2013-14 CC-CA Math 6 BK (B195859)—Blueprint Summary

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						2013-2014 CA		2013-2014 CA	
					Status	Draft		Draft	
					# Standards Assessed	11		12	
					Number of Items per Standard (max)	3		3	
					Number of Items per Standard (min)	1		1	
					Number of Items per Standard (avg)	1.5		1.5	
Standard	**Description**	**CST #**	**CST %**	**Yr #**	**Yr %**	**#**	**%**	**#**	**%**
Total		**64.98**	**100%**	**35**	**100%**	**17**	**100%**	**18**	**100%**
California Item Bank									
MA.6.NS	Number Sense								
MA.6.NS.1.0	Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages:								
MA.6.NS.1.1	Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.	3	4.6%	1	2.9%			1	5.6%
MA.6.NS.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).	1	1.5%						
MA.6.NS.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.	6	9.2%	2	5.7%			2	11.1%
MA.6.NS.1.4	Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.	5	7.7%						
MA.6.NS.2.0	Students calculate and solve problems involving addition, subtraction, multiplication, and division:								
MA.6.NS.2.1	Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.	0.5	0.8%	1	2.9%			1	5.6%
MA.6.NS.2.2	Explain the meaning of multiplication and division of positive fractions and perform the calculations (e.g., 5/8 ÷ 15/16 = 5/8 x 16/15 = 2/3).	0.5	0.8%						
MA.6.NS.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.	6	9.2%						
MA.6.NS.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).	3	4.6%	2	5.7%			2	11.1%
MA.6.AF	Algebra and Functions								
MA.6.AF.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:								
MA.6.AF.1.1	Write and solve one-step linear equations in one variable.	6	9.2%						
MA.6.AF.1.2	Write and evaluate an algebraic expression for a given situation, using up to three variables.	1	1.5%						

MA.6.AF.1.3	Apply algebraic order of operations and the commutative, associative, and distributive properties to evaluate expressions; and justify each step in the process.	1	1.5%						
MA.6.AF.1.4	Solve problems manually by using the correct order of operations or by using a scientific calculator.	1	1.5%						
MA.6.AF.2.0	Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions:								
MA.6.AF.2.1	Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches).	1	1.5%						
MA.6.AF.2.2	Demonstrate an understanding that rate is a measure of one quantity per unit value of another quantity.	6	9.2%	1	2.9%			1	5.6%
MA.6.AF.2.3	Solve problems involving rates, average speed, distance, and time.	1	1.5%						
MA.6.AF.3.0	Students investigate geometric patterns and describe them algebraically:								
MA.6.AF.3.1	Use variables in expressions describing geometric quantities (e.g., P = 2w + 2l, A = 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).	1	1.5%						
MA.6.AF.3.2	Express in symbolic form simple relationships arising from geometry.	1	1.5%						
MA.6.MG	Measurement and Geometry								
MA.6.MG.1.0	Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems:								
MA.6.MG.1.1	Understand the concept of a constant such as pi; know the formulas for the circumference and area of a circle.	3	4.6%	2	5.7%			2	11.1%
MA.6.MG.1.2	Know common estimates of pi (3.14; 22/7) and use these values to estimate and calculate the circumference and the area of circles; compare with actual measurements.	0.5	0.8%						
MA.6.MG.1.3	Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.	0.5	0.8%						
MA.6.MG.2.0	Students identify and describe the properties of two-dimensional figures:								
MA.6.MG.2.1	Identify angles as vertical, adjacent, complementary, or supplementary and provide descriptions of these terms.	1	1.5%						
MA.6.MG.2.2	Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.	4	6.2%						
MA.6.MG.2.3	Draw quadrilaterals and triangles from given information about them (e.g., a quadrilateral having equal sides but no right angles, a right isosceles triangle).	1	1.5%						
MA.6.PS	Statistics, Data Analysis, and Probability								
MA.6.PS.1.0	Students compute and analyze statistical measurements for data sets:								
MA.6.PS.1.1	Compute the range, mean, median, and mode of data sets.	0.33	0.5%						
MA.6.PS.1.2	Understand how additional data added to data sets may affect these computations of measures of central tendency.	0.33	0.5%						
MA.6.PS.1.3	Understand how the inclusion or exclusion of outliers affects measures of central tendency.	0.33	0.5%						
MA.6.PS.1.4	Know why a specific measure of central tendency (mean, median, mode) provides the most useful information in a given context.								

MA.6.PS.2.0	Students use data samples of a population and describe the characteristics and limitations of the samples:								
MA.6.PS.2.1	Compare different samples of a population with the data from the entire population and identify a situation in which it makes sense to use a sample.								
MA.6.PS.2.2	Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population.	3	4.6%						
MA.6.PS.2.3	Analyze data displays and explain why the way in which the question was asked might have influenced the results obtained and why the way in which the results were displayed might have influenced the conclusions reached.								
MA.6.PS.2.4	Identify data that represent sampling errors and explain why the sample (and the display) might be biased.								
MA.6.PS.2.5	Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims.	0.33	0.5%						
MA.6.PS.3.0	Students determine theoretical and experimental probabilities and use these to make predictions about events:								
MA.6.PS.3.1	Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome.	3	4.6%						
MA.6.PS.3.2	Use data to estimate the probability of future events (e.g., batting averages or number of accidents per mile driven).								
MA.6.PS.3.3	Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if P is the probability of an event, 1 - P is the probability of an event not occurring.	3	4.6%						
MA.6.PS.3.4	Understand that the probability of either of two disjoint events occurring is the sum of the two individual probabilities and that the probability of one event following another, in independent trials, is the product of the two probabilities.	0.33	0.5%						
MA.6.PS.3.5	Understand the difference between independent and dependent events.	0.33	0.5%						
MA.6.MR	Mathematical Reasoning								
MA.6.MR.1.0	Students make decisions about how to approach problems:								
MA.6.MR.1.1	Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.								
MA.6.MR.1.2	Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.								
MA.6.MR.1.3	Determine when and how to break a problem into simpler parts.								
MA.6.MR.2.0	Students use strategies, skills, and concepts in finding solutions:								
MA.6.MR.2.1	Use estimation to verify the reasonableness of calculated results.								
MA.6.MR.2.2	Apply strategies and results from simpler problems to more complex problems.								
MA.6.MR.2.3	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.								

MA.6.MR.2.4	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.								
MA.6.MR.2.5	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.								
MA.6.MR.2.6	Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.								
MA.6.MR.2.7	Make precise calculations and check the validity of the results from the context of the problem.								
MA.6.MR.3.0	Students move beyond a particular problem by generalizing to other situations:								
MA.6.MR.3.1	Evaluate the reasonableness of the solution in the context of the original situation.								
MA.6.MR.3.2	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.								
MA.6.MR.3.3	Develop generalizations of the results obtained and the strategies used and apply them in new problem situations.								
Common Core Item Bank									
Introduction	Introduction								
MA.6.1	Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.								
MA.6.2	Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understandings of number and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.								

MA.6.3	Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as 3x = y) to describe relationships between quantities.								
MA.6.4	Building on and reinforcing their understanding of number, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability. Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected.								
MA.6.RP	Ratios and Proportional Relationships								
MA.6.RP.A	Understand ratio concepts and use ratio reasoning to solve problems.			1	2.9%			1	5.6%
MA.6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.			1	2.9%			1	5.6%
MA.6.RP.A.2	Understand the concept of a unit rate a/b associated with a ratio a:b with b is not equal to 0, and use rate language in the context of a ratio relationship.			1	2.9%			1	5.6%
MA.6.RP.A.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.								
MA.6.RP.A.3.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.			1	2.9%			1	5.6%
MA.6.RP.A.3.b	Solve unit rate problems including those involving unit pricing and constant speed.			2	5.7%			2	11.1%
MA.6.RP.A.3.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.								

MA.6.RP.A.3.d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.								
MA.6.NS	The Number System								
MA.6.NS.A	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.								
MA.6.NS.A.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.			3	8.6%			3	16.7%
MA.6.NS.B	Compute fluently with multi-digit numbers and find common factors and multiples.								
MA.6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.								
MA.6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.								
MA.6.NS.B.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.								
MA.6.NS.C	Apply and extend previous understandings of numbers to the system of rational numbers.								
MA.6.NS.C.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.			3	8.6%	3	17.6%		
MA.6.NS.C.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.								
MA.6.NS.C.6.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	5.7%	2	11.8%		
MA.6.NS.C.6.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.								
MA.6.NS.C.6.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	5.7%	2	11.8%		
MA.6.NS.C.7	Understand ordering and absolute value of rational numbers.								
MA.6.NS.C.7.a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.								
MA.6.NS.C.7.b	Write, interpret, and explain statements of order for rational numbers in real-world contexts.								

MA.6.NS.C.7.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.								
MA.6.NS.C.7.d	Distinguish comparisons of absolute value from statements about order.								
MA.6.NS.C.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.								
MA.6.EE	Expressions and Equations								
MA.6.EE.A	Apply and extend previous understandings of arithmetic to algebraic expressions.			1	2.9%	1	5.9%		
MA.6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.								
MA.6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.								
MA.6.EE.A.2.a	Write expressions that record operations with numbers and with letters standing for numbers.			1	2.9%	1	5.9%		
MA.6.EE.A.2.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.			2	5.7%	2	11.8%		
MA.6.EE.A.2.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).			1	2.9%	1	5.9%		
MA.6.EE.A.3	Apply the properties of operations to generate equivalent expressions.								
MA.6.EE.A.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).			1	2.9%	1	5.9%		
MA.6.EE.B	Reason about and solve one-variable equations and inequalities.								
MA.6.EE.B.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.			1	2.9%	1	5.9%		
MA.6.EE.B.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.			2	5.7%	2	11.8%		
MA.6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.			1	2.9%	1	5.9%		
MA.6.EE.B.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.								

MA.6.EE.C	Represent and analyze quantitative relationships between dependent and independent variables.								
MA.6.EE.C.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.								
MA.6.G	Geometry								
MA.6.G.A	Solve real-world and mathematical problems involving area, surface area, and volume.								
MA.6.G.A.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.								
MA.6.G.A.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 = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.								
MA.6.G.A.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.								
MA.6.G.A.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.								
MA.6.SP	Statistics and Probability								
MA.6.SP.A	Develop understanding of statistical variability.								
MA.6.SP.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.								
MA.6.SP.A.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.								
MA.6.SP.A.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.								
MA.6.SP.B	Summarize and describe distributions.								
MA.6.SP.B.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.								
MA.6.SP.B.5	Summarize numerical data sets in relation to their context, such as by:								
MA.6.SP.B.5.a	Reporting the number of observations.								
MA.6.SP.B.5.b	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.								

MA.6.SP.B.5.c	Giving 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.								
MA.6.SP.B.5.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.								

Key:
Orange: This standard has 6 or more items on the assessment.
Purple: This standard has 26 or more items on the blueprint.