California State Math Standards for Grade 4
Compared to K12 Math Program for Grade 4

By the end of grade four, students understand large numbers and addition, subtraction, multiplication, and division of whole numbers. They describe and compare simple fractions and decimals. They understand the properties of, and the relationships between, plane geometric figures. They collect, represent, and analyze data to answer questions.

Strand/Topic	CA State Math Standards	Coverage	K12 grade, unit, lesson	Gap/Possibility for Covering Gap
Number Sense 31 items, 48% of Test	**Standard Set 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:**			
	1.1* Read and write whole numbers in the millions. (3 items)	Full	4.1.2 4.1.4	
	1.2* Order and compare whole numbers and decimals to two decimal places. (2 items)	Full	4.1.4 4.1.5 4.15.4 4.15.5	
	1.3* Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand. (2 items)	Partial	4.1.8	K12 addresses rounding tp the nearest ten, hundred, or thousand.
	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). (½ item)	Full	4.13.1 4.13.3 4.13.4 4.13.7	
	1.6 Write tenths and hundredths in decimal and fraction notations, and know the fraction and decimal equivalents for halves and fourths (e.g., ½ = 0.5 or .50; 7/4 = 1 ¾ = 1.75). (½ item)	Full	4.15.1 4.15.2	
	1.7 Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line. (1 item)	Partial	4.13.1 4.13.3 4.13.7	K12 does not address relating fractions to decimals on a number line.
	1.8* Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing"). (3 items)	Full	4.19.5	
	1.9* Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places. (3 items)	Full	4.13.8 4.13.9 4.15.1 - 4.15.5	
	Standard Set 2.0 Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals:			
	2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places. (1 item)	Full	4.2.1 – 4.2 8 4.3.1 – 4.3.9 4.15.7 - 4.15.9	

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	2.2 Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer. (½ item)	Full	4.15.6	
	Standard Set 3.0* Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:			
	3.1* Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multidigit numbers. (3 items)	Full	4.3.2 – 4.3.9	
	3.2* Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multidigit number by a two-digit number and for dividing a multidigit number by a one-digit number; use relationships between them to simplify computations and to check results. (3 items)	Full	4.6.11 4.6.13 4.6.14 4.8.5 4.8.7 - 4.8.12	
	3.3* Solve problems involving multiplication of multidigit numbers by two-digit numbers. (3 items)	Full	4.7.1 – 4.7.3 4.7.4 (Optional)	
	3.4* Solve problems involving division of multidigit numbers by one-digit numbers. (3 items)	Full	4.10.1 4.10.2 (Optional) 4.10.3 4.10.4	
	Standard Set 4.0 Students know how to factor small whole numbers:			
	4.1 Understand that many whole numbers break down in different ways (e.g., 12 = 4 × 3 = 2 × 6 = 2 × 2 × 3). (½ item)	Full	4.6.1 4.13.5	
	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. (2 items)	Not Covered		K12 addresses the concept of prime numbers in Grade 5 Unit 3 Lessons 1 & 2.
	Standard Set 1.0 Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:			
	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). (1 item)	Full	4.2.3 4.6.2 (Optional) 4.8.2 (Optional) 4.18.1 4.18.3 4.19.1 – 4.19.5	

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Algebra and Functions 18 items, 28% of Test	1.2* Interpret and evaluate mathematical expressions that now use parentheses. (5 items)	Full	4.6.1 4.8.14	
	1.3* Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations. (3 items)	Full	4.6.1 4.8.14	
	1.4 Use and interpret formulas (e.g., area = length × width or $A = lw$) to answer questions about quantities and their relationships. (1 item)	Full	4.17.4 – 4.17.7 4.18.1 – 4.18.3 4.18.7	
	1.5* Understand that an equation such as $y = 3x + 5$ is a prescription for determining a second number when a first number is given. (2 items)	Full	4.19.2	
	Standard Set 2.0* Students know how to manipulate equations:			
	2.1* Know and understand that equals added to equals are equal. (3 items)	Full	4.19.1 – 4.19.5	
	2.2* Know and understand that equals multiplied by equals are equal. (3 items)	Full	4.19.1 – 4.19.5	
	Standard Set 1.0 Students understand perimeter and area:			
	1.1 Measure the area of rectangular shapes by using appropriate units such as square centimeter (cm²), square meter (m²), square kilometer (km²), square inch (in²), square yard (yd²), or square mile (mi²). (½ item)	Full	4.18.2	
	1.2 Recognize that rectangles that have the same area can have different perimeters. (½ item)	Not Covered		
	1.3 Understand that rectangles that have the same perimeter can have different areas. (½ item)	Not Covered		
	1.4 Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find the areas of more complex figures by dividing the figures into basic shapes. (½ item)	Partial	4.18.1 - 4.18.3	K12 does not address the calculation of area of complex figures.
	Standard Set 2.0* Students use two-dimensional coordinate grids to represent points and graph lines and simple figures:			
	2.1* Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation $y = 3x$ and connect them by using a straight line). (2 items)	Not Covered		K12 addresses this CA Standard in Grade 6 Unit 11 Lessons 12 & 13.

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Measurement and Geometry 12 items, 18% of Test	2.2* Understand that the length of a horizontal line segment equals the difference of the x-coordinates. (2 items)	Not Covered		
	2.3* Understand that the length of a vertical line segment equals the difference of the y-coordinates. (2 items)	Not Covered		
	Standard Set 3.0 Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems:			
	3.1 Identify lines that are parallel and perpendicular. (1 item)	Full	4.17.3	
	3.2 Identify the radius and diameter of a circle. (1 item)	Full	4.17.4	
	3.3 Identify congruent figures. (⅓ item)	Full	4.17.8	
	3.4 Identify figures that have bilateral and rotational symmetry. (⅓ item)	Full	4.17.9	
	3.5 Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90°, 180°, 270°, and 360° are associated, respectively with ¼, ½, ¾, and full turns. (⅓ item)	Full	4.17.2	
	3.6 Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid. (⅓ item)	Full	4.18.5	
	3.7 Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes. (⅓ item)	Full	4.17.7	
	3.8 Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid). (⅓ item)	Full	4.17.6	
Statistics, Data Analysis, and	**Standard Set 1.0 Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:**			
	1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts. (1 item)	Full	4.12.1 - 4.12.5	
	1.2 Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets. (⅔ item)	Not Covered		K12 address this CA standard in Grade 5 Unit 7 Lessons 4 & 6.

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Strand/Topic	CA State Math Standards	Coverage	K12 grade, unit, lesson	Gap/Possibility for Covering Gap
Statistics, Data Analysis, and Probability 4 items, 6% of Test	1.3 Interpret one- and two-variable data graphs to answer questions about a situation. (1 item)	Full	4.12.1 - 4.12.5	
	Standard Set 2.0 Students make predictions for simple probability situations:			
	2.1 Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams). (⅔ item)	Full	4.12.6 4.12.7	
	2.2 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; ¾). (⅔ item)	Full	4.12.8	
	Standard Set 1.0 Students make decisions about how to approach problems:			
	1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.	Full	4.4.1 – 4.4.3 4.5.1 4.5.2 4.5.3 (Optional) 4.10.3	
	1.2 Determine when and how to break a problem into simpler parts.	Full	4.5.4 4.7.1 4.10.1	
	Standard Set 2.0 Students use strategies, skills, and concepts in finding solutions:			
	2.1 Use estimation to verify the reasonableness of calculated results.	Full	4.4.4 (Optional) 4.10.4	
	2.2 Apply strategies and results from simpler problems to more complex problems.	Full	4.10.2 (Optional) 4.16.1 – 4.16.3 4.16.4 (Optional) 4.20.1 – 4.20.4 (All Optional)	

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Mathematical Reasoning Embedded	2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.	Full	4.4.1 - 4.4.5 4.5.1 - 4.5.5 4.7.1 - 4.7.5 4.10.1 - 4.10.5 4.16.1 - 4.16.5 4.20.1 - 4.20.5	
	2.4 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.	Full	4.4.1 - 4.4.5 4.5.1 - 4.5.5 4.7.1 - 4.7.5 4.10.1 - 4.10.5 4.16.1 - 4.16.5 4.20.1 - 4.20.5	
	2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	Full	4.4.4 (Optional) 4.10.4	
	2.6 Make precise calculations and check the validity of the results from the context of the problem.	Full	4.4.1 - 4.4.5 4.5.1 - 4.5.5 4.7.1 - 4.7.5 4.10.1 - 4.10.5 4.16.1 - 4.16.5 4.20.1 - 4.20.5	
	Standard Set 3.0 Students move beyond a particular problem by generalizing to other situations:			
	3.1 Evaluate the reasonableness of the solution in the context of the original situation.	Full	4.4.1 - 4.4.5 4.5.1 - 4.5.5 4.7.1 - 4.7.5 4.10.1 - 4.10.5 4.16.1 - 4.16.5 4.20.1 - 4.20.5	
	3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.	Full		
	3.3 Develop generalizations of the results obtained and apply them in other circumstances.	Full		
Total **65 Items, 100%**				