

Cliffside Park Public Schools

	September	October	November	December	January	February	March	April	May	June
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**GRADE
MAP 4
of
MATH CURRICULUM TOPICS**

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GRADE 4 UNITS OF STUDY & BENCHMARKS	<p>Place value: -identify place value through million -round whole numbers</p> <p>Money: - round money values -count and make change</p> <p>Addition and subtraction: -understand properties of addition Add & subtract whole numbers and money amounts -estimate sums and differences</p>	<p>Data, Statistics and Graphing: -tell time -find elapsed time -collect and organize data using tallies and line plots -use a line plot and find range, median and mode -read and make pictographs, bar , coordinate graphs</p> <p>Multiplication and Division: -multiply and divide facts to 12-to demonstrate use of multiplication properties</p>	<p>Multiplication: -multiply by 1-digit -multiply by 2-digits</p>	<p>Division: -divide by 1-digit -divide by 2-digits</p>	<p>Measurement: -to measure (length, weight, mass & capacity)using customary and metric units -to convert measurements -to measure everyday objects and make comparisons</p> <p>Geometry: -to classify 2 & 3 dim. figures -identify lines, segments, rays, angles -to classify triangles & quadrilaterals -identify congruent & similar 2-dimensional figures -identify symmetrical objects with bilateral or rotational symmetry -use patterns to solve problems</p>	<p>Fractions & Probability: -identify, read and write fractions -compare, order and find equivalent and simpler fractions -find probability</p>	<p>Fraction Operations: -add & subtract fractions with like denominators - add & subtract fractions with unlike denominators -to use properties to add & subtract fractions</p>	<p>Relate fractions and decimals: -identify fraction & decimal equivalents -to read & write decimals to the thousandths -compare, order & round decimals</p>	<p>Decimal Operations: -add & subtract decimals to thousandths -use properties to find sums and differences -estimate decimal sums & differences</p>	Review

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	COMPUTATIONAL FLUENCY SPIRALING (Through daily review) PROBLEM OF THE DAY (use strategies to solve problems)									
*CURRICULUM FOCAL POINTS (NCTM)	<p>Number and Operations and Algebra: Developing quick recall of multiplication facts and related division facts and fluency with whole number multiplication Students use understandings of multiplication to develop quick recall of the basic multiplication facts and related division facts. They apply their understanding of models for multiplication (i.e., equal-sized groups, arrays, area models, equal intervals on the number line), place value, and properties of operations (in particular, the distributive property) as they develop, discuss, and use efficient, accurate, and generalizable methods to multiply multidigit whole numbers. They select appropriate methods and apply them accurately to estimate products or calculate them mentally, depending on the context and numbers involved. They develop fluency with efficient procedures, including the standard algorithm, for multiplying whole numbers, understand why the procedures work (on the basis of place value and properties of operations), and use them to solve problems.</p>			<p>Number and Operations: Developing an understanding of decimals, including the connections between fractions and decimals Students understand decimal notation as an extension of the base-ten system of writing whole numbers that is useful for representing more numbers, including numbers between 0 and 1, between 1 and 2, and so on. Students relate their understanding of fractions to reading and writing decimals that are greater than or less than 1, identifying equivalent decimals, comparing and ordering decimals, and estimating decimal or fractional amounts in problem solving. They connect equivalent fractions and decimals by comparing models to symbols and locating equivalent symbols on the number line.</p>			<p>Measurement: Developing an understanding of area and determining the areas of Twodimensional shapes Students recognize area as an attribute of two-dimensional regions. They learn that they can quantify area by finding the total number of same-sized units of area that cover the shape without gaps or overlaps. They understand that a square that is 1 unit on a side is the standard unit for measuring area. They select appropriate units, strategies (e.g., decomposing shapes), and tools for solving problems that involve estimating or measuring area. Students connect area measure to the area model that they have used to represent multiplication, and they use this connection to justify the formula for the area of a rectangle.</p>			
	<p>Connections to the Focal Points Algebra: Students continue identifying, describing, and extending numeric patterns involving all operations and nonnumeric growing or repeating patterns. Through these experiences, they develop an understanding of the use of a rule to describe a sequence of numbers or objects. Geometry: Students extend their understanding of properties of two-dimensional shapes as they find the areas of polygons. They build on their earlier work with symmetry and congruence in grade 3 to encompass transformations, including those that produce line and rotational symmetry. By using transformations to design and analyze simple tilings and tessellations, students deepen their understanding of two-dimensional space. Measurement: As part of understanding twodimensional shapes, students measure and classify angles. Data Analysis: Students continue to use tools from grade 3, solving problems by making frequency tables, bar graphs, picture graphs, and line plots. They apply their understanding of place value to develop and use stem-and-leaf plots. Number and Operations: Building on their work in grade 3, students extend their understanding of place value and ways of representing numbers to 100,000 in various contexts. They use estimation in determining the relative sizes of amounts or distances. Students develop understandings of strategies for multidigit division by using models that represent division as the inverse of multiplication, as partitioning, or as successive subtraction. By working with decimals, students extend their ability to recognize equivalent fractions. Students' earlier work in grade 3 with models of fractions and multiplication and division facts supports their understanding of techniques for generating equivalent fractions and simplifying fractions.</p>									

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MATHEMATIC VOCABULARY	Digit Exponential form Period Place value Standard form Greater than Less than Round Negative number Positive number Commutative property Identity property Variable Pattern Sum Associative property Addend Compensation Estimate difference	Elapsed time Survey Median Mode Range Pictograph Bar graph Scale Ordered pair Line graph Commutative property Identity property Zero property Multiple Prime number Square number Associative property Dividend Divisor Quotient	Factors Product Estimate Round Function Equation Compensation	Dividend Quotient Remainder Compatible numbers Mean Average Product Divisor Estimate Expression	Capacity Weight Mass Degrees: Celsius, fahrenheit Temperature 3D figure 2D figure Polygon Triangle Quadrilateral Similar Line of symmetry Perimeter Area volume	Numerator Denominator Equivalent fractions Simplest form Improper fractions Mixed numbers Probability Favorable outcomes Possible outcomes Tree diagram	Greatest common factor Denominator Numerator Simplest form Common denominator Associative property of addition Commutative property of addition Identity property of addition	Decimal Decimal point Equivalent decimals	Associative property Commutative property Identity property	As needed
ACTIVITIES	-use place value models and mats -use money to count and make change	-make class graphs on animals in danger of extinction (Science)	- use place value models and mats -math mountain	- use place value models and mats -math mountain	-Measure everyday objects -collect samples of rainfall and measure (Science) -Geo Bingo -Geo Boards	-fraction activities using everyday objects -Compare planets; write fractions comparing size in relation to Earth (Science)	-use fraction strips and mats	-use place value models and compare decimals	-use place value models and add or subtract decimals	-teacher's choice based on need
	Math Journals Writing Word Problems SmartBoard									

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ADDITIONAL CROSS-CURRICULAR OPPORTUNITIES	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 Science: - Use math in science experiments									
ACCOMMODATIONS (ESL & SPECIAL EDUCATION)	Place value charts & models Counters Connecting cubes Play money Grids	Paper clocks Counters Calendar Charts Pictograph Line graphs Bar graphs Graph paper Number line Coins Connecting cubes	Patterns Grids Place value models Number line Connecting cubes	Grid place value models Connecting cubes Patterns 2-color counters Play money	Metric measuring tools 3D examples Open & closed figures Craft sticks Geometric shapes Grid paper Cubes	Fraction strips Connecting cubes Number line	Grid paper Frction strips Graph paper	Grids Fraction strips Decimal squares Play money Connecting cubes Number line	Place value charts Graph paper Number lines Decimal grids Play money	As needed

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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) • Guided and strategy groups 									
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 Learnia									
RESOURCES	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapters 1 & 2	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapters 3& 4	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapters 5 & 6	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapters 7 & 8	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapters 9 & 10	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapter 11	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapter 12	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapter 13	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -Chapter 14	Macmillan/ McGraw-hill <i>Mathematics:</i> <i>Grade 4 (2002)</i> -as needed

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	Hyde, Arthur. <i>Comprehending Math.: Adapting Reading Strategies to Teach Mathematics, K-6.</i> 2006 <i>Math Process Standards Series.</i> 2007. Heinemann. O'Connell, Susan. <i>Now I Get It: Strategies for Building confident and Competent Mathematicians, K-6.</i> 2005. Websites: <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.mathcats.com SmartBoard Study Island Instructivision Measuring Up									
NJCCCS	4.1.4.A	4.4.4.A	4.1.4.A	4.1.4.A	4.2.4.A	4.1.4.A	4.1.4.A	4.1.4.A	4.1.4.A	4.1.4.A
	4.1.4.B	4.4.4.B	4.1.4.B	4.1.4.B	4.2.4.B	4.1.4.B	4.1.4.B	4.1.4.B	4.1.4.B	4.1.4.B
	4.1.4.C	4.4.4.C	4.1.4.C	4.1.4.C	4.2.4.D	4.1.4.C	4.1.4.C	4.1.4.C	4.1.4.C	4.1.4.C
	4.3.4.A	4.4.4.C	4.3.4.A	4.3.4.A	4.2.4.E	4.3.4.A	4.3.4.A	4.3.4.A	4.3.4.A	4.3.4.A
	4.3.4.B	4.4.4.D	4.3.4.B	4.3.4.B		4.3.4.B	4.3.4.B	4.3.4.B	4.3.4.B	4.3.4.B
	4.3.4.C		4.3.4.C	4.3.4.C		4.3.4.C	4.3.4.C	4.3.4.C	4.3.4.C	4.3.4.C
	4.3.4.D	4.1.4.B	4.3.4.D	4.3.4.D		4.3.4.D	4.3.4.D	4.3.4.D	4.3.4.D	4.3.4.D
		4.2.4.C								
		4.3.4.A								
		4.3.4.B								
		4.3.4.C								
		4.3.4.D								
	4.3.4.B 4.5.4.A 4.5.4.B 4.5.4.C 4.5.4.D 4.5.4.E 4.5.4.F									
NCTM STANDARDS	1,2,4,5,6,7,8,9	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	1,2,3,4,5,6,8,9,10	1,2,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9,10	1,2,4,5,6,7,8,9	

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* The set of three **curriculum focal points** and related connections for mathematics in grade 4. 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.