Knowre Math: **Grade 8** Curriculum

Chapter 1 Rational Number Operations

Lesson	Topic	CA CCSSM
1-1 Adding and Subtracting Integers	A) Adding One-Digit Integers	7.NS.1.a, 7.NS.1.b, 7.NS.1.c, 7.NS.1.
	B) Subtracting One-Digit Integers	
	C) Adding Multi-Digit Integers	
	D) Subtracting Multi-Digit Integers	
1-2 Multiplying and Dividing Integers	A) Multiplying Integers	7.NS.2.a, 7.NS.2.b, 7.NS.2.c, 7.NS.2.d
	B) Dividing Integers	
1-3 Adding and Subtracting Fractions	A) Using Integer Rules to Add and Subtract Fractions with Common Denominators	7.NS.1.d
	B) Using Integer Rules to Add and Subtract Fractions with Different Denominators	
1-4 Multiplying and Dividing Fractions	A) Using Integer Rules to Multiply Fractions	7.NS.1.c, 7.NS.1.d
	B) Using Integer Rules to Divide Fractions	
	C) Complex Fractions	
1-5 Order of Operations	A) Order of Operations with Integers	7.NS.3
	B) Order of Operations with Rational Numbers	

Knowre Math: **Grade 8** Curriculum

Chapter 2 Solving Equations and Inequalities

Lesson	Topic	CA CCSSM
2-1 Simplifying Expressions	A) Parts of Variable Expressions	7.EE.1, 7.EE.2
	B) Like Terms	
	C) Multiplying Monomials without Exponent Properties	
	D) Distributive Property	
2-2 One- and Two-Step Equations	A) Solutions of One-Variable Equations	8.EE.7.a
	B) Bar Models to Solve One- and Two-Step Equations	
	C) Solving One-Step Equations	
	D) Solving Two-Step Equations	
2-3 Multi-Step Equations	A) Using Bar Models to Solve Multi-Step Equations with Variables on Both Sides	8.EE.7.a, 8.EE.7.b
	B) Using Bar Models to Solve Multi-Step Equations with the Distributive Property	
	C) Solving Multi-Step Equations	
	D) Solving Equations with Variables on Both Sides	
2-4 Equations with Rational Numbers	A) Solving Equations with Grouping Symbols in the Numerator	8.EE.7.a, 8.EE.7.b
	B) Solving Equations with Fractions	
	C) Solving Equations with Decimals	
2-5 Multi-Step Equations with Zero, One, or Many Solutions	A) Using Bar Models to Solve Equations with Zero, One, or Many Solutions	8.EE.7.a, 8.EE.7.b
	B) Identifying Solutions of Equations as Zero, One, or Many	
	C) Solving Equations with Zero, One, or Many Solutions	
2-6 One- and Two-Step Inequalities	A) Solutions of One-Variable Inequalities	7.EE.4.b
	B) Solving One-Step Inequalities	
	C) Solving Two-Step Inequalities	
2-7 Multi-Step Inequalities	A) Solving Multi-Step Inequalities	7.EE.4.b
	B) Inequalities with Zero, Many, or Infinite Solutions	
	C) Graphing Solutions of Multi-Step Inequalities	

Knowre Math: **Grade 8** Curriculum

Chapter 3 Relations and Linear Functions

Lesson	Topic	CA CCSSM
3-1 Input and Output	A) Representing Relations in Different Forms	8.F.1
	B) Input and Output	
3-2 Relations and Functions	A) Independent and Dependent Variables	8.F.1, 8.F.2
	B) Domain and Range	
	C) Relations and Functions	
3-3 Describing Functions	A) Using Graphs to Describe Functions	8.F.2, 8.F.5
	B) Using Tables to Describe Functions	
3-4 Graphs of Linear Functions	A) Graphs of Linear Functions	8.F.1, 8.F.3
	B) Using Linear Functions to Complete Tables	
	C) Graphing Linear Functions	
	D) Solutions of Linear Functions	
	E) Identifying Intercepts	
3-5 Rules for Linear Equations	A) Writing Rules from Tables	8.F.1, 8.F.3, 8.F.4
	B) Converting Between Linear Equations and Rules	
	C) Writing Linear Equations from Tables	
3-6 Direct Variation	A) Constant of Variation	8.EE.5, 8.F.1, 8.F.4
	B) Equations of Direct Variation	
	C) Graphs of Direct Variation	
	D) Direct Variation to Determine Missing Value	

Knowre Math: **Grade 8** Curriculum

Chapter 4 Linear Functions and Systems

Lesson	Topic	CA CCSSM
4-1 Start Value and Rate of Change	A) Units and Rate of Change	8.EE.5, 8.F.4
	B) Rate of Change Equation	
	C) Finding Rate of Change	
4-2 Slope Formula	A) Classifying Slopes	8.EE.5, 8.EE.6, 8.F.4
	B) Slope as Rise Over Run	
	C) Slope of a Line Between Two Points	
4-3 Slope-Intercept Form	A) Understanding Equations in Slope-Intercept Form	8.EE.6, 8.F.2, 8.F.3, 8.F.4
	B) Identifying Slopes and y-Intercepts from Equations in Slope-Intercept Form	
	C) Using Slopes and y-Intercepts to Write Equations in Slope-Intercept Form	
	D) Converting Equations to Slope-Intercept Form	
4-4 Writing and Graphing Equations in Slope-Intercept Form	A) Using Graphs to Write Equations in Slope-Intercept Form	8.EE.6, 8.F.2, 8.F.3, 8.F.4
	B) Using Slopes and y-Intercepts to Graph Linear Functions	
	C) Using Points and Slopes to Write Equations in Slope-Intercept Form	
	D) Using Two Points to Write Equations in Slope-Intercept Form	
	E) Graphing Functions by Converting to Slope-Intercept Form	
4-5 Solutions of Systems of Equations	A) Graphs of Systems of Equations	8.EE.8.a, 8.EE.8.b, 8.EE.8.c
	B) Solutions of Systems of Linear Equations	
	C) Graphs of Systems of Equations and the Number of Solutions	
4-6 Graphing to Solve Systems of Equations	A) Graphing Systems of Linear Equations	8.EE.8.a, 8.EE.8.b, 8.EE.8.c
	B) Graphing to Solve Systems of Linear Equations	
4-7 Substitution to Solve Systems of Equations	A) Substitution to Solve Systems of Equations that Are Solved for the Same Variable	8.EE.8.b, 8.EE.8.c
	B) Substitution to Solve Systems of Equations that are Solved for Different Variables	

Knowre Math: **Grade 8** Curriculum

Chapter 5 Exponent Properties

Lesson	Topic	CA CCSSM
5-1 Exponents	A) Powers with Natural Exponents	8.EE.1
5-2 Integer Exponents	A) Expressions to the Zero Power	8.EE.1
	B) Expressions with Negative Exponents	
5-3 Product of Powers Property	A) Using the Product of Powers Property to Multiply Expressions with a Single Base	8.EE.1
	B) Using the Product of Powers Property to Multiply Expressions with Multiple Bases	
5-4 Quotient of Powers Property	A) Using the Quotient of Powers Property to Simplify Expressions with a Single Base	8.EE.1
	B) Using the Quotient of Powers Property to Simplify Expressions with Multiple Bases	
5-5 Products and Quotients of Powers to Simplify Expressions	A) GCF of Expressions with Variables	8.EE.1
	B) Simplifying Fractions of that Contain Variables	
	C) Multiplying and Dividing Expressions that Contain Variables	
5-6 Power of a Power Property	A) Expanding Expressions to Show the Power of a Power Property	8.EE.1
	B) Simplifying Expressions with the Power of a Power Property	
5-7 Power of a Product and Quotient Properties	A) Expanding Expressions to Show the Power of a Product Property	8.EE.1
	B) Simplifying Expressions with the Power of a Product Property	
	C) Expanding Expressions to Show the Power of a Quotient Property	
	D) Simplifying Expressions with the Power of a Quotient Property	

Knowre Math: **Grade 8** Curriculum

Chapter 6 Rational Numbers

Lesson	Topic	CA CCSSM
6-1 Scientific Notation and Standard Form	A) Defining Scientific Notation	8.EE.3
	B) Writing Scientific Notation in Standard Form	
	C) Writing Numbers in Scientific Notation	
6-2 Operations with Scientific Notation	A) Adding and Subtracting Numbers in Scientific Notation	8.EE.3, 8.EE.4
	B) Multiplying Numbers in Scientific Notation	
	C) Dividing Numbers in Scientific Notation	
6-3 Repeating Decimals and Fractions	A) Repeating Decimals	8.NS.1
	B) Subtracting Repeating Decimals	
	C) Multiplying Repeating Decimals by Powers of Ten	
	D) Writing Repeating Decimals as Fractions	
6-4 Square Roots	A) Perfect Square Numbers	8.EE.2
	B) Square Roots of Perfect Squares	
	C) Finding the Integers a Square Root Lies Between	
6-5 Cube Roots and Order of Operations	A) Cubing Rational Numbers	8.EE.2
	B) Perfect Cubes	
	C) Cube Roots of Perfect Cubes	
	D) Square or Cube Roots of Squares and Cubes	
	E) Square Roots and the Order of Operations	

Knowre Math: **Grade 8** Curriculum

Chapter 7 Number Sets and the Pythagorean Theorem

Lesson	Topic	CA CCSSM
7-1 Rational and Irrational Numbers	A) Rational and Irrational Numbers	8.NS.1, 8.NS.2
	B) Ordering Real Numbers	
	C) Approximating Square Roots	
7-2 Solving Equations with Squared Variables	A) Solving Quadratic Equations with Square Roots	8.EE.2
7-3 Pythagorean Theorem	A) Right Triangles	8.G.6, 8.G.7
	B) Writing the Pythagorean Theorem	
	C) Using the Pythagorean Theorem to Find Side Lengths	
	D) Using the Inverse of the Pythagorean Theorem	
7-4 Distance Between Points	A) Vertical and Horizontal Distance on the Coordinate Plane	8.G.7, 8.G.8
	B) Using the Pythagorean Theorem to Find Distance Between Points	
	C) The Distance Formula	

Knowre Math: **Grade 8** Curriculum

Chapter 8 Angles and Triangles

Lesson	Topic	CA CCSSM
8-1 Parallel Lines and Angle Relationships	A) Parallel Lines and Transversals	8.G.5
	B) Identifying Corresponding, Alternate Exterior, and Alternate Interior Angles	
	C) Parallel Lines and Angle Relationships and Measures	
8-2 Angles of Triangles	A) Sum of the Measure of Interior Angles of a Triangle	8.G.5
	B) Finding a Missing Angle Measure in a Triangle	
8-3 Classifying Triangles	A) Classifying Triangle by Their Angles	8.G.5
	B) Classifying Triangles by Their Sides	
8-4 Angle and Side Relationships in a Triangle	A) Using Angle Measures to Order the Side Lengths of Triangles	8.G.5
	B) Using Side Lengths to Order the Angles Measures of Triangles	
8-5 Interior and Exterior Angles of Triangles	A) Interior and Exterior Angles of Triangles	8.G.5
	B) Exterior Angles of a Triangle and Their Remote Interior Angles	
8-6 Angles of Polygons	A) Diagonals of Polygons	8.G.5
	B) Concave and Convex Polygons	
	C) Sum of the Measure of Interior Angles of a Convex Polygon	

Knowre Math: **Grade 8** Curriculum

Chapter 9 Transformations

Lesson	Topic	CA CCSSM
9-1 Introduction to Transformations	A) Transformation Statements	8.G.1.a, 8.G.3
	B) Describing Translations	
9-2 Translations	A) Writing Translation Functions	8.G.1.a, 8.G.1.b, 8.G.1.c, 8.G.2, 8.G.3
	B) Translations with Translation Functions	
9-3 Reflections	A) Naming the Vertices of a Reflected Preimage	8.G.1.a, 8.G.1.b, 8.G.1.c, 8.G.2, 8.G.3, 8.G.4
	B) Lines of Reflection	
	C) Identifying Images	
	D) Reflecting in Horizontal and Vertical Lines	
	E) Reflecting in the x-axis and y-axis	
	F) Reflecting in y=x and y=-x	
9-4 Rotational Symmetry	A) Lines of Symmetry	8.G.1.a, 8.G.1.b, 8.G.3
	B) Relationship Between Lines of Symmetry and Rotational Symmetry	
9-5 Rotations	A) Rotation about the Center of a Figure	8.G.1.a, 8.G.1.b, 8.G.1.c, 8.G.2, 8.G.3, 8.G.4
	B) Rotation about the Origin	
9-6 Dilations	A) Types of Dilations	8.G.3, 8.G.4
	B) Scale Factor	
	C) Dilation about a Point	
	D) Dilation about the Origin	

Chapter 10 Volume

Lesson	Topic	CA CCSSM
10-1 Volume of Cylinders and Prisms	A) Volumes of Prisms	8.G.9
	B) Volumes of Cylinders	
10-2 Volume of Pyramids and Cones	A) Volumes of Pyramids	8.G.9
	B) Volumes of Cones	
10-3 Volume of Spheres	A) Volumes of Spheres	8.G.9

Knowre Math: **Grade 8** Curriculum

Chapter 11 Scatter Plots

Lesson	Topic	CA CCSSM
11-1 Reading Scatter Plots	A) Scatter Plots	8.SP.1
	B) Meanings of Points in Scatter Plots	
	C) Patterns in Scatter Plots	
11-2 Lines of Fit	A) Scatter Plots of Linear and Nonlinear Data	8.SP.1, 8.SP.2, 8.SP.3
	B) Lines of Fit	
	C) The Meaning of Numbers in Lines of Fit	
11-3 Predicting with Lines of Fit	A) Making Predictions with Lines of Fit	8.SP.1, 8.SP.2, 8.SP.3
	B) Observed and Predicted Values	

Chapter 12 Frequency Tables

Lesson	Topic	CA CCSSM
12-1 Two-Way Tables	A) Parts of Two-Way Tables	8.SP.4
	B) Reading Two-Way Tables	
	C) Finding Missing Joint and Marginal Frequencies	
12-2 Relative Frequency Tables	A) Identifying Relative Frequency Tables	8.SP.4
	B) Calculating Relative Frequencies	
	C) Reading Relative Frequency Tables	
	D) Finding Missing Relative Frequencies	
12-3 Conditional Frequency Tables	A) Identifying Conditional Relative Frequency Tables	8.SP.4
	B) Calculating Conditional Relative Frequencies	
	C) Reading Conditional Relative Frequency Tables	
	D) Completing and Understanding Conditional Relative Frequency Tables	