Math Scope & Sequence
2019-2020

	Number & Operations	Algebraic Relationships	Geometric & Spatial	Measurement	Data & Probability
Kindergarten	• Count to 100 by ones and tens. • Write numbers 0-20. • Recognize numbers 0-20 • Explain and apply the meaning of greater than, less than, and equal to. • Count objects to 20 and write the correct number to answer "how many". • Recognize quantities without counting • Count on from any given number • Count backwards from 10 to 1 • Recognize without counting the quantity of groups up to 5 objects arranged in common patterns (subitize)	• Compose and decompose numbers 1-19 • Compose and decompose numbers using ones and tens. • Add and subtract using numbers up to 10.	• Name and describe 2-D and 3-D shapes. • Draw or build 2-D shapes and create larger shapes. • Describe relative positions in space.	• Name the days of the week • Name ways to measure time (calendar, clock, stopwatch, etc.) • Recognize concepts of time (morning, afternoon, evening, yesterday, today, tomorrow) • Recognize pennies, nickels, dimes, and quarters	• Describe and compare two objects. • Sort a set of objects
1st Grade	• Count to 120 by 1s, 5s, and 10s. • Count backward 20-1 • Read and write numerals and represent a number of objects with a written numeral • Understand that 10 can be thought of as a bundle of ten ones called a "ten" and understand that 2-digit numbers are composed of tens and ones. • Compare 2 two-digit numbers using the symbols <, >, = • Add within 100	• Use addition and subtraction to solve problems that call for addition of two and three whole numbers whose sum is within 20 • Develop the meaning of the equal sign and determine if equations involving addition and subtraction are true or false • Use properties as strategies to add and subtract • Demonstrate that subtraction can be solved as an unknown addend problem • Demonstrate fluency with addition and subtraction within 10	• Draw or build shapes that possess defining attributes and understand the difference in defining vs. nondefining attributes • Compose and decompose two- and three-dimensional shapes to build an understanding of part-whole relationships and the properties of the original and composite shapes • Recognize two- and three-dimensional shapes from different perspectives and orientations • Partition circles and rectangles into two or four equal	• Read and write numerals and represent a number of objects with a written numeral • Order three or more objects by length • Demonstrate the ability to measure length or distance using objects and compare the lengths of two objects indirectly by using a third object • Tell and write time in hours and half hours using analog and digital clocks • Know the value of penny, nickel, dime, and quarter	• Collect, organize, and represent data with up to three categories and draw conclusions from object graphs, picture graphs, T charts, AND tallies

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	• Calculate 10 more and 10 less without counting and add or subtract a multiple of 10 from another 2-digit number		shares and describe the shares and the whole verbally		
2nd Grade	*Understand place value of three digit numbers *Understand three digit are composed of hundreds, ten, and ones *Understand that 100 can be thought of as 10 tens called "a hundred" *Count within 1000 by 1s, 10s, and 100s starting with any number *Read and write numbers to 1000 using number names, base-ten numerals and expanded form *Compare two three-digit numbers using the symbols <,>, = *Demonstrate fluency with addition and subtraction within 100 *Add up to four two-digit numbers *Add or subtract within 1000 and justify the solution *Illustrate the relationship between addition and subtraction to solve problems *Add or subtract mentally 10 or 100 to or from a given number within 1000 *Write and solve problems involving addition and subtraction within 100	*Develop foundations for multiplication and division *Determine if a set of objects has an odd or even number of members *Count by 2's to 100 starting with any even number *Express even numbers as pairings/groups of 2, and write an expression as repeated addition *Show even numbers as being composed of equal groups and write an expression to represent the number with 2 equal addends. *Find the total numbers of objects arranged in a rectangular array with up to 5 rows and 5 columns, and write an equation to represent the total as a sum of equal addends	*Reason with shapes and attirbutes *Recognize and draw shapes having specific attributes, such as a given number of angles or sides *Identify triangles, quadrilaterals, pentagons, hexagons, circles, and cubes *Identify the faces of three-dimensional objects *Partition a rectangle into rows and columns of same-sized squares and count to find the total number of squares. *Partition circles and rectangles into two, three or four equal shares and describe the shares and the whole *Demonstrate that equal shares of identical wholes need not have the same shape *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 *Describe a time shown on a digital clock as representing hours and minutes, and relate a time shown on a digital clock to the same time on a an analog clock	*Measure and estimate length in standard units *Measure the length of an object by selecting and using appropriate tools *Analyze the results of measuring the same object with different units *Estimate lengths using units of inches, feet, yards, centimeters, and meters *Measure to determine how much longer one object is than another *Relate addition and subtraction to length *Use addition and subtraction within 100 to solve problems involving lengths that are given in the same units *Represent whole numbers as lengths on a number line, and represent whole-number sums and differences within 100 on a number line	*Represent and interpret data *Create a line plot to represent a set of numeric data, given a horizontal scale marked in whole numbers *Generate measurement data to the nearest whole unit, and display the data in a line plot *Draw a picture graph or a bar graph to represent a data set with up to four categories *Solve problems using information presented in line plots, picture graphs and bar graphs *Draw conclusions from line plots, picture graphs, and bar graphs

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	*Demonstrate fluently with addition and subtraction within 20		*Find the value of combinations of dollar bills, quarters, dimes, nickels and pennies, using $ and c appropriately *Find combination of coins that equal a given amount		
3rd Grade					
4th Grade	*Use place value understanding and properties of operations to perform multi-digit arithmetic with numbers up to one million. *Extend understanding of fraction equivalence and ordering. (Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12, and 100.) *Extend understanding of operations on whole numbers fractions operations. *Understand decimal notation for fractions and compare decimal fractions. (Denominators of 10 or 100)	*Use the four operations with whole numbers to solve problems. *Work with factors and multiples. *Generate and analyze data.	*Classify 2-dimensional shapes by properties of their lines and angles. *Draw and identify points, lines, line segments, rays, angles, perpendicular lines and parallel lines. *Construct lines of symmetry for two-dimensional figure. *Understand the concepts of angles and measure angles.	*Solve problems involving measurement and conversion of measurement from a larger unit to a smaller unit. *Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	*Represent and analyze data *Analyze data in a frequency table, line plot, bar graph, or picture graph.
5th Grade	• Perform operations with multi-digit whole numbers to billions and decimals to thousandths • Understand relationship between	• Generate two numeric patterns given two rules • Translate numeric patterns into ordered pairs	• Classify two- & three- dimensional geometric shapes • Compute volume • Graph points within first quadrant	• Convert measurements of capacity, length, & weight within a measurement system	• Create a line graph to represent a data set • Create a line plot to represent

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	fractions & decimals (denominators are factors of 100) • Perform operations & solve problems with fractions and decimals	• Write & interpret numerical expressions using order of operations • Use the four operations to represent & solve problems		• Solve multi-step problems including measurement conversions	data set & answer problems • Generate the median
6th Grade	*Apply concepts to divide fractions by fractions using common factors and multiples. Compute non-negative multi-digit numbers. *Apply concepts of rational numbers system. *Interpret and use ratios to solve problems and compare two quantities.	*Apply math operations to algebraic expressions. *Apply concepts of math operations to solve one-variable, one-step, non-negative linear equations and inequalities.	*Solve area, surface area, and volume problems.	*Convert measurements between systems of units.	*Draw conclusions of statistical variability, summarizing distributions.
7th Grade	• Analyze proportional relationships and use them to solve real-world and mathematical problems. • Apply and extend previous understands of operations with fractions to add, subtract, multiply and	• Use properties of operations to generate equivalent expressions. *Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	• Draw, construct and describe geometrical figures and describe the relationships between them.	• Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	•Use random sampling to draw inferences about a population. *Draw informal comparative inferences about two populations. *Investigate chance processes and develop, use

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	divide rational numbers.				and evaluate probability models.
8th Grade	• Know that there are numbers that are not rational, and approximate them by rational numbers.	• Work with radicals and integer exponents. • Understand the connections between proportional relationships, lines and linear equations. • Analyze and solve linear equations and pairs of simultaneous linear equations. • Define, evaluate, and compare functions. • Use functions to model relationships between quantities.	• Understand congruence and similarity using physical models, transparencies or geometry software. • Understand and apply the Pythagoreon Theorem. • Solve real-world and mathematical problems involving volume of cylinders, cones, pyramids, and spheres.	• Understand congruence and similarity using physical models, transparencies or geometry software. • Understand and apply the Pythagoreon Theorem. • Solve real-world and mathematical problems involving volume of cylinders, cones, pyramids, and spheres.	• Investigate patterns of associations in bivariate data.
Principles of Math	○ Communicate mathematically ○ Review basic arithmetic	○ Solve linear equations in one variable	○ Investigate coordinate plane ○ Basic geometric shapes and spatial reasoning		
Principles of Geometry	○ Communicate mathematically	○ Graph and analyze linear functions	○ Transformational geometry ○ Congruency		
Principles of Algebra	○ Communicate mathematically	○ Manipulate radicals and polynomials	○ Investigate Euclidean properties		○ Review concepts of data analysis

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	○ Review basic arithmetic and basic algebra	○ Solve and analyze linear inequalities, linear systems, quadratic, exponential and absolute value functions			
Math Support	○ Communicate mathematically ○ Review basic arithmetic and basic algebra				
HS Algebra I	○ Communicate mathematically ○ Simplify & use real #'s, powers, roots & radicals ○ Simplify polynomials	○ Solve & graph linear equations and inequalities and quadratic functions			
Geometry	○ Reason deductively & inductively	○ Apply congruence & similarity to ratios & proportions	○ Use formulas to find area & volume ○ Explore transformations and coordinate geometry ○ Find trig values using right triangles	○ Use properties of lines, circles, angles & polygons	○ Review concepts of data analysis
Algebra II/ Algebra II (Honors)	○ Simplify & use real #'s, powers, roots & radicals ○ Simplify polynomials ○ Simplify functions ○ Simplify matrices & complex numbers	○ Solve linear, absolute value, quadratic, rational, irrational, exponential polynomial & logarithmic equations. ○ Solve systems & inequalities ○ Graph linear, quadratic, and exponential functions	○ Analytic geometry- Conic sections ○ Compare & contrast sequences & series		○ Concepts of statistics and probability

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DC College Algebra	○ Simplify & use real #'s, powers, roots & radicals ○ Simplify polynomials ○ Simplify functions ○ Simplify matrices & complex numbers	○ Solve & graph linear, absolute value, quadratic, rational, irrational, exponential polynomial & logarithmic functions ○ Solve systems & inequalities	○ Analytic geometry-Conic sections ○ Compare & contrast sequences & series		
DC Trignometry	○ Convert degrees & radian	○ Simplify trig identities	○ Find trig values using right triangles ○ Graph trig functions		
Math Analysis	○ Simplify & use real #'s, powers, roots & radicals ○ Simplify polynomials ○ Simplify functions ○ Simplify matrices & complex numbers	○ Solve & graph linear, absolute value, quadratic, rational, irrational, exponential polynomial & logarithmic functions ○ Solve systems & inequalities	○ Analytic geometry-Conic sections ○ Compare & contrast sequences & series		
DC Calculus	○ Explore pre-calculus concepts	○ Find limits of functions	○ Find derivatives and use them to analyze graphs ○ Find integrals and use them to solve application problems		