

LITERACY
ACROSS THE
CURRICULUM

SUBJECT TERMINOLOGY FOR MATHEMATICS



The
Appleton
School

Abacus: An early counting tool used for basic arithmetic.

Absolute Value: Always a positive number, absolute value refers to the distance of a number from 0.

Acute Angle: An angle whose measure is between 0° and 90° or with less than 90° (or $\pi/2$) radians.

Addend: A number involved in an addition problem; numbers being added are called addends.

Algebra: The branch of mathematics that substitutes letters for numbers to solve for unknown values.

Algorithm: A procedure or set of steps used to solve a mathematical computation.

Angle: Two rays sharing the same endpoint (called the angle vertex).

Angle Bisector: The line dividing an angle into two equal angles.

Area: The two-dimensional space taken up by an object or shape, given in square units.

Array: A set of numbers or objects that follow a specific pattern.

Attribute: A characteristic or feature of an object—such as size, shape, color, etc.—that allows it to be grouped.

Average: The average is the same as the mean. Add up a series of numbers and divide the sum by the total number of values to find the average.

Base: The bottom of a shape or three-dimensional object, what an object rests on.

Base 10: Number system that assigns place value to numbers.

Bar Graph: A graph that represents data visually using bars of different heights or lengths.

BEDMAS or PEMDAS Definition: An acronym used to help people remember the correct order of operations for solving algebraic equations. BEDMAS stands for "Brackets, Exponents, Division, Multiplication, Addition, and Subtraction" and PEMDAS stands for "Parentheses, Exponents, Multiplication, Division, Addition, and Subtraction".

Bell Curve: The bell shape created when a line is plotted using data points for an item that meets the criteria of normal distribution. The center of a bell curve contains the highest value points.

Binomial: A polynomial equation with two terms usually joined by a plus or minus sign.

Box and Whisker Plot/Chart: A graphical representation of data that shows differences in distributions and plots data set ranges.

Calculus: The branch of mathematics involving derivatives and integrals, Calculus is the study of motion in which changing values are studied.

Capacity: The volume of substance that a container will hold.

Centimeter: A metric unit of measurement for length, abbreviated as cm. 2.5 cm is approximately equal to an inch.

Circumference: The complete distance around a circle or a square.

Chord: A segment joining two points on a circle.

Coefficient: A letter or number representing a numerical quantity attached to a term (usually at the beginning). For example, x is the coefficient in the expression $x(a + b)$ and 3 is the coefficient in the term $3y$.

Common Factors: A factor shared by two or more numbers, common factors are numbers that divide exactly into two different numbers.

Complementary Angles: Two angles that together equal 90° .

Composite Number: A positive integer with at least one factor aside from its own. Composite numbers cannot be prime because they can be divided exactly.

Cone: A three-dimensional shape with only one vertex and a circular base.

Conic Section: The section formed by the intersection of a plane and cone.

Constant: A value that does not change.

Coordinate: The ordered pair that gives a precise location or position on a coordinate plane.

Congruent: Objects and figures that have the same size and shape. Congruent shapes can be turned into one another with a flip, rotation, or turn.

Cosine: In a right triangle, cosine is a ratio that represents the length of a side adjacent to an acute angle to the length of the hypotenuse.

Cylinder: A three-dimensional shape featuring two circle bases connected by a curved tube.

Decagon: A polygon/shape with ten angles and ten straight lines.

Decimal: A real number on the base ten standard numbering system.

Denominator: The bottom number of a fraction. The denominator is the total number of equal parts into which the numerator is being divided.

Degree: The unit of an angle's measure represented with the symbol °.

Diagonal: A line segment that connects two vertices in a polygon.

Diameter: A line that passes through the center of a circle and divides it in half.

Difference: The difference is the answer to a subtraction problem, in which one number is taken away from another.

Digit: Digits are the numerals 0-9 found in all numbers. 176 is a 3-digit number featuring the digits 1, 7, and 6.

Dividend: A number being divided into equal parts (inside the bracket in long division).

Divisor: A number that divides another number into equal parts (outside of the bracket in long division).

Edge: A line is where two faces meet in a three-dimensional structure.

Ellipse: An ellipse looks like a slightly flattened circle and is also known as a plane curve. Planetary orbits take the form of ellipses.

End Point: The "point" at which a line or curve ends.

Equilateral: A term used to describe a shape whose sides are all of equal length.

Equation: A statement that shows the equality of two expressions by joining them with an equals sign.

Even Number: A number that can be divided or is divisible by 2.

Event: This term often refers to an outcome of probability; it may answer a question about the probability of one scenario happening over another.

Evaluate: This word means "to calculate the numerical value".

Exponent: The number that denotes repeated multiplication of a term, shown as a superscript above that term. The exponent of 3^4 is 4.

Expressions: Symbols that represent numbers or operations between numbers.

Face: The flat surfaces on a three-dimensional object.

Factor: A number that divides into another number exactly. The factors of 10 are 1, 2, 5, and 10 (1 x 10, 2 x 5, 5 x 2, 10 x 1).

Factoring: The process of breaking numbers down into all of their factors.

Factorial Notation: Often used in combinatorics, factorial notations requires that you multiply a number by every number smaller than it. The symbol used in factorial notation is ! When you see $x!$, the factorial of x is needed.

Factor Tree: A graphical representation showing the factors of a specific number.

Fibonacci Sequence: A sequence beginning with a 0 and 1 whereby each number is the sum of the two numbers preceding it. "0, 1, 1, 2, 3, 5, 8, 13, 21, 34..." is a Fibonacci sequence.

Figure: Two-dimensional shapes.

Finite: Not infinite; has an end.

Flip: A reflection or mirror image of a two-dimensional shape.

Formula: A rule that numerically describes the relationship between two or more variables.

Fraction: A quantity that is not whole that contains a numerator and denominator. The fraction representing half of 1 is written as $1/2$.

Frequency: The number of times an event can happen in a given period of time; often used in probability calculations.

Furlong: A unit of measurement representing the side length of one square acre. One furlong is approximately $1/8$ of a mile, 201.17 meters, or 220 yards.

Geometry: The study of lines, angles, shapes, and their properties. Geometry studies physical shapes and the object dimensions.

Graphing Calculator: A calculator with an advanced screen capable of showing and drawing graphs and other functions.

Graph Theory: A branch of mathematics focused on the properties of graphs.

Greatest Common Factor: The largest number common to each set of factors that divides both numbers exactly. The greatest common factor of 10 and 20 is 10.

Hexagon: A six-sided and six-angled polygon.

Histogram: A graph that uses bars that equal ranges of values.

Hyperbola: A type of conic section or symmetrical open curve. The hyperbola is the set of all points in a plane, the difference of whose distance from two fixed points in the plane is a positive constant.

Hypotenuse: The longest side of a right-angled triangle, always opposite to the right angle itself.

Identity: An equation that is true for variables of any value.

Improper Fraction: A fraction whose numerator is equal to or greater than the denominator, such as $6/4$.

Inequality: A mathematical equation expressing inequality and containing a greater than ($>$), less than ($<$), or not equal to (\neq) symbol.

Integers: All whole numbers, positive or negative, including zero.

Irrational: A number that cannot be represented as a decimal or fraction. A number like pi is irrational because it contains an infinite number of digits that keep repeating. Many square roots are also irrational numbers.

Isosceles: A polygon with two sides of equal length.

Kilometer: A unit of measure equal to 1000 meters.

Knot: A closed three-dimensional circle that is embedded and cannot be untangled.

Like Terms: Terms with the same variable and same exponents/powers.

Like Fractions: Fractions with the same denominator.

Line: A straight infinite path joining an infinite number of points in both directions.

Line Segment: A straight path that has two endpoints, a beginning and an end.

Linear Equation: An equation that contains two variables and can be plotted on a graph as a straight line.

Line of Symmetry: A line that divides a figure into two equal shapes.

Logic: Sound reasoning and the formal laws of reasoning.

Logarithm: The power to which a base must be raised to produce a given number. If $n^x = a$, the logarithm of a , with n as the base, is x . Logarithm is the opposite of exponentiation.

Mean: The mean is the same as the average. Add up a series of numbers and divide the sum by the total number of values to find the mean.

Median: The median is the "middle value" in a series of numbers ordered from least to greatest. When the total number of values in a list is odd, the median is the middle entry. When the total number of values in a list is even, the median is equal to the sum of the two middle numbers divided by two.

Midpoint: A point that is exactly halfway between two locations.

Mixed Numbers: Mixed numbers refer to whole numbers combined with fractions or decimals. Example $3 \frac{1}{2}$ or 3.5.

Mode: The mode in a list of numbers are the values that occur most frequently.

Modular Arithmetic: A system of arithmetic for integers where numbers "wrap around" upon reaching a certain value of the modulus.

Monomial: An algebraic expression made up of one term.

Multiple: The multiple of a number is the product of that number and any other whole number. 2, 4, 6, and 8 are multiples of 2.

Multiplication: Multiplication is the repeated addition of the same number denoted with the symbol \times . 4×3 is equal to $3 + 3 + 3 + 3$.

Multiplicand: A quantity multiplied by another. A product is obtained by multiplying two or more multiplicands.

Natural Numbers: Regular counting numbers.

Negative Number: A number less than zero denoted with the symbol $-$. Negative 3 = -3.

Net: A two-dimensional shape that can be turned into a two-dimensional object by gluing/taping and folding.

Nth Root: The n th root of a number is how many times a number needs to be multiplied by itself to achieve the value specified. Example: the 4th root of 3 is 81 because $3 \times 3 \times 3 \times 3 = 81$.

Norm: The mean or average; an established pattern or form.

Normal Distribution: Also known as Gaussian distribution, normal distribution refers to a probability distribution that is reflected across the mean or center of a bell curve.

Numerator: The top number in a fraction. The numerator is divided into equal parts by the denominator.

Number Line: A line whose points correspond to numbers.

Numerical: A written symbol denoting a number value.

Obtuse Angle: An angle measuring between 90° and 180° .

Obtuse Triangle: A triangle with at least one obtuse angle.

Octagon: A polygon with eight sides.

Odds: The ratio/likelihood of a probability event happening. The odds of flipping a coin and having it land on heads are one in two.

Odd Number: A whole number that is not divisible by 2.

Operation: Refers to addition, subtraction, multiplication, or division.

Ordinal: Ordinal numbers give relative position in a set: first, second, third, etc.

Order of Operations: A set of rules used to solve mathematical problems in the correct order. This is often remembered with acronyms BEDMAS and PEMDAS.

Outcome: Used in probability to refer to the result of an event.

Parallelogram: A quadrilateral with two sets of opposite sides that are parallel.

Parabola: An open curve whose points are equidistant from a fixed point called the focus and a fixed straight line called the directrix.

Pentagon: A five-sided polygon. Regular pentagons have five equal sides and five equal angles.

Percent: A ratio or fraction with the denominator 100.

Perimeter: The total distance around the outside of a polygon. This distance is obtained by adding together the units of measure from each side.

Perpendicular: Two lines or line segments intersecting to form a right angle.

Pi: Pi is used to represent the ratio of a circumference of a circle to its diameter, denoted with the Greek symbol π .

Plane: When a set of points join together to form a flat surface that extends in all directions, this is called a plane.

Polynomial: The sum of two or more monomials.

Polygon: Line segments joined together to form a closed figure. Rectangles, squares, and pentagons are just a few examples of polygons.

Prime Numbers: Prime numbers are integers greater than 1 that are only divisible by themselves and 1.

Probability: The likelihood of an event happening.

Product: The sum obtained through multiplication of two or more numbers.

Proper Fraction: A fraction whose denominator is greater than its numerator.

Protractor: A semi-circle device used for measuring angles. The edge of a protractor is subdivided into degrees.

Quadrant: One quarter (*qua*) of the plane on the Cartesian coordinate system. The plane is divided into 4 sections, each called a quadrant.

Quadratic Equation: An equation that can be written with one side equal to 0. Quadratic equations ask you to find the quadratic polynomial that is equal to zero.

Quadrilateral: A four-sided polygon.

Quadruple: To multiply or to be multiplied by 4.

Qualitative: Properties that must be described using qualities rather than numbers.

Quartic: A polynomial having a degree of 4.

Quintic: A polynomial having a degree of 5.

Quotient: The solution to a division problem.

Radius: A distance found by measuring a line segment extending from the center of a circle to any point on the circle; the line extending from the center of a sphere to any point on the outside edge of the sphere.

Ratio: The relationship between two quantities. Ratios can be expressed in words, fractions, decimals, or percentages. Example: the ratio given when a team wins 4 out of 6 games is $4/6$, $4:6$, four out of six, or $\sim 67\%$.

Ray: A straight line with only one endpoint that extends infinitely.

Range: The difference between the maximum and minimum in a set of data.

Rectangle: A parallelogram with four right angles.

Repeating Decimal: A decimal with endlessly repeating digits. Example: 88 divided by 33 equals $2.6666666666666666\dots$ ("2.6 repeating").

Reflection: The mirror image of a shape or object, obtained from flipping the shape on an axis.

Remainder: The number left over when a quantity cannot be divided evenly. A remainder can be expressed as an integer, fraction, or decimal.

Right Angle: An angle equal to 90° .

Right Triangle: A triangle with one right angle.

Rhombus: A parallelogram with four sides of equal length and no right angles.

Scalene Triangle: A triangle with three unequal sides.

Sector: The area between an arc and two radii of a circle, sometimes referred to as a wedge.

Slope: Slope shows the steepness or incline of a line and is determined by comparing the positions of two points on the line (usually on a graph).

Square Root: A number squared is multiplied by itself; the square root of a number is whatever integer gives the original number when multiplied by itself. For instance, 12×12 or 12 squared is 144, so the square root of 144 is 12.

Stem and Leaf: A graphic organizer used to organize and compare data. Similar to a histogram, stem and leaf graphs organize intervals or groups of data.

Subtraction: The operation of finding the difference between two numbers or quantities by "taking away" one from the other.

Supplementary Angles: Two angles are supplementary if their sum is equal to 180° .

Symmetry: Two halves that match perfectly and are identical across an axis.

Tangent: A straight line touching a curve from only one point.

Term: Piece of an algebraic equation; a number in a sequence or series; a product of real numbers and/or variables.

Tessellation: Congruent plane figures/shapes that cover a plane completely without overlapping.

Translation: A translation, also called a slide, is a geometrical movement in which a figure or shape is moved from each of its points the same distance and in the same direction.

Transversal: A line that crosses/intersects two or more lines.

Trapezoid: A quadrilateral with exactly two parallel sides.

Tree Diagram: Used in probability to show all possible outcomes or combinations of an event.

Triangle: A three-sided polygon.

Trinomial: A polynomial with three terms.

Unit: A standard quantity used in measurement. Inches and centimeters are units of length, pounds and kilograms are units of weight, and square meters and acres are units of area.

Uniform: Term meaning "all the same". Uniform can be used to describe size, texture, color, design, and more.

Variable: A letter used to represent a numerical value in equations and expressions. Example: in the expression $3x + y$, both y and x are the variables.

Venn Diagram: A Venn diagram is usually shown as two overlapping circles and is used to compare two sets. The overlapping section contains information that is true of both sides or sets and the non-overlapping portions each represent a set and contain information that is only true of their set.

Volume: A unit of measure describing how much space a substance occupies or the capacity of a container, provided in cubic units.

Vertex: The point of intersection between two or more rays, often called a corner. A vertex is where two-dimensional sides or three-dimensional edges meet.

Weight: The measure of how heavy something is.

Whole Number: A whole number is a positive integer.

X-Axis: The horizontal axis in a coordinate plane.

X-Intercept: The value of x where a line or curve intersects the x -axis.

X: The Roman numeral for 10.

x : A symbol used to represent an unknown quantity in an equation or expression.

Y-Axis: The vertical axis in a coordinate plane.

Y-Intercept: The value of y where a line or curve intersects the y -axis.

Yard: A unit of measure that is equal to approximately 91.5 centimeters or 3 feet.