		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy & Fossils	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
Number Sense	Number Sense and Counting	Count to 20 by ones with increasing accuracy.	\$		•	•	\Phi	•			\ODE	\Phi
		Identify and name numerals 1-9.		\Pi	•	•		•	*		•	
		Identify without counting small quantities of up to 3 items. (Subitize)		\$	•		•	•			\Q	\Phi
		Demonstrate one-to-one correspondence when counting obejcts up to 10.	\$	•	•	\$	•	•		\$	•	•
		Understand that the last number spoken tells the number of objects counted.	\$	\$	•	\$	•	•		\$	•	•
		Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group up to 10.		•	•		\$	•			\ODE	\Phi
Number Relationships and Operations	Number Relationships	Count to solve simple addition and subtraction problems with totals smaller than 8, using concrete objects.			•		•	•				\Phi
Algebra	Group and Categorize	Sort and classify objects by one or more attributes (size, shape)		\Q	•	\ODE	•	•				\Oldot
	Patterning	Recognize, duplicate, and extend simple patterns using attributes such as color, shape, or size.		•	•		•	•				\Oldot
		Create patterns.		•	•		•	•				\Q
Measurement and Data	Describe and Compare Measureable Attributes	Describe and compare obejcts using measurable attributes (length, size, capactiy, weight)	\$	\Pi	•		•	•			\ODE	\Oldot
		Order objects by measurable attribute (biggest to smallest, etc)		\$	•	\$	\$	•			\ODE	\$
		Measure length and volume (capacity) using non- standard or standard measurement tools.	\$	\Q	•	\$	\ODE	•				\Phi
	Data Analysis	Collect data by categories to answer simple questions.	\Q	\$	•	\$	\$	•	\Phi	\$	\Phi	\Phi
Geometry	Spatial Relationships	Demonstrate understanding of the relative position of objects using terms such as in/on/under, up/down, inside/outside, above/below, beside/between, in front of/behind and next to.	\Phi	•	•	\Phi	•	•	•	•	\$	\Phi

Identify and Describe Shapes	Understand and use names of shapes when identifying objects.	\$	\$	*	\$	•	*	*		\$	\Q
	Name three-dimensional objects using informal, descriptive vocabulary (e.g., "cube" for box, "ice cream cone" for cone.)	♦	•	•	•	•	•	•	•	\$	\Omega
Analyze, Compare, and Create Shapes	Compare two-dimensional shapes, in different sizes and orientations, using informal language.	♦	•	•	•	•	•	•	•	\$	Q
	Create shapes during play by building, drawing, etc.	₩	•			•	•				•
	Combine simple shapes to form larger shapes.	\$	•			\$	•				\Q

		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy & Fossils	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
Counting and Cardinality	Know number names and the count sequence	Count to 100 by ones and by tens.					\$	•		•	*	\$
		Count forward beginning from a given number within the known sequence. (instead of beginning at 1)	\$	\P	*		\Pi	\ODE		\$	\$	‡
		Write numbers 0-20. Represent a number of objects with a written numeral 0-20.	\$									\$
	Count to tell the number of objects	Understand the relationship between numbers and quantities; connect counting to cardinality	\$		•		*	•				\$
		Count to answer, "how many" questions about as many as 20 things arranged in a line, a rectangular array, or circle.	\$	\$	*	\$	\$	\$	*	\$	\$	\$
	Compare numbers	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group	\$	\$	*	\$	\$	\ODE		\$	\$	\$
		Compare two numbers between 1 and 10 presented as written numerals			*							‡
Operations and Algebraic Thinking	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	\$	*	•	\$	•	•		•	\$	\$
		Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	*	•	•		•	\$			•	\$
		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 $5 = 4 + 1$).	*	•	•		•	\\ \			•	\$
		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.	\ODE	*	•		•	\\ \			\$	*

		Fluently add and subtract within 5.	*	\$	•		•	•			\$	•
	Work with numbers 11-	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		•	•		•	•			•	•
Base Ten	for place value	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.										
Measurement and Data	Describe and Compare Measureable Attributes		*	•	•	•	•	•		•	•	•
		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	\$	•	•	•	•	•	•	•	•	•
	Classify objects and count the number of objects in each category	Classify objects into given categories; count the numbers of objects in each category and sort the category by count	*	•	•		•	•			•	•
Geometry	Identify and Describe Shapes	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.	\$	•	•	•	•	•	•	•	•	•
		Correctly name shapes regardless of their orientations or overall size.	\$	•	\$	\$	•	•	•	•	*	•
		Identify shapes as 2D or 3D	\$									
	Analyze, compare, create, and compose shapes	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).	•	•	•	•	•	•	•	•	•	•
		Model shapes in the world by building shapes from components and drawing shapes	\$	•	*	\$	•	\$	•	•	\$	•
		Compose simple shapes to form larger shapes	\$	•			•	Q				•

		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy & Fossils	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
Operations and Algebraic Thinking	Represent and solve problems involving addition and subtraction	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 theproblem	\Q	•	•			•				•
		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.	\\	•	•		•	•		\\ \		•
	Understand and apply properties of operations and the relationship between addition and subtraction	Apply properties of operations as strategies to add and subtract	\\ \	•	•	\$	•	\$	•	\Phi	•	\$
		Understand subtraction as an unknown-addend problem	\Q	•	•	*	•	Q	\Q	•	•	\Q
	Add and subtract within 20	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	\Q	\$	•	\$	*	\$		\ODE	*	\Phi
		Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies	\Q	•	•	\$	\$	\$	•	•	\$	\$
	Work with addition and subtraction equations	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false							\Omega			\Omega
		Determine the unknown whole number in an addition or subtraction equation relating three whole numbers			\$		\$	\Phi				\Phi
Numbers and Operations in Base Ten	Extend the counting sequence	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.	\$		\$		\$	\$				\Q
	Understand place value	Understand that the two digits of a two-digit number represent amounts of tens and ones.	\P	*	•	\$	*	\$		\Q	*	\Q
		Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <							•		•	\$

	Use place value understanding and properties of operations to add and subtract	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	•	•	•	•	•	•				•
		Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used	\$	•	•		•	*			•	•
		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	\$	•	•		•	•			•	•
Measurement and Data	Measure lengths indirectly and by iterating length units	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	\$	•	\$	•	•	•		•	•	\$
		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; understandthat the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps	\Q	•	•		•	•			•	•
	Tell and write time	Tell and write time in hours and half-hours using analog and digital clocks		•								•
	Represent and interpret data	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			•		•	•			•	•
Geometry	Reason with shapes and their attributes	Distinguish between defining attributes (e.g., triangles are closed and threesided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes	\Pi	\$	•	•	•	•	•	\$	•	•
		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	\$				•	•				•
		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	\$									•

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Operations and Algebraic Thinking	Represent and solve problems involving addition and subtraction	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	\$		_		•	•				•
	Add and subtract within 20	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers	\$	*	•	\$	\$	•	\$	•	\ODE	\Q
	Work with equal groups of objects to gain foundations for multiplication	Determine whether a group of objects (up to 20) has an odd or even number of members	\$	*	*		*	\Omega		*	*	•
		Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends	\$	•	•		•	•				•
Number and Operations in Base Ten	Understand Place Value	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones	\$	\$	\$	•	\$	*	\$	*	\Phi	\Q
		Count within 1000; skip-count by 5s, 10s, and 100s						*				\$
		Read and write numbers to 1000 using base-ten numerals, number names, and expanded form	\$	•	\$	\$	\$	•	\$	•	\Pi	\Q
		Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons							\$			\Q
	Use place value in understanding and properties of operations to add and subtract	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction	\$	•	•	\$	*	•	\Phi	•	•	•
		Add up to four two-digit numbers using strategies based on place value and properties of operations	‡	\Pi	*	\$		*	\$	*		\$
		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	\$	•	•	•	•	•	*	•	•	\$
		Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900	\$	♦	\$	\$	\$	*	\$	\Oldot	\Q	\Omega
		Explain why addition and subtraction strategies work, using place value and the properties of operations	\$	\Q	\ODE	\$	\$	*	\$	\ODE	\Omega	\Phi

Measurement and Data	Measure and estimate lengths in standard units	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes	\$	\$	\$	\$	•	\$	\$	\$	\$	*
		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	*	•	•	•	•	•	•	•	•	•
		Estimate lengths using units of inches, feet, centimeters, and meters	\$	*	\$	*	\$	\$	\$	\Q	\$	\$
		Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit			•	•	•	•	•	•	•	•
	Relate addition and subtraction to length	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units										•
		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										
	Work with time and money	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.						\$	•			•
		Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and \$\phi\$ symbols appropriately							•			
	Represent and interpret data	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 unit										
		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										•
Geometry	Reason with shapes and their attributes	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	*	•	•	•	•	•	•	•	•	•

Partition a rectangle into rows and columns of same-size squares and count to find the total number of them					
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					

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Operations and Algebraic Thinking	Represent and solve problems involving multiplication and division	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.	\Pi		•		•	•				•
		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										
		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										
		Determine the unknown whole number in a multiplication or division equation relating three whole numbers	\Oldot	•	•	•	•	•				
	Understand properties of multiplication and the relationship between multiplication and division	Apply properties of operations as strategies to multiply and divide	\ODE		•		•	•	•		•	•
		Understand division as an unknown-factor problem										
	Multiply and divide within 100	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) or properties of operations	\ODE	•	•	•	•	•	•	•	•	•
	Solve problems involving the four operations, and identify and explain patterns in arithmetic	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										
		Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations										

Number and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic	Use place value understanding to round whole numbers to the nearest 10 or 100	\Phi	•	*	•	•	•	•	•	\$	*
		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										
		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			•	•		•	•			\$
Number of Operations- Fractions	Develop understanding of fractions as numbers	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	\Phi	•				•	•	\$		
		Understand a fraction as a number on the number line; represent fractions on a number line diagram										
		Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size										
Measurement and Data	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects	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										
		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 onestep 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			•							
	Represent and interpret data	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										
		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	*	•	•	•	•	•	•	•	•	•

	Geometric measurement: understand concepts of area and relate area to multiplication and to addition	Recognize area as an attribute of plane figures and understand concepts of area measurement	\$	•	•	•	•	•	•	•	•	•
		Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)										
		Relate area to the operations of multiplication and addition										
	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures	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.	\Phi	•	•	•	•	•	•	•	•	•
Geometry	Reason with shapes and their attributes	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	\Phi	•	•	•	•	•	•	•	•	•
		Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole										

		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy & Fossils	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
Operations and Algebraic Thinking	Use the four operations with whole numbers to solve problems	Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations							\Phi			
		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							\Phi			
		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.										
	Gain familiarity with factors and multiples	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										
	Generate and analyze patterns	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										
Numbers and Operations in Base Ten	for multi-digit whole	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.										
		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 <							\Phi			•
		Use place value understanding to round multi-digit whole numbers to any place										

	Use place value understanding and properties of operations to perform multi-digit arithmetic	Fluently add and subtract multi-digit whole numbers using the standard algorithm	\$	*	•	•	•	•	•	•	•	•
		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	\$	*	•	•	•	•	•	•	•	\$
		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										
Numbers and Operations- Fractions	Extend understanding of fraction equivalence and ordering	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										
		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 ½. 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.						•				
	Build fractions from unit fractions by applying and extending previous understandings of operations on whole	Understand a fraction a/b with a > 1 as a sum of fractions 1/b						•				
		Apply and extend previous understandings of multiplication to multiply a fraction by a whole number										

	Understand decimal notation for fractions, and compare decimal fractions	•	*				•	•				
		Use decimal notation for fractions with denominators 10 or 100										
		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.										
Measuremen t and Data	conversion of	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	\$	•	•	•	•	•	•	•	•	\Q
		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										
		Apply the area and perimeter formulas for rectangles in real world and mathematical problems	\$	•	•	•	•	•	•	•	•	•
		Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots										

	Geometric measurement: understand concepts of angle and measure angles	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measuremet	•	•	•	•	•	•	•	•	•	•
		Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure	•	•	•	•	•	•	•	•	•	•
		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										
Geometry	Draw and identify lines and angles, and classify shapes by properties of their lines and angles	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures										
		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	•	•	•	•	•	•	•	•	•	•
		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	*	\$	•	•	•	•	•	•	•	\Q

		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy & Fossils	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
Operations and Algebraic Thinking	Write and interpret numerical expressions	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols										
		Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them										
	Analyze patterns and relationships	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										
Number and Operations in Base Ten	Understand the place value system	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										
		Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10										
		Read, write, and compare decimals to thousandths										
		Use place value understanding to round decimals to any place										

	Perform operations with multi-digit whole numbers and with decimals to hundredths	Fluently multiply multi-digit whole numbers using the standard algorithm						
		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						
		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						
Number and Operations- Fractions	Use equivalent fractions as a strategy to add and subtract fractions	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						
		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						
	understandings of multiplication and	Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ 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						
		Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction						
		Interpret multiplication as scaling (resizing)	\$			\$		
		Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem	\$	•	•	•		
		Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions						

Measuremen t and Data	Convert like measurement units within a given measurement system	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	*	•	•	•	•	•	•	•	•	
	Represent and interpret data	Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots										
	Geometric measurement: understand concepts of volume and relate volume to multiplication and to	Recognize volume as an attribute of solid figures and understand concepts of volume measurement			•							
		Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units										
		Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume										
Geometry	Graph points on the coordinate plane to solve real-world and mathematical problems	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										
		problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation										
	Classify two- dimensional figures into categories based on their properties	Understand that attributes belonging to a category of two- dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles	\Q	•	•	•	•	•	•	•	•	•
		Classify two-dimensional figures in a hierarchy based on properties	\ODE	\$	\$	*	*	•	•	*	•	•

		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy & Fossils	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
	Understand ratio concepts and use ratio reasoning to solve problems	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities	O	\Pi	•	•	\Q	\Q		•	\$	*
		Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship										
		Use ratio and rate reasoning to solve real-world and mathematical problems										
The Number System	Apply and extend previous understandings of multiplication and division to divide fractions by fractions	and solve word problems										
	Compute fluently with multi-digit numbers and find common factors and multiples	Fluently divide multi-digit numbers using the standard algorithm.										
		Fluently add, subtract, multiply, and divide multi- digit decimals using the standard algorithm for each operation										
		Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor										
	Apply and extend previous understandings of numbers to the system of rational numbers	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values										
		Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates										
		Understand ordering and absolute value of rational numbers										
		Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate										

Expressions and Equations	Apply and extend previous understandings of arithmetic to algebraic expressions	Write and evaluate numerical expressions involving whole-number exponents										
		Write, read, and evaluate expressions in which letters stand for numbers										
		Apply the properties of operations to generate equivalent expressions	\$	•	\$	\$	\$	•	\$	•	•	\$
		Identify when two expressions are equivalent										
	Reason about and solve one-variable equations and inequalities	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true										
		Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set	*	•	•	•	•	•	•	•	•	•
		Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers	\$	•	•	•	•	•	•	•	•	•
		Write an inequality of the form x > c or x < c to represent a constraint or condition in a realworld or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams										
	Represent and analyze quantitative relationships between dependent and independent variables	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation										

Geometry	Solve real-world and mathematical problems involving area, surface area, and volume	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems	•	*	•	•	•	•	•	•	•	•
		Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = I w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems			•							
		Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems										
		Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems	‡									
Statistics and Probability	Develop understanding of statistical variability	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers										
		Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape										
		Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number										
	Summarize and describe distributions	Display numerical data in plots on a number line, including dot plots, histograms, and box plots										
		Summarize numerical data sets in relation to their context										

		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve real-world and mathematical problems	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units										
		Recognize and represent proportional relationships between quantities										
		Use proportional relationships to solve multistep ratio and percent problems										
The Number System	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers	addition and subtraction to add and subtract										
		Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers										
		Solve real-world and mathematical problems involving the four operations with rational numbers										
Expressions and Equations	Use properties of operations to generate equivalent expressions	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients										
		Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related										
		Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies										

		Use variables to represent quantities in a real- world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities	\Phi	•	•	•	\$		
Geometry	Draw, construct, and describe geometrical figures and describe the relationships between them	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale					\Phi		
		Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle							•
		Describe the two-dimensional figures that result from slicing threedimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids	\Phi	•	•	•	\Q		
	Solve real-life and mathematical problems involving angle measure, area, surface area, and volume	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle							
		Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure							
		Solve real-world and mathematical problems involving area, volume and surface area of two-and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms							

Statistics and Probability		Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences					
		Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions					
	Draw informal comparative inferences about two populations	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability					
		Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations					
	processes and develop,	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event					
		Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability					
		Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy					
		Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation					

		WOW! Zone	Avionics	Earth & Weather	River of Knowledge	Energy & Fossils	Kids in the Kitchen	Engineering	Brain Power	Sound & Light	Drive to Excel	InspireWorks
The Number System	Know that there are numbers that are not rational, and approximate them by rational numbers	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number										
		Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions										
Expressions and Equations	Work with radicals and integer exponents	Know and apply the properties of integer exponents to generate equivalent numerical expressions										
		Use square root and cube root symbols to represent solutions to equations of the form x2 = p and x3 = p, where p is a positive rational number. Evaluate square roots of small perfect cubes										
		Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other										
		Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities										
	Understand the connections between proportional relationships, lines, and linear equations	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways										
		Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b										

	Analyze and solve linear equations and pairs of simultaneous linear equations	Solve linear equations in one variable						
		Analyze and solve pairs of simultaneous linear equations						
Functions	Define, evaluate, and compare functions	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output						
		Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions)						
		Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear						
	Use functions to model relationships between quantities	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values						
		Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally						
Geometry	Understand congruence and similarity using physical models, transparencies, or geometry software	Verify experimentally the properties of rotations, reflections, and translations	•			•		

		Association, linear association, and nonlinear association Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line									
Statistics and Probability	Investigate netterns	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative									
	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems			•			•			
		Apply the Pythagorean Theorem to find the distance between two points in a coordinate system									
		Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions	\$	\$	\$	•	\$	•	\$	•	*
	Understand and apply the Pythagorean Theorem	Explain a proof of the Pythagorean Theorem and its converse									
		Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles									
		Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them									
		Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates									
		Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them									

Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.					
Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables					