

Analysis of *California Mathematics* standards to *Common Core* standards-Grade 2

Strand	CA Math Standard	Domain	Common Core Standard (CCS)	Alignment	Comments in Reference to CCS
Strand Number Sense	CA Math Standard				
1.0 Number Sense	1.0 Students understand the relationship between numbers, quantities, and place value in whole numbers up to 1,000.	Numbers and Operations in Base Ten	2.NBT: Understand Place Value. Use place value understanding and properties of operations to add and subtract. (Cluster Statement)	Yes	
	1.1 Count, read, and write whole numbers to 1,000 and identify the place value for each digit.	Numbers and Operations in Base Ten	2.NBT.1: Understand that the three-digit number represent amounts of hundreds, tens and ones; e.g. 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: 2.NBT.1a: 100 can be thought of as a bundle of ten tens-called a “hundred.” 2.NBT.1b: The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). 2.NBT.2: Count within 1000; skip-count by 5s, 10s and 100s. 2.NBT.3: Read and write numbers to 1000 using base-ten numerals, number names and expanded form.	Yes	
	1.2 Use words, models, and expanded forms (e.g., $45 = 4 \text{ tens} + 5$) to represent numbers (to 1,000).	Numbers and Operations in Base Ten	2.NBT.3: Read and write numbers to 1000 using base-ten numerals, number names and expanded form.	Yes	

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	1.3 Order and compare whole numbers to 1,000 by using the symbols $<$, $=$, $>$.	Numbers and Operations in Base Ten	2.NBT.4: Compare two three-digit numbers based on meanings of the hundreds, tens and ones digits, using $>$, $=$, and $<$ symbols to record the results of the comparisons.	Yes	
2.0 Number Sense	2.0 Students estimate, calculate, and solve problems involving addition and subtraction of two- and three-digit numbers.	Numbers and Operations in Base Ten	2.NBT.1: (Cluster Statement) Use place value understanding and properties of operations to add and subtract.	Yes	
	2.1 Understand and use the inverse relationship between addition and subtraction (e.g., an opposite number sentence for $8 + 6 = 14$ is $14 - 6 = 8$) to solve problems and check solutions.	Numbers and Operations in Base Ten	<p>2.NBT.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p>2.NBT.7: Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p> <p>2.NBT.9: Explain why addition and subtraction strategies work, using place value and the properties of operations.</p>	Yes	

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	2.2 Find the sum or difference of two whole numbers up to three digits long.	Numbers and Operations in Base Ten	<p>2.NBT.6: Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p>2.NBT.7: Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p>	Yes	
	2.3 Use mental arithmetic to find the sum or difference of two two-digit numbers.	Operations and Algebraic Thinking	<p>2.OA.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using drawing and equations with a symbol for the unknown number to represent the problem.</p> <p>2.OA.2: Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.</p>	Yes	
		Number and Operations in Base Ten	2.NBT.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.		

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			2.NBT.8: Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.		
3.0 Number Sense	3.0 Students model and solve simple problems involving multiplication and division.			No	2.OA: (Cluster Statement) Represent and solve problems involving multiplication and division.
	3.1 Use repeated addition, arrays, and counting by multiples to do multiplication.	Operations and Algebraic Thinking	2.OA.4: Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	Partial	3.OA.3: Use multiplication and division with 100 to solve word problem in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. CCS only looks at arrays up to 5 by 5. CCS does not mention counting by multiples.
	3.2 Use repeated subtraction, equal sharing, and forming equal groups with remainders to do division.			No	3.OA.3: Use multiplication and division with 100 to solve word problem in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
	3.3 Know the multiplication tables of 2s, 5s, and 10s (to “times 10”) and commit them to memory.			No	3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one know $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
4.0 Number Sense	4.0 Students understand that fractions and decimals may refer to parts of a set and parts of a whole.			No	3.NF: Develop an understanding of fractions as numbers. (Cluster Statement)

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					CCS does not mention parts of sets, nor does it mention decimals.
	4.1 Recognize, name, and compare unit fractions from $\frac{1}{2}$ to $\frac{1}{12}$.			No	3.NF.1: Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. 3.NF.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram. CCS does not name the specific fractions and uses the number line to identify.
	4.2 Recognize fractions of a whole and parts of a group (e.g., one-fourth of a pie, two-thirds of 15 balls).			No	3.NF.1: Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. CCS does not mention parts of groups.
	4.3 Know that when all fractional parts are included, such as four-fourths, the result is equal to the whole and to one.	Geometry	2.G.3: Partition circles and rectangles into two, three, or four equal shares, describe the shares using words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	Yes	
5.0 Number Sense	5.0 Students model and solve problems by representing, adding, and subtracting amounts of money.	Measurement and Data	2.MD: Work with time and money. (Cluster Statement)	Yes	
	5.1 Solve problems using combinations of coins and bills.	Measurement and Data	2.MD.8: Solve word problems involving dollar bills, quarters, dimes, nickels and pennies, using dollar and cent symbols appropriately.	Yes	

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	5.2 Know and use the decimal notation and the dollar and cent symbols for money.			No	Decimal notation occurs in Grade 4 of the CCS, but not in relation to money.
6.0 Number Sense	6.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, hundreds, and thousands places.			No	CCS does not reference estimation directly. In the Mathematical Practice standards, CCS implies a thorough understanding of the concepts so students could develop strong estimation skills as a byproduct of the depth of understanding.
	6.1 Recognize when an estimate is reasonable in measurements (e.g., closest inch).			No	
Strand Algebra and Functions	CA Math Standard				
1.0 Algebra and Functions	1.0 Students model, represent, and interpret number relationships to create and solve problems involving addition and subtraction.			No	3.OA: (Cluster Statement) Represent and solve problems involving addition and subtraction.
	1.1 Use the commutative and associative rules to simplify mental calculations and to check results.			No	3.OA.5: Apply properties of operations as strategies to multiply and divide. CCS applies to multiplication
	1.2 Relate problem situations to number sentences involving addition and subtraction.	Operations and Algebraic Thinking Number and Operations in Base Ten	2.OA.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. 2.NBT.7: Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of	Yes	

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			operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.		
	1.3 Solve addition and subtraction problems by using data from simple charts, picture graphs, and number sentences.	Number and Operations in Base Ten	2.NBT.7: Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	Yes	
Strand Measurement and Geometry	CA Math Standard				
1.0 Measurement and Geometry	1.0 Students understand that measurement is accomplished by identifying a unit of measure, iterating (repeating) that unit, and comparing it to the item to be measured.	Measurement and Data	2.MD: Measure and estimate lengths in standard units. (Cluster Statement)	Yes	
	1.1 Measure the length of objects by iterating (repeating) a nonstandard or standard unit.	Measurement and Data	2.MD 1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks and measuring tapes.	Yes	CCS does not ask for nonstandard unit

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	1.2 Use different units to measure the same object and predict whether the measure will be greater or smaller when a different unit is used.	Measurement and Data	2.MD 2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	Yes	
	1.3 Measure the length of an object to the nearest inch and/or centimeter.	Measurement and Data	2.MD 9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	Yes	
	1.4 Tell time to the nearest quarter hour and know relationships of time (e.g., minutes in an hour, days in a month, weeks in a year).	Measurement and Data	2.MD 7: Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Partial	CCS does not ask for minutes in an hour, days in a month, weeks in a year.
	1.5 Determine the duration of intervals of time in hours (e.g., 11:00 a.m. to 4:00 p.m.).			No	3.MD.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
2.0 Measurement and Geometry	2.0 Students identify and describe the attributes of common figures in the plane and of common objects in space.	Geometry	2.G: Reason with shapes and their attributes. (Cluster Statement)	Yes	
	2.1 Describe and classify plane and solid geometric shapes (e.g., circle, triangle, square, rectangle, sphere, pyramid, cube, rectangular prism) according to the number and shape of faces, edges, and vertices.	Geometry	2.G 1: Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons and cubes.	Partial	CCS list of plane and solid shapes does not match CA.

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	2.2 Put shapes together and take them apart to form other shapes (e.g., two congruent right triangles can be arranged to form a rectangle).			No	1.G.2: Compose two-dimensional shapes (rectangles, squares, trapezoids, triangle, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composed shape.
Strand Statistics, Data Analysis and Probability	CA Math Standard				
1.0 Statistics, Data Analysis, and Probability	1.0 Students collect numerical data and record, organize, display, and interpret the data on bar graphs and other representations.	Measurement and Data	2.MD: Represent and interpret data. (Cluster Statement)	Yes	
	1.1 Record numerical data in systematic ways, keeping track of what has been counted.	Measurement and Data	2.MD 10: Draw a picture graph and bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	Yes	
	1.2 Represent the same data set in more than one way (e.g., bar graphs and charts with tallies).	Measurement and Data	2.MD 10: Draw a picture graph and bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	Yes	
	1.3 Identify features of data sets (range and mode).			No	6.SP.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

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					overall shape.
	1.4 Ask and answer simple questions related to data representations.	Measurement and Data	2.MD 10: Draw a picture graph and bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	Yes	
2.0 Statistics, Data Analysis, and Probability	2.0 Students demonstrate an understanding of patterns and how patterns grow and describe them in general ways.			No	3.OA: (Cluster Statement) Solve problems involving the four operations, and identify and explain patterns in arithmetic.
	2.1 Recognize, describe, and extend patterns and determine a next term in linear patterns (e.g., 4, 8, 12 . . . ; the number of ears on one horse, two horses, three horses, four horses).			No	3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
	2.2 Solve problems involving simple number patterns.			No	3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. CCS does not directly state “solve”.
Strand Mathematical Reasoning	CA Math Standard				
1.0 Mathematical Reasoning	1.0 Students make decisions about how to set up a problem.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	
	1.1 Determine the approach, materials, and strategies to be used.	Mathematical Practice Standards	MP5: Use appropriate tools strategically.	Yes	
	1.2 Use tools, such as manipulatives or sketches, to model problems.	Mathematical Practice Standards	MP4: Model with mathematics. MP5: Use appropriate tools strategically.	Yes	

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2.0 Mathematical Reasoning	2.0 Students solve problems and justify their reasoning.	Mathematical Practice Standards	MP3: Construct viable arguments and critique the reasoning of others.	Yes	
	2.1 Defend the reasoning used and justify the procedures selected.	Mathematical Practice Standards	MP3: Construct viable arguments and critique the reasoning of others.	Yes	
	2.2 Make precise calculations and check the validity of the results in the context of the problem.	Mathematical Practice Standards	MP6: Attend to precision.	Yes	
3.0 Mathematical Reasoning	3.0 Students note connections between one problem and another.	Mathematical Practice Standards	MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.	Yes	

Grade 2 Common Core Standards not found in Grade 2 CA Mathematics Standards

Domain	Common Core standard	Found in CA Math Standards
Operations and Algebraic Thinking	2.OA.3: Determine whether a group of objects (up to 10) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	No
Measurement and Data	2.MD 3: Estimate lengths using units of inches, feet, centimeters and meters.	No
Measurement and Data	2.MD 4: Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	No
Measurement and Data	2.MD 5: Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for an unknown to represent the problem.	No
Measurement and Data	2.MD 6: Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	No
Geometry	2.G.2: Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	No

Grade 2 CA Mathematics Standards not found in the Grade 2 Common Core Standards

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3.0 Number Sense	3.0 Students model and solve simple problems involving multiplication and division.	Yes. 2.OA: (Cluster Statement) Represent and solve problems involving multiplication and division.
3.0 Number Sense	3.2 Use repeated subtraction, equal sharing, and forming equal groups with remainders to do division.	Yes. 3.OA.3: Use multiplication and division with 100 to solve word problem in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
3.0 Number Sense	3.3 Know the multiplication tables of 2s, 5s, and 10s (to “times 10”) and commit them to memory.	Yes. 3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one know $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
4.0 Number Sense	4.0 Students understand that fractions and decimals may refer to parts of a set and parts of a whole.	Yes. 3.NF: Develop an understanding of fractions as numbers. (Cluster Statement) CCS does not mention parts of sets, nor does it mention decimals.
4.0 Number Sense	4.1 Recognize, name, and compare unit fractions from $\frac{1}{2}$ to $\frac{1}{12}$.	Yes. 3.NF.1: Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. 3.NF.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram. CCS does not name the specific fractions and uses the number line to identify.

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4.0 Number Sense	4.2 Recognize fractions of a whole and parts of a group (e.g., one-fourth of a pie, two-thirds of 15 balls).	Yes. 3.NF.1: Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$. CCS does not mention parts of groups.
Number Sense 5.0	5.2 Know and use the decimal notation and the dollar and cent symbols for money.	No. Decimal notation occurs in Grade 4 of the CCS, but not in relation to money.
Number Sense 6.0	6.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, hundreds, and thousands places.	No. CCS does not reference estimation directly. In the Mathematical Practice standards, CCS implies a thorough understanding of the concepts so students could develop strong estimation skills as a byproduct of the depth of understanding.
Number Sense 6.0	6.1 Recognize when an estimate is reasonable in measurements (e.g., closest inch).	No.
1.0 Algebra and Functions	1.0 Students model, represent, and interpret number relationships to create and solve problems involving addition and subtraction.	Yes. 3.OA: Represent and solve problems involving addition and subtraction. (Cluster Statement)
1.0 Algebra and Functions	1.1 Use the commutative and associative rules to simplify mental calculations and to check results.	Yes. 3.OA.5: Apply properties of operations as strategies to multiply and divide. CCS applies to multiplication
1.0 Measurement and Geometry	1.5 Determine the duration of intervals of time in hours (e.g., 11:00 a.m. to 4:00 p.m.).	Yes. 3.MD.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

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2.0 Measurement and Geometry	2.2 Put shapes together and take them apart to form other shapes (e.g., two congruent right triangles can be arranged to form a rectangle).	Yes. 1.G.2: Compose two-dimensional shapes (rectangles, squares, trapezoids, triangle, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composted shape.
1.0 Statistics, Data Analysis, and Probability	1.3 Identify features of data sets (range and mode).	Yes. 6.SP.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.
2.0 Statistics, Data Analysis, and Probability	2.0 Students demonstrate an understanding of patterns and how patterns grow and describe them in general ways.	Yes. 3.OA: (Cluster Statement) Solve problems involving the four operations, and identify and explain patterns in arithmetic.
	2.1 Recognize, describe, and extend patterns and determine a next term in linear patterns (e.g., 4, 8, 12 . . . ; the number of ears on one horse, two horses, three horses, four horses).	Yes. 3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
	2.2 Solve problems involving simple number patterns.	Yes. 3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. CCS does not directly state “solve”.