

## K-3 Math Outcomes Map

Topics	Kindergarten	1st Grade	2nd Grade	3rd Grade
<b>Numbers &amp; Numeration</b>	<ul style="list-style-type: none"> <li>○ Count to 100 by 1s and 10s.</li> <li>○ Begin to count by 5s toward 100</li> <li>○ Count forward beginning from a given number within the known sequence (instead of having to begin at 1)</li> <li>○ Count back by 1s from 20</li> <li>○ Count collections up to 3</li> <li>○ Read numbers to 31</li> <li>○ Correctly write numbers 1-10</li> <li>○ Demonstrate understanding that teen numbers represent 10 and some more 1s</li> <li>○ Begin to demonstrate an understanding of place value</li> <li>○ Use manipulatives and drawings to model halves of a region or collection</li> <li>○ Begin to use ordinal numbers correctly</li> </ul>	<ul style="list-style-type: none"> <li>○ Count on by 1's, 2's, 5's, and 10's past 100 and backwards by 1's</li> <li>○ Count collections of objects; estimate number objects in a collection</li> <li>○ Use manipulatives and drawings to model halves, thirds, and fourths as equal parts of a region or collection</li> <li>○ Identify and model odd and even numbers</li> <li>○ Compare and order whole numbers up to 1,000</li> </ul>	<ul style="list-style-type: none"> <li>○ Count with understanding and recognize "how many" in sets of objects</li> <li>○ Use multiple models to develop initial understandings of place value and the base-ten number system</li> <li>○ Understand the meanings, uses and representations of numbers</li> <li>○ Say place value up to the thousands</li> <li>○ Develop a sense of whole numbers and represent and use them in flexible ways</li> <li>○ Understand and use equivalent names for numbers</li> <li>○ Make reasonable estimations</li> <li>○ Understand and represent commonly used fractions, such as <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math>, and <math>\frac{1}{2}</math></li> <li>○ Draw and use manipulatives to model fractions</li> <li>○ Discover equivalent fractions understand the value of coins and can accurately exchange coins for equal amounts</li> </ul>	<ul style="list-style-type: none"> <li>○ Read and write numbers up to 1,000,000</li> <li>○ Read and write number words</li> <li>○ Recognize roman numerals to X</li> <li>○ Use a number line and number chart to recognize patterns</li> <li>○ Recognize and use ordinal numbers</li> <li>○ Order numbers to the millions place</li> <li>○ Use place value to the millions place</li> <li>○ Study and compare fractions. Represent fractions with physical objects and numbers.</li> <li>○ Recognize fractions and use when reporting in measurement</li> <li>○ Use numerical expressions to find and represent equivalent names for numbers</li> <li>○ Use numerical expressions involving two arithmetic operations</li> </ul>
<b>Operations &amp; Computation</b>	<ul style="list-style-type: none"> <li>○ Compare numbers to determine more, less, and equal</li> <li>○ Use language such as combine, add, take away, and give to describe joining situations (addition) and separating situations (subtraction)</li> </ul>	<ul style="list-style-type: none"> <li>○ Demonstrate proficiency with sum-equals-ten addition and subtraction facts such as <math>10-7=3</math></li> <li>○ Use manipulatives, number grids, tally marks, and mental arithmetic to solve problems involving addition and subtraction of 1-digit whole numbers</li> </ul>	<ul style="list-style-type: none"> <li>○ Compute accurately when adding and subtracting whole numbers</li> <li>○ Model place value of ones, tens and hundreds</li> <li>○ Understand and model carrying with addition and regrouping with subtraction</li> </ul>	<ul style="list-style-type: none"> <li>○ Demonstrate automaticity with basic addition and subtraction facts</li> <li>○ Perform addition and subtraction of whole numbers using a variety of methods, including regrouping, some mental math, and partial sums and differences</li> </ul>

	<ul style="list-style-type: none"> <li>○ Begin to solve joining and separating puzzles using manipulatives, representations, number lines, graphs, numbers, and mental math</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify comparisons and parts-and-total situations</li> <li>○ Compare the values of combinations of coins</li> </ul>		<ul style="list-style-type: none"> <li>○ Use properties of addition such as commutative property and associative property</li> <li>○ Use carrying and borrowing when adding and subtracting multi digit numbers</li> <li>○ Know and use mental addition and subtraction facts up to 10+10</li> <li>○ Understand multiplication- with quick recall of 2-5 and 9-10 facts</li> <li>○ Explore the concept of division and its relation to multiplication</li> <li>○ Follow steps to solve word/story problems</li> <li>○ Estimate using ballpark estimates and rounding</li> </ul>
<b>Data &amp; Chance</b>	<ul style="list-style-type: none"> <li>○ Begin to collect and organize data to create tally charts, bar graphs, and line graphs</li> <li>○ Use graphs to answer simple questions</li> <li>○ Begin to use basic probability terms such as certain, possible, impossible, likely</li> </ul>	<ul style="list-style-type: none"> <li>○ Collect and organize data to create tally charts, tables, and bar graphs</li> <li>○ Use graphs to answer simple questions and draw conclusions</li> <li>○ Describe events using basic probability terms such as <i>certain, unlikely, impossible, etc.</i></li> </ul>	<ul style="list-style-type: none"> <li>○ Pose questions and gather data about themselves and their surroundings</li> <li>○ Sort and classify objects according to their attributes and organize data about the objects</li> <li>○ Represent data using concrete objects, pictures, and graphs</li> </ul>	<ul style="list-style-type: none"> <li>○ Collect data and build tables, charts and graphs</li> <li>○ Analyze tables, charts and graphs to recognize trends and draw conclusions</li> <li>○ Understand median, range and mean</li> <li>○ Recognize, identify, and create patterns, and use them to make predictions</li> <li>○ Begin exploring probability terms</li> </ul>
<b>Measurement &amp; Reference Frames</b>	<ul style="list-style-type: none"> <li>○ Demonstrate understanding that measuring is a way of describing things and comparing things in terms of such qualities as size, weight, and capacity</li> <li>○ Describe measurements using appropriate vocabulary, such as: longer, shorter, hotter, colder, higher, lower, heavier, lighter</li> <li>○ Begin to use a calendar to describe measures of time such as day, week, month, year, and season</li> </ul>	<ul style="list-style-type: none"> <li>○ Use standard and nonstandard tools and techniques to estimate and compare weight and length</li> <li>○ Know and compare the value of pennies, nickels, dimes, quarters and dollar bills. Make exchanges between coins</li> <li>○ Identify a thermometer as a tool for measuring temperature and read to the nearest 10 degrees</li> <li>○ Use a calendar to identify</li> </ul>	<ul style="list-style-type: none"> <li>○ Recognize the attributes of length, volume, weight, and time</li> <li>○ Compare and order objects according to these attributes</li> <li>○ Understand how to measure using nonstandard and standard units</li> <li>○ Select an appropriate unit and tool for the attribute being measured</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify appropriate units to use when measuring various objects</li> <li>○ Use standard and non-standard units to measure and estimate measurements of various objects</li> <li>○ Time: Tell time on a clock to the minute. Manipulate a clock to show a specified time</li> <li>○ Time: Explore the concept of a.m. and p.m.</li> <li>○ Time: Explore elapsed time</li> </ul>

		days, weeks, months and dates; tell and show time to the nearest half and quarter hour		<ul style="list-style-type: none"> <li>○ Calendar: Use calendar effectively. Show specified days on the calendar. Know and use the order of the months</li> <li>○ Money: Read and write prices. Count coins. Show various combinations of coins for the same price (i.e. five nickels + 1 penny is the same as two dimes + 1 nickel + 1 penny). Make change for simple "purchases."</li> <li>○ Temperature: read Fahrenheit and Celsius temperatures on thermometers and thermometer models</li> </ul>
<b>Geometry</b>	<ul style="list-style-type: none"> <li>○ Identify shapes as flat or solid</li> <li>○ Identify and describe 2-dimensional shapes: circle, oval, triangle, square, rectangle</li> <li>○ Identify and describe 3-dimensional shapes: sphere, cube</li> <li>○ Demonstrate understanding of symmetry: identify symmetrical shapes and designs; complete and create symmetrical shapes and designs</li> <li>○ Demonstrate understanding of positional and directional vocabulary including: in, out, on, off, under, above, behind, between</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify and describe plan and solid figures including circles, triangles, spheres, cylinders, prisms, etc.</li> </ul>	<ul style="list-style-type: none"> <li>○ recognize, name, build, draw, compare, and sort two- and three-dimensional shapes</li> <li>○ describe attributes and parts of two- and three-dimensional shapes</li> <li>○ investigate and predict the results of putting together and taking apart two- and three-dimensional shapes</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify line segments, rays, lines, parallel and perpendicular lines and lines of symmetry</li> <li>○ Identify angles</li> <li>○ Identify common 2-D shapes</li> <li>○ Identify, manipulate, and know characteristics of common three-dimensional shapes, such as sphere, cube, cylinder, prism, and pyramid</li> <li>○ Combine shapes to arrive at new shapes</li> <li>○ Explore geometric concepts such as area, perimeter, and circumference</li> </ul>
<b>Patterns, Functions &amp; Algebra</b>	<ul style="list-style-type: none"> <li>○ Recognize and name similarities and differences between things</li> <li>○ Sort and classify according to specific attributes</li> <li>○ Identify, extend and create patterns with objects, actions, movements, sounds, and words</li> <li>○ Engage in math activities and games based on specific rules (such as how the amount is being manipulated or altered).</li> </ul>	<ul style="list-style-type: none"> <li>○ Extend, describe and create numeric, visual and create patterns</li> <li>○ Read, write, and explain expressions and number sentences using the symbols +, -, and = and the symbols &lt; and &gt; with cues; solve addition and subtraction equations</li> </ul>	<ul style="list-style-type: none"> <li>○ sort, classify, and order objects by size, number, and other properties</li> <li>○ recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another</li> <li>○ analyze how both repeating and growing patterns are generated</li> </ul>	<ul style="list-style-type: none"> <li>○ Describe extend and make generalizations about geometric and numeric patterns</li> <li>○ Model problem situations with objects and use representations such as graphs, tables and equations to draw conclusions</li> </ul>

	<ul style="list-style-type: none"><li>o Begin to read and write number sentences using the symbols +, -, and =</li></ul>			
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