Kindergarten Mathematical Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard 1: Students will understand simple number concepts and relationships.

add, subtract, first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, same, fewer, more

Standard 2: Students will sort and classify objects as well as recognize and create simple patterns.

sort, repeating patterns, growing patterns

Standard 3: Students will understand basic geometry and measurement concepts as well as collect and organize data.

circle, triangle, rectangle, square, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, penny, nickel, dime, quarter, shorter, longer, above, below, near, far, between

First Grade Mathematical Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard 1: Students will acquire number sense and perform simple operations with whole numbers.

add, sum, subtract, difference, greater than, less than, equal to

Standard 2: Students will identify and use number patterns and properties to describe and represent mathematical relationships.

sort, attribute, repeating patterns, growing patterns, skip count, number sentence, symbol, +, -, =

Standard 3: Students will understand simple geometry and measurement concepts as well as collect, represent, and draw conclusions from data.

circle, triangle, rectangle, square, trapezoid, hexagon, rhombus, parallelogram, cube, sphere, cone, penny, nickel, dime, quarter, dollar, January, February, March, April, May , June, July, August, September, October, November, December, winter, spring, summer, fall, data, value, graph, tally mark

Second Grade Mathematical Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard 1: Students will acquire number sense with whole numbers and fractions and perform operations with whole numbers.

number line, add, sum, subtract, difference, greater than, less than, equal to, >, <, =, even, odd, halves, thirds, fourths, 1/2, 1/3, 1/4.

Standard 2: Students will model, represent, and interpret patterns and number relationships to create and solve problems with addition and subtraction.

patterns, +, -, =, ≠

Standard 3: Students will understand simple geometry and measurement concepts as well as collect, represent, and draw conclusions from data.

inch, centimeter, pound, cup, circle, triangle, rectangle, square, trapezoid, rhombus, parallelogram, pentagon, hexagon, cube, sphere, cone, vertices, angle, face, edge, weight, length, capacity

Third Grade Mathematical Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard 1: Students will understand the base-ten numeration system, place value concepts, simple fractions and perform operations with whole numbers.

sum, difference, expanded form, factor, product, array, multiple, numerator, denominator, halves, thirds, fourths, sixths, eighths, divisor, dividend, quotient, greater than, less than, equal to, <, >, =

Standard 2: Students will use patterns, symbols, operations, and properties of addition and multiplication to represent and describe simple number relationships.

growing patterns, expressions, equations, <, >, =

Standard 3: Students will describe and analyze attributes of two-dimensional shapes.

polygon, attribute, quadrilateral, equilateral triangle, isosceles triangle, right triangle, pentagon, hexagon, octagon, parallel, right angle, reflect, translate, rotate, slide, flip, turn, congruent

Standard 4: Students will select and use appropriate units and measurement tools to solve problems.

measure, unit, metric system, customary system, length, pound, ounce, centimeter, meter, inch, foot, yard, capacity, weight, perimeter

Standard 5: Students will collect and organize data to make predictions and identify basic concepts of probability.

data, table, chart, graph, frequency table, line plot, pictograph, bar graph, likely, certain, outcome, impossible outcome

Fourth Grade Mathematical Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard 1: Students will acquire number sense and perform operations with whole numbers, simple fractions, and decimals.

sum, difference, expanded form, standard form, square number, dividend, divisor, quotient, factor, product, array, multiple, numerator, denominator, sixths, eighths, tenths, equivalent, estimate, <, >, =, ≠

Standard 2: Students will use patterns and relations to represent mathematical problems and number relationships.

growing pattern, order of operations, parentheses, inequality, expression, equation, associative property, commutative property, distributive property, zero property of multiplication, >, <, =

Standard 3: Students will understand attributes and properties of plane geometric objects and spatial relationships.

parallel, perpendicular, intersecting lines, right angle, acute angle, obtuse angle, straight angle, circle, radius, diameter, line symmetry, rotational symmetry, coordinate, first quadrant, degree, translate, rotate, reflect, transformation

Standard 4: Students will describe relationships among units of measure, use appropriate measurement tools, and use formulas to find area measurements.

millimeter, centimeter, meter, milliliter, liter, gram, kilogram, cup, pint, quart, gallon, area, perimeter

Standard 5: Students will interpret and organize collected data to make predictions, answer questions, and describe basic concepts of probability.

data, line plot, line graph, bar graph, stem and leaf plot, cluster, outlier, frequency table, probability

Fifth Grade Mathematical Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard 1: Students will expand number sense to include integers and perform operations with whole numbers, simple fractions, and decimals.

prime, composite, exponent, fractions, numerator, denominator, common denominator, common factor, common multiple, decimals, percents, divisible, divisibility, equivalent fractions, integer, dividend, quotient, divisor, factor, order of operations, simplest terms, various symbols for multiplication and division, mixed numeral, improper fraction

Standard 2: Students will use patterns and relations to represent and analyze mathematical problems and number relationships using algebraic symbols.

variety of symbols for multiplication and division such as x, ⬚, and * as symbols for multiplication, and ÷, ⬚, and a fraction bar (/ or —) as division symbols; variable, order of operations, parentheses, inequality, expression, equation, associative property, commutative property, distributive property

Standard 3: Students will use spatial reasoning to recognize, describe, and analyze geometric shapes and principles.

perpendicular and parallel lines, rays, angles (acute, obtuse, right, straight), triangles (equilateral, isosceles, scalene, right, acute, obtuse), vertex, vertices, edge, face, corresponding angles, similar, polygon, pyramid, right prism

Standard 4: Students will determine area of polygons and surface area and volume of three-dimensional shapes.

area, volume, surface area, volume, right prism

Standard 5: Students will construct, analyze, and construct reasonable conclusions from data and apply basic concepts of probability.

data, minimum values, maximum values, mean, median, mode, average, range

Sixth Grade Mathematical Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard 1: Students will expand number sense to include operations with rational numbers.

prime, composite, exponent, least common multiple, least common denominator, greatest common factor, decimals, percents, divisible, divisibility, equivalent fractions, integer, dividend, quotient, divisor, factor, simplest terms, mixed numeral, improper fraction

Standard 2: Students will use patterns, relations, and algebraic expressions to represent and analyze mathematical problems and number relationships.

order of operations, sequence, function, pattern, algebraic expression, approximately equal, ≈, notation for exponents: 43 or 4^3, a number in front of a variable indicates multiplication (e.g., 3y means 3 times the quantity y), formula, generalization

Standard 3: Students will use spatial and logical reasoning to recognize, describe, and analyze geometric shapes and principles.

midpoint, circumference, complementary and supplementary angles, rotate, translate, reflect, transformation

Standard 4: Students will understand and apply measurement tools and techniques and find the circumference and area of a circle.

cylinder, radius, diameter, circumference, area, surface area, volume, π

Standard 5: Students will analyze, draw conclusions, and make predictions based upon data and apply basic concepts of probability.

data display, scatter plot, circle graph, scale, predict, justify, probability, experimental results, theoretical results

Math 7 Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard I: Students will expand number sense to understand, perform operations, and solve problems with rational numbers.

whole number, decimal, fraction, percent, integer, exponent, scientific notation, rational number, identity, commutative, associative, distributive, factor, multiple, prime, relatively prime, additive inverse, multiplicative inverse

Standard II: Students will use proportional reasoning to solve problems.

ratio, rate, proportion, scale drawing, conversion factor

Standard III: Students will develop fluency with the language and operations of algebra to analyze and represent relationships.

variable expression, algebraic expression, equivalent, linear equation, linear inequality, rectangular coordinate system, ordered pair

Standard IV: Students will use algebraic, spatial, and logical reasoning to solve geometry and measurement problems.

line segment, ray, line, parallel, perpendicular, midpoint, vertical angles, adjacent angles, complementary angles, supplementary angles

Standard V: Students will understand concepts from probability and statistics and apply statistical methods to solve problems.

experimental result, theoretical probability, scatter plot, circle graph, inference

Pre-Algebra Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard I: Students will expand number sense to understand, perform operations, and solve problems with rational numbers.

integer, rational, scientific notation, identity, commutative, associative, distributive, square, square root, absolute value, order of operations, *ab*

Standard II: Students will use proportion and similarity to solve problems.

ratio, proportion, variable, similar polygon, similar triangle, congruent, slope

Standard III: Students will develop fluency with the language and operations of algebra to analyze and represent relationships.

table, algebraic expression, equation, linear, ordered pair, extraneous information

Standard IV: Students will use algebraic, spatial, and logical reasoning to solve geometry and measurement problems.

unit of measure, scale, scale factor, surface area, volume, prism, cylinder

Standard V: Students will understand concepts from probability and statistics and apply statistical methods to solve problems.

Fundamental Counting Principle, complement, theoretical probability, experiment, data, percentile, histogram, box-and-whisker plot, spread

Algebra 1 Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard I: Students will expand number sense to understand, perform operations, and solve problems with real numbers.

    square root, , radical, rational, irrational, Pythagorean Theorem

Standard II: Students will extend concepts of proportion to represent and analyze linear relations.

    Slope, x-intercept, y-intercept, $y = mx + b$, $Ax + By = C$, undefined slope

Standard III: Students will develop fluency with the language and operations of algebra to analyze and represent relationships.

    monomial, binomial, trinomial, polynomial, literal equation, factor, difference of two squares, perfect square, quadratic

Standard IV: Students will understand concepts from statistics and apply statistical methods to solve problems.

    scatter plot, positive correlation, negative correlation, no correlation, line of best fit, bivariate

Geometry Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard I: Students will use algebraic, spatial, and logical reasoning to solve geometry problems.

   conditional statement, converse, inverse, conjecture, inductive, deductive, counterexample, adjacent, complementary, supplementary, vertical angles, linear pair, transversal, congruent, postulate, theorem, isosceles, median, altitude, angle bisector, secant, arc, sector, central angle, inscribed angle, tangent of a circle, intercepted arc, construct, bisect, net, polyhedra, *AB*, *AB* , *AB* , *//*, ⊥ , ∠

Standard II: Students will use the language and operations of algebra to explore geometric relationships with coordinate geometry.

   distance formula, equation of a circle, collinear

Standard III: Students will extend concepts of proportion and similarity to trigonometric ratios.

   special right triangle, sine (sin), cosine (cos), tangent (tan), exact value

Standard IV: Students will use algebraic, spatial, and logical reasoning to solve measurement problems.

   polyhedra, cone, cylinder, sphere, arc, area of a sector, geometric probability

Algebra 2 Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard I: Students will use the language and operations of algebra to evaluate, analyze and solve problems.

compound inequality, rational equation, system of equations, complex number, completing the square, quadratic formula

Standard II: Students will understand and represent functions and analyze function behavior.

function, relation, domain, range, $f(x)$, $f(g(x))$, $f \circ g$, one to one, inverse, exponential function, logarithm, base, e

Standard III: Students will use algebraic, spatial, and logical reasoning to solve geometry and measurement problems.

transformation, parabola, radian, unit circle, reference angle

Standard IV: Students will understand concepts from probability and statistics and apply statistical methods to solve problems.

permutation, combination, conditional probability, discrete random variable, standard deviation, interquartile range, percentile

Pre-Calculus Vocabulary and Symbols

Taken from the Utah State Elementary and Secondary Mathematics Core Curricula

Standard I: Students will use the language and operations of algebra to evaluate, analyze and solve problems.

matrix, scalar, sequence, series, arithmetic sequence, arithmetic series, geometric sequence, geometric series, Σ

Standard II: Students will understand and represent functions and analyze function behavior.

Binomial Theorem, rate of change, interval, asymptote, hole, extrema, discontinuous, continuous, odd and even function, limit, Σ

Standard III: Students will use algebraic, spatial, and logical reasoning to solve geometry and measurement problems.

Law of Sines, Law of Cosines, conic section, ellipse, hyperbola, secant (sec), cosecant (csc), cotangent (cot), polar coordinates, parametric

Standard IV: Students will understand concepts from probability and statistics and apply statistical methods to solve problems.

regression line, correlation coefficient, standard error