 3-Act Mathematical Modeling, Video: 29-32 1-4 Understand Division with Fractions: 36 1-5 Divide Fractions by Fractions: 44 2-4 Represent Rational Numbers on the Coordinate Plane: 91 Topic 2 3-Act Mathematical Modeling: 95-98 3-1 Understand and Represent Exponents: 126 3-3 Write and Evaluate Numerical Expressions: 142 3-4 Write Algebraic Expressions: 146, 149-150 Topic 3 3-Act Mathematical Modeling: 157-160 4-2 Apply Properties of Equality: 192</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>Topic 1 3-Act Mathematical Modeling, Video: 30 Topic 2 3-Act Mathematical Modeling: 96 Topic 3 3-Act Mathematical Modeling: 158 Topic 4 3-Act Mathematical Modeling: 232 5-2 Generate Equivalent Ratios: 278 Topic 5 3-Act Mathematical Modeling: 312 6-5 Find the Percent of a Number: 376 Topic 6 3-Act Mathematical Modeling: 386 Topic 7 3-Act Mathematical Modeling: 434 Topic 8 3-Act Mathematical Modeling: 518</p>
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>1-2 Fluently Divide Whole Numbers and Decimals: 20 1-3 Multiply Fractions: 26 1-5 Divide Fractions by Fractions: 43 2-4 Represent Rational Numbers on the Coordinate Plane: 94 3-1 Understand and Represent Exponents: 126 3-4 Write Algebraic Expressions: 147-148 Topic 4 3-Act Mathematical Modeling: 234 Topic 5 Math Literacy Activity: 264 6-6 Find the Whole Given a Part and the Percent: 382 Topic 6 3-Act Mathematical Modeling: 388</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 Fluently Add, Subtract, and Multiply Decimals: 13 1-5 Divide Fractions by Fractions: 44 1-6 Divide Mixed Numbers: 50 2-2 Represent Rational Numbers on the Number Line: 77 2-3 Absolute Values of Rational Numbers: 82, 86 2-4 Represent Rational Numbers on the Coordinate Plane: 90, 93-94 2-5 Find Distances on the Coordinate Plane: 104 Topic 5 3-Act Mathematical Modeling: 314</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>1-6 Divide Mixed Numbers: 48 2-1 Understand Integers: 72-73 2-2 Represent Rational Numbers on the Number Line: 76 2-6 Represent Polygons on the Coordinate Plane: 106 3-2 Find Greatest Common Factor and Least Common Multiple: 133 3-6 Generate Equivalent Expressions: 164 4-4 Write and Solve Multiplication and Division Equations: 208 4-5 Write and Solve Equations with Rational Numbers: 213 4-7 Solve Inequalities: 228 5-5 Understand Rates and Unit Rates: 294-295</p>

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Ratios and Proportional Relationships 7.RP	
A. Analyze proportional relationships and use them to solve real-world and mathematical problems	
1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.	2-1 Connect Ratios, Rates, and Unit Rates: 89-94 2-2 Identify Unit Rates from Ratios of Fractions: 95-100 Topic 2 Review: 131-134
2. Recognize and represent proportional relationships between quantities.	2-3 Understand Proportional Relationships: Equivalent Ratios: 101-106 2-4 Describe Proportional Relationships: Constant of Proportionality: 107-112 2-5 Graph Proportional Relationships: 119-124 2-6 Apply Proportional Reasoning to Solve Problems: 125-130 Topic 2 Review: 131-134 3-2 Connect Percent and Proportion: 149-154 3-3 Represent and Use the Percent Equation: 155-160
a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	2-3 Understand Proportional Relationships: Equivalent Ratios: 101-106 2-5 Graph Proportional Relationships: 119-124 Topic 2 Review: 131-134
b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	2-4 Describe Proportional Relationships: Constant of Proportionality: 107-112 2-5 Graph Proportional Relationships: 119-124 2-6 Apply Proportional Reasoning to Solve Problems: 125-130 Topic 2 Review: 131-134
c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$.	2-4 Describe Proportional Relationships: Constant of Proportionality: 107-112 2-5 Graph Proportional Relationships: 119-124 2-6 Apply Proportional Reasoning to Solve Problems: 125-130 Topic 2 Review: 131-134 3-3 Represent and Use the Percent Equation: 155-160
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.	2-5 Graph Proportional Relationships: 119-124 Topic 2 Review: 133

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3. Use proportional relationships to solve multistep ratio and percent problems of simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	2-1 Connect Ratios, Rates, and Unit Rates: 89-94 2-2 Identify Unit Rates from Ratios of Fractions: 95-100 2-6 Apply Proportional Reasoning to Solve Problems: 125-130 Topic 2 Review: 131-134 3-2 Connect Percent and Proportion: 149-154 3-3 Represent and Use the Percent Equation: 155-160 3-4 Solve Percent Change and Percent Error Problems: 163-168 3-5 Solve Markup and Markdown Problems: 173-178 3-6 Solve Simple Interest Problems: 179-184 Topic 3 Review: 185-188
The Number System 7.NS	
A. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers	
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.	1-3 Add Integers: 21-26 1-4 Subtract Integers: 27-32 1-5 Add and Subtract Rational Numbers: 33-38 Topic 1 Review: 77-78
a. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.	1-1 Relate Integers and Their Opposites: 10-14 1-3 Add Integers: 21, 26 Topic 1 Review: 76
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.	1-3 Add Integers: 21-26 1-5 Add and Subtract Rational Numbers: 33-38 Topic 1 Review: 77-78
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.	1-4 Subtract Integers: 27-32 1-5 Add and Subtract Rational Numbers: 33-38 Topic 1 Review: 77-78
d. Apply properties of operations as strategies to add and subtract rational numbers.	1-3 Add Integers: 21-26 1-4 Subtract Integers: 27-32 1-5 Add and Subtract Rational Numbers: 33-38 Topic 1 Review: 77-78

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2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	1-6 Multiply Integers: 41-46 1-7 Multiply Rational Numbers: 47-52 1-8 Divide Integers: 53-58 1-9 Divide Rational Numbers: 59-64 Topic 1 Review: 78-80
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.	1-6 Multiply Integers: 41-46 1-7 Multiply Rational Numbers: 47-52 Topic 1 Review: 78-79
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.	1-2 Understand Rational Numbers: 15-20 1-8 Divide Integers: 53-58 1-9 Divide Rational Numbers: 59-64 Topic 1 Review: 76, 79-80
c. Apply properties of operations as strategies to multiply and divide rational numbers.	1-6 Multiply Integers: 41-46 1-7 Multiply Rational Numbers: 47-52 1-8 Divide Integers: 53-58 1-9 Divide Rational Numbers: 59-64 Topic 1 Review: 78-80
d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	16-20 Topic 1 Review: 76
3. Solve real-world and mathematical problems involving the four operations with rational numbers. ¹	1-5 Add and Subtract Rational Numbers: 33-38 1-7 Multiply Rational Numbers: 47-52 1-9 Divide Rational Numbers: 59-64 1-10 Solve Problems Involving Rational Numbers: 65-70 Topic 1 3-Act Mathematical Modeling: Win Some, Lose Some: 71-74 Topic 1 Review: 77-80

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Expressions and Equations 7.EE	
A. Use properties of operations to generate equivalent expressions	
1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	4-4 Expand Expressions: 215-220 4-5 Factor Expressions: 221-226 4-6 Add Expressions: 233-238 4-7 Subtract Expressions: 239-244 Topic 4 Review: 251-254
2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”	4-2 Generate Equivalent Expressions: 203-208 4-3 Simplify Expressions: 209-214 4-8 Analyze Equivalent Expressions: 245-250 Topic 4 Review: 251-254
B. Solve real-life and mathematical problems using numerical and algebraic expressions and equations	
3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), 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. For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.	1-3 Add Integers: 21-26 1-4 Subtract Integers: 27-32 1-5 Add and Subtract Rational Numbers: 33-38 1-6 Multiply Integers: 41-46 1-7 Multiply Rational Numbers: 47-52 1-8 Divide Integers: 53-58 1-9 Divide Rational Numbers: 59-64 Topic 1 Review: 75-80 2-6 Apply Proportional Reasoning to Solve Problems: 125-130 3-4 Solve Percent Change and Percent Error Problems: 163-168 3-5 Solve Markup and Markdown Problems: 173-178 3-6 Solve Simple Interest Problems: 179-184
4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	4-1 Write and Evaluate Algebraic Expressions: 197-202 Topic 4 Review: 251-254 5-1 Write Two-Step Equations: 263-268 5-2 Solve Two-Step Equations: 269-274 5-3 Solve Equations Using the Distributive Property: 275-280 5-4 Solve Inequalities Using Addition or Subtraction: 283-288 5-5 Solve Inequalities Using Multiplication or Division: 289-294 5-6 Solve Two-Step Inequalities: 299-304 5-7 Solve Multi-Step Inequalities: 305-310 Topic 5 Review: 311-314

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<p>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 fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</p>	<p>5-1 Write Two-Step Equations: 263-268 5-2 Solve Two-Step Equations: 269-274 5-3 Solve Equations Using the Distributive Property: 275-280 Topic 5 Review: 312</p>
<p>b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.</p>	<p>5-4 Solve Inequalities Using Addition or Subtraction: 283-288 5-5 Solve Inequalities Using Multiplication or Division: 289-294 5-6 Solve Two-Step Inequalities: 299-304 5-7 Solve Multi-Step Inequalities: 305-310 Topic 5 Review: 313-314</p>
<p>Geometry 7.G</p>	
<p>A. Draw, construct, and describe geometrical figures and describe the relationships between them</p>	
<p>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.</p>	<p>8-1 Solve Problems Involving Scale Drawings: 431-436 Topic 8 Review: 494</p>
<p>2. Draw (freehand, with ruler and protractor, or with technology) geometric shapes with given conditions. (Focus is on triangles from three measures of angles or sides, noticing when the conditions determine one and only one triangle, more than one triangle, or no triangle.</p>	<p>8-2 Draw Geometric Figures: 437-442 8-3 Draw Triangles with Given Conditions: 443-450 Topic 8 Review: 494-495</p>
<p>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.</p>	<p>8-7 Describe Cross Sections: 475-480 Topic 8 Review: 497</p>

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B. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	
4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	8-5 Solve Problems Involving Circumference of a Circle: 457-462 8-6 Solve Problems Involving Area of a Circle: 465-470 Topic 8 Review: 496
5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	8-4 Solve Problems using Angle Relationships: 451-456 Topic 8 Review: 495
6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms (Pyramids limited to surface area only.)	8-8 Solve Problems Involving Surface Area: 481-486 8-9 Solve Problems Involving Volume: 487-492 Topic 8 Review: 497-498
Statistics and Probability 7.SP	
A. Use random sampling to draw inferences about a population	
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.	6-1 Populations and Samples: 323-330 6-2 Draw Inferences from Data: 331-338 Topic 6 Review: 358-359
2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.	6-2 Draw Inferences from Data: 331-338 Topic 6 Review: 359

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B. Draw informal comparative inferences about two populations	
3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities using quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	6-3 Make Comparative Inferences About Populations: 341-346 6-4 Make More Comparative Inferences About Populations: 347-352 Topic 6 Review: 360
4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.	6-3 Make Comparative Inferences About Populations: 341-346 6-4 Make More Comparative Inferences About Populations: 347-352 Topic 6 Review: 360
C. Investigate chance processes and develop, use, and evaluate probability models	
5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. 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.	7-1 Understand Likelihood and Probability: 369-374 Topic 7 Review: 418
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. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.	7-2 Understand Theoretical Probability: 375-380 7-3 Understand Experimental Probability: 381-386 Topic 7 Review: 418-419
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.	7-4 Find Probability Models: 387-392 Topic 7 Review: 420
a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.	7-4 Find Probability Models: 387-392 Topic 7 Review: 420

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<p>b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?</p>	<p>7-4 Find Probability Models: 387-392 Topic 7 Review: 420</p>
<p>8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p>	<p>7-5 Determine Outcomes of Compound Events: 399-404 7-6 Find Probabilities of Compound Events: 405-410 7-7 Simulate Compound Events: 411-416 Topic 7 Review: 421-422</p>
<p>a. Understand that, 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>7-6 Find Probabilities of Compound Events: 405-410 Topic 7 Review: 421</p>
<p>b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.</p>	<p>7-5 Determine Outcomes of Compound Events: 399-404 Topic 7 Review: 421</p>
<p>c. Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?</p>	<p>7-7 Simulate Compound Events: 411-416 Topic 7 Review: 422</p>

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Standards for Mathematical Practice	
<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>1-1 Relate Integers and Their Opposites: 14 1-2 Understand Rational Numbers: 16 1-4 Subtract Integers: 32 1-6 Multiply Integers: 46 1-9 Divide Rational Numbers: 60 4-6 Add Expressions: 233 Topic 5 3-Act Mathematical Modeling: Digital Downloads: 298 8-5 Solve Problems Involving Circumference of a Circle: 461 8-7 Describe Cross Sections: 479 8-8 Solve Problems Involving Surface Area: 481</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>1-3 Add Integers: 22-24 1-4 Subtract Integers: 31 1-8 Divide Integers: 56 1-9 Divide Rational Numbers: 59 1-10 Solve Problems Involving Rational Numbers: 65-68 2-4 Describe Proportional Relationships: Constant of Proportionality: 107 2-6 Apply Proportional Reasoning to Solve Problems: 125, 128-129 4-8 Analyze Equivalent Expressions: 249 7-4 Find Probability Models: 390</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>1-1 Relate Integers and Their Opposites: 13 1-5 Add and Subtract Rational Numbers: 36 1-6 Multiply Integers: 45 1-9 Divide Rational Numbers: 64 Topic 1 3-Act Mathematical Modeling: Win Some, Lose Some: 74 2-1 Connect Ratios, Rates, and Unit Rates: 89 2-5 Graph Proportional Relationships: 122 3-6 Solve Simple Interest Problems: 183 5-3 Solve Equations Using the Distributive Property: 275 7-4 Find Probability Models: 390</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>1-3 Add Integers: 24 Topic 1 3-Act Mathematical Modeling: Win Some, Lose Some: 71-74 Topic 2 3-Act Mathematical Modeling: Mixing It Up: 115-118 Topic 3 3-Act Mathematical Modeling: 169-172 4-1 Write and Evaluate Algebraic Expressions: 198 4-4 Expand Expressions: 215 Topic 4 3-Act Mathematical Modeling: I've Got You Covered: 229-232 Topic 5 3-Act Mathematical Modeling: Digital Downloads: 295-298 3-Act Mathematical Modeling: Raising Money: 353-356 Topic 7 3-Act Mathematical Modeling: Photo Finish: 395-398</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>Topic 1 3-Act Mathematical Modeling: Win Some, Lose Some: 72 2-6 Apply Proportional Reasoning to Solve Problems: 128 Topic 3 3-Act Mathematical Modeling: 170 Topic 4 3-Act Mathematical Modeling: I've Got You Covered: 230 Topic 5 3-Act Mathematical Modeling: Digital Downloads: 296 3-Act Mathematical Modeling: Raising Money: 356 7-7 Simulate Compound Events: 411 8-2 Draw Geometric Figures: 438-440 8-2 Draw Geometric Figures: 443-444 Topic 8 3-Act Mathematical Modeling: Whole Lotta Dough: 472</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>1-2 Understand Rational Numbers: 18 1-7 Multiply Rational Numbers: 47 2-2 Identify Unit Rates from Ratios of Fractions: 95 3-4 Solve Percent Change and Percent Error Problems: 168 3-6 Solve Simple Interest Problems: 182 4-6 Add Expressions: 236 5-4 Solve Inequalities Using Addition or Subtraction: 283 5-5 Solve Inequalities Using Multiplication or Division: 289 5-7 Solve Multi-Step Inequalities: 308 7-4 Find Probability Models: 391</p>
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>1-4 Subtract Integers: 28 1-6 Multiply Integers: 44 1-8 Divide Integers: 53 1-9 Divide Rational Numbers: 62 2-2 Identify Unit Rates from Ratios of Fractions: 97 2-3 Understand Proportional Relationships: Equivalent Ratios: 104-105 4-4 Expand Expressions: 215 4-8 Analyze Equivalent Expressions: 250 8-1 Solve Problems Involving Scale Drawings: 432 8-3 Draw Triangles with Given Conditions: 444</p>

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<p>8. Look for and express regularity in repeated reasoning.</p>	<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>1-5 Add and Subtract Rational Numbers: 34 1-6 Multiply Integers: 42 1-7 Multiply Rational Numbers: 49 1-9 Divide Rational Numbers: 60 2-4 Describe Proportional Relationships: Constant of Proportionality: 110 3-5 Solve Markup and Markdown Problems: 176 Topic 4 3-Act Mathematical Modeling: I've Got You Covered: 232 6-3 Make Comparative Inferences About Populations: 344 6-4 Make More Comparative Inferences About Populations: 352 Topic 7 3-Act Mathematical Modeling: Photo Finish: 398</p>

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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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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.	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
B. Use functions to model relationships between quantities	
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.	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
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.	3-5 Intervals of Increase and Decrease: 195-200 3-6 Sketch Functions from Verbal Descriptions: 201-206 Topic 3 Review: 210
Geometry 8.G	
A. Understand congruence and similarity using physical models, transparencies, or geometry software	
8.G.1: Verify experimentally the properties of rotations, reflections, and translations	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
a. Lines are taken to lines, and line segments to line segments of the same length.	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
b. Angles are taken to angles of the same measure.	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

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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>

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