6th Grade Math

Purpose

Students will become flexible thinkers and complex problem solvers by applying essential mathematical ideas and concepts through a rigorous, focused, and relevant curriculum.

Philosophy Statement

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6th Grade Math

Statement	Exceeds	Secure	Developing	Beginning
Interprets and applies landmarks (mean, median, mode, and range).	*Finds missing data when given landmarks and some data AND/OR Predicts and justifies how new data would effect determined landmarks.	Using authentic situations such as test scores, basketball scores, money spent, etc. Finds the mean AND Finds the median with an even or odd number of data value AND Finds the range AND Finds the mode if there is one mode, no mode, or multiple modes AND Understands statistical questions AND Selects and justifies the best average for data.	Using authentic situations such as test scores, basketball scores, money spent, etc. Finds the mean, median, mode and range and applies to statistical situations when given definitions.	Finds mode, median, and range when given definitions.
Fluently divides multi-digit numbers using the standard algorithm.	*Divides and provides answer in decimal and fraction form.	Divides by any 2 digit divisor using long division AND estimates with any digit divisor.	Estimates with any 2 digit divisor.	Divides by a 1 digit divisor using long division AND estimates with a 1 digit divisor.
Fluently adds, subtracts, multiplies, and divides multi-digit decimals.	*Solves algebraic equations with decimals.	Adds and subtracts decimals and whole numbers with and without regrouping when written horizontally AND multiplies decimals AND divides decimals with decimal dividends and decimal divisors.	Adds and subtracts decimals and whole numbers with and without regrouping AND multiplies decimals.	Adds and subtracts decimals with and without regrouping.

Summarizes and describes data on a number line.	*Uses line plots, histograms, scatter plots, and box-and-whisker plots to draw two populations by comparing statistical data.	Displays numerical data in plots on a number line, including scatter plots, histograms, and box-and-whisker plots AND Summarizes numerical data to their context (measure of center, distribution of the data, etc.).	Displays data with line plots, scatter plots, and histograms and summarizes central tendency and distribution of data.	Displays data with line plots and summarizes central tendency and distribution of data.
Writes and evaluates algebraic expressions.	*Write an equation from a real-world situation	Translate a real-world situation into an algebraic expression.	Translate a verbal phrase into an algebraic expression.	Evaluate an expression in which letters stand for numbers AND Identify variable, constant, and coefficient in an expression.
Finds greatest common factor and least common multiple of two numbers.	*Finds the greatest common factor and the least common multiple of monomials and/or three numbers.	Finds the greatest common factor less than or equal to 100, and finds the least common multiple of two numbers less than or equal to 12.	Finds the least common multiple OR greatest common factor.	Factors into prime numbers.
Adds and subtracts mixed number fractions and divides fractions.	*Multiplies and divides mixed numbers and puts answers in simplest form.	Adds and subtracts mixed numbers and fractions with and without regrouping and puts answers in simplest form AND Divides fractions by fractions or whole numbers and puts answers in simplest form.	Adds and subtracts mixed numbers without regrouping.	Adds and subtracts fractions with like and unlike denominators.

Understands ratio and rate concepts and uses ratio reasoning to solve problems.	*Writes and solves proportions and determines proportionality.	Writes two quantities as a ratio in all three ways in simplest form AND finds unit rate AND applies rate and ratio to solve real-world problems.	Writes two quantities as a ratio in all three ways AND finds unit rate.	Writes two quantities as a ratio in all three ways.
Understands, compares and orders integers.	*Computes with integers.	Compare, order, and find absolute value of integers.	Places rational numbers on a number line and compares and orders integers.	Identifies opposites and knows that they combine to equal 0.
Solves problems by graphing points in all four quadrants of the coordinate plane.	*Creates isometric (congruent) transformation (translations, reflection, rotations) on a coordinate plane.	Draws polygons on a coordinate plane given the vertices and finds distance between two points with the same first coordinate or the same second coordinate.	Graphs points on a coordinate plane in all four quadrants and names the ordered pair for graphed points.	Find and position integers on a vertical or horizontal number line.
Creates and identifies equivalent expressions.	*Uses distributive property to distribute monomials.	Identifies when two expressions are equivalent by applying the distributive property and/or combining like terms (e.g. 3(2x - 5) + 7 = 6x - 8).	Identifies when two expressions are equivalent by combining like terms (e.g. 3x + 10 -4x -8= -x +2).	Identifies that two expression are equivalent by applying the commutative property or combining simple like terms (e.g. x + 3 = 3 + x or 3x + 2x = 5x).
Evaluates expressions using order of operations.	*Evaluates numerical and algebraic expressions following order of operations with nested parenthesis and/or negative exponents.	Writes and evaluates numerical expressions involving whole-number exponents following correct order of operations.	Writes and evaluates numerical expressions involving order of operations of addition, subtraction, multiplication, division and grouping symbols using the correct order of operations.	Evaluates numerical expressions that include multiplication, division, addition, or subtraction only using the correct order of operations.

Solves one-variable equations and inequalities.	*Solves equations and inequalities with variables on both sides of the sign.	Understands that inequalities have infinite number of solutions AND Substitutes a value for a variable and determine if the value is a solution for the equation or inequality AND Solves one variable equations and inequalities AND Graphs inequalities on a number line.	Understands that inequalities have infinite number of solutions AND Substitutes a value for a variable and determine if the value is a solution for the equation or inequality AND Graphs inequalities on a number line.	Understands that an inequality has multiple solutions AND can tell if a number sentence including an inequality is true or false.
Solves problems involving area, surface area, and volume.	*Finds area of two-dimensional irregular figures AND/OR surface area and volume of three-dimensional irregular figures.	Finds area of polygons, including special quadrilaterals, all triangles AND Finds surface area and volume of rectangular and triangular prisms given the formulas AND Justifies what the formula means.	Finds area of polygons, including special quadrilaterals, all triangles AND Finds surface area and volume of rectangular and triangular prisms given the formulas.	Finds the area of quadrilaterals and triangles given each specific formula AND Finds surface area and volume of rectangular prisms given each specific formula.

The asterisk (*) denotes one possible way a student could demonstrate enrichment or extension that would be designated as Exceeds Standard.