NUMBER SENSE (NS)	Standard	Core Concepts	Key terms	Examples
MA.5.NS.1	Convert between standard, expanded and word form for numbers up to millions and decimals to thousandths.	• Standard form is representing a number using digits • Whole number and decimal place value • Value of a digit • Expanded form is an addition expression containing all of the values of the digits in a number	• standard form • value of a digit • expanded form • period names	Write the number 198.536 in words
MA.5.NS.2	Round whole numbers and decimals to any place value.	• Rounding is a tool used to estimate • Numbers are rounded to their nearest multiple of 10, 100, 1000, etc. • Decimals are rounded to their $\frac{1}{1000}$ nearest • 1<u>1</u>0, 10<u>1</u>0, *etc.* General rules for rounding numbers should be applied	• rounding • multiples of powers of 10	Is 7,683,559 closer to 7,600,000 or 7,700,000? Explain your answer.

NUMBER SENSE (NS)	Standard	Core Concepts	Key terms	Examples
MA.5.NS.3	Arrange in numerical order and compare whole numbers or decimals to two decimal places by using the symbols for less than (<), equals (=), and greater than (>).	• Mathematical statements are read from left to right (8 is less than (<) 12, 12 is greater than (>) 8) • The symbol for less than is (<). • The symbol for greater than is (>). • To order numbers is to arrange them from least to greatest or greatest to least.	• compare numbers • order numbers • inequality • symbols	Write from smallest to largest: 0.5, 0.26, 0.08.
MA.5.NS.4	Arrange in numerical order and compare positive and negative integers.	• An integer is any positive or negative whole number, and 0. • Decimals and fractions are not integers, even though they can be positive or negative • Graphing integers on the number line • The farther to the right an integer is on the number line, the greater its value	• integer • positive integer • negative integer • zero	

NUMBER SENSE (NS)	Standard	Core Concepts	Key terms	Examples
MA.5.NS.5	Interpret percent as a part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value.	• A common fraction is a fraction whose denominator can be any whole number • A decimal is a fraction whose denominator can only be a power of 10. • A percent is a fraction whose denominator is always 100 • Common fractions, decimal fractions, and percents are three ways of representing a part of something • Common fractions, decimal fractions, and percents can represent the same value, only in different ways.	• common fraction • decimal • fraction • percent • equivalent	Shade a 100-square grid to show 30%. What fraction is this?
MA.5.NS.6	Explain different interpretations of fractions: as parts of a whole, parts of a set, and division of whole numbers by whole numbers.	• A fraction is used to represent a part of some whole • A fraction is used to represent a part of a group or set • Fraction notation represents division of two numbers	• whole • group • set	What fraction of a pizza will each person get when 3 pizzas are divided equally among 5 people?

NUMBER SENSE (NS)	Standard	Core Concepts	Key terms	Examples
MA.5.NS.7	Describe and identify prime and composite numbers.	• A factor is a number that divides into another number with a remainder of 0. • A prime number has only two factors, 1 and the number itself • A composite number has more than two factors	• factor • prime • composite	Which of the following numbers are prime: 3, 7, 12, 17, 18? Justify your choices.
MA.5.NS.8	Identify on a number line the relative position of simple positive fractions, positive mixed numbers, and positive decimals.	• Number lines can be used to identify positions of numbers in relation to each other.		Find the positions on a number line of $1\frac{1}{4}$ and 1.4.
MA.5.NS.9	Add and subtract with money in decimal notation.	• Addition and subtraction involve counting, and you can only count things that are the same • Money notation uses place value and regrouping in the same way as whole numbers and decimals • Line-up place value when adding or subtracting money • Zeros serve as place holders ($12 = $12.00)	• addition • subtraction • money place value	You buy articles that cost $3.45, $6.99, and $7.95. How much change will you receive from $20?

COMPUTATION (C)	Standard	Core Concepts	Key terms	Examples
MA.5.C.1	Solve problems involving Multiplication and division of any whole numbers.	• Multiplication algorithm • Division algorithm	• product • quotient	2,867 x 34 = ?. Explain your method
MA.5.C.2	Add, subtract, and multiply, positive and negative integers	• An integer is any positive or negative whole number, and 0. • Opposites are integers that have the same value, but different signs (-3 , +3), • etc. The sum of any integer and its • opposite is 0 General rules for adding, subtracting, and multiplying integers	• integer • opposite	17 + (-4) = ? , (-8) - 5 = ? , 3 x 2 = ? , 2 x 2 = ? , 1 x 2 = ? , 0 x 2 = ? , (-1) x 2 = ? , (-2) x 2 = ? , etc.

COMPUTATION (C)	Standard	Core Concepts	Key terms	Examples
MA.5.C.3	Add and subtract fractions, including mixed numbers, with different denominators.	• Addition and subtraction involve counting, and you can only count things that are the same • The denominator indicates what is being counted, so the denominators must be the same when adding or subtracting • fractions Methods for finding common denominators: LCM (LCD), product of the denominators • To maintain equivalence, the numerator must change whenever the denominator changes.	• numerator • denominator • LCM (LCD) • equivalent fractions	$3\frac{4}{5} - 2\frac{2}{3} = ?$

COMPUTATION (C)	Standard	Core Concepts	Key terms	Examples
MA.5.C.4	Use models to show an understanding of multiplication and division of fractions.	• Develop the algorithms for multiplying and dividing fractions using models	• modeling	Draw a rectangle 5 squares wide and 3 squares high. Shade $\frac{4}{5}$ of the rectangle, starting from the left. Shade $\frac{2}{3}$ of the rectangle, starting from the top. Look at the fraction of the squares that you have double-shaded and use that to show how to multiply $\frac{4}{5}$ *by* $\frac{2}{3}$.

COMPUTATION (C)	Standard	Core Concepts	Key terms	Examples
MA.5.C.5	Multiply and divide fractions to solve problems.	• Algorithms for multiplying and dividing fractions • The product of a number and its reciprocal is 1 • Determine whether a word problem requires multiplication or division to solve • Identify the dividend and divisor in word problems involving division	• product • quotient • reciprocal	You have $3\frac{1}{2}$ pizzas left over from a party. How many people can have $\frac{1}{4}$ of a pizza each?
MA.5.C.6	Add and subtract decimals, verifying the reasonableness of the results.	• Decimals use place value and regrouping in the same way as whole numbers • Estimation methods (Front-end, rounding) to check the reasonableness of decimal sums and differences	• estimate • rounding • front-end estimation	Compute 39.46 - 20.89 and check the answer by estimating.

COMPUTATION (C)	Standard	Core Concepts	Key terms	Examples
MA.5.C.7	Use estimation to decide whether answers are reasonable in addition, subtraction, multiplication, and division problems.	• An estimate is an educated guess of the answer to a problem • Estimation methods applied to addition and subtraction problems • Multiplying multiples of 10, 100, 1000, • etc. To estimate products, round each factor to its highest place, then multiply • Dividing multiples of 10, 100, 1000, etc. • To estimate quotients, round the dividend and divisor so they are compatible, then divide	• estimate • rounding • front-end • estimation compatible numbers	Your friend says that 2,867 x 34 = 20,069. Without solving, explain why you think the answer is wrong.
MA.5.C.8	Use mental arithmetic to add or subtract simple decimals.	• Techniques for adding and subtracting decimals using mental math are different than when using pencil and paper		Add 0.006 to 0.027 without using pencil and paper.

COMPUTATION (C)	Standard	Core Concepts	Key terms	Examples
MA.5.C.9	Multiple and divide decimals by a whole number.	• Use models and repeated addition to develop a rule for multiplying a decimal by • a whole number Use models and division algorithm to develop a rule for dividing a decimal by a whole number	• product • quotient	4 x 1.3 = ? , 7.2 ÷ 3 = ?
MA.5.C.10	Use the order of operations to solve numerical equations and expressions	• PEMDAS: Parenthesis, Exponents, Multiplication/Division from left to right, Addition/Subtraction from left to right	• order of operations • PEMDAS	Evaluate 20 ÷ (8 - 3) x 4

ALGEBRA AND FUNCTIONS (AF)	Standard	Core Concepts	Key terms	Examples
MA.5.AF.1	Use a variable to represent an unknown number.	• Use a variable to represent some unknown number • Convert a word phrase to an algebraic expression • Convert a word sentence to an equation	• variable • algebraic expression • equation	When a certain number is multiplied by 3 and then 5 is added, the result is 29. Let x stand for the unknown number and write an equation for the relationship.
MA.5.AF.2	Write simple algebraic expressions in one or two variables and evaluate them by substitution.	• To evaluate an expression means to find the value of the expression The • value of an expression varies, depending on the value of the • variable Algebraic expressions are converted to numerical expressions in order to be evaluated • The order of operations must be followed when evaluating expressions	• numerical expression • algebraic expression • order of operations • evaluate	Find the value of 5x + 2 when x = 3.
MA.5.AF.3	Use the distributive property in numerical equations and expressions.	• Multiplying the terms of an addition or subtraction problem by a factor equals the same value as multiplying the sum or difference by the factor	• distribute • distributive property	Explain how you know that 3(16 - 11) = 3 x 16 - 3 x 11.

ALGEBRA AND FUNCTIONS (AF)	Standard	Core Concepts	Key terms	Examples
MA.5.AF.4	Identify and graph ordered pairs using all four quadrants.	• The coordinate plane is a plane that is divided into four equal quadrants The • plotting of points on the coordinate plane always begins at the origin (0, 0) • The scale used on a coordinate plane can vary, but a scale of 1 is most • common An axis on a coordinate plane can be labeled in various ways, but the most common is for the horizontal axis to be labeled x and the vertical axis to be labeled y. • An ordered pair is plotted following the order (x-axis first, y-axis second (x , y)) it is written	• coordinate plane • axis • origin • quadrants • ordered pairs • plot points	Plot the points (2 , 1), (1 , -1), (0 , -3), (-1 , -5). What do you notice?
MA.5.AF.5	Find ordered pairs (positive numbers only) that fit a linear equation, graph the ordered pairs, and draw the line they determine.	• Evaluating an algebraic expression within an equation • Determining the value of the y-coordinate in an equation, given the value of the x-coordinate • The value of the y-coordinate depends on the value of the x-coordinate • Plotting points on a graph to identify relationships, patterns, and trends	• algebraic expression • evaluate • coordinate • ordered pair • plot points	For x = 1, 2, 3, and 4, find points that fit the equation y = 2x + 1. Plot those points on graph paper and join them with a straight line.

GEOMETRY (G)	Standard	Core Concepts	Key terms	Examples
MA.5.G.1	Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, triangles, and circles by using appropriate tools (e.g., ruler, compass, protractor, appropriate technology, media tools).	• An angle is the amount of turn, measured in degrees, between two straight lines that have a common • endpoint, called a vertex. A protractor is used to measure and draw angles • Perpendicular lines are at right angles to each other • Parallel lines are always an equal distance apart from each other and • never intersect A rectangle is a four sided figure with opposite sides • parallel and four right angles A triangle • is a closed three-sided figure with three angles A circle is a two-dimensional shape made by drawing a curve that is always the same distance from a center	• angle • vertex • perpendicular • parallel • rectangle • triangle • circle	Draw a rectangle with sides 5 inches and 3 inches.

GEOMETRY (G)	Standard	Core Concepts	Key terms	Examples
MA.5.G.2	Identify, describe, draw, and classify triangles as Equilateral, isosceles, scalene, right, acute, obtuse, and equiangular.	• Congruent figures have the same size and shape • Equilateral triangles have all congruent sides and angles • Isosceles triangles have at least two congruent sides and angles • Scalene triangles have no congruent sides or angles • Right triangles have one angle that measures 90 degrees • An acute triangle is a triangle where all angles are less than 90 degrees • An obtuse triangle is a triangle where one angle is more than 90 degrees • An equiangular triangle is a triangle where all angles are of equal measure	• congruent • Equilateral • Isosceles • Scalene • right • acute • obtuse • equiangular	Draw an isosceles right triangle.
MA.5.G.3	Identify congruent triangles and justify your decisions by referring to sides and angles.	• Congruent figures have the same size and shape • Corresponding angles are angles that have the same relative positions in geometric figures • Corresponding sides are sides that have the same relative positions in geometric figures	• congruent • corresponding angle • corresponding sides	In a collection of triangles, pick out those that are the same shape and size and explain your decisions.

GEOMETRY (G)	Standard	Core Concepts	Key terms	Examples
MA.5.G.4	Identify, describe, draw, and classify polygons, such as pentagons and hexagons.	• A polygon is a closed plane figure having three or more sides • A regular polygon is a polygon whose sides are the same length and whose angles are • • the same measure • A heptagon is a 7-sided polygon A nonagon is a 9-sided polygon A dodecagon is a 12-sided figure	• Polygon • regular • polygon • quadrilateral • pentagon • hexagon • heptagon • octagon • nonagon • decagon • dodecagon	In a collection of polygons, pick out those with the same number of sides.

GEOMETRY (G)	Standard	Core Concepts	Key terms	Examples
MA.5.G.5	Identify and draw the radius, diameter and central angle of a circle and understand the relationship between the radius, diameter and central angles of a circle.	• A radius is a line segment which extends from the center to the edge of a circle A chord is a line segment whose endpoints are on the edge of a circle • A diameter is a chord that passes through the center of a circle • The diameter of a circle is equal to twice the length of the radius of the circle A central angle is the angle that forms when two radii meet at the center of a circle	• radius • chord • diameter • central angle	On a circle, draw a radius and a diameter and describe the differences and similarities between the two.
MA.5.G.6	Identify shapes that have reflectional and rotational symmetry.	• A line of symmetry is an imaginary line where you could fold the image and have both halves match exactly. Each half would be a reflection, or mirror image, of the other side • Rotational symmetry is when a shape still looks the same after a rotation (of less than one full turn).	• Symmetry • reflectional symmetry • rotational • symmetry	What kinds of symmetries have the letters M, N, and O?

GEOMETRY (G)	Standard	Core Concepts	Key terms	Examples
MA.5.G.7	Understand that 90°, 180°, 270°, and 360° are associated with ¼, ½, ¾, and full turns, respectively.	• A full turn (complete circle) equals 360 degrees. • A ½ turn equals 180 degrees • Every ¼ turn equals 90 degrees	• right angle • turn	Face the front of the room. Turn through four right angles. Which way are you now facing?
MA.5.G.8	Construct prisms and pyramids using appropriate materials.	• A prism is a solid object with two identical ends and flat sides. The shape of the ends give the prism its • name A pyramid is a solid object with triangular sides and a base that is a polygon	• prism • pyramid	Make a square-based pyramid from construction paper.
MA.5.G.9	Given a picture of a three-dimensional object, build the object with blocks.	• A three-dimensional object has height, width, and depth • Three dimensional objects are constructed using cubic units	• three dimensional	Given a picture of a house made of cubes and rectangular prisms, build the house.

MEASUREMENT (M)	Standard	Core Concepts	Key terms	Examples
MA.5.M.1	Understand and apply the formulas for the area of a triangle and parallelogram.	• Formula for the area of a parallelogram: • Area = base x height (A=bh) Formula for the area of a triangle: Area = ½ x base x height (A = $\frac{1}{2}bh$)	• base • height	Find the area of a triangle with base 4 m and height 5 m.
MA.5.M.2	Solve problems involving perimeters and areas of rectangles, triangles, parallelograms, and trapezoids, using appropriate units.	• Perimeter is the distance around a • polygon Area is the number of square units needed to cover a surface	• perimeter • area	A trapezoidal garden bed has parallel sides of length 14 m and 11 m and its width is 6 m. Find its area and the length of fencing needed to enclose it. Be sure to use correct units.

MEASUREMENT (M)	Standard	Core Concepts	Key terms	Examples
MA.5.M.3	Use formulas for the areas of rectangles and triangles to find the area of complex shapes by dividing them into basic shapes.	• The whole is the sum of its parts • The area of a complex shape is the sum of the areas of the basic shapes which make it up.		A square room of length 17 feet has a tiled fireplace area that is 6 feet long and 4 feet wide. You want to carpet the floor of the room, except the fireplace area. Find the area to be carpeted.
MA.5.M.4	Find the volume of rectangular solids using appropriate units.	• Volume is the amount of three-dimensional space an object occupies • Volume is measured in cubic units • The volume of a rectangular solid equals the product of its length, width, and height ($V = lwh$)	• volume • rectangular solid	Find the volume of a shoe box with length 30 cm, width 15 cm, and height 10 cm.

MEASUREMENT (M)	Standard	Core Concepts	Key terms	Examples
MA.5.M.5	Understand and use the smaller and larger units for measuring weight (ounce, gram, and ton) and their relationship to pounds and kilograms.	• Units of weight in the customary system include ounces, pounds, and tons (16 ounces = 1 pound, 2,000 pounds = 1 ton) • A gram is the basic unit of mass in the metric system • Units of mass in the metric system include grams, centigrams, and kilograms (100 cg = 1 g , 1000g = 1 kg)	• Customary system • Metric system	How many ounces are in a pound?
MA.5.M.6	Understand and convert yards, feet and inches	• Customary units of length include inches, feet, and yards (12 in = 1 ft, 36 in = 1 yd, 3 ft = 1 yd)	• Customary system • length	How many inches are in pole that is 1 yd, 2 ft, and 7 in long.
MA.5.M.7	Understand and convert meters, centimeters, millimeters and decimeters	• A meter is the basic unit of length in the metric system • Metric units of length include meters, centimeters, millimeters, and decimeters (10 dm = 1 m , 100 cm = 1 m , 1000 mm = 1 m)	• Metric system • length	300 centimeters is equal to how many meters?

MEASUREMENT (M)	Standard	Core Concepts	Key terms	Examples
MA.5.M.8	Understand and convert cups, pints, quarts and gallons	• Customary units of capacity include cups, pints, quarts, and gallons (2 c = 1 pt, 2 pt = 1 qt, 4 qt = 1 gal)	• Customary system capacity	13 pints = ? gallons, ? quarts, ? pints
MA.5.M.9	Compare temperatures in Celsius and Fahrenheit, knowing that the freezing point of water is 0°C and 32°F and that the boiling point is 100°C and 212°F.	• Temperature in the metric system is measured in degrees Celsius • Temperature in the customary system is measured in degrees Fahrenheit • A unit of Celsius measurement is greater than a unit of Fahrenheit measurement	• Celsius • Fahrenheit	What is the Fahrenheit equivalent of 50 degrees Celsius?
MA.5.M.10	Determine the start, elapsed, and end times to the minute	• Converting units of time (60 sec = 1 min, 60 min = 1 hr) • Elapsed time is the amount of time that passes from the beginning of an event to its end.		A movie ended at 9:23 in the evening. If the movie was 143 minutes long, at what time did the movie start?

DATA ANALYSIS AND PROBABILITY (DP)	Standard	Core Concepts	Key terms	Examples
MA.5.DP.1	Explain which types of displays are appropriate for various sets of data.	• Bar graphs show the number of items in specific categories • Circle graphs compare parts of the data to the whole • Double bar graphs compare two sets of categorical data • Line graphs show change over a period of time • Picture graphs use a pictorial display of data with symbols, icons, and pictures to represent different quantities.	• bar graph • circle graph • double bar graph • line graph • picture graph	Conduct a survey to find the favorite movies of the students in your class. Decide whether to use a bar, line, or picture graph to display the data. Explain your decision.
MA.5.DP.2	Find the mean, median, mode, and range of a set of data and describe what each does, and does not, tell about the data set.	• Mean is the average obtained by adding the values and dividing by the number of values • Median is the value that divides a set of data, written in order of size, into two equal parts • Mode is the most common value in a given data set • Range is the difference between the largest and smallest values	• mean • median • mode • range	Find the mean, median, and mode of a set of test results and describe how well each represents the data.

DATA ANALYSIS AND PROBABILITY (DP)	Standard	Core Concepts	Key terms	Examples
MA.5.DP.3	Understand that probability can take any value between 0 and 1, events that are not going to occur have probability 0, events certain to occur have probability 1, and more likely events have a high probability than less likely events.	• Probability is the measure of the likelihood that an event will occur • Probability is measured by the ratio of favorable cases to the whole number of cases possible • Interpret probabilities to determine the likelihood of an event occurring	• probability	What is the probability of rolling a 7 with a number cube?
MA.5.DP.4	Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4, ¾).	• Experimental probability is the ratio of the number of times an event occurs to the total number of trials or times the activity is performed • Probability can be expressed both verbally and numerically	• experimental probability	What is the probability of rolling an odd number with a number cube?