California Common Core State Standards Comparison- FOURTH GRADE

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics.
5. Use appropriate tools strategically
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Current CA Math Content Standards	# of Items	CST Released Items #	California Common Core State Standards - Mathematics	Notes
NUMBER SENSE:	**31 48%**	**46**		
NS 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.				
NS 1.1 Read and write whole numbers in the millions	3	1-3	**Generalize place value understanding for multi-digit whole numbers.** 4.NBT.2: Read and write multi-digit whole numbers using base- ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meaning of digits in each place, using >, =, and < symbols to record the results of the comparisons.	
			Generalize place value understanding for multi-digit whole numbers. 4.NBT.1: Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*	
NS 1.2 Order and compare whole numbers and decimals to two decimal places..	2	4-5	**Generalize place value understanding for multi-digit whole numbers.** 4.NBT.2: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meaning of the digits in each place using <, =, and > symbols to record the results of comparisons. 4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, and < and justify the conclusions, e.g., by using **the number line or another** visual model.	
NS 1.3: Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand.	2	6-8	**Generalize place value understanding for multi-digit whole numbers.** 4.NBT.3: Use place value understanding to round multi-digit whole numbers to any place.	

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NS 1.4: Decide when a rounded solution is called for and explain why such a solution may be appropriate.	NA		**Use the four operations with whole numbers to solve problems.** 4.OA.3: Solve multi-step problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies using rounding.	
NS 1.5: Explain different interpretations of fractions for parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see standard 4.0)	1/2	9-10		
			Extend understanding of fraction equivalence and ordering. 4.NF.1: Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	
			Extend understanding of fraction equivalence and ordering. 4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	

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			Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. 4.NF.3: Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	
			Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. 4.NF.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a*/*b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* b. Understand a multiple of *a*/*b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	

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NS 1.6: Write tenths and hundredths in decimal and fraction notation and know the fraction and decimal equivalents for halves and fourths (e.g. ½ = 0.5 or o.50; 7/4 = 1 ¾ = 1.75	1/2	11	**Understand decimal notation for fractions, and compare decimal fractions.** 4.NF.6: Use decimal notation for fractions with denominators of 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length of 0.62 meters; locate 0.62 on a number line diagram.*	
NS 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	12	**Understand decimal notation for fractions, and compare decimal fractions.** 4.NF.5: Express a fraction with denominator 10 as an equivalent fraction with a denominator 100, and use this technique to add two fractions with respective denominators 10 or 100. Use decimal notation for fractions with denominators 10 or 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.* 4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, and < and justify the conclusions, e.g., by using **the number line or another** visual model.	
NS 1.8: Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").	3	13-16		
NS 1.9: Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.	3	18-22	**Understand decimal notation for fractions, and compare decimal fractions.** 4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, and < and justify the conclusions, e.g., by using **the number line or another** visual model.	
N.S. 2.0:Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals.				
N.S. 2.1: Estimate and compute the sum or difference of whole numbers and positive decimals to two places.	1	23-24		
N.S. 2.2: Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.	1/2	25-26		

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N.S. 3.0: Students solve problems involving addition, subtraction, multiplication and division of whole numbers and understand the relationships among the operations.				
N.S. 3.1: Demonstrate an understanding of and the ability to use, standard algorithms for the addition and subtraction of multi-digit numbers.	3	27-29	**Use place value understanding and properties of operations to perform multi-digit arithmetic.** 4.NBT.4: Fluently add and subtract multi-digit whole numbers using the standard algorithm.	
N.S. 3.2: Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi-digit number by a two-digit number and for dividing a multi-digit number by a one-digit number; use relationships between them to simplify computation and to check results.	3	30-32	**Use place value understanding and properties of operations to perform multi-digit arithmetic.** 4.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 4.NBT.6: Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
N.S. 3.3: Solve problems involving multiplication of multi-digit numbers by two-digit numbers.	3	33-37		
N.S. 3.4: Solve problems involving division of multi-digit numbers by one-digit numbers.	3	38-43		
N.S. 4.0: Students know how to factor small whole numbers.				
N.S. 4.1: Understand that many whole numbers break down in different ways (e.g. 12= 4 x 3= 2 x 6 = 2 x 2 x 3)	1/2	44	**Gain familiarity with factors and multiples.** 4.OA.4: Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	
N.S. 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 factors.	2	45-46		
Algebra and Functions	**18 28%**			
AF 1.0: Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences.				

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AF 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)	1/2	47-48	**Use the four operations with whole numbers to solve problems.** 4.OA.2: Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. 4.OA.3: Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
AF 1.2: Interpret and evaluate mathematical expressions that now use parentheses.	5	49-54		
AF 1.3: Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.	3	55-57		
AF 1.4: Use and interpret formulas (e.g. area=length x width or A = lw) to answer questions about quantities and their relationships.	1	58	**Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.** 4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	
AF 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	59-62		
			Generate and Analyze Patterns 4.OA.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	

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AF 2.0: Students know how to manipulate equations.				
AF 2.1: Know and understand that equals added to equals are equal.	3	63-66		
AF 2.2: Know and understand that equals multiplied by equals are equal.	3	67-70		
Measurement and Geometry	12 18%			
MG 1.0: Students understand perimeter and area.				
			Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 4.MD.1: Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*	
			Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 4.MD.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	
MG 1.1 Measure the area of rectangular shapes by using the appropriate units, such as square centimeter (cm^2	1/2	71	**Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.** 4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	
MG 1.2: Recognize that rectangles that have the same area can have different perimeters.	1/2	72-73		

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MG 1.3: Understand that rectangles that have the same perimeter, can have different areas.	1/2	74	**Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.** 4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	
MG 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.	1/2	75-76		
MG 2.0: Students use two-dimensional coordinate grids to represent points and graph lines and simple figures.				
MG 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	77		
MG 2.2: Understand that the length of a horizontal line segment equals the difference of the x-coordinates.	2	78		
MG 2.3: Understand the length of a vertical line segment equals the difference of the y-coordinates.	2	79-81		
MG 3.0: Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.				
MG 3.1: Identify lines that are parallel and perpendicular.	1	82	**Draw and identify lines and angles, and classify shapes by properties of their lines and angles.** 4.G.1: Draw points, lines, line segments, rays, angle (right, acute, obtuse) and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.G.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **(Two dimensional shapes should include special triangles, e.g., equilateral, isosceles, scalene, and special quadrilaterals, e.g., rhombus, square, rectangle, parallelogram, trapezoid.)**	

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MG 3.2: Identify the radius and diameter of a circle	1	83		
MG 3.3: Identify congruent figures	1/3	84		
MG 3.4: Identify figures that have bilateral and rotational symmetry.	1/3	85	**Draw and identify lines and angles, and classify shapes by properties of their lines and angles.** 4.G.3: Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	
MG 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.	1/3	86	**Draw and identify lines and angles, and classify shapes by properties of their lines and angles.** 4.G.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **(Two dimensional shapes should include special triangles, e.g., equilateral, isosceles, scalene, and special quadrilaterals, e.g., rhombus, square, rectangle, parallelogram, trapezoid.)** **Geometric measurement: understand concepts of angle and measure angles.** 4.MD.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular area between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle”, and can be used to measure angles. b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	
			Geometric measurement: understand concepts of angle and measure angles. 4.MD.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	

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			Geometric measurement: understand concepts of angle and measure angles. 4.MD.7: Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	
MG 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.	1/3	87-88		
MG 3.7: Know the definitions of different triangles (e.g. equilateral, isosceles, scalene) and identify their attributes.	1/3	89	**Draw and identify lines and angles, and classify shapes by properties of their lines and angles.** 4.G.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **(Two dimensional shapes should include special triangles, e.g., equilateral, isosceles, scalene, and special quadrilaterals, e.g., rhombus, square, rectangle, parallelogram, trapezoid.)**	
MG 3.8: Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid)	1/3	90		
Statistics, Data Analysis and Probability	4 6%			
SDAP 1.0: Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings.				
SDAP 1.1: Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables and charts.	1	91-92		
SDAP 1.2: Identify the mode(s) for sets of categorical data and the mode(s), median and any apparent outliers for numerical data sets.	2/3	93		

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SDAP 1.3: Interpret one-and two-variable data graphs to answer questions about a situation.	1	94	**Represent and interpret data.** 4.MD.4: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	
SDAP 2.0: Students make predictions for simple probability situations.				
SDAP 2.1: Represent all possible outcomes for a simple probability situation in an organized way (e.g. tables, grids, tree diagrams).	2/3			
SDAP 2.2: Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; ¾)	2/3	95-96		