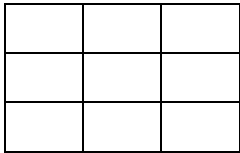


GLOSSARY OF MATHEMATICS TERMS

Acute Triangle – a triangle with all acute angles (acute means measuring less than 90°) – See <http://www.mathsisfun.com/definitions/acute-triangle.html>

Angles are

Area – the size of a region enclosed by the figure – Area is measured in square units (e.g., the area of this rectangle is 6 square units).



Associative property for addition $a + (b + c) = (a + b) + c$; $2 + (3 + 4) = (2 + 3) + 4$.

Associative property for multiplication, $a(bc) = (ab)c$; $2(3 \times 4) = (2 \times 3)4$.

Attributes – for math purposes, “attributes” refer to qualities of shape, color, size, length, etc. (“Attributes” such as character traits of characters from a book do not constitute “mathematical attributes.”)

Base ten blocks – blocks used to learn place value, addition, subtraction, multiplication, and division. Base ten blocks consist of cubes (ones place), rods (tens place), flats (hundreds place), and blocks (thousands place).

Commutative property of addition $a + b = b + a$ ($2 + 1 = 1 + 2$)

Commutative property of multiplication ($3 \times 9 = 9 \times 3$)

Congruent Figures – figures that have the same size and shape

Congruent / Congruence – the same

Denominator – the “bottom” number of a fraction; the number that represents the total number of parts into which one whole is divided (e.g., in $\frac{3}{4}$, the 4 is the denominator and indicates that one whole is divided into 4 parts)

Divisor – a number by which another number is divided (e.g., in the problem $550 \div 10 = 55$, **10** is the divisor – There are 550 pencils; each pack has 10 pencils; how many packs are there? The **10** is the divisor because it tells how many times 550 is to be divided.)

Dividend – the number that is being divided (e.g., in the problem $550 \div 10 = 55$, **550** is the dividend - There are 550 pencils; each pack has 10 pencils; how many packs are there? The **550** is the dividend because it tells how many pencils there are in all to be divided.)

Expression - an operation between numbers that represents a single numeric quantity; expressions do not have an equal sign (e.g., $4r$, $x+2$, $y-1$)

Equation - a mathematical sentence of equality between two expressions; equations have an equal sign (e.g., $n + 50 = 75$ or $75 = n + 50$ means that $n + 50$ must have the same value as 75)

Edge - the line segment where two faces of a solid figure meet - A cube has 12 edges.

Equation - a mathematical sentence of equality between two expressions; equations have an equal sign (e.g., $n + 50 = 75$ or $75 = n + 50$ means that $n + 50$ must have the same value as 75)

Equilateral triangle - a triangle with all three sides of equal length, corresponding to what could also be known as a "regular" triangle - an equilateral triangle is therefore a special case of an isosceles triangle having not just two but all three sides equal. An equilateral triangle also has three equal angles. See <http://www.mathsisfun.com/definitions/equilateral-triangle.html>

Expression - an operation between numbers that represents a single numeric quantity; expressions do not have an equal sign (e.g., $4r$, $x+2$, $y-1$)

Face - a plane surface of a three-dimensional figure,

Fact families - are sets of related math facts. For example:

Addition fact family: $3 + 5 = 8$ $8 - 3 = 5$ $5 + 3 = 8$ $8 - 5 = 3$

Multiplication fact family: $5 \times 4 = 20$ $20 \div 5 = 4$ $4 \times 5 = 20$ $20 \div 4 = 5$

Frequency Table - a table that lists items and uses tally marks to record and show the number of times they occur

Functions - a special kind of relation - In mathematics, what distinguishes a function from a relation is that each x -value in a function has one and only ONE y -value.

Function Table - a table that lists pairs of numbers that show a function.

Inequality - a mathematical sentence in which the value of the expressions on either side of the relationship symbol are unequal; relation symbols used in inequalities include $>$, $<$, (e.g., $7 > 3$, $x < y$)

Input / Output Table - a table that lists pairs of numbers that show a function

Integers - positive and negative whole numbers

Intersecting Lines - lines that cross

Inverse Operations - opposite/reverse operations (e.g., subtraction is the inverse operation of addition, which is why $4 + 5 = 9$ and $9 - 5 = 4$; division is the inverse operation of multiplication, which is why $4 \times 5 = 20$ and $20 \div 5 = 4$)

Linear Equation - an equation that is made up of two expressions set equal to each other (e.g., $y = 2x + 5$) - A linear equation has only one or two variables and graph as a straight line. See <http://www.eduplace.com/math/mathsteps/7/d/index.html>

Line Graph - a graphical representation using points connected by line segments to show how

something changes over time.

Lines of Symmetry – any imaginary line along which a figure could be folded so that both halves match exactly.

Manipulatives - objects that are used to explore mathematical ideas and solve mathematical problems (e.g., tools, models, blocks, tiles cubes, geoboards, colored rods, M&M's, etc.)

Mean - the "average" – To find the mean, add up all the numbers and then divide by the number of numbers.

Median - the "middle" value in the list of numbers - To find the median, your numbers have to be listed in numerical order, so you may have to rewrite your list first (see example below).

Mode - the value that occurs most often - If no number is repeated, then there is no mode for the list. <http://www.purplemath.com/modules/meanmode.htm>

Models – pictorial or tactile aids used explore mathematical ideas and solve mathematical problems – Manipulatives can be used to model situations.

Non-numeric patterns - using symbols, shapes, designs, and pictures to make patterns (e.g., □□△△◇◇□□△△◇◇)

Nonstandard Units of Measure – measurements that are neither metric nor English (e.g., number of footsteps used to measure distance or using a piece of yarn used to measure length)

Number line - a diagram that represents numbers as points on a line; a number line must have the arrows at the end

Numeric patterns – a pattern that uses skip counting, often starting with the number 1 or 2 – Counting by 10s and 2s may also be presented to students beginning with different numbers such as 7 or 23; this is more difficult for students but indicates a deeper understanding of skip counting (e.g., 7, 17, 27, 37, 47... or 7, 9, 11, 13, 15, 17).

Numerals – 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.

Number Sentence – an equation or inequality using numbers and symbols that is written horizontally (e.g., $5 < 7$ or $5 + 7 = 12$)

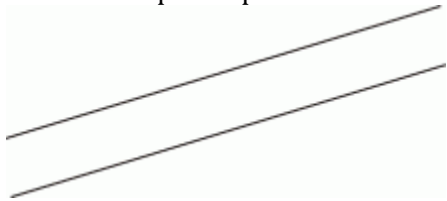
Operations – addition, subtraction, multiplication, and division

Obtuse Triangle – a triangle that has one obtuse angle (obtuse means measuring more than 90°). See <http://www.mathsisfun.com/definitions/obtuse-triangle.html>

Ordered Pair - in the ordered pair (1, 3), the first number **1** is called the x-coordinate; the second number **3** in the ordered pair is called the y-coordinate; this ordered pair represents the coordinates of point A

- The x-coordinate tells the distance right (positive) or left (negative).
- The y-coordinate tells the distance up (positive) or down (negative).

Parallel Lines – lines that are the same distance apart and that never intersect – Lines that have the same slope are parallel.



Pattern - Patterns with a minimum of three terms

- using numbers by repeatedly adding or subtracting

2, 4, 6, 8, 10, 12

0, 3, 6, 9, 12, 15

50, 45, 40, 35, 30, 25

- using objects, figures, colors, sound, etc. - A repeated pattern needs to be at least six terms.

Extend a pattern - When a student is asked to continue a pattern, the pattern is presented, and the student is asked, “What comes next?” before a student can extend or describe a pattern, the given pattern **must be comprised of a minimum of three terms** so that the student can see the regularities of the situation and extend or describe the pattern based on those regularities.

Percent – a way of expressing a fraction as “out of 100” (e.g., 50% means 50 out of 100 or 50/100)

Perpendicular Lines -lines that intersect, forming right angles.

Polygon – a closed plane figure made by line segments

Prediction – a guess based on available information

Quadrilateral – a four-sided polygon

Rational Numbers – any number that can be expressed as a/b ($b \neq 0$) where a and b are integers; also, in decimal form, any terminating or ultimately repeating decimal

Ratios - a comparison between two things - For instance, someone can look at a group of people and refer to the “ratio of boys to girls” in the class. Suppose there are thirty-five students, fifteen of whom are boys; the ratio of boys to girls is 15 to 20.

See: <http://www.purplemath.com/modules/ratio.htm>

Real Life Situations – ways in which mathematical concepts are used in real life.

Real Numbers – all numbers on a number line, including negative and positive integers, fractions, and irrational numbers

Real World Applications – ways in which mathematical concepts are used in real life situations

Rectangle – a four-sided polygon (a flat shape with straight sides) where every angle is a right angle (90°); opposite sides are parallel and of equal length

Right Triangle – a triangle that has one right angle (a right angle measure exactly 90°) – Only a single angle in a triangle can be a right angle or it would not be a triangle. A small square is used to mark which angle in the figure is the right angle.

Sets – group or collection of things that go together (e.g., a group of 4 stars)

Side – (in most general terms) a line segment that is part of the figure - It is connected at either end to another line segment, which, in turn, may or may not be connected to still other line segments.

Similar Figures – figures that have the same shape but different sizes

Similar Shapes – Objects of the same shape but different sizes in which the corresponding angles are the same.

Slope – the steepness/incline/grade of a line

Positive Slope – the condition in which a line inclines from left to right

Negative Slope – the condition in which a line declines from left to right

Square – a four-sided polygon (a flat shape with straight sides) where all sides have equal length and every angle is a right angle (90°)

Square Root Notation – numbers written using a radical $\sqrt{\quad}$

Square Root - a value that can be multiplied by itself to give the original number (e.g., the square root of 25 is 5 because $5 \times 5 = 25$)

Three-dimensional Geometric Figures: The study of solid figures in three-dimensional space: cube, rectangular prism, sphere, cone, cylinder, and pyramid.

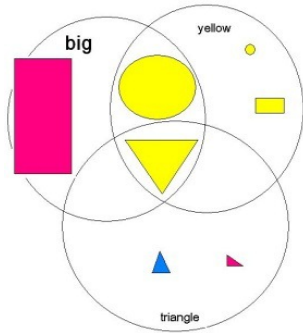
Two-dimensional figures - the study of two-dimensional figures in a plane; drawings of square, rectangle, circle, triangle, pentagon, hexagon, octagon.

Unifix cubes - interlocking cubes that help students learn number and math concepts - Unifix cubes represent “units” and link in one direction. Unifix cubes are used for patterning, grouping, sorting, counting, numbers, addition, subtraction, multiplication, division, and measurement.

Unknown fixed quantities -

Variable - a symbol for a number we don't know yet; it is usually a letter like x or y (e.g., in $x + 3 = 7$, x is the variable)

Venn Diagram - is made up of two or more overlapping circles. It is often used in mathematics to show relationships between sets. A Venn diagram enables students to organize similarities and differences visually.



Vertex - (vertices, pl) - the point(s) where two or more edges meet (corners).

Volume - the amount of 3-dimensional space an object occupies; capacity.

GLOSSARY OF SPECIAL EDUCATION TERMS

Accommodations - Changes in the administration of an assessment, such as setting, scheduling, timing, presentation format, response mode, or others, including any combination of these that does not change the construct intended to be measured by the assessment or the meaning of the resulting scores. Accommodations are used for equity, not advantage, and serve to level the playing field. To be appropriate, assessment accommodations must be identified in the student's Individualized Education Plan (IEP) or Section 504 plan and used regularly during instruction and classroom assessment.

Achievement Descriptors - Narrative descriptions of performance levels that convey student performance at each achievement level and further defines content standards by connecting them to information that describes how well students are doing in learning the knowledge and skills contained in the content standards. (See also "performance descriptors".)

Achievement Levels - A measurement that distinguishes an adequate performance from a novice or expert performance. Achievement levels provide a determination of the extent to which a student has met the content standards. (See also Performance levels.)

Achievement Standard. A system that includes performance levels (e.g., unsatisfactory, proficient, advanced), descriptions of student performance for each level, examples of student work representing the entire range of performance for each level, and cut scores. A system of performance standards operationalizes and further defines content standards by connecting them to information that describes how well students are doing in learning the knowledge and skills contained in the content standards. (See also "performance standards.")

Achievement Test - An instrument designed to efficiently measure the amount of academic knowledge and/or skill a student has acquired from instruction. Such tests provide information that can be compared to either a norm group or a measure of performance, such as a standard.

Age Appropriate - The characteristics of the skills taught, the activities and materials selected, and the language level employed that reflect the chronological age of the student.

Alignment - The similarity or match between or among content standards, achievement (performance) standards, curriculum, instruction, and assessments in terms of equal breadth, depth, and complexity of knowledge and skill expectations.

Alternate Assessment - An instrument used in gathering information on the standards-based performance and progress of students whose disabilities preclude their valid and reliable participation in general assessments. Alternate assessments measure the performance of a relatively small population of students who are unable to participate in the general assessment system, even with accommodations, as determined by the IEP Team.

Assessment - The process of collecting information about individuals, groups, or systems that relies upon a number of instruments, one of which may be a test. Therefore, assessment is a more comprehensive term than *test*.

Assessment Literacy - The knowledge of the basic principles of sound assessment practice including terminology, development, administration, analysis, and standards of quality.

Assistance - (vs. support) The degree to which the teacher provides aid to the student's performance that provides direct assistance in the content or skill being demonstrated by the

student. That is, the assistance involves the teacher performing the cognitive work required. Assistance results in an invalidation of the item or score. (See also “support”.)

Assistive Technology - A device, piece of equipment, product system or service that is used to increase, maintain, or improve the functional capabilities of a student with a disability. (See 34 CFR §§300.5 and 300.6.)

Cues - Assistance, words, or actions provided to a student to increase the likelihood that the student will give the desired response.

Curriculum - A document that describes what teachers do in order to convey grade level knowledge and skills to a student.

Depth - The level of cognitive processing (e.g., recognition, recall, problem solving, analysis, synthesis, and evaluation) required for success relative to the performance standards.

Disaggregation - The collection and reporting of student achievement results by particular subgroups (e.g., students with disabilities, limited-English-proficient students) to ascertain the subgroup’s academic progress. Disaggregation makes it possible to compare subgroups or cohorts.

Essence of the Standard is that which conveys the same ideas, skills and content of the standard, expressed in simpler terms.

Grade Band Essential Element - A statement of essential precursor content and skills linked to the Common Core State Standards grade level clusters and indicators that maintain the essence of that standard, thereby identifying the grade-level expectations for students with significant cognitive disabilities to access and make progress in the general curriculum.

Grade Level - The grade in which a student is enrolled.

Individualized Education Program (IEP) - An IEP is a written plan, developed by a team of regular and special educators, parents, related service personnel and the student, as appropriate, describing the specially designed instruction needed for an eligible exceptional student to progress in the content standards and objectives and to meet other educational needs.

Linked - A relationship between a Grade Level Indicator for Common Core State Standards and Common Core Essential Elements that reflects similar content and skills but does not match the breadth, depth, and complexity of the standards.

Multiple Measures - Measurement of student or school performance through more than one form or test.

- For students, these might include teacher observations, performance assessments or portfolios.
- For schools, these might include dropout rates, absenteeism, college attendance or documented behavior problems

Natural Cue - Assistance given to a student that provides a flow among the expectations presented by the educator, opportunities to learn, and the desired outcome exhibited by the student.

Opportunity to Learn - The provision of learning conditions, including suitable adjustments, to maximize a student’s chances of attaining the desired learning outcomes, such as the mastery of content standards.

Readability - The formatting of presented material that considers the organization of text; syntactic complexity of sentences; use of abstractions; density of concepts; sequence and organization of ideas; page format; sentence length; paragraph length; variety of punctuation;

student background knowledge or interest; and use of illustrations or graphics in determining the appropriate level of difficulty of instructional or assessment materials.

Real-world Application - The opportunity for a student to exhibit a behavior or complete a task that he or she would normally be expected to perform outside of the school environment.

Response Requirements - The type, kind, or method of action required of a student to answer a question or testing item. The response may include, but is not limited to, reading, writing, speaking, creating, and drawing.

Stakeholders - A group of individuals perceived to be vested in a particular decision (e.g., a policy decision).

Standardized - An established procedure that assures that a test is administered with the same directions, and under the same conditions and is scored in the same manner for all students to ensure the comparability of scores. Standardization allows reliable and valid comparison to be made among students taking the test. The two major types of standardized tests are norm-referenced and criterion-referenced.

Standards - There are two types of standards, content and achievement (performance).

- **Content standards.** Statements of the subject-specific knowledge and skills that schools are expected to teach students, indicating what students should know and be able to do.
- **Achievement (Performance) standards.** Indices of qualities that specify how adept or competent a student demonstration must be and that consist of the following four components:
 - levels that provide descriptive labels or narratives for student performance (i.e., advanced, proficient, etc.);
 - descriptions of what students at each particular level must demonstrate relative to the task;
 - examples of student work at each level illustrating the range of performance within each level; and
 - cut scores clearly separating each performance level.

Standards-based Assessments - Assessments constructed to measure how well students have mastered specific content standards or skills.

Test - A measuring device or procedure. Educational tests are typically composed of questions or tasks designed to elicit predetermined behavioral responses or to measure specific academic content standards.

Test Presentation - The method, manner, or structure in which test items or assessments are administered to the student.

Universal Design of Assessment - A method for developing an assessment to ensure accessibility by all students regardless of ability or disability. Universal design of assessment is based on principles used in the field of architecture in which user diversity is considered during the conceptual stage of development.

**Adapted from the Glossary of Assessment Terms and Acronyms Used in Assessing Special Education Students: A Report from the Assessing Special Education Students (ASES) State Collaborative on Assessment and Student Standards (SCASS)*

