MATH - Grade 4

CUSD303

Year 2012-2013

Domain	Cluster Standard	Standard	Skill Statement	Resources
Operations and Algebraic Thinking	Use the four operations with whole numbers to solve problems	4.OA1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations	4.OA1 Interpret a multiplication equation as a comparison 4.OA1 Represent verbal statements of multiplicative comparisons as multiplication equations	*Eureka Math, 2015 (Great Minds)*
		4.OA2 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.OA2 Multiply or divide to solve word problems involving multiplicative comparison	
		4.OA3 Solve multistep 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	4.OA3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted 4.OA3 Represent these problems using equations with a letter standing for the unknown quantity	
	Gain familiarity with factors and multiples	4.OA4 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	4.OA4 Find all factor pairs for a whole number in the range 1–100 4.OA4 Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number 4.OA4 Determine whether a given whole number in the range 1–100 is prime or composite	
	Generate and analyze patterns	4.OA5 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	4.OA5 Generate a number or shape pattern that follows a given rule 4.OA5 Explain informally why the numbers will continue to alternate in this way 4.OA5 Analyze and explain features of a pattern that were not explicit in the rule itself	
Number and Operations in Base Ten	Generalize place value understanding for multi-digit whole numbers	4.NBT1 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	4.NBT1 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	
		4.NBT2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons	4.NBT2 Read and write multi-digit whole numbers using base-ten numerals 4.NBT2 Read and write multi-digit whole numbers using number names 4.NBT2 Read and write multi-digit whole numbers using expanded form 4.NBT2 Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons	

Domain	Cluster Standard	Standard	Skill Statement	Resources
Number and Operations in Base Ten *(cont'd)*	Generalize place value understanding for multi-digit whole numbers *(cont'd)*	4.NBT3 Use place value understanding to round multi-digit whole numbers to any place	T1.4.NBT3 Round whole numbers to the nearest 10 or 100 using place value understanding	*Eureka Math, 2015 (Great Minds)*
			4.NBT3 Round multi-digit whole numbers to any place using place value understanding	
	Use place value understanding and properties of operations to perform multi-digit arithmetic	4.NBT4 Fluently add and subtract multi-digit whole numbers using the standard algorithm**	4.NBT4 Add and subtract multi-digit whole numbers using the standard algorithm accurately	
		4.NBT5 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.NBT5 Multiply a whole number of up to four digits by a one-digit whole number using strategies based on place value and the properties of operations Illustrate and explain the calculations using equations, rectangular arrays, area models, or other strategies as appropriate	
			4.NBT5 Multiply two two-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the calculations using equations, rectangular arrays, area models, or other strategies as appropriate	
		4.NBT6 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	4.NBT6 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 calculations using equations, rectangular arrays, area models, or other strategies as appropriate	
Numbers and Operations- Fractions	Extend understanding of fraction equivalence and ordering	4.NF1 Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × 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	4.NF1 Explain why a fraction is equivalent to a fraction 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	
			4.NF1 Generate equivalent fractions using formula a/b = (n × a)/(n × b)	
		4.NF2 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	4.NF2 Compare two fractions with different numerators and different denominators by creating common denominators or numerators	
			4.NF2 Compare two fractions with different numerators and different denominators by comparing to a benchmark fraction such as 1/2	
			4.NF2 Recognize that comparisons are valid only when the two fractions refer to the same whole	
			4.NF2 Record the results of comparisons with symbols >, =, or <	
			4.NF2 Justify fractional ordering using visual fraction model or other strategy	
	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers	4.NF3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b	4.NF3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b	
		4.NF3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole	4.NF3a Recognize that addition and subtraction of fractions as joining and separating parts referring to the same whole	
		4.NF3b 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	4.NF3b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation	
			4.NF3b Justify decompositions using a visual fraction model or other strategy	

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Numbers and Operations- Fractions *(cont'd)*	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers *(cont'd)*	4.NF3c 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	T1.4.NF3c Define the properties of operations and the relationship between addition and subtraction	*Eureka Math, 2015 (Great Minds)*
			4.NF3c Add and subtract mixed numbers with like denominators by using properties of operations and the relationship between addition and subtraction	
			4.NF3c Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction	
		4.NF3d 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	4.NF3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators by using visual fraction models and equations to represent the problem. Justify your answer	
		4.NF4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number	4.NF4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number	
		4.NF4a 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)	4.NF4a Explain how a fraction a/b is a multiple of 1/b	
		4.NF4b 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)	4.NF4b Explain how a multiple of a/b as a multiple of 1/b and use this understanding to multiply a fraction by a whole number	
		4.NF4c 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?	4.NF4c Solve word problems involving multiplication of a fraction by a whole number by using visual fraction models and equations to represent the problem and explain your thinking	
	Understand decimal notation for fractions, and compare decimal fractions	4NF5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.4 For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100	4.NF5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100	
			4.NF5 Add two fractions with respective denominators 10 and 100	
		4.NF6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram	4.NF6 Record fractions with denominators 10 or 100 in decimal notation	
		4.NF7 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 >, =, or <, and justify the conclusions, e.g., by using a visual model	4.NF7 Compare two decimals to hundredths by reasoning about their size	
			4.NF7 Recognize that comparisons are valid only when the two decimals refer to the same whole	
			4.NF7 Record the results of comparisons with the symbols >, =, or <	
			4.NF7 Justify the conclusions of decimal comparisons by using a visual model	

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Measurement and Data	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit	4.MD1 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), ...	4.MD1 Recall relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb., oz.; l, ml; hr., min, sec	*Eureka Math, 2015 (Great Minds)*
			4.MD1 Convert measurements in a larger unit to a smaller unit within a single system of measurement	
			4.MD1 Record measurement equivalents in a two column table	
		4.MD2 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	4.MD2 Solve word problems using the four operations involving distances including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit	
			T1.4.MD2 Tell and write time to the nearest minute and measure time intervals in minutes	
			T1.4.MD2 Solve word problems involving addition and subtraction of time intervals in minutes.	
			T1.4.MD2 Measure and estimate liquid volumes and masses of objects using standard units of grams(g), kilograms(kg), and liters(l)	
			T1.4.MD2 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with measurement scale to represent the problem)	
			4.MD2 Solve word problems using the four operations involving intervals of time including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit and explain your thinking	
			4.MD2 Solve word problems using the four operations involving liquid volumes including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit and explain your thinking	
			4.MD2 Solve word problems using the four operations involving masses of objects including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit and explain your thinking	
			4.MD2 Solve word problems using the four operations involving 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 and explain your thinking	
Measurement and Data *(cont'd)*	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit *(cont'd)*		4.MD2 Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit and explain your thinking	*Eureka Math, 2015 (Great Minds)*

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		4.MD3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor	4.MD3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems	
	Represent and interpret data	4.MD4 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	T1.4.MD4 Gather measurement data by measuring lengths using rulers marked with halves and fourths of an inch	
			T1.4.MD4 Show the data by make a line plot, where the horizontal scale is marked off in appropriate units-whole numbers, halves, or quarters	
			4.MD4 Graph a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8)	
	Geometric measurement: understand concepts of angle and measure angles	4.MD5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	4.MD4 Solve problems involving addition and subtraction of fractions by using information presented in line plots	
		4.MD5a 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 arc 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	4.MD5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	
			4.MD5a Recognize that an angle is measured with reference to a circle	
		4.MD5b An angle that turns through n one-degree angles is said to have an angle measure of n degrees	4.MD5a Recognize that a circle is 360 degrees	
		4.MD6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure	4.MD5b Recognize that an angle that turns through n one-degree angles is said to have an angle measure of n degrees	
			4.MD6 Measure angles in whole-number degrees using a protractor	
		4.MD7 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	4.MD6 Construct angles of specified measure	
			4.MD7 Recognize angle measure as additive	
		4.G1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures	4.MD7 Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems	
			4.G1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines	

Domain	Cluster Standard	Standard	Skill Statement	Resources
Measurement and Data (cont'd)	Geometric measurement: understand concepts of angle and measure angles *(cont'd)*	4.G2 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	4.G1 Identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines in two-dimensional figures	*Eureka Math, 2015 (Great Minds)*
			4.G2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines	
			4.G2 Classify two-dimensional figures based on the presence or absence of angles of a specified size	
Geometry	Draw and identify lines and angles, and classify shapes by properties of their lines and angles	4.G3 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	4.G2 Recognize right triangles as a category, and identify right triangles	
			4.G3 Recognize a line of symmetry for a two-dimensional figure as a line	
**Fluency	Use place value understanding and properties of operations to perform multi-digit arithmetic	4.NBT4 Fluently add and subtract multi-digit whole numbers using the standard algorithm	4.G3 Draw lines of symmetry	
Literacy of Math	Craft and Structure	RST4 Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone	4.NBT4 Add and subtract multi-digit whole numbers using the standard algorithm accurately	
	Integration of Knowledge and Ideas	RST7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words	4.RST4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area	
	Text Types and Purposes	WHST2 Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content	4.RST7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive	
			4.WHST2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly	
			4.WHST2a Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to	
			4.WHST2b Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic	
			4.WHST2c Link ideas within categories of information using words and phrases (e.g., another, for example, also, because)	
			4.WHST2d Use precise language and domain-specific vocabulary to inform about or explain the topic	
Mathematical Practices			4.WHST2e Provide a concluding statement or section related to the	
			MP1 Make sense of problems and persevere in solving them	
			MP2 Reason abstractly and quantitatively	
			MP3 Construct viable arguments and critique the reasoning of others	
			MP4 Model with mathematics	
			MP5 Use appropriate tools strategically	
			MP6 Attend to precision	
			MP7 Look for and make use of structure	
			MP8 Look for and express regularity in repeated reasoning	