M4.A Numbers and Operations

M4.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.

M4.A.1.1	Use models and/or words to represent quantities as decimals, fractions or mixed numbers.	**M4.A.1.1.1**	Write the fraction or decimal, including mixed numbers, which corresponds to a drawing or set – no simplification necessary.
		M4.A.1.1.2	Create a drawing or set that represents a given fraction or decimal, including mixed numbers (through the tenths).
		M4.A.1.1.3	Match the standard number form to the word form of decimal numbers (through the tenths place).
		M4.A.1.1.4	Write whole numbers in expanded, standard and/or word form through 6 digits (example of standard to expanded form: 43,076 = 40,000+3000+70+6).

M4.A Numbers and Operations

M4.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.

M4.A.1.2	Compare quantities and magnitudes of numbers.	**M4.A.1.2.1**	Locate/identify fractions or decimals on a number line (decimals and fractions through the tenths – do not mix fractions and decimals).
		M4.A.1.2.2	Compare and/or order whole numbers through 6 digits and amounts of money to $100 (limit sets for ordering, to no more than 4 numbers).

M4.A Numbers and Operations

M4.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.

M4.A.1.3	Develop and/or apply number theory concepts to represent numbers in various ways	**M4.A.1.3.1**	Find/list/identify all factors through 10 of any given number.
		M4.A.1.3.2	Find/list/identify multiples of a number, where the multiples do not exceed 100.

M4.A Numbers and Operations

M4.A.2 Understand the meanings of operations, use operations and understand how they relate to each other.

M4.A.2.1	Use operations to solve problems (may include word problems).	**M4.A.2.1.1**	Solve problems involving all operations with whole numbers, and/or explain the solution (limit to two-step problems; e.g., multiply then add – single digit multipliers and divisors).
		M4.A.2.1.2	Solve problems involving addition or subtraction with decimals through the tenths or money to the cent and/or explain the solution. Limit to two-step problems.

M4.A Numbers and Operations

M4.A.3 Compute accurately and fluently and make reasonable estimates.

M4.A.3.1	Apply rounding and/or estimation strategies to solve problems.	**M4.A.3.1.1**	Round whole numbers to the nearest ten, hundred, thousand, ten-thousand or hundred-thousand.
		M4.A.3.1.2	Round amounts of money to the nearest dollar.
		M4.A.3.1.3	Estimate the answer to addition, subtraction and multiplication problems using whole numbers through 6 digits (for multiplication, no more than 2 digits X 1 digit, excluding powers of 10).

M4.A Numbers and Operations

M4.A.3 Compute accurately and fluently and make reasonable estimates.

M4.A.3.2	Compute using fractions or decimals (written vertically or horizontally - straight computation only).	**M4.A.3.2.1**	Solve addition or subtraction problems involving decimals through hundredths (decimal numbers must have the same number of places).
		M4.A.3.2.2	Solve addition or subtraction problems with fractions with like denominators (denominators to 10, no simplifying necessary).

M4.B Measurement

M4.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.

M4.B.1.1	Determine time and/or calculate elapsed time.	**M4.B.1.1.1**	Match/construct analog time (a picture of a clock), to the same time written in digital.
		M4.B.1.1.2	Identify time (analog or digital) as the amount of minutes before and/or after the hour (e.g., 2:50 is the same as 10 minutes before 3:00; quarter past six is the same as 6:15).
		M4.B.1.1.3	Calculate the elapsed time, to the minute, in a given situation (limited to 2 adjacent hours).
		M4.B.1.1.4	Determine the beginning or ending time, given the elapsed time (limited to 2 adjacent hours).

M4.B Measurement

M4.B.2 Apply appropriate techniques, tools and formulas to determine measurements.

M4.B.2.1	Select and/or use appropriate tools and/or attributes for measuring quantities.	**M4.B.2.1.1**	Use or read a ruler (provided) to measure to the nearest 1/4 inch or centimeter.

M4.B Measurement

M4.B.2 Apply appropriate techniques, tools and formulas to determine measurements

M4.B.2.2	Estimate measurements of figures.	**M4.B.2.2.1**	Make reasonable estimates of weights, lengths and capacities of familiar objects (measurements in the same system).

M4.C Geometry

M4.C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.

M4.C.1.1	Identify/describe the basic properties of geometric figures in two or three dimensions.	**M4.C.1.1.1**	Identify, classify and/or compare two-dimensional figures (circle, triangle, square, parallelogram, trapezoid, rhombus, rectangle, pentagon, hexagon, octagon).
		M4.C.1.1.2	Identify or classify three-dimensional figures (cube, sphere, rectangular prism and pyramid).

M4.C Geometry

M4.C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.

M4.C.1.2	Represent and/or use properties or relationships of points, lines, line segments, rays and angles.	**M4.C.1.2.1**	Identify points, lines, line segments or rays.
		M4.C.1.2.2	Identify parallel and perpendicular lines.

M4.C Geometry

M4.C.2 Identify and/or apply concepts of transformations or symmetry.

M4.C.2.1	Apply the concepts of reflection and symmetry.	**M4.C.2.1.1**	Identify or create figures that have one, two or no lines of symmetry.

M4.C Geometry

M4.C.3 Locate and describe relationships using the coordinate plane.

M4.C.3.1	Locate points on a simple grid.	**M4.C.3.1.1**	Match or plot the ordered pair with the appropriate point (or object) on a simple grid.

M4.D Algebraic Concepts

M4.D.1 Demonstrate an understanding of patterns, relations and functions.

M4.D.1.1	Recognize, describe, extend, create and/or replicate a variety of patterns.	**M4.D.1.1.1**	Extend or find a missing element in a numerical or geometric pattern (+, - or x may be used – numerical patterns must be whole numbers).
		M4.D.1.1.2	Identify/describe the rule for a numerical or geometric pattern shown (+, - or x may be used - numerical patterns must be whole numbers).
		M4.D.1.1.3	Create or replicate a numerical or geometric pattern showing 3 repetitions (+, - or x may be used - numerical patterns must be whole numbers or money).

M4.D Algebraic Concepts

M4.D.1 Demonstrate an understanding of patterns, relations and functions.

M4.D.1.2	Apply simple function rules.	**M4.D.1.2.1**	Determine the missing elements in a function table (functions may use +, - or x and whole numbers or money).
		M4.D.1.2.2	Determine the rule for a function given a table (functions may use +, - or x and whole numbers).

M4.D Algebraic Concepts

M4.D.2 Represent and/or analyze mathematical situations and structures using algebraic symbols, words, tables and graphs.

M4.D.2.1	Use numbers and symbols to model the concepts of expressions and/or equations.	**M4.D.2.1.1**	Correlate story situations with expressions or equations (may use numbers and one operation +, - or x; no variables).

M4.D Algebraic Concepts

M4.D.2 Represent and/or analyze mathematical situations and structures using algebraic symbols, words, tables and graphs.

M4.D.2.2	Determine the missing number or symbol in a number sentence.	**M4.D.2.2.1**	Solve for a missing number in an equation (using estimation, guess & check, etc.). May use +, - or single digit x or ÷.
		M4.D.2.2.2	Identify the missing symbol (+, -, x, ÷, =, <, >) that makes a number sentence true (single digit x or ÷ only).

M4.D Algebraic Concepts

M4.D.3 Analyze change in various contexts.

Not assessed at Grade 4.

M4.D Algebraic Concepts

M4.D.4 Describe or use models to represent quantitative relationships.

Not assessed at Grade 4.

M4.E Data Analysis and Probability

M4.E.1 Formulate questions that can be addressed with data and/or collect, organize, display and analyze data.

M4.E.1.1	Interpret data shown on tables, charts, line graphs, bar graphs or pictographs.	**M4.E.1.1.1**	Describe, interpret and/or answer questions based on data shown in tables, charts, bar graphs or pictographs.

M4.E Data Analysis and Probability

M4.E.1 Formulate questions that can be addressed with data and/or collect, organize, display and analyze data.

M4.E.1.2	Organize or display data using tables, bar graphs, line graphs or pictographs.	**M4.E.1.2.1**	Graph data or complete a graph given the data (bar graph or pictograph – grid is provided).
		M4.E.1.2.2	Translate information from one type of display to another (table, chart, bar graph, or pictograph).

M4.E Data Analysis and Probability

M4.E.2 Select and/or use appropriate statistical methods to analyze data.

Not assessed at Grade 4.

M4.E Data Analysis and Probability

M4.E.3 Understand and apply basic concepts of probability or outcomes.

M4.E.3.1	Predict and/or measure the likelihood of events.	**M4.E.3.1.1**	Make a prediction based on data or chance (data may be shown in tables, charts, line graphs, bar graphs or pictographs)

M4.E Data Analysis and Probability

M4.E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.

Not assessed at Grade 4.