Each strand has one or more standards, and the benchmarks for each standard are designated by a code. In reading the coding, please note that for 3.1.3.2, the first 3 refers to the third grade, the 1 refers to the Number and Operation strand, the next 3 refers to the third standard for that strand, and the 2 refers to the second benchmark for that standard.

	Strand	Standard	No.	Benchmark
K	Number & Operation	Understand the relationship between quantities and whole numbers up to 31.	K.1.1.1	Recognize that a number can be used to represent how many objects are in a set or to represent the position of an object in a sequence. *For example:* Count students standing in a circle and count the same students after they take their seats. Recognize that this rearrangement does not change the total number, but may change the order in which students are counted.
			K.1.1.2	Read, write, and represent whole numbers from 0 to at least 31. Representations may include numerals, pictures, real objects and picture graphs, spoken words, and manipulatives such as connecting cubes. *For example:* Represent the number of students taking hot lunch with tally marks.
			K.1.1.3	Count, with and without objects, forward and backward to at least 20.
			K.1.1.4	Find a number that is 1 more or 1 less than a given number.
			K.1.1.5	Compare and order whole numbers, with and without objects, from 0 to 20. *For example:* Put the number cards 7, 3, 19 and 12 in numerical order.
		Use objects and pictures to represent situations involving combining and separating.	K.1.2.1	Use objects and draw pictures to find the sums and differences of numbers between 0 and 10.
			K.1.2.2	Compose and decompose numbers up to 10 with objects and pictures. *For example:* A group of 7 objects can be decomposed as 5 and 2 objects, or 2 and 3 and 2, or 6 and 1.
	Algebra	Recognize, create, complete, and extend patterns.	K.2.1.1	Identify, create, complete, and extend simple patterns using shape, color, size, number, sounds and movements. Patterns may be repeating, growing or shrinking such as ABB, ABB, ABB or ●,●●,●●●.
	Geometry & Measurement	Recognize and sort basic two- and three-dimensional shapes; use them to model real-world objects.	K.3.1.1	Recognize basic two- and three-dimensional shapes such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, cones, cylinders and spheres.
			K.3.1.2	Sort objects using characteristics such as shape, size, color and thickness.
			K.3.1.3	Use basic shapes and spatial reasoning to model objects in the real-world. *For example:* A cylinder can be used to model a can of soup. *Another example:* Find as many rectangles as you can in your classroom. Record the rectangles you found by making drawings.
K	Geometry & Measurement	Compare and order objects according to location and measurable attributes.	K.3.2.1	Use words to compare objects according to length, size, weight and position. *For example:* Use same, lighter, longer, above, between and next to. *Another example*: Identify objects that are near your desk and objects that are in front of it. Explain why there may be some objects in both groups.
			K.3.2.2	Order 2 or 3 objects using measurable attributes, such as length and weight.
1	Number & Operation	Count, compare and represent whole numbers up to 120, with an emphasis on	1.1.1.1	Use place value to describe whole numbers between 10 and 100 in terms of tens and ones. *For example:* Recognize the numbers 21 to 29 as 2 tens and a particular number of ones.

	Strand	Standard	No.	Benchmark
		groups of tens and ones.	1.1.1.2	Read, write and represent whole numbers up to 120. Representations may include numerals, addition and subtraction, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.
			1.1.1.3	Count, with and without objects, forward and backward from any given number up to 120.
			1.1.1.4	Find a number that is 10 more or 10 less than a given number. *For example:* Using a hundred grid, find the number that is 10 more than 27.
			1.1.1.5	Compare and order whole numbers up to 120.
			1.1.1.6	Use words to describe the relative size of numbers. *For example:* Use the words equal to, not equal to, more than, less than, fewer than, is about, and is nearly to describe numbers.
			1.1.1.7	Use counting and comparison skills to create and analyze bar graphs and tally charts. *For example:* Make a bar graph of students' birthday months and count to compare the number in each month.
	Number & Operation	Use a variety of models and strategies to solve addition and subtraction problems in real-world and mathematical contexts.	1.1.2.1	Use words, pictures, objects, length-based models (connecting cubes), numerals and number lines to model and solve addition and subtraction problems in part-part-total, adding to, taking away from and comparing situations.
			1.1.2.2	Compose and decompose numbers up to 12 with an emphasis on making ten. *For example:* Given 3 blocks, 7 more blocks are needed to make 10.
			1.1.2.3	Recognize the relationship between counting and addition and subtraction. Skip count by 2s, 5s, and 10s.
	Algebra	Recognize and create patterns; use rules to describe patterns.	1.2.1.1	Create simple patterns using objects, pictures, numbers and rules. Identify possible rules to complete or extend patterns. Patterns may be repeating, growing or shrinking. Calculators can be used to create and explore patterns. *For example:* Describe rules that can be used to extend the pattern 2, 4, 6, 8, ☐, ☐, ☐ and complete the pattern 33, 43, ☐, 63, ☐, 83 or 20, ☐, ☐, 17.
1	Algebra	Use number sentences involving addition and subtraction basic facts to represent and solve real-world and mathematical problems; create real-world situations corresponding to number sentences.	1.2.2.1	Represent real-world situations involving addition and subtraction basic facts, using objects and number sentences. *For example:* One way to represent the number of toys that a child has left after giving away 4 of 6 toys is to begin with a stack of 6 connecting cubes and then break off 4 cubes.
			1.2.2.2	Determine if equations involving addition and subtraction are true. *For example*: Determine if the following number sentences are true or false $7 = 7$ $7 = 8 - 1$ $5 + 2 = 2 + 5$ $4 + 1 = 5 + 2$.
			1.2.2.3	Use number sense and models of addition and subtraction, such as objects and number lines, to identify the missing number in an equation such as: $2 + 4 = \square$ $3 + \square = 7$ $5 = \square - 3$.
			1.2.2.4	Use addition or subtraction basic facts to represent a given problem situation using a number sentence. *For example*: 5 + 3 = 8 could be used to represent a situation in which 5 red balloons are combined with 3 blue balloons to make 8 total balloons.
	Geometry & Measurement	Describe characteristics of basic shapes. Use	1.3.1.1	Describe characteristics of two- and three-dimensional objects, such as triangles, squares, rectangles, circles, rectangular prisms, cylinders, cones and spheres. *For example*: Triangles have three sides and cubes have eight vertices (corners).

	Strand	Standard	No.	Benchmark
		basic shapes to compose and decompose other objects in various contexts.	1.3.1.2	Compose (combine) and decompose (take apart) two- and three-dimensional figures such as triangles, squares, rectangles, circles, rectangular prisms and cylinders. *For example*: Decompose a regular hexagon into 6 equilateral triangles; build prisms by stacking layers of cubes; compose an ice cream cone by combining a cone and half of a sphere. *Another example*: Use a drawing program to find shapes that can be made with a rectangle and a triangle.
		Use basic concepts of measurement in real-world and mathematical situations involving length, time and money.	1.3.2.1	Measure the length of an object in terms of multiple copies of another object. *For example*: Measure a table by placing paper clips end-to-end and counting.
1	Geometry & Measurement	Use basic concepts of measurement in real-world and mathematical situations involving length, time and money.	1.3.2.2	Tell time to the hour and half-hour.
			1.3.2.3	Identify pennies, nickels and dimes; find the value of a group of these coins, up to one dollar.
2	Number & Operation	Compare and represent whole numbers up to 1000 with an emphasis on place value and equality.	2.1.1.1	Read, write and represent whole numbers up to 1000. Representations may include numerals, addition, subtraction, multiplication, words, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.
			2.1.1.2	Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds. *For example*: Writing 853 is a shorter way of writing 8 hundreds + 5 tens + 3 ones.
			2.1.1.3	Find 10 more or 10 less than a given three-digit number. Find 100 more or 100 less than a given three-digit number. *For example*: Find the number that is 10 less than 382 and the number that is 100 more than 382.
			2.1.1.4	Round numbers up to the nearest 10 and 100 and round numbers down to the nearest 10 and 100. *For example*: If there are 17 students in the class and granola bars come 10 to a box, you need to buy 20 bars (2 boxes) in order to have enough bars for everyone.
			2.1.1.5	Compare and order whole numbers up to 1000.
		Demonstrate mastery of addition and subtraction basic facts; add and subtract one- and two-digit numbers in real-world and mathematical problems.	2.1.2.1	Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts. *For example*: Use the associative property to make tens when adding $5 + 8 = (3 + 2) + 8 = 3 + (2 + 8) = 3 + 10 = 13.$
			2.1.2.2	Demonstrate fluency with basic addition facts and related subtraction facts.

	Strand	Standard	No.	Benchmark

2	Number & Operation	Demonstrate mastery of addition and subtraction basic facts; add and subtract one- and two-digit numbers in real-world and mathematical problems.	2.1.2.3	Estimate sums and differences up to 100. *For example*: Know that 23 + 48 is about 70.
			2.1.2.4	Use mental strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers. Strategies may include decomposition, expanded notation, and partial sums and differences. *For example*: Using decomposition, 78 + 42, can be thought of as: 78 + 2 + 20 + 20 = 80 + 20 + 20 = 100 + 20 = 120 and using expanded notation, 34 - 21 can be thought of as: 30 + 4 – 20 – 1 = 30 – 20 + 4 – 1 = 10 + 3 = 13.
			2.1.2.5	Solve real-world and mathematical addition and subtraction problems involving whole numbers with up to 2 digits.
			2.1.2.6	Use addition and subtraction to create and obtain information from tables, bar graphs and tally charts.
	Algebra	Recognize, create, describe, and use patterns and rules to solve real-world and mathematical problems.	2.2.1.1	Identify, create and describe simple number patterns involving repeated addition or subtraction, skip counting and arrays of objects such as counters or tiles. Use patterns to solve problems in various contexts. *For example*: Skip count by 5s beginning at 3 to create the pattern 3, 8, 13, 18, … . *Another example*: Collecting 7 empty milk cartons each day for 5 days will generate the pattern 7, 14, 21, 28, 35, resulting in a total of 35 milk cartons.
		Use number sentences involving addition, subtraction and unknowns to represent and solve real-world and mathematical problems; create real-world situations corresponding to number sentences.	2.2.2.1	Understand how to interpret number sentences involving addition, subtraction and unknowns represented by letters. Use objects and number lines and create real-world situations to represent number sentences. *For example*: One way to represent $n + 16 = 19$ is by comparing a stack of 16 connecting cubes to a stack of 19 connecting cubes; $24 = a + b$ can be represented by a situation involving a birthday party attended by a total of 24 boys and girls.
			2.2.2.2	Use number sentences involving addition, subtraction, and unknowns to represent given problem situations. Use number sense and properties of addition and subtraction to find values for the unknowns that make the number sentences true. *For example*: How many more players are needed if a soccer team requires 11 players and so far only 6 players have arrived? This situation can be represented by the number sentence $11 - 6 = p$ or by the number sentence $6 + p = 11$.

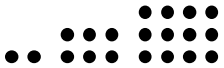
	Strand	Standard	No.	Benchmark
2	Geometry & Measurement	Identify, describe and compare basic shapes according to their geometric attributes.	2.3.1.1	Describe, compare, and classify two- and three-dimensional figures according to number and shape of faces, and the number of sides, edges and vertices (corners).
			2.3.1.2	Identify and name basic two- and three-dimensional shapes, such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, rectangular prisms, cones, cylinders and spheres. *For example*: Use a drawing program to show several ways that a rectangle can be decomposed into exactly three triangles.
		Understand length as a measurable attribute; use tools to measure length.	2.3.2.1	Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object. *For example*: It will take more paper clips than whiteboard markers to measure the length of a table.

	Strand	Standard	No.	Benchmark
			2.3.2.2	Demonstrate an understanding of the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest centimeter or inch. *For example*: Draw a line segment that is 3 inches long.
		Use time and money in real-world and mathematical situations.	2.3.3.1	Tell time to the quarter-hour and distinguish between a.m. and p.m.
			2.3.3.2	Identify pennies, nickels, dimes and quarters. Find the value of a group of coins and determine combinations of coins that equal a given amount. *For example*: 50 cents can be made up of 2 quarters, or 4 dimes and 2 nickels, or many other combinations.
3	Number & Operation	Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.	3.1.1.1	Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.
			3.1.1.2	Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones. *For example*: Writing 54,873 is a shorter way of writing the following sums: 5 ten thousands + 4 thousands + 8 hundreds + 7 tens + 3 ones 54 thousands + 8 hundreds + 7 tens + 3 ones.
			3.1.1.3	Find 10,000 more or 10,000 less than a given five-digit number. Find 1000 more or 1000 less than a given four- or five-digit. Find 100 more or 100 less than a given four- or five-digit number.
3	Number & Operation	Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.	3.1.1.4	Round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences. *For example*: 8726 rounded to the nearest 1000 is 9000, rounded to the nearest 100 is 8700, and rounded to the nearest 10 is 8730. *Another example*: 473 – 291 is between 400 – 300 and 500 – 200, or between 100 and 300.
			3.1.1.5	Compare and order whole numbers up to 100,000.
		Add and subtract multi-digit whole numbers; represent multiplication and division in various ways; solve real-world and mathematical problems using arithmetic.	3.1.2.1	Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.
			3.1.2.2	Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results. *For example*: The calculation 117 – 83 = 34 can be checked by adding 83 and 34.
			3.1.2.3	Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.
			3.1.2.4	Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems. *For example*: You have 27 people and 9 tables. If each table seats the same number of people, how many people will you put at each table? *Another example*: If you have 27 people and tables that will hold 9 people, how many tables will you need?

	Strand	Standard	No.	Benchmark
			3.1.2.5	Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties. *For example*: $9 \times 26 = 9 \times (20 + 6) = 9 \times 20 + 9 \times 6 = 180 + 54 = 234$.
3	Number & Operation	Understand meanings and uses of fractions in real-world and mathematical situations.	3.1.3.1	Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line. *For example*: Parts of a shape (3/4 of a pie), parts of a set (3 out of 4 people), and measurements (3/4 of an inch).
			3.1.3.2	Understand that the size of a fractional part is relative to the size of the whole. *For example*: One-half of a small pizza is smaller than one-half of a large pizza, but both represent one-half.
			3.1.3.3	Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.
	Algebra	Use single-operation input-output rules to represent patterns and relationships and to solve real-world and mathematical problems.	3.2.1.1	Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts. *For example*: Describe the relationship between number of chairs and number of legs by the rule that the number of legs is four times the number of chairs.
		Use number sentences involving multiplication and division basic facts and unknowns to represent and solve real-world and mathematical problems; create real-world situations corresponding to number sentences.	3.2.2.1	Understand how to interpret number sentences involving multiplication and division basic facts and unknowns. Create real-world situations to represent number sentences. *For example*: The number sentence $8 \times m = 24$ could be represented by the question "How much did each ticket to a play cost if 8 tickets totaled $24?"
			3.2.2.2	Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true. *For example*: Find values of the unknowns that make each number sentence true $6 = p \div 9$ $24 = a \times b$ $5 \times 8 = 4 \times t$. *Another example*: How many math teams are competing if there is a total of 45 students with 5 students on each team? This situation can be represented by $5 \times n = 45$ or $\frac{45}{5} = n$ or $\frac{45}{n} = 5$.
	Geometry & Measurement	Use geometric attributes to describe and create shapes in various contexts.	3.3.1.1	Identify parallel and perpendicular lines in various contexts, and use them to describe and create geometric shapes, such as right triangles, rectangles, parallelograms and trapezoids.
			3.3.1.2	Sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.
3	Geometry & Measurement	Understand perimeter as a measurable attribute of real-world and mathematical	3.3.2.1	Use half units when measuring distances. *For example*: Measure a person's height to the nearest half inch.
			3.3.2.2	Find the perimeter of a polygon by adding the lengths of the sides.

	Strand	Standard	No.	Benchmark
		objects. Use various tools to measure distances.	3.3.2.3	Measure distances around objects. *For example*: Measure the distance around a classroom, or measure a person's wrist size.
		Use time, money and temperature to solve real-world and mathematical problems.	3.3.3.1	Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute. *For example*: Your trip began at 9:50 a.m. and ended at 3:10 p.m. How long were you traveling?
			3.3.3.2	Know relationships among units of time. *For example*: Know the number of minutes in an hour, days in a week and months in a year.
			3.3.3.3	Make change up to one dollar in several different ways, including with as few coins as possible. *For example*: A chocolate bar costs $1.84. You pay for it with $2. Give two possible ways to make change.
			3.3.3.4	Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius. *For example*: Read the temperature in a room with a thermometer that has both Fahrenheit and Celsius scales. Use the thermometer to compare Celsius and Fahrenheit readings.
	Data Analysis	Collect, organize, display, and interpret data. Use labels and a variety of scales and units in displays.	3.4.1.1	Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.

	Strand	Standard	No.	Benchmark
4	Number & Operation	Demonstrate mastery of multiplication and division basic facts; multiply multi-digit numbers; solve real-world and mathematical problems using arithmetic.	4.1.1.1	Demonstrate fluency with multiplication and division facts.
			4.1.1.2	Use an understanding of place value to multiply a number by 10, 100 and 1000.
			4.1.1.3	Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.
			4.1.1.4	Estimate products and quotients of multi-digit whole numbers by using rounding, benchmarks and place value to assess the reasonableness of results. *For example*: 53 × 38 is between 50 × 30 and 60 × 40, or between 1500 and 2400, and 411/73 is between 5 and 6..
			4.1.1.5	Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
			4.1.1.6	Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction. *For example*: A group of 324 students is going to a museum in 6 buses. If each bus has the same number of students, how many students will be on each bus?
		Represent and compare fractions and decimals in	4.1.2.1	Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.

	Strand	Standard	No.	Benchmark
		real-world and mathematical situations; use place value to understand how decimals represent quantities.	4.1.2.2	Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions. *For example*: Locate $\frac{5}{3}$ and $1\frac{3}{4}$ on a number line and give a comparison statement about these two fractions, such as "$\frac{5}{3}$ is less than $1\frac{3}{4}$."
			4.1.2.3	Use fraction models to add and subtract fractions with like denominators in real-world and mathematical situations. Develop a rule for addition and subtraction of fractions with like denominators.
4	Number & Operation	Represent and compare fractions and decimals in real-world and mathematical situations; use place value to understand how decimals represent quantities.	4.1.2.4	Read and write decimals with words and symbols; use place value to describe decimals in terms of thousands, hundreds, tens, ones, tenths, hundredths and thousandths. *For example*: Writing 362.45 is a shorter way of writing the sum: 3 hundreds + 6 tens + 2 ones + 4 tenths + 5 hundredths, which can also be written as: three hundred sixty-two and forty-five hundredths.
			4.1.2.5	Compare and order decimals and whole numbers using place value, a number line and models such as grids and base 10 blocks.
			4.1.2.6	Read and write tenths and hundredths in decimal and fraction notations using words and symbols; know the fraction and decimal equivalents for halves and fourths. *For example*: $\frac{1}{2} = 0.5 = 0.50$ and $\frac{7}{4} = 1\frac{3}{4} = 1.75$, which can also be written as one and three-fourths or one and seventy-five hundredths.
			4.1.2.7	Round decimals to the nearest tenth. *For example*: The number 0.36 rounded to the nearest tenth is 0.4.
	Algebra	Use input-output rules, tables and charts to represent patterns and relationships and to solve real-world and mathematical problems.	4.2.1.1	Create and use input-output rules involving addition, subtraction, multiplication and division to solve problems in various contexts. Record the inputs and outputs in a chart or table. *For example*: If the rule is "multiply by 3 and add 4," record the outputs for given inputs in a table. *Another example*: A student is given these three arrangements of dots:  Identify a pattern that is consistent with these figures, create an input-output rule that describes the pattern, and use the rule to find the number of dots in the 10^{th} figure.

	Strand	Standard	No.	Benchmark
4	Algebra	Use number sentences involving multiplication, division and unknowns to represent and solve real-world and mathematical problems; create real-world situations corresponding to number sentences.	4.2.2.1	Understand how to interpret number sentences involving multiplication, division and unknowns. Use real-world situations involving multiplication or division to represent number sentences. *For example*: The number sentence $a \times b = 60$ can be represented by the situation in which chairs are being arranged in equal rows and the total number of chairs is 60.
			4.2.2.2	Use multiplication, division and unknowns to represent a given problem situation using a number sentence. Use number sense, properties of multiplication, and the relationship between multiplication and division to find values for the unknowns that make the number sentences true. *For example*: If \$84 is to be shared equally among a group of children, the amount of money each child receives can be determined using the number sentence $84 \div n = d$. *Another example*: Find values of the unknowns that make each number sentence true: $12 \times m = 36$ $s = 256 \div t$.
	Geometry & Measurement	Name, describe,	4.3.1.1	Describe, classify and sketch triangles, including equilateral, right, obtuse and acute triangles. Recognize triangles in various contexts.

		classify and sketch polygons.	4.3.1.2	Describe, classify and draw quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms and kites. Recognize quadrilaterals in various contexts.
		Understand angle and area as measurable attributes of real-world and mathematical objects. Use various tools to measure angles and areas.	4.3.2.1	Measure angles in geometric figures and real-world objects with a protractor or angle ruler.
			4.3.2.2	Compare angles according to size. Classify angles as acute, right and obtuse. *For example*: Compare different hockey sticks according to the angle between the blade and the shaft.
			4.3.2.3	Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns. *For example*: How many copies of a square sheet of paper are needed to cover the classroom door? Measure the length and width of the door to the nearest inch and compute the area of the door.
			4.3.2.4	Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.

	Strand	Standard	No.	Benchmark
4	Geometry & Measurement	Use translations, reflections and rotations to establish congruency and understand symmetries.	4.3.3.1	Apply translations (slides) to figures.
			4.3.3.2	Apply reflections (flips) to figures by reflecting over vertical or horizontal lines and relate reflections to lines of symmetry.
			4.3.3.3	Apply rotations (turns) of 90˚ clockwise or counterclockwise.
			4.3.3.4	Recognize that translations, reflections and rotations preserve congruency and use them to show that two figures are congruent.
	Data Analysis	Collect, organize, display and interpret data, including data collected over a period of time and data represented by fractions and decimals.	4.4.1.1	Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.
5	Number & Operation	Divide multi-digit numbers; solve real-world and mathematical problems using arithmetic.	5.1.1.1	Divide multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms. Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal. *For example*: Dividing 153 by 7 can be used to convert the improper fraction $\frac{153}{7}$ to the mixed number $21\frac{6}{7}$.
			5.1.1.2	Consider the context in which a problem is situated to select the most useful form of the quotient for the solution and use the context to interpret the quotient appropriately. *For example*: If 77 amusement ride tickets are to be distributed equally among 4 children, each child will receive 19 tickets, and there will be one left over. If $77 is to be distributed equally among 4 children, each will receive $19.25, with nothing left over.
			5.1.1.3	Estimate solutions to arithmetic problems in order to assess the reasonableness of results.

	Strand	Standard	No.	Benchmark
			5.1.1.4	Solve real-world and mathematical problems requiring addition, subtraction, multiplication and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results. *For example*: The calculation 117 ÷ 9 = 13 can be checked by multiplying 9 and 13.
5	Number & Operation	Read, write, represent and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.	5.1.2.1	Read and write decimals using place value to describe decimals in terms of groups from millionths to millions. *For example*: Possible names for the number 0.0037 are: 37 ten thousandths 3 thousandths + 7 ten thousandths; a possible name for the number 1.5 is 15 tenths.
			5.1.2.2	Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 less than a number.
			5.1.2.3	Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line. *For example*: Which is larger 1.25 or $\frac{6}{5}$? *Another example*: In order to work properly, a part must fit through a 0.24 inch wide space. If a part is $\frac{1}{4}$ inch wide, will it fit?
			5.1.2.4	Recognize and generate equivalent decimals, fractions, mixed numbers and improper fractions in various contexts. *For example*: When comparing 1.5 and $\frac{19}{12}$, note that $1.5 = 1\frac{1}{2} = 1\frac{6}{12} = \frac{18}{12}$, so $1.5 < \frac{19}{12}$.
			5.1.2.5	Round numbers to the nearest 0.1, 0.01 and 0.001. *For example*: Fifth grade students used a calculator to find the mean of the monthly allowance in their class. The calculator display shows 25.80645161. Round this number to the nearest cent.
		Add and subtract fractions, mixed numbers and decimals to solve real-world and mathematical problems.	5.1.3.1	Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms.
			5.1.3.2	Model addition and subtraction of fractions and decimals using a variety of representations. *For example*: Represent $\frac{2}{3} + \frac{1}{4}$ and $\frac{2}{3} - \frac{1}{4}$ by drawing a rectangle divided into 4 columns and 3 rows and shading the appropriate parts or by using fraction circles or bars.
			5.1.3.3	Estimate sums and differences of decimals and fractions to assess the reasonableness of results. *For example*: Recognize that $12\frac{2}{5} - 3\frac{3}{4}$ is between 8 and 9 (since $\frac{2}{5} < \frac{3}{4}$).
			5.1.3.4	Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data. *For example*: Calculate the perimeter of the soccer field when the length is 109.7 meters and the width is 73.1 meters.
5	Algebra	Recognize and represent patterns of change; use patterns, tables, graphs and rules to solve real-world and mathematical problems.	5.2.1.1	Create and use rules, tables, spreadsheets and graphs to describe patterns of change and solve problems. *For example*: An end-of-the-year party for 5th grade costs $100 to rent the room and $4.50 for each student. Know how to use a spreadsheet to create an input-output table that records the total cost of the party for any number of students between 90 and 150.
			5.2.1.2	Use a rule or table to represent ordered pairs of positive integers and graph these ordered pairs on a coordinate system.

	Strand	Standard	No.	Benchmark
		Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving whole numbers.	5.2.2.1	Apply the commutative, associative and distributive properties and order of operations to generate equivalent numerical expressions and to solve problems involving whole numbers. *For example*: Purchase 5 pencils at 19 cents and 7 erasers at 19 cents. The numerical expression is $5 \times 19 + 7 \times 19$ which is the same as $(5 + 7) \times 19$.
		Understand and interpret equations and inequalities involving variables and whole numbers, and use them to represent and solve real-world and mathematical problems.	5.2.3.1	Determine whether an equation or inequality involving a variable is true or false for a given value of the variable. *For example*: Determine whether the inequality $1.5 + x < 10$ is true for $x = 2.8$, $x = 8.1$, or $x = 9.2$.
			5.2.3.2	Represent real-world situations using equations and inequalities involving variables. Create real-world situations corresponding to equations and inequalities. *For example*: $250 - 27 \times a = b$ can be used to represent the number of sheets of paper remaining from a packet of 250 sheets when each student in a class of 27 is given a certain number of sheets.
			5.2.3.3	Evaluate expressions and solve equations involving variables when values for the variables are given. *For example*: Using the formula, $A = \ell w$, determine the area when the length is 5, and the width 6, and find the length when the area is 24 and the width is 4.
	Geometry & Measurement	Describe, classify, and draw representations of three-dimensional figures.	5.3.1.1	Describe and classify three-dimensional figures including cubes, prisms and pyramids by the number of edges, faces or vertices as well as the types of faces.
			5.3.1.2	Recognize and draw a net for a three-dimensional figure.
5	Geometry & Measurement	Determine the area of triangles and quadrilaterals; determine the surface area and volume of rectangular prisms in various contexts.	5.3.2.1	Develop and use formulas to determine the area of triangles, parallelograms and figures that can be decomposed into triangles.
			5.3.2.2	Use various tools and strategies to measure the volume and surface area of objects that are shaped like rectangular prisms. *For example*: Use a net or decompose the surface into rectangles. *Another example*: Measure the volume of a cereal box by using a ruler to measure its height, width and length, or by filling it with cereal and then emptying the cereal into containers of known volume.
			5.3.2.3	Understand that the volume of a three-dimensional figure can be found by counting the total number of same-sized cubic units that fill a shape without gaps or overlaps. Use cubic units to label volume measurements. *For example*: Use cubes to find the volume of a small box.
			5.3.2.4	Develop and use the formulas $V = \ell wh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area B and height h are multiplied to find the volume of a rectangular prism by breaking the prism into layers of unit cubes.
	Data Analysis	Display and interpret data; determine mean, median and range.	5.4.1.1	Know and use the definitions of the mean, median and range of a set of data. Know how to use a spreadsheet to find the mean, median and range of a data set. Understand that the mean is a "leveling out" of data. *For example*: The set of numbers 1, 1, 4, 6 has mean 3. It can be leveled by taking one unit from the 4 and three units from the 6 and adding them to the 1s, making four 3s.

	Strand	Standard	No.	Benchmark
			5.4.1.2	Create and analyze double-bar graphs and line graphs by applying understanding of whole numbers, fractions and decimals. Know how to create spreadsheet tables and graphs to display data.

	Strand	Standard	No.	Benchmark
6	Number & Operation	Read, write, represent and compare positive rational numbers expressed as fractions, decimals, percents and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations.	6.1.1.1	Locate positive rational numbers on a number line and plot pairs of positive rational numbers on a coordinate grid.
			6.1.1.2	Compare positive rational numbers represented in various forms. Use the symbols $<$, $=$ and $>$. *For example*: $\frac{1}{2} > 0.36$.
			6.1.1.3	Understand that percent represents parts out of 100 and ratios to 100. *For example*: 75% corresponds to the ratio 75 to 100, which is equivalent to the ratio 3 to 4.
			6.1.1.4	Determine equivalences among fractions, decimals and percents; select among these representations to solve problems. *For example*: If a woman making $25 an hour gets a 10% raise, she will make an additional $2.50 an hour, because $2.50 is $\frac{1}{10}$ or 10% of $25.
			6.1.1.5	Factor whole numbers; express a whole number as a product of prime factors with exponents. *For example*: $24 = 2^3 \times 3$.
			6.1.1.6	Determine greatest common factors and least common multiples. Use common factors and common multiples to calculate with fractions and find equivalent fractions. *For example*: Factor the numerator and denominator of a fraction to determine an equivalent fraction.
			6.1.1.7	Convert between equivalent representations of positive rational numbers. *For example*: Express $\frac{10}{7}$ as $\frac{7+3}{7} = \frac{7}{7} + \frac{3}{7} = 1\frac{3}{7}$.
6	Number & Operation	Understand the concept of ratio and its relationship to fractions and to the multiplication and division of whole numbers. Use ratios to solve real-world and mathematical problems.	6.1.2.1	Identify and use ratios to compare quantities; understand that comparing quantities using ratios is not the same as comparing quantities using subtraction. *For example*: In a classroom with 15 boys and 10 girls, compare the numbers by subtracting (there are 5 more boys than girls) or by dividing (there are 1.5 times as many boys as girls). The comparison using division may be expressed as a ratio of boys to girls (3 to 2 or 3:2 or 1.5 to 1).
			6.1.2.2	Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixtures and concentrations. *For example*: If 5 cups of trail mix contains 2 cups of raisins, the ratio of raisins to trail mix is 2 to 5. This ratio corresponds to the fact that the raisins are $\frac{2}{5}$ of the total, or 40% of the total. And if one trail mix consists of 2 parts peanuts to 3 parts raisins, and another consists of 4 parts peanuts to 8 parts raisins, then the first mixture has a higher concentration of peanuts.
			6.1.2.3	Determine the rate for ratios of quantities with different units. *For example*: 60 miles for every 3 hours is equivalent to 20 miles for every one hour (20 mph).
			6.1.2.4	Use reasoning about multiplication and division to solve ratio and rate problems. *For example*: If 5 items cost $3.75, and all items are the same price, then 1 item costs 75 cents, so 12 items cost $9.00.

	Strand	Standard	No.	Benchmark
		Multiply and divide decimals, fractions and mixed numbers; solve real-world and mathematical problems using arithmetic with positive rational numbers.	6.1.3.1	Multiply and divide decimals and fractions, using efficient and generalizable procedures, including standard algorithms.
			6.1.3.2	Use the meanings of fractions, multiplication, division and the inverse relationship between multiplication and division to make sense of procedures for multiplying and dividing fractions. *For example*: Just as $\frac{12}{4}=3$ means $12=3\times 4$, $\frac{2}{3}\div\frac{4}{5}=\frac{5}{6}$ means $\frac{5}{6}\times\frac{4}{5}=\frac{2}{3}$.
			6.1.3.3	Calculate the percent of a number and determine what percent one number is of another number to solve problems in various contexts. *For example*: If John has $45 and spends $15, what percent of his money did he keep?
			6.1.3.4	Solve real-world and mathematical problems requiring arithmetic with decimals, fractions and mixed numbers.
			6.1.3.5	Estimate solutions to problems with whole numbers, fractions and decimals and use the estimates to assess the reasonableness of results in the context of the problem. *For example*: The sum $\frac{1}{3}+0.25$ can be estimated to be between $\frac{1}{2}$ and 1, and this estimate can be used to check the result of a more detailed calculation.
6	Algebra	Recognize and represent relationships between varying quantities; translate from one representation to another; use patterns, tables, graphs and rules to solve real-world and mathematical problems.	6.2.1.1	Understand that a variable can be used to represent a quantity that can change, often in relationship to another changing quantity. Use variables in various contexts. *For example*: If a student earns $7 an hour in a job, the amount of money earned can be represented by a variable and is related to the number of hours worked, which also can be represented by a variable.
			6.2.1.2	Represent the relationship between two varying quantities with function rules, graphs and tables; translate between any two of these representations. *For example*: Describe the terms in the sequence of perfect squares t = 1, 4, 9, 16, ... by using the rule $t=n^2$ for n = 1, 2, 3, 4, ...
		Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving positive rational numbers.	6.2.2.1	Apply the associative, commutative and distributive properties and order of operations to generate equivalent expressions and to solve problems involving positive rational numbers. *For example*: $\frac{32}{15}\times\frac{5}{6}=\frac{32\times 5}{15\times 6}=\frac{2\times 16\times 5}{3\times 5\times 3\times 2}=\frac{16}{9}\times\frac{2}{2}\times\frac{5}{5}=\frac{16}{9}$. *Another example*: Use the distributive law to write: $\frac{1}{2}+\frac{1}{3}\left(\frac{9}{2}-\frac{15}{8}\right)=\frac{1}{2}+\frac{1}{3}\times\frac{9}{2}-\frac{1}{3}\times\frac{15}{8}=\frac{1}{2}+\frac{3}{2}-\frac{5}{8}=2-\frac{5}{8}=1\frac{3}{8}$.

	Strand	Standard	No.	Benchmark
		Understand and interpret equations and inequalities involving variables and positive rational numbers. Use equations and inequalities to represent real-world and mathematical problems; use the idea of maintaining equality to solve equations. Interpret solutions in the original context.	6.2.3.1	Represent real-world or mathematical situations using equations and inequalities involving variables and positive rational numbers. *For example*: The number of miles m in a k kilometer race is represented by the equation $m = 0.62\ k$.
			6.2.3.2	Solve equations involving positive rational numbers using number sense, properties of arithmetic and the idea of maintaining equality on both sides of the equation. Interpret a solution in the original context and assess the reasonableness of results. *For example*: A cellular phone company charges $0.12 per minute. If the bill was $11.40 in April, how many minutes were used?
6	Geometry & Measurement	Calculate perimeter, area, surface area and volume of two- and three-dimensional figures to solve real-world and mathematical problems.	6.3.1.1	Calculate the surface area and volume of prisms and use appropriate units, such as cm^2 and cm^3. Justify the formulas used. Justification may involve decomposition, nets or other models. *For example*: The surface area of a triangular prism can be found by decomposing the surface into two triangles and three rectangles.
			6.3.1.2	Calculate the area of quadrilaterals. Quadrilaterals include squares, rectangles, rhombuses, parallelograms, trapezoids and kites. When formulas are used, be able to explain why they are valid. *For example*: The area of a kite is one-half the product of the lengths of the diagonals, and this can be justified by decomposing the kite into two triangles.
			6.3.1.3	Estimate the perimeter and area of irregular figures on a grid when they cannot be decomposed into common figures and use correct units, such as cm and cm^2.
		Understand and use relationships between angles in geometric figures.	6.3.2.1	Solve problems using the relationships between the angles formed by intersecting lines. *For example*: If two streets cross, forming four corners such that one of the corners forms an angle of 120˚, determine the measures of the remaining three angles. *Another example*: Recognize that pairs of interior and exterior angles in polygons have measures that sum to 180˚.
			6.3.2.2	Determine missing angle measures in a triangle using the fact that the sum of the interior angles of a triangle is 180˚. Use models of triangles to illustrate this fact. *For example*: Cut a triangle out of paper, tear off the corners and rearrange these corners to form a straight line. *Another example*: Recognize that the measures of the two acute angles in a right triangle sum to 90˚.
			6.3.2.3	Develop and use formulas for the sums of the interior angles of polygons by decomposing them into triangles.

	Strand	Standard	No.	Benchmark
		Choose appropriate units of measurement and use ratios to convert within measurement systems to solve real-world and mathematical problems.	6.3.3.1	Solve problems in various contexts involving conversion of weights, capacities, geometric measurements and times within measurement systems using appropriate units.
			6.3.3.2	Estimate weights, capacities and geometric measurements using benchmarks in measurement systems with appropriate units. *For example*: Estimate the height of a house by comparing to a 6-foot man standing nearby.
6	Data Analysis & Probability	Use probabilities to solve real-world and mathematical problems; represent probabilities using fractions, decimals and percents.	6.4.1.1	Determine the sample space (set of possible outcomes) for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables or pictorial representations. *For example*: A 6×6 table with entries such as (1,1), (1,2), (1,3), …, (6,6) can be used to represent the sample space for the experiment of simultaneously rolling two number cubes.
			6.4.1.2	Determine the probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1 inclusive. Understand that probabilities measure likelihood. *For example*: Each outcome for a balanced number cube has probability $\frac{1}{6}$, and the probability of rolling an even number is $\frac{1}{2}$.
			6.4.1.3	Perform experiments for situations in which the probabilities are known, compare the resulting relative frequencies with the known probabilities; know that there may be differences. *For example*: Heads and tails are equally likely when flipping a fair coin, but if several different students flipped fair coins 10 times, it is likely that they will find a variety of relative frequencies of heads and tails.
			6.4.1.4	Calculate experimental probabilities from experiments; represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown. *For example*: Repeatedly draw colored chips with replacement from a bag with an unknown mixture of chips, record relative frequencies, and use the results to make predictions about the contents of the bag.