

# MATH - Grade 3

CUSD 303

Year 2012-2013

Domain	Cluster Standard	Standard	Skill Statement	Resources
Operations and Algebraic Thinking	Represent and solve problems involving multiplication and division	3.OA1 Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as $5 \times 7$	T1.3.OA1 Explain the meaning of factors and products	<i>Eureka Math, 2015 (Great Minds)</i>
			3.OA1 Interpret products of whole numbers given the factors	
			3.OA1 Interpret the factors given the product	
			T1.3.OA1 Apply repeated addition using physical models	
			3.OA1 Represent factors and products using physical models	
		3.OA2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 6 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$	T1.3.OA2 Explain the meaning of quotients	
			3.OA2 Interpret whole-number quotients of whole numbers	
		3.OA3 Use multiplication and division within 100 to solve word problems 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.OA3 Apply multiplication and division within 100 to solve word problems in situations involving equal groups	
			3.OA3 Apply multiplication and division within 100 to solve word problems in situations involving arrays	
			T1.3.OA3 Articulate measurement conversions	
		3.OA4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$ , $5 = \square \div 3$ , $6 \times 6 = ?$	3.OA3 Apply multiplication and division within 100 to solve word problems in situations involving measurement quantities	
			3.OA4 Recognize the relationship of three whole numbers within an equation	
	Understand properties of multiplication and the relationship between multiplication and division	3.OA5 Apply properties of operations as strategies to multiply and divide. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$ , then $15 \times 2 = 30$ , or by $5 \times 2 = 10$ , then $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$ , one can find $8 \times 7$ as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property)	3.OA4 Solve to find the unknown whole number in a multiplication or division equation with three whole numbers	
			T1.3.OA5 Articulate the properties of operation (commutative, associative, distributive)	
			3.OA5 Apply the commutative property of operations as a strategy to multiply and divide	
			3.OA5 Apply the associative property of operations as a strategy to multiply and divide	
	Multiply and divide within 100	3.OA6 Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8	3.OA5 Apply the distributive property of operations as a strategy to multiply and divide	
			3.OA6 Explain the relationship of multiplication and division when solving a division equation for an unknown factor	
			3.OA7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division	
		3.OA7 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 knows $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers**	3.OA7 Fluently multiply and divide within 100, using strategies such as properties of operations	
			3.OA7 Fluently recall from memory by the end of third grade all products of two one-digit numbers	

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Operations and Algebraic Thinking ( <i>cont'd</i> )	Solve problems involving the four operations, and identify and explain patterns in arithmetic	3.OA8 Solve two-step word problems using the four operations. 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	T1.3.OA8 Solve one-step word problems using multiplication and division	<i>Eureka Math, 2015 (Great Minds)</i>
			3.OA8 Solve two-step word problems using addition and subtraction	
			3.OA8 Solve two-step word problems using multiplication and division	
			T1.3.OA8 Recognize a variable's purpose within an equation	
			3.OA8 Represent two-step word problems using equations with a letter standing for the unknown quantity	
			3.OA8 Assess the reasonableness of answers using mental computation	
			3.OA8 Assess the reasonableness of answers using estimation strategies including rounding	
		3.OA9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends	3.OA9 Identify arithmetic patterns (including patterns in the addition table or multiplication table)	
			3.OA9 Explain arithmetic patterns using properties of addition and subtraction	
			3.OA9 Explain arithmetic patterns using properties of multiplication and division	
Number and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic	3.NBT1 Use place value understanding to round whole numbers to the nearest 10 or 100	3.NBT1 Apply place value understanding to round whole numbers to the nearest 10 or 100	
		3.NBT2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction**	3.NBT2 Fluently add and subtract within 1000 using strategies and algorithms based on place value	
			3.NBT2 Fluently add and subtract within 1000 using strategies and algorithms based on properties of operations	
			3.NBT2 Fluently add and subtract within 1000 using strategies and algorithms based on the relationship between addition and subtraction	
		3.NBT3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., $9 \times 80$ , $5 \times 60$ ) using strategies based on place value and properties of operations	3.NBT3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and properties of operations	
Numbers and Operations- Fractions	Develop understanding of fractions as numbers	3.NF1 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.NF1 Determine a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into $b$ equal parts	
			3.NF1 Interpret a fraction as $\frac{a}{b}$ as the quantity formed by the parts of size $\frac{1}{b}$	
		3.NF2 Understand a fraction as a number on the number line; represent fractions on a number line diagram	3.NF2 Explain a fraction as a number on the number line	
			3.NF2 Represent fractions on a number line diagram	
		3.NF2a Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into $b$ equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line	3.NF2a Represent a fraction $\frac{1}{b}$ on a number line diagram	
			3.NF2a Define the interval from 0 to 1 as the whole and partitioning it into $b$ equal parts as the fraction	
			3.NF2a Recognize that each part is the size of $\frac{1}{b}$ and that the endpoint of the first interval is the fraction $\frac{1}{b}$ on the number line	
		3.NF2b Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off $a$ lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line	3.NF2b Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off $a$ lengths $\frac{1}{b}$ from 0	
			3.NF2b Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line	
		3.NF3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size	3.NF3 Explain equivalent fractions	
3.NF3 Compare fractions by reasoning about their size				

Domain	Cluster Standard	Standard	Skill Statement	Resources
Numbers and Operations- Fractions (cont'd)	Develop understanding of fractions as numbers (cont'd)	3.NF3a Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line	3.NF3a Recognize two fractions as equivalent (equal) if they are the same size, or the same point on a number line	Eureka Math, 2015 (Great Minds)
		3.NF3b Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$ , $4/6 = 2/3$ . Explain why the fractions are equivalent, e.g., by using a visual fraction model	3.NF3b Recognize and generate simple equivalent fractions	
			3.NF3b Explain why the fractions are equivalent	
		3.NF3c Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$ ; recognize that $6/1 = 6$ ; locate $4/4$ and 1 at the same point of a number line diagram	3.NF3c Explain whole numbers as fractions	
			3.NF3c Recognize fractions that are equivalent to whole numbers	
		3.NF3d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$ , $=$ , or $<$ , and justify the conclusions, e.g., by using a visual fraction model	3.NF3d Compare two fractions with the same numerator or the same denominator by reasoning about their size	
			3.NF3d Explain that comparisons are valid only when the two fractions refer to the same whole	
			3.NF3d Record the results of comparisons with the symbols $>$ , $=$ , or $<$	
		3.NF3d Justify the conclusions of fractional comparisons		
Measurement and Data	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects	3.MD1 Write time to the nearest minute	3.MD1 Tell time to the nearest minute	
			3.MD1 Write time to the nearest minute	
		3.MD2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l) 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 a measurement scale) to represent the problem	3.MD2 Estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l)	
			3.MD2 Measure liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l)	
	3.MD2 Represent one-step word problems involving masses or volumes that are given in the same units through addition, subtraction, multiplication, or division			
	Represent and interpret data	3.MD3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets	3.MD3 Represent a data set with several categories using a scaled picture graph	
			3.MD3 Represent a data set with several categories using a scaled bar graph	
			3.MD3 Solve one-step “how many more” and “how many less” problems using information presented in scaled bar graphs	
			3.MD3 Solve two-step “how many more” and “how many less” problems using information presented in scaled bar graphs	
		3.MD4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters	3.MD4 Generate measurement data by measuring lengths using rulers marked with whole numbers	
			3.MD4 Generate measurement data by measuring lengths using rulers marked with halves of an inch	
			3.MD4 Generate measurement data by measuring lengths using rulers marked with fourths of an inch	
			3.ND4 Represent the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters	
	Geometric measurement: understand concepts of area and relate area to multiplication and to addition	3.MD5 Recognize area as an attribute of plane figures	3.MD5 Recognize area as an attribute of a plane figure	
			3.MD5 Understand concepts of area measurements	
		3.MD5a A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area	3.MD5a Determine and articulate that a square with a side length, 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area	

Domain	Cluster Standard	Standard	Skill Statement	Resources
Measurement and Data ( <i>cont'd</i> )	Geometric measurement: understand concepts of area and relate area to multiplication and to addition ( <i>cont'd</i> )	3.MD5b A plane figure which can be covered without gaps or overlaps by $n$ unit squares is said to have an area of $n$ square units	3.MD5b Recognize that a plane figure that can be covered without gaps or overlaps by $n$ unit squares is said to have an area of $n$ square units	<i>Eureka Math, 2015 (Great Minds)</i>
		3.MD6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)	3.MD6 Measure areas by counting unit squares	
		3.MD7 Relate area to the operations of multiplication and addition	3.MD7 Establish the relationship of area to the operations of multiplication and addition	
		3.MD7a Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths	3.MD7a Represent the area of a rectangle with whole-number side lengths by tiling it	
			3.MD7a Discover that the area is the same as would be found by multiplying the side lengths	
		3.MD7b Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning	3.MD7b Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems	
			3.MD7b Represent whole-number products as rectangular areas in mathematical reasoning	
		3.MD7c Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths $a$ and $b + c$ is the sum of $a \times b$ and $a \times c$ . Use area models to represent the distributive property in mathematical reasoning	3.MD7c Represent the area of a rectangle with whole number side lengths through tiling to show $a$ and $b + c$ is the sum of $a \times b$ and $a \times c$	
			3.MD7c Represent the distributive property in mathematical reasoning using area models	
		3.MD7d Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems	3.MD7d Recognize area as additive	
			3.MD7d Recognize that any figure composed of straight lines can be decomposed into non-overlapping rectangles. Determine the area of this figure by adding the area of the non-overlapping parts	
			3.MD7d Apply composing and decomposing to find area in real-world problems	
	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures	3.MD8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters	3.MD8 Solve to find the perimeter in real world and mathematical problems given the side lengths	
			3.MD8 Solve to find the perimeter in real world and mathematical problems of an unknown side length	
			3.MD8 Compare rectangles with the same perimeter and different areas	
			3.MD8 Compare rectangles with the same area and different perimeters	
Geometry	Reason with shapes and their attributes	3.G1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories	T1.3.G1 Recognize shared attributes of various shapes	
			3.G1 Recognize that shapes in different categories may share attributes	
			3.G1 Recognize that the shared attributes can define a larger category	
			T1.3.G1 Compare and contrast quadrilaterals	
			3.G1 Recognize rhombuses, rectangles, and squares as examples of quadrilaterals	
			3.G1 Draw examples of quadrilaterals that do not belong to any of these subcategories	

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Geometry (cont'd)	Reason with shapes and their attributes (cont'd)	3.G2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape	3.G2 Partition shapes into parts with equal areas 3.G2 Express the area of each part as a unit fraction of the whole	Eureka Math, 2015 (Great Minds)
**Fluency	Multiply and divide within 100	3.OA7 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 knows $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers	3.OA7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division	
	Use place value understanding and properties of operations to perform multi-digit arithmetic	3.NBT2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction	3.NBT2 Fluently add and subtract within 1000 using strategies and algorithms based on place value	
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	3.RST4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area	
	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	3.RST7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur)	
	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	3.WHST2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly	
			3.WHST2a Introduce a topic and group related information together; include illustrations when useful to aiding comprehension	
			3.WHST2b Develop the topic with facts, definitions, and details	
			3.WHST2c Use linking words and phrases (e.g., also, another, and, more, but) to connect ideas within categories of information	
			3.WHST2d Provide a concluding statement or section	
Mathematical Practices			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	