

# Kindergarten Math Standards and Benchmarks

<b>Standard #1: Number and Operations</b>		
Definition: Students will understand numerical concepts and mathematical operations.		
<u>Benchmark #1:</u>  Understand numbers, ways of representing numbers, relationships among numbers, and number systems	Performance Objective 1	<input type="checkbox"/> Demonstrate an understanding of the place-value structure of the base-ten number system: <input type="checkbox"/> Count with understanding and recognize “how many” in sets of objects up to 20 <input type="checkbox"/> Read and write whole numbers up to 20 <input type="checkbox"/> Compare and order whole numbers up to 20 <input type="checkbox"/> Connect numerals to the quantities they represent using various physical models <input type="checkbox"/> Use an organized counting method to keep track of quantities while counting (one-to-one correspondence) (e.g., touch object once and only once as counting a set) <input type="checkbox"/> Order sets of objects and numbers from least to most or most to least
<u>Benchmark #2:</u>  Understand the meaning of operations and how they relate to each other	Performance Objective 1	<input type="checkbox"/> Represent numbers using pictures, objects, or numerals
	Performance Objective 2	<input type="checkbox"/> Use concrete objects to solve simple addition and subtraction story problems (e.g., oral not written).
<u>Benchmark #3:</u>  Compute fluently and make reasonable estimates	Performance Objective 1	<input type="checkbox"/> Estimate quantities of objects up to 20.

<b>Standard #2: Algebra</b>		
Definition: Students will understand algebraic concepts and applications.		
<u>Benchmark #1:</u>  Understand patterns, relations, and functions	Performance Objective 1	<input type="checkbox"/> Identify the attributes of objects (e.g., the ability to identify attributes is a foundational skill for sorting and classifying).
	Performance Objective 2	<input type="checkbox"/> Sort, classify, and order objects by size, number, and other properties.
	Performance Objective 3	<input type="checkbox"/> Recognize, reproduce, describe, extend, and create repeating patterns (e.g., color, shape, size, sound, movement, simple numbers).
<u>Benchmark #2:</u>  Represent and analyze mathematical situations and structures using algebraic symbols	Performance Objective 1	<input type="checkbox"/> Use concrete, pictorial, and verbal representation to develop an understanding of invented and conventional symbols.
<u>Benchmark #3:</u>  Use mathematical models to represent and understand quantitative relationships	Performance Objective 1	<input type="checkbox"/> Model situations that involve whole numbers using objects or pictures.
<u>Benchmark #4:</u>  Analyze changes in various contexts	Performance Objective 1	<input type="checkbox"/> Verbally describe changes in various contexts (e.g., plants or animals growing over time).

**Standard #3: Geometry**

Definition: Students will understand geometric concepts and applications.

<u>Benchmark #1:</u>  Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships	Performance Objective 1	<input type="checkbox"/> Identify common objects in their environments and describe their geometric figures: <input type="checkbox"/> Describe, identify, model, and draw common geometric objects (e.g., circle, triangle, square, rectangle, cube, sphere, and cone). <input type="checkbox"/> Compare familiar plane and solid objects by common attributes (e.g., shape, size, number of corners).
	Performance Objective 2	<input type="checkbox"/> Follow simple directions to find a specific location in space.
<u>Benchmark #2:</u>  Specify locations and describe spatial relationships using coordinate geometry and other representational systems.	Performance Objective 1	<input type="checkbox"/> Use spatial vocabulary (e.g., left, right, above, below) to describe relative position.
	Performance Objective 2	<input type="checkbox"/> Investigate the symmetry of two-dimensional shapes (e.g., by folding or cutting paper, using mirrors).
<u>Benchmark #3:</u>  Apply transformations and use symmetry to analyze mathematical situations	Performance Objective 1	<input type="checkbox"/> Use manipulative (e.g., puzzles, tangrams, blocks) to demonstrate rotation (i.e., flips), translations (i.e., slides), and reflection (i.e., turns).
	Performance Objective 2	<input type="checkbox"/> Investigate the symmetry of two-dimensional shapes (e.g., by folding or cutting paper, using mirrors).
<u>Benchmark #4:</u>  Use visualization, spatial reasoning, and geometric modeling to solve problems	Performance Objective 1	<input type="checkbox"/> Describe how to get from one location to another (e.g., how to get to the library).
	Performance Objective 2	<input type="checkbox"/> Find and describe geometric shapes in nature or architecture.

**Standard #4: Measurement**

Definition: Students will understand measurement systems and applications.

<u>Benchmark #1:</u>  Understand measurable attributes of objects and the units, systems, and process of measurement	Performance Objective 1	<input type="checkbox"/> Describe and compare, using appropriate concepts and vocabulary, the measurable properties of length (e.g., shorter, longer, taller), volume (e.g., full, empty), weight (e.g., heavy, light), and time (e.g., before, after, morning, afternoon, days of weeks).
	Performance Objective 2	<input type="checkbox"/> Use tools to make predictions (e.g., using a balance scale, predicting how many cups a container will hold and then filling it to check the prediction).
	Performance Objective 3	<input type="checkbox"/> Measure using non-standard units of measurement (e.g., use pencils to measure desk top, use different lengths of rope to measure distance in classroom).
	Performance Objective 4	<input type="checkbox"/> Use digital and analog (face) clocks to tell time to the hour.
<u>Benchmark #2:</u>  Apply appropriate techniques, tools, and formulas to determine measurements	Performance Objective 1	<input type="checkbox"/> Explore measuring objects using a repeating non-standard unit of measurement (e.g., paper clips, cubes, etc.),

**Standard #5: Data Analysis and Probability**

Definition: Students will understand how to formulate questions, analyze data, and determine probabilities.

<u>Benchmark #1:</u>  Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them	Performance Objective 1	<input type="checkbox"/> Collect data about objects and events in the environment to answer simple questions (e.g., brainstorm questions about self and surrounding, collect data, and record the results using objects, pictures, and pictographs).
<u>Benchmark #2:</u>  Select and use appropriate statistical methods to analyze data	Performance Objective 1	<input type="checkbox"/> Describe simple data and pose questions about the data.
<u>Benchmark #3:</u>  Develop and evaluate inferences and predictions that are based on data	Performance Objective 1	<input type="checkbox"/> Make simple predictions
<u>Benchmark #4:</u>  Understand and apply basic concepts of probability	Performance Objective 1	<input type="checkbox"/> Answer questions that relate to the possibility of familiar events happening or not.