

## Kindergarten Mathematics Curriculum

### Math Strand: Number and Operations

<b>Curriculum Standards</b>	<b>Learner Outcomes</b>
Understand numbers, ways of representing numbers, relationships among numbers, and number systems	<ul style="list-style-type: none"><li>• Count with understanding and recognize "how many" in sets of objects up to 20</li><li>• Develop understanding of the relative position and magnitude of whole numbers and of ordinal and cardinal numbers and their connections to the 10th</li><li>• Develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers up to 10</li><li>• Connect number words and numerals to the quantities they represent, using various physical models and representations up to 10</li></ul>
Understand meanings of operations and how they relate to one another	<ul style="list-style-type: none"><li>• Understand various meanings of addition and subtraction of whole numbers up to 10</li><li>• Understand the effects of adding and subtracting whole numbers up to 10</li><li>• Pictorially understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally</li></ul>
Compute fluently and make reasonable estimates	<ul style="list-style-type: none"><li>• Develop and use strategies for whole-number computations, with a focus on addition and subtraction up to 10</li><li>• Use a variety of methods and tools to compute, including objects, mental computation, estimation, paper and pencil, and calculators</li></ul>

### Math Strand: Algebra

<b>Curriculum Standards</b>	<b>Learner Outcomes</b>
Understand patterns, relations, and functions	<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</li><li>• Analyze how both repeating and growing patterns are generated using two attributes</li></ul>
Represent and analyze mathematical situations and structures using algebraic symbols	<ul style="list-style-type: none"><li>• Use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations</li></ul>

Use mathematical models to represent and understand quantitative relationships	<ul style="list-style-type: none"> <li>• Model situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols up to 10</li> </ul>
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**Math Strand: Geometry**

<b>Curriculum Standards</b>	<b>Learner Outcomes</b>
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships	<ul style="list-style-type: none"> <li>• Recognize, name, draw, compare, and sort two-dimensional shapes</li> <li>• Describe attributes and parts of two- and three-dimensional shapes</li> <li>• Explore putting together and taking apart two- and three-dimensional shapes</li> <li>• Recognize name, compare and sort three-dimensional shapes</li> </ul>
Specify locations and describe spatial relationships using coordinate geometry and other representational systems	<ul style="list-style-type: none"> <li>• Describe, name, and interpret relative positions in space and apply ideas about relative position</li> <li>• Find and name locations with simple relationships such as "near to"</li> <li>• Identify direction left and right</li> </ul>
Apply transformations and use symmetry to analyze mathematical situations	<ul style="list-style-type: none"> <li>• Recognize and create shapes that have symmetry</li> </ul>
Use visualization, spatial reasoning, and geometric modeling to solve problems	<ul style="list-style-type: none"> <li>• Create mental images of geometric shapes using spatial memory and spatial visualization with two-dimensional shapes</li> <li>• Recognize shapes from different perspectives</li> <li>• Recognize geometric shapes and structures in the environment and specify their location</li> </ul>

**Math Strand: Measurement**

<b>Curriculum Standards</b>	<b>Learner Outcomes</b>
Understand measurable attributes of objects and the units, systems, and processes of measurement	<ul style="list-style-type: none"><li>• Recognize the attributes of length using informal units</li><li>• Recognize the attributes of time – o'clock</li><li>• Compare and order objects according to these attributes</li><li>• Understand how to measure using nonstandard</li><li>• Select an appropriate unit and tool for the attribute being measured</li></ul>
Apply appropriate techniques, tools, and formulas to determine measurements	<ul style="list-style-type: none"><li>• Measure with multiple copies of units of the same size, such as paper clips laid end to end</li><li>• Use repetition of a single unit to measure something larger than the unit, for instance, measuring the length of a room with a single meter stick</li><li>• Use tools to measure</li></ul>

**Math Strand: Data Analysis and Probability**

<b>Curriculum Standards</b>	<b>Learner Outcomes</b>
Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them	<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>
Select and use appropriate statistical methods to analyze data	<ul style="list-style-type: none"><li>• Describe parts of the data and the set of data as a whole to determine what the data show</li></ul>

## Math Resources

Educational Support Materials	Technology Integration
<p><i>Investigations Math Program KG</i>, Pearson <i>Harcourt Math</i>, KG level Unifix Cubes Connector Cubes Pattern Blocks Counting Bears Counting Links Number Bingo Game – colorama Number Puzzle 0-20 Large numbers made from sand for rubbing and tracing Magnetic Shapes Small and Large wooden shape blocks</p>	<p><b>Software:</b> Shape Investigation Mighty Math Carnival Math Blaster 6-8</p> <p><b>Websites:</b> <a href="http://www.juliasrainbowcorner.com/html/numbers.html">http://www.juliasrainbowcorner.com/html/numbers.html</a> <a href="http://www.kindersite.org/Directory/DirectoryFrame.htm">http://www.kindersite.org/Directory/DirectoryFrame.htm</a> <a href="http://www.ixl.com/math/grade/kindergarten/">http://www.ixl.com/math/grade/kindergarten/</a> <a href="http://www.abcya.com/kindergarten_computers.htm">http://www.abcya.com/kindergarten_computers.htm</a> <a href="http://www.pbs.org/parents/earlymath/prek_games.html">http://www.pbs.org/parents/earlymath/prek_games.html</a> <a href="http://www.woodlands-junior.kent.sch.uk/maths/">http://www.woodlands-junior.kent.sch.uk/maths/</a></p>