

NEW MEXICO Kindergarten MATH STANDARDS

PROCESS STANDARDS

To help New Mexico students achieve the Content Standards enumerated below, teachers are encouraged to base instruction on the following Process Standards;

<p>Problem Solving</p> <ul style="list-style-type: none"> • Build new mathematical knowledge through problem solving • Solve problems that arise in mathematics and other contexts • Apply and adapt a variety of appropriate strategies to solve problems, and • Monitor and reflect on the process of problem solving. 	<ul style="list-style-type: none"> • Analyze and evaluate the mathematical thinking and strategies of others, • Use the language of mathematics to express mathematical ideas precisely, and • Describe mathematical concepts using developmentally appropriate definitions.
<p>Reasoning and Proof</p> <ul style="list-style-type: none"> • Recognize reasoning and proof as fundamental aspects of mathematics, • Make and investigate mathematical conjectures, • Develop and evaluate mathematical arguments and proofs, and • Select and use various types of reasoning and methods of proof. 	<p>Connections</p> <ul style="list-style-type: none"> • Recognize and use connections among mathematical ideas, • Understand how mathematical ideas interconnect and build on one another to produce a coherent whole, and • Recognize and apply mathematics in contexts outside of mathematics.
<p>Communication</p> <ul style="list-style-type: none"> • Organize and consolidate their thinking through communication, • Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, 	<p>Representation</p> <ul style="list-style-type: none"> • Create and use representations to organize, record, and communicate mathematical ideas, • Select, apply, and translate among mathematical representations to solve problems, and • Use representations to model and interpret physical, social, and mathematical phenomena.

CONTENT STANDARDS

Strand: NUMBER AND OPERATIONS

Standard: Students will understand numerical concepts and mathematical operations.

K-4 Benchmark N.1: Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

Performance Standards

K.N.1.1 Demonstrate an understanding of the place-value structure of the base-ten number system:

- count with understanding and recognize “how many” in sets of objects up to 20
- read and write whole numbers up to 20
- compare and order whole numbers up to 20

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- d. connect numerals to the quantities they represent using various physical models
- e. 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)
- f. order sets of objects and numbers from least to most or most to least

K-4 Benchmark N.2: Understand the meaning of operations and how they relate to one another.

Performance Standards

K.N.2.1 Represent numbers using pictures, objects, or numerals.

K.N.2.2 Use concrete objects to solve simple addition and subtraction story problems (e.g., oral not written).

K-4 Benchmark N.3: Compute fluently and make reasonable estimates.

Performance Standards

K.N.3.1 Estimate quantities of objects up to 20.

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Strand: ALGEBRA

Standard: Students will understand algebraic concepts and applications.

K-4 Benchmark A.1: Understand patterns, relations, and functions.**Performance Standards**

K.A.1.1 Identify the attributes of objects (e.g., the ability to identify attributes is a foundational skill for sorting and classifying).

K.A.1.2 Sort, classify, and order objects by size, number, and other properties.

K.A.1.3 Recognize, reproduce, describe, extend, and create repeating patterns (e.g., color, shape, size, sound, movement, simple numbers).

K-4 Benchmark A.2: Represent and analyze mathematical situations and structures using algebraic symbols.**Performance Standards**

K.A.2.1 Use concrete, pictorial, and verbal representation to develop an understanding of invented and conventional symbols.

K-4 Benchmark A.3: Use mathematical models to represent and understand quantitative relationships.**Performance Standards**

K.A.3.1 Model situations that involve whole numbers using objects or pictures.

K-4 Benchmark A.4: Analyze changes in various contexts.**Performance Standards**

K.A.4.1 Verbally describe changes in various contexts (e.g., plants or animals growing over time).

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Strand: GEOMETRY

Standard: Students will understand geometric concepts and applications.

K-4 Benchmark G.1: Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.

Performance Standards

K.G.1.1 Identify common objects in their environments and describe their geometric features:

- a. describe, identify, model, and draw common geometric objects (e.g., circle, triangle, square, rectangle, cube, sphere, cone)
- b. compare familiar plane and solid objects by common attributes (e.g., shape, size, number of corners)

K-4 Benchmark G.2: Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

Performance Standards

K.G.2.1 Follow simple directions to find a specific location in space.

K.G.2.2 Use spatial vocabulary (e.g., left, right, above, below) to describe relative position.

K-4 Benchmark G.3: Apply transformations and use symmetry to analyze mathematical situations.

Performance Standards

K.G.3.1 Use manipulatives (e.g., puzzles, tangrams, blocks) to demonstrate rotation (i.e., turns), translations (i.e., slides), and reflection (i.e., flips).

K.G.3.2 Investigate the symmetry of two-dimensional shapes (e.g., by folding or cutting paper, using mirrors).

K-4 Benchmark G.4: Use visualization, spatial reasoning, and geometric modeling to solve problems.

Performance Standards

K.G.4.1 Describe how to get from one location to another (e.g., how to get to the library).

K.G.4.2 Find and describe geometric shapes in nature or architecture.

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Strand: MEASUREMENT

Standard: Students will understand measurement systems and applications.

K-4 Benchmark M.1: Understand measurable attributes of objects and the units, systems, and process of measurement.

Performance Standards

- K.M.1.1** 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 week).
- K.M.1.2** 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).
- K.M.1.3** 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).
- K.M.1.4** Use digital and analog (face) clocks to tell time to the hour.

K-4 Benchmark M.2: Apply appropriate techniques, tools, and formulas to determine measurements.

Performance Standards

- K.M.2.1** Explore measuring objects using a repeating non-standard unit of measurement (e.g., paper clips, cubes, etc.).

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Strand: DATA ANALYSIS AND PROBABILITY

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

K-4 Benchmark D.1: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.

Performance Standards

K.D.1.1 Collect data about objects and events in the environment to answer simple questions (e.g., brainstorm questions about self and surroundings, collect data, and record the results using objects, pictures, and pictographs).

K-4 Benchmark D.2: Select and use appropriate statistical methods to analyze data.

Performance Standards

K.D.2.1 Describe simple data and pose questions about the data.

K-4 Benchmark D.3: Develop and evaluate inferences and predictions that are based on data.

Performance Standards

K.D.3.1 Make simple predictions.

K-4 Benchmark D.4: Understand and apply basic concepts of probability.

Performance Standards

K.D.4.1 Answer questions that relate to the possibility of familiar events happening or not.