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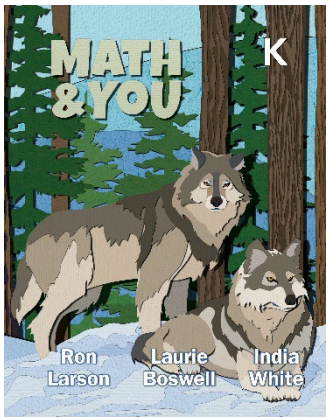
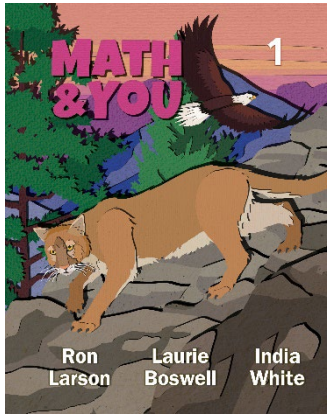
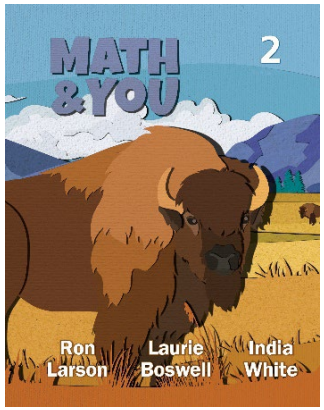
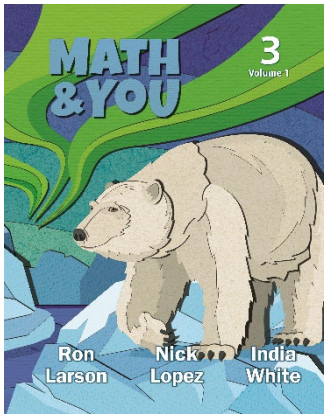
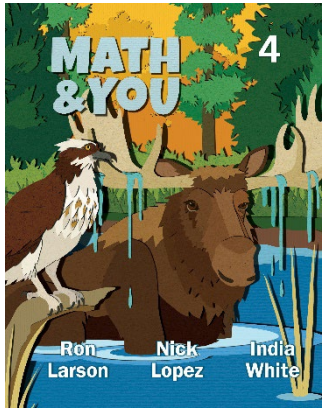
Grades K – 5

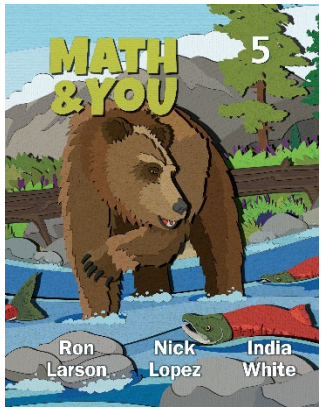












Big Ideas Learning

Standard		Kindergarten
Grade K		
Counting and Cardinality		
Know number names and the count sequence		
M.K.1	Count to 100 by ones and by tens.	9.4, 10.1, 10.2, 10.3, 10.4
M.K.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	3.11, 9.4, 9.5, 10.1, 10.2, 10.3
M.K.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	1.2, 1.4, 1.6, 1.7, 1.8, 3.2, 3.4, 3.6, 3.8, 3.10, 3.11, 4.5, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 9.2, 9.4, 9.5
Count to tell the number of objects.		
M.K.4	Understand the relationship between numbers and quantities; connect counting to cardinality.	
	a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.	1.1, 1.3, 1.5, 3.1, 3.3, 3.5, 3.7, 3.9, 8.1, 8.2, 8.4, 8.6, 8.8, 8.10, 9.1, 9.2, 9.3
	b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.	1.1, 1.3, 1.5, 3.1, 3.3, 3.5, 3.7, 3.9, 8.1, 8.2, 8.4, 8.6, 8.8, 8.10, 9.1, 9.2, 9.3
	c. Understand that each successive number name refers to a quantity that is one larger.	1.8, 3.11, 6.5, 9.3, 9.4
M.K.5	Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 4.2, 4.3, 4.5, 8.1, 8.2, 8.4, 8.6, 8.8, 8.10, 9.1, 9.2, 9.3, 9.5
Compare numbers.		
M.K.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.	2.1, 2.2, 2.3, 2.4, 2.5, 4.1, 4.2, 4.3, 4.5

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M.K.7	Compare and order two numbers between 0-20 presented as written numerals.	2.4, 2.5, 3.11, 4.1, 4.2, 4.3, 4.5, See Math & YOU Grade 1: lesson 7.1
Operations and Algebraic Thinking		
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.		
M.K.8	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7
M.K.9	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.10, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8
M.K.10	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).	5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 6.4
M.K.11	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	6.8, 6.9
M.K.12	Fluently add and subtract within 5 using various strategies.	6.5, 6.6, 7.4, 7.5, 7.7
Recognize patterns.		
M.K.13	Recognize and create recognizable patterns using colors, shapes, sizes, and sounds with support and guidance.	See Digital Experience Additional Topic/Lesson: *Find Patterns, Repeating Patterns, and Shape Patterns*
Number and Operations in Base Ten		
Work with numbers 11-19 to gain foundations for place value.		
M.K.14	Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11
Measurement and Data		
Describe and compare measurable attributes.		

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M.K.15	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7
M.K.16	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.	13.1, 13.2, 13.3, 13.4, 13.5, 13.6
Classify objects and count the number of objects in each category.		
M.K.17	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. Category counts should be limited to less than or equal to 10.	4.4, 4.5
Work with money.		
M.K.18	Identify coins; penny, nickel, dime, quarter	See Digital Experience Additional Topic: *Identify and Write Values of Coins*
M.K.19	Count pennies to 20.	See Digital Experience Additional Topic: *Find Total Values of Coins*
Geometry		
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).		
M.K.20	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.	12.6
M.K.21	Correctly name shapes regardless of their orientations or overall size.	11.2, 11.3, 11.4, 11.5, 12.3, 12.4, 12.6
M.K.22	Using real-life objects, dentify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).	12.1
Analyze, compare, create, and compose shapes.		
M.K.23	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).	11.1, 11.2, 11.3, 11.4, 11.5, 12.2, 12.3, 12.4
M.K.24	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	11.2, 11.3, 11.4, 11.5, 11.7, 12.3, 12.4, 12.5
M.K.25	Compose simple shapes to form larger shapes.	11.6, 12.5

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Standard		Grade 1
Grade 1		
Operations and Algebraic Thinking		
Represent and solve problems involving addition and subtraction.		
M.1.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 11.2
M.1.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	4.6, 11.2
Understand and apply properties of operations and the relationship between addition and subtraction.		
M.1.3	Apply properties of operations as strategies to add and subtract.	2.1, 2.2, 2.6, 4.4, 4.5, 4.6, 4.7, 5.3, 5.4
M.1.4	Understand subtraction as an unknown-addend problem.	2.9, 3.5, 5.2, 8.6
Add and subtract within 20.		
M.1.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	2.3, 2.7, 2.8, 2.9, 3.1, 3.2, 3.3, 4.3, 5.1, 5.2
M.1.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7

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Work with addition and subtraction equations.		
M.1.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.	1.2, 2.6, 3.6, 5.5, 5.6
M.1.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.	2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.7, 3.8, 4.2, 4.3, 4.4, 4.5, 5.1, 5.2, 5.3, 5.4
Number and Operations in Base Ten		
Extend the counting sequence.		
M.1.9	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. Skip count to 120 by 2's. Skip count to 120 by 5's and 10's	6.1, 6.2, 6.9, See Digital Experience Additional Lesson: *Number Patterns*
Understand place value.		
M.1.10	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:	
	a. 10 can be thought of as a bundle of ten ones — called a "ten."	6.3, 6.4, 6.5, 6.6, 6.7, 6.8
	b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	6.3, 7.1
	c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	6.4, 6.5, 6.6, 6.7, 6.8, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7
M.1.11	Compare and order two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	7.1, 7.2, 7.3, 7.4, 7.5, 7.6
Use place value understanding and properties of operations to add and subtract.		
M.1.12	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	8.1, 8.2, 8.3, 8.6, 8.7, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6
M.1.13	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	7.6, 8.1

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M.1.14	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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 and explain the reasoning used.	8.4, 8.5, 8.6
Measurement and Data		
Measure lengths indirectly and by iterating length units.		
M.1.15	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	10.1, 10.2
M.1.16	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.	10.3, 10.4
Work with time and money.		
M.1.17	Tell and write time in hours and half-hours using analog and digital clocks.	11.3, 11.4, 11.5, 11.6
M.1.18	Identify the value of coins and use dimes and pennies to model the relationship between money and place value.	See Digital Experience Additional Topics: *Identify and Write Values of Coins* and *Problem Solving: Money*
Represent and interpret data.		
M.1.19	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	11.1, 11.2
Geometry		
Reason with shapes and their attributes.		
M.1.20	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	12.1, 12.2, 12.6, 12.7
M.1.21	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, 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 composite shape.	12.3, 12.4, 12.5, 12.8, 12.9

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M.1.22	Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	13.1, 13.2, 13.3
M.1.23	Create a recognizable pattern following a given rule, using colors, shapes, sizes, and sounds.	See Digital Experience Additional Lessons: *Find Patterns, Repeating Patterns, Shape Patterns, Geometric Patterns*

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Standard		Grade 2
Grade 2		
Operations and Algebraic Thinking		
Represent and solve problems involving addition and subtraction.		
M.2.1	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.	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 5.1, 5.2, 5.3, 5.4, 5.5, 8.6
Solve problems involving addition and subtraction and identify and explain patterns in arithmetic.		
M.2.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers by using various strategies.	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8
M.2.3	Analyze a number pattern to determine the rule; add 2, add 3, add 5, or add 10.	See Digital Experience Additional Lessons/Topic: *Number Patterns*
Work with equal groups of objects to gain foundations for multiplication.		
M.2.4	Determine whether a group of objects (up to 20) 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.	1.1, 1.2
M.2.5	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 expressions to describe the array and equations to express the total as a sum of equal addends.	1.3, 1.4, 1.5
Number and Operations in Base Ten		
Understand place value.		
M.2.6	Understand that the three digits of a 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:	
	a. 100 can be thought of as a bundle of ten tens — called a “hundred.”	6.1
	b. 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).	6.1

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M.2.7	Count within 1000; skip-count by 5s, 10s, and 100s.	6.5, 6.6, 6.7
M.2.8	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	6.2. 6.3. 6.4
M.2.9	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. Order numbers based on place value.	6.9, 6.10
Use place value understanding and properties of operations to add and subtract.		
M.2.10	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 5.1, 5.2, 5.3, 5.4, 5.5, 8.6
M.2.11	Add up to four two-digit numbers using strategies based on place value and properties of operations.	7.8
M.2.12	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.	7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 8.1, 8.2, 8.3, 8.4, 8.5, 8.7
M.2.13	Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	6.8, 7.1, 8.1
M.2.14	Explain why addition and subtraction strategies work, using place value and the properties of operations.	7.3, 7.5, 7.6, 7.7, 7.8, 8.4, 8.7
Measurement and Data		
Measure and estimate lengths in standard units.		
M.2.15	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	9.1, 9.2, 9.4, 9.5, 9.7, 9.8
M.2.16	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.	9.7
M.2.17	Estimate lengths using units of inches, feet, centimeters, and meters.	9.3, 9.6

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M.2.18	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	9.8
Relate addition and subtraction to length.		
M.2.19	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 the unknown number to represent the problem.	9.8, 10.1, 10.2, 10.3, 10.4
M.2.20	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.	10.1
Work with time and money.		
M.2.21	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	12.6, 12.7, 12.8
M.2.22	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.	12.1, 12.2, 12.3, 12.4, 12.5
Represent and interpret data.		
M.2.23	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.	11.6, 11.7
M.2.24	Draw a picture graph and a 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.	11.1, 11.2, 11.3, 11.4, 11.5
Geometry		
Reason with shapes and their attributes.		
M.2.25	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.	13.1, 13.2, 13.3, 13.4
M.2.26	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	13.5
M.2.27	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the 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.	13.6, 13.7, 13.8

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Standard		Grade 3
Grade 3		
Operations and Algebraic Thinking		
Represent and solve problems involving multiplication and division.		
M.3.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.	1.1, 1.2, 1.3, 1.4
M.3.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 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 56 objects are partitioned into equal shares of 8 objects each.	1.5, 1.6, 1.7, 4.1, 4.2
M.3.3	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.	1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8
M.3.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 5.2, 5.3, 5.5
Understand properties of multiplication and the relationship between multiplication and division.		
M.3.5	Apply properties of operations as strategies to multiply and divide.	1.4, 2.4, 2.5, 3.6, 3.7, 4.7, 6.4
M.3.6	Understand division as an unknown-factor problem.	4.2, 4.3, 4.4, 4.5, 4.6, 4.7
Multiply and divide within 100.		
M.3.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) and properties of operations. By the end of Grade 3, know the multiplication table with 100 efficiently.	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 5.1, 5.2, 5.3, 5.5
Solve problems involving the four operations, and identify and explain patterns in arithmetic.		
M.3.8	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.	5.4, 5.5, 6.7, 7.10, 10.9

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M.3.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.	2.1, 2.2, 2.3, 2.4, 5.1, 5.2
Number and Operations in Base Ten		
Use place value understanding and properties of operations to perform multi-digit arithmetic.		
M.3.10	Read and write numbers to 10,000 using standard form, word form, and expanded form.	See Digital Experience Additional Topics: *Read and Write Multi-Digit Numbers*
M.3.11	Compare two four-digit numbers based on meanings of the thousands, hundreds, tens, and ones digits using >, =, < symbols to record the results of the comparisons. Order numbers based on place value.	See Digital Experience Additional Topics: *Compare Multi-Digit Numbers* and *Order Multi-Digit Numbers*
M.3.12	Use place value understanding to round whole numbers to the nearest 10 or 100.	7.1, 7.2, 7.3
M.3.13	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.	7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 10.4
M.3.14	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	6.4
Number and Operations – Fractions		
Develop understanding of fractions as numbers.		
M.3.15	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*.	8.1, 8.2, 8.3, 8.4, 8.5
M.3.16	Understand a fraction as a number on the number line; represent fractions on a number line diagram.	
	a. Represent a fraction 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 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.	8.4, 8.5, 12.6, 12.7
	b. Represent a fraction *a*/*b* on a number line diagram by marking off a lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.	8.4, 8.5, 12.6, 12.7
M.3.17	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	
	a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	9.1, 9.2, 9.3
	b. 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.	9.1, 9.2

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	c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.	9.3, 9.6
	d. 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.	9.4, 9.5, 9.6
Measurement and Data		
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.		
M.3.18	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.	10.1, 10.2, 10.3, 10.4
M.3.19	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.	10.5, 10.6, 10.7, 10.8
Represent and interpret data.		
M.3.20	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.	12.1, 12.2, 12.3, 12.4
M.3.21	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.	12.5, 12.6, 12.7
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.		
M.3.22	Recognize area as an attribute of plane figures and understand concepts of area measurement.	
	a. 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.	6.1, 6.2, 6.3
	b. A plane figure which can be covered without gaps or overlaps by *b* unit squares is said to have an area of *b* square units.	6.1, 6.2, 6.3
M.3.23	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	6.1, 6.2, 6.3
M.3.24	Relate area to the operations of multiplication and addition.	
	a. 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.	6.3

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	b. 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.	6.3, 6.5, 6.6
	c. 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.	6.5
	d. 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.	6.6
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.		
M.3.25	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.	13.1, 13.2, 13.3, 13.4, 13.5
Geometry		
Reason with shapes and their attributes.		
M.3.26	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.	11.1, 11.2, 11.3, 11.4
M.3.27	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	8.1, 8.2, 8.3

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Standard		Grade 4
Grade 4		
Operations and Algebraic Thinking		
Use the four operations with whole numbers to solve problems.		
M.4.1	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 expressions and equations.	3.1
M.4.2	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.	3.1
M.4.3	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.	2.8, 3.8, 4.7
Gain familiarity with factors and multiples.		
M.4.4	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.	6.1, 6.2, 6.3, 6.4
Generate and analyze patterns.		
M.4.5	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.	6.5, 6.6
Number and Operations in Base Ten		
Generalize place value understanding for multi-digit whole numbers.		
M.4.6	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.	1.1

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M.4.7	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.	1.1, 1.2, 1.3, 1.4
M.4.8	Use place value understanding to round multi-digit whole numbers to any place.	1.5, 2.1, 3.3, 4.3
Use place value understanding and properties of operations for multi-digit arithmetic.		
M.4.9	Fluently add and subtract multi-digit whole numbers using the standard algorithm.	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8
M.4.10	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, area models, and/or partial products.	3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7
M.4.11	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, area models, and/or partial quotients.	5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8
Number and Operations – Fractions		
Extend understanding of fraction equivalence and ordering.		
M.4.12	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.	7.1, 7.2, 7.3, 7.4
M.4.13	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.	7.5, 7.6
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.		
M.4.14	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.	
	a. Add and subtract fractions with like denominators. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	8.1, 8.3, 8.4, 8.5
	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.	8.2, 8.6

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	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. Identify the two whole numbers a mixed number is between.	8.7, 8.8, 8.10
	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.	8.1, 8.3, 8.4, 8.5, 8.7, 8.8, 8.9, 8.10
M.4.15	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 $1/b$.	9.1
	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	9.2, 9.3, 9.4
	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.	9.2, 9.3, 9.4, 9.6
Understand decimal notation for fractions, and compare decimal fractions.		
M.4.16	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.	10.3, 10.5
M.4.17	Use decimal notation for fractions with denominators 10 or 100.	10.1, 10.2, 10.3, 10.5
M.4.18	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.	10.4
Measurement and Data		
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.		
M.4.19	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.	9.5, 11.1, 11.2, 11.3, 11.4, 11.5
M.4.20	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.	8.9, 9.5, 10.6, 10.7, 11.1, 11.2, 11.3, 11.4, 11.5

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M.4.21	Apply the area and perimeter formulas for rectangles in real world and mathematical problems by viewing the area formula as a multiplication equation with an unknown factor.	11.6, 11.7
Represent and interpret data.		
M.4.22	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.	8.9
Geometric measurement: understand concepts of angle and measure angles.		
M.4.23	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 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.	12.4, 12.5
	b. An angle that turns through *b* one-degree angles is said to have an angle measure of *b* degrees.	12.4, 12.5
M.4.24	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	12.5, 12.6
M.4.25	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.	12.6
Geometry		
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.		
M.4.26	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	12.1, 12.2, 12.3, 12.5, 13.5
M.4.27	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.	13.3, 13.4, 13.5
M.4.28	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.	13.1, 13.2

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Standard		Grade 5
Grade 5		
Operations and Algebraic Thinking		
Write and interpret numerical expressions.		
M.5.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	2.1, 2.2, 2.4
M.5.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	2.3
Analyze patterns and relationships.		
M.5.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.	12.5, 12.6
Number and Operations in Base Ten		
Understand the place value system.		
M.5.4	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	1.1, 1.2, 1.4, 1.5
M.5.5	Explain how the value of a multi-digit number, including decimals, is changed when the number is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	1.3, 4.1, 4.2, 5.1, 7.1
M.5.6	Read, write, and compare decimals to thousandths.	
	a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000)	1.4, 1.5
	b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	1.6
M.5.7	Use place value understanding to round multi-digit numbers, including decimals, to any place.	1.7, 3.1, 5.2, 7.2
Perform operations with multi-digit whole numbers and with decimals to hundredths.		
M.5.8	Fluently multiply multi-digit whole numbers using the standard algorithm.	4.3, 4.4, 4.5, 4.6, 5.2

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M.5.9	Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 7.2
M.5.10	Add, subtract, multiply, and divide decimals to hundredths, 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 and explain the reasoning used.	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 5.1, 5.3, 5.4, 5.5, 5.6, 5.7, 7.1, 7.3, 7.4, 7.5, 7.6
Number and Operations – Fractions		
Use equivalent fractions as a strategy to add and subtract fractions.		
M.5.11	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8
M.5.12	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	8.2, 8.4, 8.5, 8.6, 8.7, 8.8
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.		
M.5.13	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	10.1, 10.2
M.5.14	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	
	a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.	9.1, 9.2, 9.3, 9.4, 9.5
	b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	9.5
M.5.15	Interpret multiplication as scaling (resizing), by:	
	a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	9.7

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	b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	9.7
M.5.16	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	9.1, 9.2, 9.3, 9.4, 9.5, 9.6
M.5.17	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	
	a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.	10.4
	b. Interpret division of a whole number by a unit fraction, and compute such quotients.	10.3
	c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.	10.3, 10.4, 10.5
Measurement and Data		
Convert like measurement units within a given measurement system.		
M.5.18	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	11.1, 11.2, 11.3, 11.4, 11.5, 11.7
Represent and interpret data.		
M.5.19	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots.	11.6
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.		
M.5.20	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	
	a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.	13.1
	b. A solid figure which can be packed without gaps or overlaps using b unit cubes is said to have a volume of b cubic units.	13.1
M.5.21	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	13.1, 13.2

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M.5.22	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	
	a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	13.2, 13.3, 13.4
	b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.	13.3, 13.4, 13.5
	c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	13.5
Geometry		
Graph points on the coordinate plane to solve real-world and mathematical problems.		
M.5.23	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	12.1, 12.2, 12.3, 12.4
M.5.24	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	12.1, 12.2, 12.3, 12.4, 12.6
Classify two-dimensional figures into categories based on their properties.		
M.5.25	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category	14.2, 14.3
M.5.26	Classify two-dimensional figures in a hierarchy based on properties.	14.1, 14.2, 14.3

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