3rd Grade New Mexico Mathematics Standards

Strand 1: NUMBER AND OPERATIONS
Standard: Students will understand numerical concepts and mathematical operations

Mathematics Benchmarks and Performance Standards	Expectations for Students in Mathematics				
	Mathematics Skills		Problem Solving		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 1: Understand numbers, ways of representing numbers, relationships among numbers, and number systems.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Exhibit an understanding of the place-value structure of the base-ten number system by:					
a. Reading, modeling, writing, and interpreting whole numbers up to 10,000					
b. Comparing and ordering numbers up to 1,000					
c. Recognizing the position of a given number in the base-ten number system and its relationship to benchmark numbers such as 10, 50, 100, 500					
2. Use whole numbers by using a variety of contexts and models (e.g., exploring the size of 1,000 by skip-counting to 1,000 using hundred charts or strips 10 or 100 centimeters long).					
3. Identify some representations for some numbers and generate them by decomposing and recombining numbers (e.g., 853 = 8 x 100 + 5 x 10 + 3; 85 x 10 + 3 = 853; 853 = 900 – 50 + 3).					
4. Identify the relationship among commonly encountered factors and multiples (e.g., factor pairs of 12 are 1 x 12, 2 x 6, 3 x 4; multiples of 12 are 12, 24, 36).					
5. Use visual models and other strategies to recognize and generate equivalents of commonly used fractions and mixed numbers (e.g., halves, thirds, fourths, sixths, eighths, and tenths).					

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	Mathematics Skills		Problem Solving		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
6. Demonstrate an understanding of fractions as parts of unit wholes, parts of a collection or set, and as locations on a number line.					
7. Use common fractions for measuring and money (e.g., using fractions and decimals as representations of the same concept, such as half of a dollar = 50 cents).					
K-4 Benchmark 2: Understands the meaning of operations and how they relate to one another.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Use a variety of models to show an understanding of multiplication and division of whole numbers (e.g., charts, arrays, diagrams, and physical models [i.e., modeling multiplication with a variety of pictures, diagrams, and concrete tools to help students learn what the factors and products represent in various contexts]).					
2. Find the sum or difference of two whole numbers between 0 and 10,000.					
3. Solve simple multiplication and division problems (e.g., 135 ÷ 5 =).					
4. Identify how the number of groups and the number of items in each group equals a product.					
5. Demonstrate the effects of multiplying and dividing on whole numbers (e.g., to find the total number of legs on 12 cats, 4 represents the number of each [cat] unit, so 12 x 4 = 48 [leg] units).					
6. Identify and use relationship between multiplication and division (e.g., division is the inverse of multiplication) to solve problems.					
7. Select and use operations (e.g., addition, multiplication, subtraction, division) to solve problems.					

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Mathematics Benchmarks and Performance Standards	**Expectations for Students in Mathematics**				
	Mathematics Skills		**Problem Solving**		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 3: Compute fluently and make reasonable estimates.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Choose computational methods based on understanding the base-ten number system, properties of multiplication and division, and number relationships.					
2. Use strategies (e.g., 6 x 8 is double 3 x 8) to become fluent with the multiplication pairs up to 10 x 10.					
3. Compute with basic number combinations (e.g., multiplication pairs up to 10 x 10 and their division counterparts).					
4. Demonstrate reasonable estimation strategies for measurement, computation, and problem solving.					

3rd Grade New Mexico Mathematics Standards

Strand 2: ALGEBRA
Standard: Students will understand algebraic concepts and applications.

Mathematics Benchmarks and Performance Standards	**Expectations for Students in Mathematics**				
	Mathematics Skills		**Problem Solving**		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 1: Understand patterns, relations, and functions	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Represent relationships of quantities in the form of mathematical expressions, equations, or inequalities.					
2. Solve problems involving numeric equations.					
3. Select appropriate operational and relational symbols to make an expression true (e.g., "If 4 ⌈ 3 = 12, what operational symbol goes in the box?").					
4. Use models of feet and inches to express simple unit conversions in symbolic form (e.g., 36 inches = ⌈ feet x 12) that develop conceptual understanding versus procedural skills.					
5. Recognize and use the commutative property of multiplication (e.g., if 5 x 7 = 35, then what is 7 x 5?).					
6. Create, describe, and extend numeric and geometric patterns including multiplication patterns.					
7. Represent simple functional relationships: a. Solve simple problems involving a functional relationship between two quantities (e.g., find the total cost of multiple items given the cost per unit)					
b. Extend and recognize a linear pattern by its rules (e.g., the number of legs on a given number of horses may be calculated by counting by 4s, by multiplying the number of horses by 4, or through the use of tables)					

Strand 2: ALGEBRA
Standard: Students will understand algebraic concepts and applications.

Mathematics Benchmarks and Performance Standards	**Expectations for Students in Mathematics**				
	Mathematics Skills		**Problem Solving**		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 2: Represent and analyze mathematical situations and structures using algebraic symbols.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Determine the value of variables in missing part problems (e.g., 139 + ☐ = 189).					
2. Recognize and use the commutative and associative properties of addition and multiplication (e.g., "If 5 x 7 = 35, then what is 7 x 5? And if 5 x 7 x 3 = 105, then what is 7 x 3 x 5?").					
3. Explore the ways that commutative, distributive, identity, and zero properties are useful in computing with numbers.					
K-4 Benchmark 3: Use mathematical models to represent and understand quantitative relationships.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Model problem situations with objects and use representations such as pictures, graphs, tables, and equations to draw conclusions.					
2. Solve problems involving proportional relationships including unit pricing (e.g., four apples cost 80 cents; therefore, one apple costs 20 cents).					
3. Describe relationships of quantities in the form of mathematical expressions, equations, or inequalities.					
4. Select appropriate operational and relational symbols to make an expression true (e.g.," If 4 ☐ 3 = 12, what operational symbol goes in the box?").					
K-4 Benchmark 4: Analyze changes in various contexts.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standard					
1. Demonstrate how change in one variable can relate to a change in a second variable (e.g., input-output machines, data tables).					

3rd Grade New Mexico Mathematics Standards

Strand 3: GEOMETRY
Standard: Students will understand geometric concepts and applications.

Mathematics Benchmarks and Performance Standards	Expectations for Students in Mathematics				
	Mathematics Skills		Problem Solving		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 1: Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Describe and compare the attributes of plane and solid geometric figures to show relationships and solve problems:					
a. Identify, describe, and classify polygons (e.g., pentagons, hexagons, and octagons)					
b. Identify lines of symmetry in two-dimensional shapes					
c. Explore attributes of quadrilaterals (e.g., parallel and perpendicular sides for the parallelogram, right angles for the rectangle, equal sides and right angles for the square)					
d. Identify right angles					
e. Identify, describe, and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder)					
K-4 Benchmark 2: Specify locations and describe spatial relationships using coordinate geometry and other representational systems	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Describe location and movement using common language and geometric vocabulary (e.g., directions from classroom to gym).					
2. Use ordered pairs to graph, locate specific points, create paths, and measure distances within a coordinate grid system.					

Strand 3: GEOMETRY
Standard: Students will understand geometric concepts and applications.

Mathematics Benchmarks and Performance Standards	Expectations for Students in Mathematics				
	Mathematics Skills		Problem Solving		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
3. Use a two-dimensional grid system (e.g., a map) to locate positions representing actual places.					
K-4 Benchmark 3: Apply transformations and use symmetry to analyze mathematical situations.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Predict and describe the results of sliding, flipping, and turning two-dimensional shapes.					
2. Identify and describe the line of symmetry in two- and three-dimensional shapes**.**					
K-4 Benchmark 4: Use visualization, spatial reasoning, and geometric modeling to solve problems.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Visualize, build, and draw geometric objects.					
2. Create and describe mental images of objects, patterns, and paths.					
3. Recognize geometric shapes and structures (e.g., in the environment).					
4. Use geometric models to solve problems in other areas of mathematics (e.g., using arrays as models of multiplication or area).					
5. Identify and build three-dimensional objects from two-dimensional representations of that object.					
6. Investigate two-dimensional representations of three-dimensional shapes.					
7. Explore geometric ideas and relationships as they apply to other disciplines and to problems that arise in the classroom or in everyday life.					

3rd Grade New Mexico Mathematics Standards

Strand 4: MEASUREMENT
Standard: Students will understand measurement systems and applications.

Mathematics Benchmarks and Performance Standards	Expectations for Students in Mathematics				
	Mathematics Skills		Problem Solving		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 1: Understand measurable attributes of objects and the units, systems, and process of measurement.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Demonstrate understanding of the need for measuring with standard units and become familiar with standard units in the U.S. customary system.					
2. Choose and use the appropriate units and measurement tools to quantify the properties of objects (e.g., length [ruler], width [ruler], or mass [balance scale]).					
3. Identify time to the nearest minute (elapsed time) and relate time to everyday events.					
4. Identify and use time intervals (e.g., hours, days, weeks, months, years).					
5. Identify properties (e.g., length, area, weight, volume) and select the appropriate type of unit for measuring each property.					
6. Demonstrate understanding that measurements are approximations, investigate differences in units and their effect on precision, and consider the degree of accuracy for different situations.					
K-4 Benchmark 2: Apply appropriate techniques, tools, and formulas to determine measurements.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Find the area of rectangles using appropriate tools (e.g., grid paper, tiles).					
2. Estimate measurements.					

Strand 4: MEASUREMENT
Standard: Students will understand measurement systems and applications.

Mathematics Benchmarks and Performance Standards	Expectations for Students in Mathematics				
	Mathematics Skills		Problem Solving		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 2: Apply appropriate techniques, tools, and formulas to determine measurements.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards (continued)					
3. Use appropriate standard units and tools to estimate, measure, and solve problems (e.g., length, area, weight).					
4. Recognize a 90-degree angle and use it as a strategy to estimate the size of other angles.					

3rd Grade New Mexico Mathematics Standards

Strand 5: DATA ANALYSIS AND PROBABILITY
Standard: Students will understand how to formulate questions, analyze data, and determine probabilities.

Mathematics Benchmarks and Performance Standards	Expectations for Students in Mathematics				
	Mathematics Skills		Problem Solving		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 1: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Collect and organize data using observations, measurements, surveys, or experiments.					
2. Represent data using tables and graphs (e.g., line plots, bar graphs, and line graphs).					
3. Conduct simple experiments by determining the number of possible outcomes and make simple predictions:					
a. Identify whether events are certain, likely, unlikely, or impossible					
b. Record the outcomes for a simple event and keep track of repetitions					
c. Summarize and record the results in a clear and organized way use the results to predict future events					
K-4 Benchmark 2: Select and use appropriate statistical methods to analyze data.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standard					
1. Apply and explain the uses of sampling techniques (e.g., observations, polls, tally marks) for gathering data.					

Strand 5: DATA ANALYSIS AND PROBABILITY
Standard: Students will understand how to formulate questions, analyze data, and determine probabilities.

Mathematics Benchmarks and Performance Standards	**Expectations for Students in Mathematics**				
	Mathematics Skills		**Problem Solving**		
	Recall Information	Apply Procedural Knowledge	Communicate & Represent Understanding	Analyze, Reason, & Prove	Make Connections & Evaluate
K-4 Benchmark 3: Develop and evaluate inferences and predictions that are based on data.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standard					
1. Analyze data displayed in a variety of formats to make reasonable inferences and predictions, answer questions, and make decisions.					
K-4 Benchmark 4: Understand and apply basic concepts of probability.	**Time Spent in Each Performance Standard** Indicate **N** (never), **S** (sometimes), or **U** (usually) for each expectation				
Performance Standards					
1. Discuss the degree of likelihood of events and use terminology such as "certain," "likely," "unlikely".					
2. Predict the outcomes of simple experiments (e.g., coin tossing) and test the predictions using concrete objects (e.g., coins, counters, number cubes, spinners).					
3. Record the probability of a specific outcome for a simple probability situation (e.g., probability is three out of seven for choosing a black ball; 3/7).					