



## Support for California Math Standards, grades 4-8

Hello California middle school math teachers!

I hope you enjoy this little guide, designed to help you quickly and easily find support for some of the math expectations you are required to teach your students. My hope is that you find my techniques in *Math Doesn't Suck* and *Kiss My Math* to be fun and effective ways to teach these topics – especially for problem students needing intervention.

And don't read only your grade level – there may be help and support for you in the lower grades' expectations, too. Check out some lower grades for previously misunderstood expectations that may be holding your students back, and clear up those topics for them once and for all!

Most of all, I would love to hear what's working and what suggestions you might have for this guide, or for any other ways I can make *Math Doesn't Suck* and *Kiss My Math* the most useful to teachers like yourself.

Go math!

A handwritten signature in blue ink that reads "Danica".

For grade levels 4-8, here are the expectations supported either in part or fully within *Math Doesn't Suck* and *Kiss My Math*. For each expectation, just look to the right-hand column for the chapter(s) you need.

Got an expectation that's giving your class trouble? Find a new way of approaching the topic here!

Mathematics Content Standards for California – by grade expectation

4<sup>th</sup> Grade

California Standard	Description	Where to find support!
Number Sense 1.0	Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers.	<i>Math Doesn't Suck</i> , chapters 4, 6, 10, 12 <i>Kiss My Math</i> , chapter 1  (see below for specific topic/chapter correlation)
Number Sense 1.2	Order and compare whole numbers and decimals to two decimal places.	<i>Math Doesn't Suck</i> , chapter 10
Number Sense 1.5	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).	<i>Math Doesn't Suck</i> , chapters 4, 6
Number Sense 1.6	Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., $\frac{1}{2} = 0.5$ or $.50$ ; $\frac{7}{4} = 1\frac{3}{4} = 1.75$ ).	<i>Math Doesn't Suck</i> , chapter 12
Number Sense 1.7	Write the fraction represented by a drawing of parts of a figure; represent a	<i>Math Doesn't Suck</i> , chapter 4

	given fraction by using drawings; and relate a fraction to a simple decimal on a number line.	
Number Sense 1.8	Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in “owing”).	<i>Kiss My Math</i> , chapter 1
Number Sense 2.0	Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals:	<i>Math Doesn't Suck</i> , chapter 10
Number Sense 3.4	Solve problems involving division of multi digit numbers by one-digit numbers.	online at Danica's website, see document, “The best review of long division ever.”
Number Sense 4.0	Students know how to factor small whole numbers:	<i>Math Doesn't Suck</i> , chapter 1
Number Sense 4.1	Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$ ).	<i>Math Doesn't Suck</i> , chapter 1
Number Sense 4.2	Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.	<i>Math Doesn't Suck</i> , chapter 1
Algebra and Functions 1.0	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:	<i>Math Doesn't Suck</i> , chapter 20 <i>Kiss My Math</i> , chapter 17  (see below for specific topic/chapter correlation)
Algebra and Functions 1.1	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).	<i>Math Doesn't Suck</i> , chapter 20
Algebra and Functions 1.5	Understand that an equation such as $y = 3x + 5$ is a prescription for determining	<i>Math Doesn't Suck</i> , chapter 20 <i>Kiss My Math</i> , chapter 17 (Sausage factories!)

	a second number when a first number is given.	
Algebra and Functions 2.0	Students know how to manipulate equations:	<i>Math Doesn't Suck</i> , chapter 20, 21
Algebra and Functions 2.1	Know and understand that equals added to equals are equal.	<i>Math Doesn't Suck</i> , chapter 20, 21
Algebra and Functions 2.2	Know and understand that equals multiplied by equals are equal.	<i>Math Doesn't Suck</i> , chapter 20, 21
Statistics, Data Analysis, and Probability 1.0	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	<i>Kiss My Math</i> , chapter 5
Statistics, Data Analysis, and Probability 1.2	Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.	<i>Kiss My Math</i> , chapter 5
Mathematical Reasoning 1.0-2.0, 2.2-2.4, 2.6-3.3	Students make decisions about how to approach problems, analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns, use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning, and evaluate the reasonableness of the solution in the context of the original situation.	<i>Math Doesn't Suck</i> , chapters 15-18, 21 <i>Kiss My Math</i> , chapters 11, 13

## 5<sup>th</sup> Grade

California Standard	Description	Where to find support!
Number Sense 1.0	Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers:	<i>Math Doesn't Suck</i> , chapter 7, 11, 13, 14 <i>Kiss My Math</i> , chapter 1, 15, Appendix  (see below for specific topic/chapter correlation)
Number Sense 1.2	Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number.	<i>Math Doesn't Suck</i> , chapter 11, 13, 14
Number Sense 1.3	Understand and compute positive integer powers of nonnegative integers; compute examples as repeated multiplication.	<i>Kiss My Math</i> , chapter 15
Number Sense 1.4	Determine the prime factors of all numbers through 50 and write the numbers as the product of their prime factors by using exponents to show multiples of a factor (e.g., $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$ ).	<i>Math Doesn't Suck</i> , chapter 1
Number Sense 1.5	Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers.	<i>Math Doesn't Suck</i> , chapter 7 <i>Kiss My Math</i> , chapter 1, Appendix
Number Sense 2.0	Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals:	<i>Math Doesn't Suck</i> , chapters 5, 8, 10 <i>Kiss My Math</i> , chapter 1 (see below for specific topic/chapter correlation)

Number Sense 2.1	Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.	<i>Math Doesn't Suck</i> , chapter 10 <i>Kiss My Math</i> , chapter 1
Number Sense 2.2	Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.	<i>Math Doesn't Suck</i> , chapter 10 Online, see document "Best review of long division, ever."
Number Sense 2.3	Solve simple problems, including ones arising in concrete situations, involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less), and express answers in the simplest form.	<i>Math Doesn't Suck</i> , chapter 8
Number Sense 2.4	Understand the concept of multiplication and division of fractions.	<i>Math Doesn't Suck</i> , chapter 5
Number Sense 2.5	Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.	<i>Math Doesn't Suck</i> , chapter 5
Algebra and Functions 1.0	Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results:	<i>Math Doesn't Suck</i> , chapter 20, 21 <i>Kiss My Math</i> , chapter 6, 10-13, 17, 18  (see below for specific topic/chapter correlation)
Algebra and Functions 1.2	Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.	<i>Math Doesn't Suck</i> , chapter 20 <i>Kiss My Math</i> , chapter 6
Algebra and Functions 1.3	Know and use the distributive property in equations and expressions with variables.	<i>Kiss My Math</i> , chapter 10

Algebra and Functions 1.4	Identify and graph ordered pairs in the four quadrants of the coordinate plane.	<i>Kiss My Math</i> , chapter 18
Algebra and Functions 1.5	Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.	<i>Math Doesn't Suck</i> , chapter 20, 21 <i>Kiss My Math</i> , chapter 12, 17, 18
Mathematical Reasoning 1.0-2.0, 2.2-2.4, 2.6-3.3	Students make decisions about how to approach problems, analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns, use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning, and evaluate the reasonableness of the solution in the context of the original situation.	<i>Math Doesn't Suck</i> , chapters 15-18, 21 <i>Kiss My Math</i> , chapters 11, 13

## 6<sup>th</sup> Grade

California Standard	Description	Where to find support!
Number Sense 1.0	Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages:	<i>Math Doesn't Suck</i> , chapters 15, 16, 18 <i>Kiss My Math</i> , chapter 1  (see below for specific topic/chapter correlation)
Number Sense 1.1	Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.	<i>Kiss My Math</i> , chapter 1
Number Sense 1.2	Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations ( $a/b$ , $a$ to $b$ , $a:b$ ).	<i>Math Doesn't Suck</i> , chapter 16
Number Sense 1.3	Use proportions to solve problems (e.g., determine the value of $N$ if $4/7 = N/21$ , find the length of a side of a polygon similar to a known polygon). Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse.	<i>Math Doesn't Suck</i> , chapter 16, 18
Number Sense 1.4	Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.	<i>Math Doesn't Suck</i> , chapter 15
Number Sense 2.0	Students calculate and solve problems involving addition, subtraction, multiplication, and division:	<i>Math Doesn't Suck</i> , chapters 2, 3, 5, 8, 15 <i>Kiss My Math</i> , chapters 1, 3 (see below for specific topic/chapter correlation)
Number Sense 2.1	Solve problems involving	<i>Math Doesn't Suck</i> , chapter 5, 8, 15



	addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.	
Number Sense 2.2	Explain the meaning of multiplication and division of positive fractions and perform the calculations (e.g., $5/8 \div 15/16 = 5/8 \times 16/15 = 2/3$ ).	<i>Math Doesn't Suck</i> , chapter 5
Number Sense 2.3	Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.	<i>Kiss My Math</i> , chapters 1, 3
Number Sense 2.4	Determine the least common multiple and the greatest common divisor of whole numbers; use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).	<i>Math Doesn't Suck</i> , chapters 2, 3
Algebra and Functions 1.0	Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results:	<i>Math Doesn't Suck</i> , chapters 2, 20, 21 <i>Kiss My Math</i> , chapters 1, 10-13  (see below for specific topic/chapter correlation)
Algebra and Functions 1.1	Write and solve one-step linear equations in one variable.	<i>Math Doesn't Suck</i> , chapters 20, 21 <i>Kiss My Math</i> , chapter 12
Algebra and Functions 1.2	Write and evaluate an algebraic expression for a given situation, using up to three variables.	<i>Math Doesn't Suck</i> , chapter 21 <i>Kiss My Math</i> , chapters 11, 13
Algebra and Functions 1.3	Apply algebraic order of	<i>Kiss My Math</i> , chapters 2, 10

	operations and the commutative, associative, and distributive properties to evaluate expressions; and justify each step in the process.	
Algebra and Functions 1.4	Solve problems manually by using the correct order of operations or by using a scientific calculator.	<i>Kiss My Math</i> , chapter 1
Algebra and Functions 2.0	Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions:	<i>Math Doesn't Suck</i> , chapters 17, 19
Algebra and Functions 2.1	Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches).	<i>Math Doesn't Suck</i> , chapter 19
Algebra and Functions 2.2	Demonstrate an understanding that <i>rate</i> is a measure of one quantity per unit value of another quantity.	<i>Math Doesn't Suck</i> , chapter 17
Algebra and Functions 2.3	Solve problems involving rates, average speed, distance, and time.	<i>Math Doesn't Suck</i> , chapter 17
Algebra and Functions 3.0	Students investigate geometric patterns and describe them algebraically:	<i>Kiss My Math</i> , chapter 10 (see window/curtain example)
Algebra and Functions 3.1	Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$ , $A = \frac{1}{2}bh$ , $C = \pi d$ – the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).	<i>Kiss My Math</i> , chapter 10 (see window/curtain example)
Mathematical Reasoning 1.0-2.0, 2.2-2.4, 2.6-3.3	Students make decisions about how to approach problems, analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing	<i>Math Doesn't Suck</i> , chapters 15-18, 21 <i>Kiss My Math</i> , chapters 11, 13

	<p>patterns, use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning, and evaluate the reasonableness of the solution in the context of the original situation.</p>	
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## 7<sup>th</sup> Grade

California Standard	Description	Where to find support!
Number Sense 1.0	Students know the properties of, and compute with, rational numbers expressed in a variety of forms:	<i>Math Doesn't Suck</i> , chapter 5-8, 11, 13-15 <i>Kiss My Math</i> , chapters 1, 15, Appendix  (see below for specific topic/chapter correlation)
Number Sense 1.2	Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers.	<i>Math Doesn't Suck</i> , chapters 5-8 <i>Kiss My Math</i> , chapters 1, 15
Number Sense 1.3	Convert fractions to decimals and percents and use these representations in estimations, computations, and applications.	<i>Math Doesn't Suck</i> , chapter 11, 13, 14
Number Sense 1.4	Differentiate between rational and irrational numbers.	<i>Kiss My Math</i> , Appendix
Number Sense 1.5	Know that every rational number is either a terminating or repeating decimal and be able to convert terminating decimals into reduced fractions.	<i>Math Doesn't Suck</i> , chapter 12 <i>Kiss My Math</i> , Appendix
Number Sense 1.7	Solve problems that involve discounts, markups, commissions, and profit and compute simple and compound interest.	<i>Math Doesn't Suck</i> , chapters 13, 15
Number Sense 2.0	Students use exponents, powers, and roots and use exponents in working with fractions:	<i>Math Doesn't Suck</i> , chapter 8 <i>Kiss My Math</i> , chapters 4, 15, 16  (see below for specific topic/chapter correlation)
Number Sense 2.1	Understand negative whole-number exponents. Multiply and divide expressions involving exponents with a common base.	<i>Kiss My Math</i> , chapter 16

Number Sense 2.2	Add and subtract fractions by using factoring to find common denominators.	<i>Math Doesn't Suck</i> , chapter 8
Number Sense 2.3	Multiply, divide, and simplify rational numbers by using exponent rules.	<i>Kiss My Math</i> , chapter 15, 16
Number Sense 2.5	Understand the meaning of the absolute value of a number; interpret the absolute value as the distance of the number from zero on a number line; and determine the absolute value of real numbers.	<i>Kiss My Math</i> , chapter 4
Algebra and Functions 1.0	Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs:	<i>Math Doesn't Suck</i> , chapter 15 <i>Kiss My Math</i> , chapters 2, 6, 10, 11, 13, 14, Appendix  (see below for specific topic/chapter correlation)
Algebra and Functions 1.1	Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as large as area A).	<i>Math Doesn't Suck</i> , chapter 15 <i>Kiss My Math</i> , chapters 11, 13
Algebra and Functions 1.3	Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used.	<i>Kiss My Math</i> , chapters 2, 10, Appendix
Algebra and Functions 1.4	Use algebraic terminology (e.g., variable, equation, term, coefficient, inequality, expression, constant) correctly.	<i>Kiss My Math</i> , chapter 6
Algebra and Functions 1.5	Represent quantitative relationships graphically and interpret the meaning of a specific part of a graph in the situation represented by	<i>Kiss My Math</i> , chapter 14

	the graph.	
Algebra and Functions 2.0	Students interpret and evaluate expressions involving integer powers and simple roots:	<i>Kiss My Math</i> , chapter 15, 16
Algebra and Functions 2.1	Interpret positive whole-numbers powers as repeated multiplication and negative whole-number powers as repeated division or multiplication by the multiplicative inverse. Simplify and evaluate expressions that include exponents.	<i>Kiss My Math</i> , chapters 15, 16
Algebra and Functions 3.0	Students graph and interpret linear and some nonlinear functions:	<i>Math Doesn't Suck</i> , chapter <i>Kiss My Math</i> , chapter
Algebra and Functions 3.3	Graph linear functions, noting that the vertical change (change in $y$ -value) per unit of horizontal change (change in $x$ -value) is always the same and know that the ratio ("rise over run") is called the slope of a graph.	<i>Math Doesn't Suck</i> , chapter <i>Kiss My Math</i> , chapter
Algebra and Functions 4.0	Students solve simple linear equations and inequalities over the rational numbers:	<i>Math Doesn't Suck</i> , chapters 17-19 <i>Kiss My Math</i> , chapters 12-14  (see below for specific topic/chapter correlation)
Algebra and Functions 4.1	Solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution or solutions in the context from which they arose, and verify the reasonableness of the results.	<i>Kiss My Math</i> , chapter 12-14
Algebra and Functions 4.2	Solve multi step problems involving rate, average speed, distance, and time or a direct variation.	<i>Math Doesn't Suck</i> , chapters 17-19
Mathematical Reasoning	Students make decisions	<i>Math Doesn't Suck</i> , chapters 15-18, 21

1.0-2.0, 2.2-2.4, 2.6-3.3	about how to approach problems, analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns, use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning, and evaluate the reasonableness of the solution in the context of the original situation.	<i>Kiss My Math</i> , chapters 11, 13
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## 8<sup>th</sup> Grade

California Standard	Description	Where to find support!
Algebra 1.0	Students identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable.	<i>Math Doesn't Suck</i> , chapters 1-14 <i>Kiss My Math</i> , chapter 1-5, Appendix
Algebra 2.0	Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a power. They understand and use the rules of exponents.	<i>Math Doesn't Suck</i> , chapter 5 <i>Kiss My Math</i> , chapter 3
Algebra 4.0	Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$ .	<i>Kiss My Math</i> , chapter 12
Algebra 5.0	Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.	<i>Kiss My Math</i> , chapter 12, 13
Algebra 6.0	Students graph a linear equation and compute the $x$ - and $y$ - intercepts (e.g., graph $2x + 6y = 4$ ). They are also able to sketch the region defined by linear inequality (e.g., they sketch the region defined by $2x + 6y < 4$ ).	<i>Kiss My Math</i> , chapter 18