K-5 Instructional Schema: Math Skills per Grade Level

(Schema serves as the Tier 1, high-quality academic supports for mathematics)

	Kindergarten **19 skills to learn in Kindergarten**	**First Grade** **15 skills to learn in first grade**	**Second Grade** **21 skills to learn in second grade**	**Third Grade** **23 skills to learn in third grade**	**Fourth Grade** **27 skills to learn in fourth grade**	**Fifth Grade** **21 skills to learn in fifth grade**
Counting & Cardinality	• Count to 100 by ones and tens • Write and represent the number of objects with a written numeral 0-20 • Count (up to 20) to answer "how many?" • Connect counting to cardinality • Compare two numbers between 1 and 10					
Operations & Algebraic Thinking	• Add and subtract to 10 using objects • Add fluently to 5 • Subtract fluently to 5 • For any number 1-9, find the number that is added to make 10 • Decompose numbers (up to 10) into pairs	• For any number 1-19, find the number that is added to make 20 • Add and subtract fluently to 20 • Relate counting to addition and subtraction	• Solve one and two-step word problems using addition/subtraction within 100 • Use mental strategy to add/subtract within 20 fluently • Determine if a group has an even or odd number of objects • Use an array(up to 5x5) to add numbers	• Interpret products of whole numbers • Interpret whole-number quotients of whole numbers • Use multiplication and division within 100 to solve word problems and identify the unknown • Use symbols to represent the unknown variables in equations • Fluently multiply and divide within 100 • Solve two-step word problems using the four operations	• Interpret a multiplication equation as a comparison • Solve multistep word problems involving whole numbers by using drawings, measurements, quantities, and symbols, and assess the reasonableness of answers. • Find all factor pairs for a whole number in the range 1–100. • Identify prime and composite numbers to 100	• Write and interpret numerical expressions using the following grouping symbols: parentheses, brackets, and braces • Evaluate Numerical Expressions that use parentheses, brackets, or braces • Generate numerical patterns using two given rules and identify relationships between corresponding terms (e.g., coordinate pairs)
Number & Operations in Base Ten	• Compose and decompose numbers from 11 to 19 into ten ones and some further ones	• Place value: tens and ones • Count up to 120 starting with any number less than 120 • Add within 100 • Given a 2-digit number, mentally find 10 more or 10 less • Subtract multiples of 10 from multiple of 10 (up to 90)	• Place value: hundreds, tens, and ones • Count to 1000 using skip-counts by ○ 2s, 5s, 10s, and 100s • Compare two three-digit numbers • Fluently add/subtract within 100 • Add and subtract within 1000 • Mentally add/subtract 10 or 100 to a given number 100-900	• Place values: thousands, hundreds, tens, and ones • Rounding whole numbers to the nearest 10 and 100 • Add and subtract within 1000 • Multiply one-digit whole numbers by multiples of 10	• Recognize place values in multi-digit whole numbers (a digit in one place represents ten times what it represents in the place to its right.) • Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. • Add multi-digit whole numbers • Subtract multi-digit whole numbers • Multiply a whole number of up to 4-digits by a 1-digit number using strategies based on place value • Multiply a whole number of up to 2-digit by 2-digit numbers using strategies based on place value • Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value. *Specific strategies based on value include:rectangular arrays and area models* *Limited to whole numbers less than or equal to 1,000,000*	• Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. • Read, write, and compare decimals to thousandths • Round decimals to any place value • Fluently multiply multi-digit whole numbers (up to four-digit by two-digit) • Find whole-number quotients of multi-digit dividends (up to 4-digit)... and 2-digit divisors • Use concrete models, strategies and drawings (based on place value) such as rectangular arrays and area models to add, subtract, multiply, and divide decimals to the hundredths

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Number & Operations Fractions				• Understand that a fraction is a part/whole • Represent fractions on a number line • Represent, create, and explain equivalence of fractions • Express whole numbers as fractions • Compare two fractions with same numerator or same denominator	• Explain why equivalent fractions are equal, and generate equivalent fractions. • Compare two fractions with different numerators and different denominators by creating common denominators or common numerators. • Add fractions with like denominators and solve related word problems. • Subtract fractions with like denominators and solve related word problems. • Add and subtract mixed numbers with like denominators • Multiply a fraction by a whole number • Use decimal notation for fractions with denominators of 10 or 100. • Compare two decimals to hundredths using the symbols >, <, = and justify the conclusions.	• Add and subtract fractions with unlike denominators (including mixed numbers) by finding equivalent fractions • Multiply fraction by a fraction (visual fraction models) • Multiply fraction and mixed numbers (visual fraction models) • Find the area of rectangles with fractional side lengths • Interpret division of a unit fraction by non-zero whole numbers and compute and show quotients • Interpret division of a whole number by a unit fraction and compute and show quotients
Measurement and Data	• Describe objects measurable attributes of objects: length and weight • Compare two objects using measurable attributes • Classify objects into given categories	• Order three objects by length • Express the length of an object as a whole number of length units • Tell and write time in hours and ½ hours • Organize, represent, and interpret data with up to three categories	• Measure length of an object using appropriate tools: rules, meter sticks, etc. • Measure length of an object using two different units of measurement • Estimate length • Compare length of objects • Represent whole numbers as lengths on a number line diagram • Tell and write time to the nearest five minutes • Solve problem involving money: pennies, nickels, dimes, quarters, one-dollar, and use symbols for dollar and cents • Draw picture graph a bar graph for up to 4 categories	• Tell and write time to the nearest minutes • Calculate volume and mass using standard units • Draw bar graph to represent data of several categories • Use unit squares to find area of 2-D shapes • Find area of rectangle using multiplication • Solve real-world problems involving perimeters of polygons	• Know measurement units within one system of units: (customary and metric) and record measurement equivalents in a two-column table. • Solve word problems involving distance, time, volume, mass, and money (e.g., additive and multiplicative comparison problems). • Apply the area and perimeter formulas for rectangles to solve real-world and mathematical problems. • Create a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8) and solve problems involving addition and subtraction of fractions. • Use a protractor to measure angles in whole-number degrees and recognize angle measures as additive.	• Convert among different-sized standard measurement units within a given measurement system • Create a line plot that displays data sets of measurements in fractions of a unit • Interpret the differences in the data on a line plot • Relate volume to the operations of multiplication and addition and solve real-world problems involving volume.
Geometry	• Describe and name the shapes of squares, rectangles, circles, triangles, and lines • Describe objects in the environment using names of shapes, and describe their relative position to the objects • Compose simple shapes to form larger shapes • Compare 2-D and 3-D shapes using informal language • Using components like sticks and clay balls to draw and model shapes in the world	• Identify 2-D and 3-D shapes using defining attributes and non-defining attributes • Create composite shapes using 2-D and 3-D shapes • Partition circles and rectangles into ½ and ¼	• Draw and identify shapes having specified attributes: angles, sides, faces, etc. • Partition a rectangle into rows and columns of the same-size squares and count the total number of squares • Partition circles and rectangles into ½, ⅓, and ¼	• Understand that different 2-D shapes may share similar attributes • Partition shapes into parts with equal areas: ½, ⅓, ¼, ⅛, etc.	• Draw and identify points, lines, line segments, rays, angles and perpendicular and parallel lines. • Classify 2D figures based on the presence or absence of parallel/perpendicular lines and angles. • Recognize a line of symmetry for 2D figures and draw figures with lines of symmetry.	• Graph points and interpret coordinate pairs in the first quadrant. • Classify two-dimensional figures in a hierarchy based on properties, including angles and sides (e.g., a square is a rectangle with all equal sides).

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