

Cliffside Park Public Schools

	September	October	November	December	January	February	March	April	May	June
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**GRADE 5
MAP
of
MATH CURRICULUM TOPICS**

	September	October	November	December	January	February	March	April	May	June
GRADE 5 UNITS OF STUDY & BENCHMARKS	Place Value, Add and Subtract Whole Numbers and Decimals: -compare & order whole numbers and decimals -add and subtract whole numbers and decimals -estimate sums and differences	Multiply Whole Numbers and Decimals: -multiply whole numbers and decimals up to 5 digits -Estimate products of whole numbers and decimals -Evaluate expressions with decimals	Geometry: -measure, draw and clarify angles -name and describe geometric figures -identify similar figures and transformations -find unknown angles of figures	Perimeter, Area and Volume: -measure, draw and classify angles -name and describe geometric figures -identify similar figures and transformations Find unknown angle of a figure	Divide Whole Numbers and Decimals: -divide by 10, 100, 1000 -divide whole numbers and decimals -Estimate quotients	Data, Statistics, and Graphs/ Number Theory and Fraction Concepts: -read and interpret data -organize and display data Find range, median, mode Identify prime and composite numbers Find common factors and multiples -simplify fractions & mixed numbers -compare and order fractions and mixed numbers	Add and subtract Fractions/ Multiply and Divide Fractions: -add and subtract fractions and mixed numbers -use addition properties -estimate sums and differences of mixed numbers -multiply fractions and mixed numbers -estimate products of fractions and mixed numbers Use properties of multiplication -divide fractions and mixed numbers	Multiply and Divide Fractions/ Measurement: -multiply fractions and mixed numbers -estimate products of fractions and mixed numbers Use properties of multiplication -divide fractions and mixed numbers -change units of time and find elapsed time -estimate length, volume, weight, mass and temperature -measure length -change from one unit to another	Integers/ Algebra: Expression and Equations: -change units of time and find elapsed time -estimate length, weight, mass, and temperature -measure length -change from one unit to another -compare and order integers -add integers -subtract integers	Ratio and Probability/ Percents: -find equivalent ratios -use scale drawings and maps -find probability of an event -change numbers between percents, decimals, and fractions -find a percent of a whole number -find the percent one number is of another -interpret and make circle graphs
	COMPUTATIONAL FLUENCY SPIRALING (Through daily review) PROBLEM OF THE DAY (use strategies to solve problems)									

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*CURRICULUM FOCAL POINTS (NCTM)	<p>Number and Operations and Algebra: Developing an understanding of and fluency with division of whole numbers Students apply their understanding of models for division, place value, properties, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multidigit dividends. They select appropriate methods and apply them accurately to estimate quotients or calculate them mentally, depending on the context and numbers involved. They develop fluency with efficient procedures, including the standard algorithm, for dividing whole numbers, understand why the procedures work (on the basis of place value and properties of operations), and use them to solve problems. They consider the context in which a problem is situated to select the most useful form of the quotient for the solution, and they interpret it appropriately.</p>			<p>Number and Operations: Developing an understanding of and fluency with addition and subtraction of fractions and decimals Students apply their understandings of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They apply their understandings of decimal models, place value, and properties to add and subtract decimals. They develop fluency with standard procedures for adding and subtracting fractions and decimals. They make reasonable estimates of fraction and decimal sums and differences. Students add and subtract fractions and decimals to solve problems, including problems involving measurement</p>			<p>Geometry and Measurement and Algebra: Describing three-dimensional shapes and analyzing their properties, including volume and surface area Students relate two-dimensional shapes to three-dimensional shapes and analyze properties of polyhedral solids, describing them by the number of edges, faces, or vertices as well as the types of faces. Students recognize volume as an attribute of three-dimensional space. They understand that they can quantify volume by finding the total number of same-sized units of volume that they need to fill the space without gaps or overlaps. They understand that a cube that is 1 unit on an edge is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating or measuring volume. They decompose three-dimensional shapes and find surface areas and volumes of prisms. As they work with surface area, they find and justify relationships among the formulas for the areas of different polygons. They measure necessary attributes of shapes to use area formulas to solve problems.</p>			
	<p>Connections to the Focal Points Algebra: Students use patterns, models, and relationships as contexts for writing and solving simple equations and inequalities. They create graphs of simple equations. They explore prime and composite numbers and discover concepts related to the addition and subtraction of fractions as they use factors and multiples, including applications of common factors and common multiples. They develop an understanding of the order of operations and use it for all operations. Measurement: Students' experiences connect their work with solids and volume to their earlier work with capacity and weight or mass. They solve problems that require attention to both approximation and precision of measurement. Data Analysis: Students apply their understanding of whole numbers, fractions, and decimals as they construct and analyze double-bar and line graphs and use ordered pairs on coordinate grids. Number and Operations: Building on their work in grade 4, students extend their understanding of place value to numbers through millions and millionths in various contexts. They apply what they know about multiplication of whole numbers to larger numbers. Students also explore contexts that they can describe with negative numbers (e.g., situations of owing money or measuring elevations above and below sea level.)</p>									

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MATHEMATIC VOCABULARY	Associative Property of Addition Commutative Property of Addition Decimal Equivalent decimals Identity property of addition Place Value Whole number	Base Clustering Exponent Factor Power Product	Central angle Chord Congruent figures Diagonal Line of symmetry Similar figures	Central Angle Chord Congruent Figures Diagonal Line of Symmetry Similar figures Equilateral triangle Isosceles triangle Scalene triangle Right triangle Acute triangle Obtuse triangle Parallelogram Trapezoid Rectangle Rhombus square	Compatible numbers Dividend Divisor Fact family Power of 10 Quotient remainder	Interval Mean Median Mode Population Range Equivalent fractions Greatest common factor (GCF) Improper fraction Least common denominator (LCD) Least common multiple (LCM) Prime number	Associative property of addition Common denominator Commutative property of addition Identity property of addition Like denominators Associative property of multiplication Commutative property of multiplication Compatible numbers Distributive property of multiplication over addition Divisor Identity property of multiplication Reciprocals Zero property of multiplication Capacity Celcius Fahrenheit Elapsed Time Mass	Associative property of multiplication Commutative property of multiplication Compatible numbers Distributive property of multiplication over addition Divisor Identity property of multiplication Reciprocals Zero property of multiplication Capacity Celcius Fahrenheit Elapsed Time Mass	Integer Negative integer Opposite integer Positive integer Algebraic expression axis coordinate function order of operations ordered pair origin variable	Cross product Equivalent ratios Event Outcome Probability Proportion Rate Ratio Circle graph Percent Venn diagram
ACTIVITIES	<ul style="list-style-type: none"> -find place value of whole numbers and decimals -add prices of items in store flyers 	<ul style="list-style-type: none"> -illustrate multiplication expressions for exponents -estimate costs of dinner using menus 	<ul style="list-style-type: none"> -use nets to create 3-D shapes -use 3-D shapes to create various structures 	<ul style="list-style-type: none"> -create 3-D figures with nets -geometry mural 	<ul style="list-style-type: none"> -use base 10 blocks to show division 	<ul style="list-style-type: none"> -collect and organize data into graphs -create a survey, calculate statistics and graph results -find range, median and mode and make graphs (use candy as data)s -draw and write fractions 	<ul style="list-style-type: none"> -use measuring cups to model adding fractions -interview a parent about chores done over the course of a week: collect data estimating time spent on each task; create a graph to summarize 	<ul style="list-style-type: none"> -measure items in classroom -make a recipe using liquid measures -document daily temperature in fahrenheit and celcius 	<ul style="list-style-type: none"> -Create an integer line and chart weather -research recycling and use data in a coordinated graph 	<ul style="list-style-type: none"> -create a spinner game -use StarBurst for probability -shopping game using newspaper ads -select a sport and describe statistics for that sport

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	Math Journals Writing Word Problems									
ADDITIONAL CROSS-CURRICULAR OPPORTUNITIES	-Use addition and subtraction (whole numbers and decimals) in investigations of plants and plant cells (Science)	-Use multiplication (whole numbers and decimals) in animal cell investigations (Science)	-Which structure holds the most weight? (Science)	- <i>Sir Cumference</i> (LAL) -Volume of planets (Science)	-apply division to investigate science concepts (Science)	-Create a survey (LAL) -use website to create graph (Technology) -Line Graph Maps (Social Studies) -Graph weather (Science)	-Compare relationships of body parts – length, height (Health/Science) -Reading and following a recipe (LAL)	-Find the degrees of the angles of different parts of historical buildings (Social Studies) -Measure heights of students (Health/Science)	-Science Fair Budget (Science) -Chart weather (Science) -Chart heart rate (Health/Science)	-Baking: Change recipe using ratio (LAL) -apply ratio to science investigations of light and sound (Science)
	Additional LAL: - see Marilyn Burns List (Appendix) - see Authentic Literature List (Appendix) - <i>Reading Aloud Across the Curriculum</i> (Laminak & Wadsworth, 2006) Music: - Math Songs CD Technology: - Math Traveler, - Math Tool Chest - Learnia - Study Island									
ACCOMMODATIONS (ESL & SPECIAL EDUCATION)	Place value charts Metric rulers Map out problems	Place value charts & models Grid paper Graph paper Number line	Relate geometric figures to classroom objects Model & classify angles with: spinner & ruler; paper clips & poster board Draw figures on graph paper Cut out shapes	Solid models Graph paper to relate areas Geometric shaped blocks Connecting cubes	Model division using place value mats Use graph paper for division Use counters to see remainders	Build line and bar graphs on chalkboard or smartboard Conduct surveys of student experiences Connecting cubes to find range, median and mode Use patterns to find rules for divisibility by 2	Model addition of fractions using shaded circles Fraction strips Model division of fractions using rulers	Grids and counters to model multiplying fractions Use fraction strips to model division of fractions Use cups, quarts and gallons to model volume Use thermometers to compare temperatures	Use number lines to represent integers Use 2 color counters to illustrate adding integers Use rulers to graph linear functions Use graph paper	Use real objects to show ratios Flip coins to demonstrate probability Use connecting cubes Use pennies to introduce percents

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	<ul style="list-style-type: none"> • e-glossary (www.mhschool.com/math) • Visual Models • Concrete Objects • Pictorial Models • Leading Questions • Act Out • Tools (rulers, measuring cups, scales, etc.) • Pattern Blocks • Cooperative Learning: Team Assisted Individualization (TAI) – heterogenous groups helping each other • Explicit Systematic Instruction: teacher demonstration, thinking aloud, about decision-making, opportunities for student questions and answers • Guided & Strategy Groups • Power Facts (Macmillan/McGraw-Hill) • Chapter Prescription Table (Macmillan/McGraw-Hill) • Bridge the Gaps (Macmillan/McGraw-Hill) 									
ASSESSMENT	Formative: conversation, observation, journal writing, self-assessment and daily work Summative: Chapter Tests/Quizzes, Minute Math Book Performance-based: Hands-on Activities SmartBoard Activities Text tests & Quizzes Learnia Study Island									
RESOURCES	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapter 1	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapter 2	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapter 11	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapter 12	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapter 3	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapters 4 & 5	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapters 6 & 7	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapters 7 & 8	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapters 9 & 10	Macmillan/ McGraw-hill <i>Mathematics: Grade 5 (2002)</i> -Chapters 13 & 14

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	<p>Hyde, Arthur. <i>Comprehending Math.: Adapting Reading Strategies to Teach Mathematics, K-6.</i> 2006</p> <p>Murray, Miki. <i>The Differentiated Math Classroom: A Guide for Teachers, K-8.</i> 2007.</p> <p><i>Math Process Standards Series.</i> 2007. Heinemann.</p> <p>O'Connell, Susan. <i>Now I Get It: Strategies for Building confident and Competent Mathematicians, K-6.</i> 2005.</p> <p>Websites:</p> <ul style="list-style-type: none"> • www.mathblaster.com • www.atmath.com • www.funbrain.com • www.mhschool.com/math • www.scholastic.com • www.elearning4kids.com • www.enchantedlearning.com • www.pppst.com/themes.html • www.nctm.org • www.mathcats.com <p>SmartBoard Learnia Study Island</p>									
NJCCCS	4.1.5.A 4.1.5.B 4.1.5.C 4.3.5.A 4.3.5.B 4.3.5.C 4.3.5.D	4.1.5.A 4.1.5.B 4.1.5.C 4.3.5.A 4.3.5.B 4.3.5.C 4.3.5.D	4.2.5.A 4.2.5.B 4.2.5.C 4.2.5.D 4.2.5.E	4.1.5.A 4.1.5.B 4.1.5.C 4.2.5.A 4.2.5.B 4.2.5.C 4.2.5.D 4.2.5.E	4.1.5.A 4.1.5.B 4.1.5.C 4.3.5.A 4.3.5.B 4.3.5.C 4.3.5.D	4.1.5.A 4.1.5.B 4.1.5.C 4.2.5.A 4.2.5.B 4.2.5.C 4.2.5.D 4.2.5.E 4.3.5.A 4.4.5.A	4.1.5.A 4.1.5.B 4.1.5.C 4.3.5.A 4.3.5.B 4.3.5.C 4.3.5.D	4.1.5.A 4.1.5.B 4.1.5.C 4.2.5.D 4.3.5.A 4.3.5.B 4.3.5.C 4.3.5.D	4.1.5.A 4.1.5.B 4.1.5.C 4.3.5.A 4.3.5.B 4.3.5.C 4.3.5.D	4.4.5.A 4.4.5.B 4.4.5.C 4.4.5.D
	4.3.5.B 4.5.5.A 4.5.5.B 4.5.5.C 4.5.5.D 4.5.5.E 4.5.5.F									
NCTM STANDARDS	1,2,4,5,6,7,8,9,10	1,2,3,4,5,6,8,9,10	1,2,3,4,6,7,8,9,10	1,2,3,4,6,7,8,9,10	1,2,3,4,5,6,7,8,9,10	1,2,3,5,6,7,8,9,10	1,2,3,4,5,6,7,8,9,10	1,2,3,4,5,6,7,8,9,10	1,2,3,4,5,6,7,8,9,10	1,2,3,4,5,6,7,8,9,10

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* The set of three **curriculum focal points** and related connections for mathematics in grade 5. These topics are the recommended content emphases for this grade level. It is essential that these focal points be addressed in contexts that promote problem solving, reasoning, communication, making connections, and designing and analyzing representations.