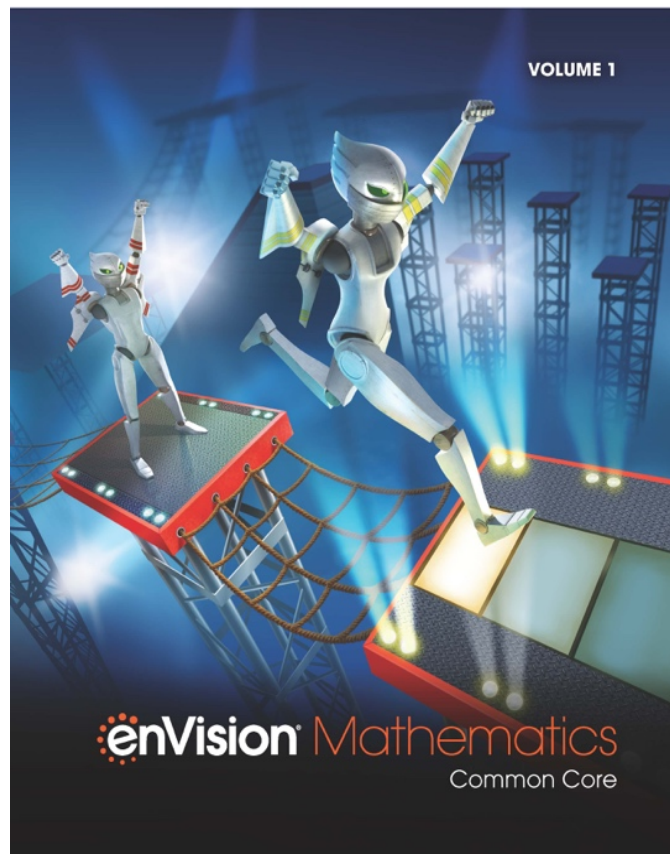


An Alignment of the  
**Common Core State Standards  
for Mathematics  
Grade 8**

to the Lessons of

**enVision** Mathematics

©2021



**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

**Table of Contents**

<b>Topic 1 Real Numbers .....</b>	<b>1</b>
<b>Topic 2 Analyze and Solve Linear Equations .....</b>	<b>4</b>
<b>Topic 3 Use Functions to Model Relationships .....</b>	<b>7</b>
<b>Topic 4 Investigate Bivariate Data.....</b>	<b>9</b>
<b>Topic 5 Analyze and Solve Systems of Linear Equations .....</b>	<b>12</b>
<b>Topic 6 Congruence and Similarity.....</b>	<b>14</b>
<b>Topic 7 Understand and Apply the Pythagorean Theorem .....</b>	<b>18</b>
<b>Topic 8 Solve Problems Involving Surface Area and Volume.....</b>	<b>19</b>

**An Alignment of the Common Core State Standards for Mathematics  
To the Lessons of enVision Mathematics, ©2021**

<p align="center"><b>enVision Mathematics, ©2021 Grade 8 Lessons</b></p>	<p align="center"><b>Common Core State Standards for Mathematics Grade 8</b></p>
<p><b>Topic 1 Real Numbers</b></p>	
<p>1-1 Rational Numbers as Decimals</p>	<p><b>8.NS.A.1</b> 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, and convert a decimal expansion which repeats eventually into a rational number.</p> <p><b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure.</p>
<p>1-2 Understand Irrational Numbers</p>	<p><b>8.NS.A.1</b> 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, and convert a decimal expansion which repeats eventually into a rational number.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<p>1-3 Compare and Order Real Numbers</p>	<p><b>8.NS.A.2</b> 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., <math>\pi^2</math>).</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
1-4 Evaluate Square Roots and Cube Roots	<p><b>8.EE.A.2</b> Use square root and cube root symbols to represent solutions to equations of the form <math>x^2 = p</math> and <math>x^3 = p</math>, where <math>p</math> is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that <math>\sqrt{2}</math> is irrational.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
1-5 Solve Equations Using Square Roots and Cube Roots	<p><b>8.EE.A.2</b> Use square root and cube root symbols to represent solutions to equations of the form <math>x^2 = p</math> and <math>x^3 = p</math>, where <math>p</math> is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that <math>\sqrt{2}</math> is irrational.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
1-6 Use Properties of Integer Exponents	<p><b>8.EE.A.1</b> Know and apply the properties of integer exponents to generate equivalent numerical expressions.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>
1-7 More Properties of Exponents	<p><b>8.EE.A.1</b> Know and apply the properties of integer exponents to generate equivalent numerical expressions.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
3-Act Mathematical Modeling: Hard-working Organs	<p><b>8.EE.A.1</b> Know and apply the properties of integer exponents to generate equivalent numerical expressions.</p> <p><b>8.EE.A.3</b> 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.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them.  <b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
1-8 Use Powers of 10 to Estimate Quantities	<p><b>8.EE.A.3</b> 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.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.6:</b> Attend to precision.  <b>MP.7:</b> Look for and make use of structure.</p>
1-9 Understand Scientific Notation	<p><b>8.EE.A.4</b> 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.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.5:</b> Use appropriate tools strategically.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
1-10 Operations with Numbers in Scientific Notation	<p><b>8.EE.A.4</b> 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.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure.</p>
<b>Topic 2 Analyze and Solve Linear Equations</b>	
2-1 Combine Like Terms to Solve Equations	<p><b>8.EE.C.7b</b> Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>
2-2 Solve Equations with Variables on Both Sides	<p><b>8.EE.C.7b</b> Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics.</p>
2-3 Solve Multi-Step Equations	<p><b>8.EE.C.7b</b> Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

<p align="center"><b>enVision Mathematics, ©2021 Grade 8 Lessons</b></p>	<p align="center"><b>Common Core State Standards for Mathematics Grade 8</b></p>
<p>2-4 Equations with No Solutions and Infinitely Many Solutions</p>	<p><b>8.EE.C.7a</b> 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 <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers).</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>
<p>3-Act Mathematical Modeling: Powering Down</p>	<p><b>8.EE.C.7a</b> 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 <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers).</p> <p><b>8.EE.C.7b</b> Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>
<p>2-5 Compare Proportional Relationships</p>	<p><b>8.EE.B.5</b> Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
2-6 Connect Proportional Relationships and Slope	<p><b>8.EE.B.6</b> Use similar triangles to explain why the slope <math>m</math> is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation <math>y = mx</math> for a line through the origin and the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure.</p>
2-7 Analyze Linear Equations: $y = mx$	<p><b>8.EE.B.6</b> Use similar triangles to explain why the slope <math>m</math> is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation <math>y = mx</math> for a line through the origin and the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
2-8 Understand the $y$ -Intercept of a Line	<p><b>8.EE.B.6</b> Use similar triangles to explain why the slope <math>m</math> is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation <math>y = mx</math> for a line through the origin and the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure.</p>
2-9 Analyze Linear Equations: $y = mx + b$	<p><b>8.EE.B.6</b> Use similar triangles to explain why the slope <math>m</math> is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation <math>y = mx</math> for a line through the origin and the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>



**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
<b>Topic 3 Use Functions to Model Relationships</b>	
3-1 Understand Relations and Functions	<p><b>8.F.A.1</b> 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.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
3-2 Connect Representations of Functions	<p><b>8.F.A.1</b> 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.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.5:</b> Use appropriate tools strategically. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
3-3 Compare Linear and Nonlinear Functions	<p><b>8.F.A.2</b> Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p> <p><b>8.F.A.3</b> Interpret the equation <math>y = mx + b</math> as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

<p align="center"><b>enVision Mathematics, ©2021 Grade 8 Lessons</b></p>	<p align="center"><b>Common Core State Standards for Mathematics Grade 8</b></p>
<p>3-Act Mathematical Modeling: Every Drop Counts</p>	<p><b>8.F.A.1</b> 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.</p> <p><b>8.F.A.3</b> Interpret the equation <math>y = mx + b</math> as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.5:</b> Use appropriate tools strategically. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<p>3-4 Construct Functions to Model Linear Relationships</p>	<p><b>8.F.B.4</b> 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 <math>(x, y)</math> 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><b>8.F.A.2</b> Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
3-5 Intervals of Increase and Decrease	<p><b>8.F.B.5</b> 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><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure.</p>
3-6 Sketch Functions from Verbal Descriptions	<p><b>8.F.B.5</b> 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><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<b>Topic 4 Investigate Bivariate Data</b>	
4-1 Construct and Interpret Scatter Plots	<p><b>8.SP.A.1</b> 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.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

<p align="center"><b>enVision Mathematics, ©2021 Grade 8 Lessons</b></p>	<p align="center"><b>Common Core State Standards for Mathematics Grade 8</b></p>
<p>4-2 Analyze Linear Associations</p>	<p><b>8.SP.A.2</b> 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.</p> <p><b>8.F.A.3</b> Interpret the equation <math>y = mx + b</math> as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.</p> <p><b>8.F.B.4</b> 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 <math>(x, y)</math> 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><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure.</p>
<p>4-3 Use Linear Models to Make Predictions</p>	<p><b>8.SP.A.3</b> Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.</p> <p><b>8.F.A.3</b> Interpret the equation <math>y = mx + b</math> as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.</p> <p><b>8.F.B.4</b> 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 <math>(x, y)</math> 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><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

<p align="center"><b>enVision Mathematics, ©2021 Grade 8 Lessons</b></p>	<p align="center"><b>Common Core State Standards for Mathematics Grade 8</b></p>
<p>4-4 Interpret Two-Way Frequency Tables</p>	<p><b>8.SP.A.4</b> 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.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>
<p>4-5 Interpret Two-Way Relative Frequency Tables</p>	<p><b>8.SP.A.4</b> 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.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
3-Act Mathematical Modeling: Reach Out	<p><b>8.SP.A.1</b> 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.</p> <p><b>8.SP.A.2</b> 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.</p> <p><b>8.SP.A.3</b> Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them.  <b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<b>Topic 5 Analyze and Solve Systems of Linear Equations</b>	
5-1 Estimate Solutions by Inspection	<p><b>8.EE.C.8b</b> Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.</p> <p><b>8.EE.C.8c</b> Solve real-world and mathematical problems leading to two linear equations in two variables.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

<p align="center"><b>enVision Mathematics, ©2021 Grade 8 Lessons</b></p>	<p align="center"><b>Common Core State Standards for Mathematics Grade 8</b></p>
<p>5-2 Solve Systems by Graphing</p>	<p><b>8.EE.C.8a</b> 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.</p> <p><b>8.EE.C.8c</b> Solve real-world and mathematical problems leading to two linear equations in two variables.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure.</p>
<p>5-3 Solve Systems by Substitution</p>	<p><b>8.EE.C.8b</b> Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.</p> <p><b>8.EE.C.8c</b> Solve real-world and mathematical problems leading to two linear equations in two variables.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<p>5-4 Solve Systems by Elimination</p>	<p><b>8.EE.C.8b</b> Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.</p> <p><b>8.EE.C.8c</b> Solve real-world and mathematical problems leading to two linear equations in two variables.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
3-Act Mathematical Modeling: Ups and Downs	<p><b>8.EE.C.8</b> Analyze and solve pairs of simultaneous linear equations.</p> <p><b>8.SP.A.3</b> Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.</p> <p><b>8.F.B.4</b> 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><b>MP.1:</b> Make sense of problems and persevere in solving them.  <b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<b>Topic 6 Congruence and Similarity</b>	
6-1 Analyze Translations	<p><b>8.G.A.1a</b> Lines are taken to lines, and line segments to line segments of the same length.</p> <p><b>8.G.A.1b</b> Angles are taken to angles of the same measure.</p> <p><b>8.G.A.1c</b> Parallel lines are taken to parallel lines.</p> <p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.6:</b> Attend to precision.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>



**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
6-2 Analyze Reflections	<p><b>8.G.A.1a</b> Lines are taken to lines, and line segments to line segments of the same length.</p> <p><b>8.G.A.1b</b> Angles are taken to angles of the same measure.</p> <p><b>8.G.A.1c</b> Parallel lines are taken to parallel lines.</p> <p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them.  <b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
6-3 Analyze Rotations	<p><b>8.G.A.1a</b> Lines are taken to lines, and line segments to line segments of the same length.</p> <p><b>8.G.A.1b</b> Angles are taken to angles of the same measure.</p> <p><b>8.G.A.1c</b> Parallel lines are taken to parallel lines.</p> <p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.</p>
6-4 Compose Transformations	<p><b>8.G.A.1a</b> Lines are taken to lines, and line segments to line segments of the same length.</p> <p><b>8.G.A.1b</b> Angles are taken to angles of the same measure.</p> <p><b>8.G.A.1c</b> Parallel lines are taken to parallel lines.</p> <p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them.  <b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.4:</b> Model with mathematics.  <b>MP.6:</b> Attend to precision.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
3-Act Mathematical Modeling: Tricks of the Trade	<p><b>8.G.A.1</b> Verify experimentally the properties of rotations, reflections, and translations:</p> <p><b>8.G.A.2</b> Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them.  <b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
6-5 Understand Congruent Figures	<p><b>8.G.A.2</b> Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.</p> <p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.7:</b> Look for and make use of structure.</p>
6-6 Describe Dilations	<p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>8.G.A.4</b> Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

<p align="center"><b>enVision Mathematics, ©2021 Grade 8 Lessons</b></p>	<p align="center"><b>Common Core State Standards for Mathematics Grade 8</b></p>
<p>6-7 Understand Similar Figures</p>	<p><b>8.G.A.3</b> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p><b>8.G.A.4</b> Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.6:</b> Attend to precision. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<p>6-8 Angles, Lines, and Transversals</p>	<p><b>8.G.A.5</b> 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.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.5:</b> Use appropriate tools strategically. <b>MP.7:</b> Look for and make use of structure.</p>
<p>6-9 Interior and Exterior Angles of Triangles</p>	<p><b>8.G.A.5</b> 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.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<p>6-10 Angle-Angle Triangle Similarity</p>	<p><b>8.G.A.5</b> 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.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
<b>Topic 7 Understand and Apply the Pythagorean Theorem</b>	
7-1 Understand the Pythagorean Theorem	<p><b>8.G.B.6</b> Explain a proof of the Pythagorean Theorem and its converse.</p> <p><b>8.G.B.7</b> Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
3-Act Mathematical Modeling: Go with the Flow	<p><b>8.G.B.6</b> Explain a proof of the Pythagorean Theorem and its converse.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
7-2 Understand the Converse of the Pythagorean Theorem	<p><b>8.G.B.6</b> Explain a proof of the Pythagorean Theorem and its converse.</p> <p><b>8.G.B.7</b> Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
7-3 Apply the Pythagorean Theorem to Solve Problems	<p><b>8.G.B.7</b> Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them.  <b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
7-4 Find Distance in the Coordinate Plane	<p><b>8.G.B.8</b> Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
<b>Topic 8 Solve Problems Involving Surface Area and Volume</b>	
8-1 Find Surface Area of Three-Dimensional Figures	<p><b>8.G.C.9</b> Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p><b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.4:</b> Model with mathematics.  <b>MP.7:</b> Look for and make use of structure.  <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
8-2 Find Volume of Cylinders	<p><b>8.G.C.9</b> Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively.  <b>MP.3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP.7:</b> Look for and make use of structure.</p>

**An Alignment of the Common Core State Standards for Mathematics, Grade 8  
To the Lessons of enVision Mathematics, ©2021**

enVision Mathematics, ©2021 Grade 8 Lessons	Common Core State Standards for Mathematics Grade 8
8-3 Find Volume of Cones	<p><b>8.G.C.9</b> Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.7:</b> Look for and make use of structure.</p>
8-4 Find Volume of Spheres	<p><b>8.G.C.9</b> Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p><b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>
3-Act Mathematical Modeling: Measure Up	<p><b>8.G.C.9</b> Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p><b>MP.1:</b> Make sense of problems and persevere in solving them. <b>MP.2:</b> Reason abstractly and quantitatively. <b>MP.3:</b> Construct viable arguments and critique the reasoning of others. <b>MP.4:</b> Model with mathematics. <b>MP.7:</b> Look for and make use of structure. <b>MP.8:</b> Look for and express regularity in repeated reasoning.</p>