ADULT LITERACY & NUMERACY, NUMERACY GLOSSARY

A

Additive strategies

The methods used by learners to count, add, subtract, multiply and divide numbers. They include counting strategies and partitioning strategies.

Algorithm

A procedure that can be followed mechanically to find a solution.

Attribute

A quality or feature of something, for example, in a geometrical figure, “the opposite sides are parallel”, or “all the angles are equal”, or “it has line symmetry”.

Axis (plural: axes)

A reference line. An axis of symmetry is any line along which a figure can be ‘folded’ so that one half fits exactly over the other.

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B

Basic facts

The sums (additions) and products (multiplications) of all pairs of whole numbers from 0 to 9. These need to be memorised. The sums of single-digit numbers added to 10 can be called ‘teen facts’. The sums obtained by adding single-digit numbers to whole numbers that are multiples of 10 can be called ‘decade facts’. The facts for the sums of multiples of 10, 100, etc. (for example, 30 + 40, 500 + 600) are sometimes called ‘place value facts’.

Bearings

The direction of one point as viewed from another, measured as an angle, clockwise from north; usually written as a three-digit number, for example, 015 degrees.

Bisector

A line that divides an angle or another line exactly in two.

Box plot (box-and-whisker)

A way of comparing two or more sets of data: a thin rectangular ‘box’ shows the extent of the interquartile range of the data (that is, from one-quarter to threequarters), a line through the box shows the median; and the ‘whiskers’ extend beyond the rectangle to show the range of the data.

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C

Category data / categorical data

Data that categorise information according to some attribute (such as colour) rather than by measurement or counting.

Cognition

The process of acquiring knowledge. Cognitive skills are the skills used in acquiring knowledge.

Common factor

A whole number that divides exactly into two or more other numbers.

Compensating

Taking actions to offset the effects of other actions. For example, 18 + 25 can be solved using a strategy in which 2 is added to 18 to make the tidy number 20, and to compensate, 2 is subtracted from 25: 18 + 25 = 20 + 23 = 43.

Complementary events

One of a pair of events where one or other event must occur.

Congruence

Being identical in size and shape.

Counting all objects

A strategy for adding or subtracting groups of objects by counting each object, one at a time (compare this with counting on, a more sophisticated strategy that does not involve going back to 1).

Counting unit

Any numerical unit used as the basis for counting, for example, ones (1, 2, 3 ...), tens (10, 20, 30 ...).

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Data

Information (obtained by measurement, counting or categorisation) that is used for reference or analysis.

Decade facts

Sums in which a single-digit number is added to a multiple of 10, for example, 30 + 3 = 33 (see also Basic facts).

Decimal

A number written with a decimal point, such as 6.25. The part before the point is a whole number amount, and the part after the point is a fraction less than 1 (this fraction has a denominator that is a power of 10, and its numerator is expressed by figures placed to the right of the decimal point, for example, 0.78, 0.5).

Denominator

The bottom part of a fraction, which indicates the number of equal parts a whole is divided into. For example, 1/6, 5/6, 7/6, 8/6 are all fractions of a whole divided into six equal parts.

Deriving from known facts

Using memorised number facts to find the answer.

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Equal sharing

Working out how many times one number goes into another by repeated one-to-one matching. For example, to find out how many times 2 goes into 6, six items are divided into two equal piles.

Equivalent fractions

Fractions that represent the same value, such as 8/6 and 4/3.

Exponents

Powers, as in 103, which is a shorthand way of writing 10 x 10 x 10, or 1,000 (in this case, the exponent or power is 3).

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Fraction

A numerical quantity that is not a whole number, for example, five-tenths, 1/4, 0.45.

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Histogram

A statistical graph in which data is represented by adjoining vertical bars. The bars are usually of equal width, in which case their height is a measure of frequency (that is, of ‘how many’ or ‘how much’).

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Integers

All numbers in the set {... -3, -2, -1, 0, 1, 2, 3 ...}. This set specifically excludes all fractional numbers.

Interquartile range

In statistics, the difference between the upper and lower quartiles. The quartiles can be found by lining up, in order of size, the set of all values to be included, then selecting the values that are one-quarter of the way from the bottom and one-quarter of the way from the top (see also Box plot).

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K

Known fact

A number fact, such as 14 + 6 = 20, that the learner knows from memory (see also Deriving from known facts).

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Line symmetry

A figure that has this attribute can be folded (at least metaphorically) onto itself, the two halves matching perfectly (line symmetry is also commonly known as reflective symmetry).

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M

Mean

The average of a set of quantities.

Median

The middle number in a set of numbers that has been arranged in order of size.

Mental strategy

An in-the-head process the learner chooses to use to solve a problem.

Multi-variate data

Data that contains information on three or more attributes or variables for each item in the set (for example, age, height and weight).

Multiplicative strategies

The number strategies that learners use to solve multiplication and division problems. They include counting and partitioning strategies.

Mutually exclusive events

Events that cannot both occur.

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Number knowledge

The key kinds of knowledge about number that learners need to know, including number identification, number sequence and order, grouping and place value and basic facts.

Number strategies

The counting and partitioning strategies learners use to estimate answers and solve number problems.

Numerator

The top part of a fraction; indicates the number of equal parts chosen. For example, the numerator in the fraction 5/2 tells us this fraction is equivalent to five fractions of the 1/2 kind.

Numerical data

Data that are expressed in number form (rather than by categories).

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One-to-one counting

Counting in single numbers; counting by ones.

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P

Partition

To split numbers into parts, for example, by place value (536 is five hundreds, three tens and six ones).

Partitioning strategies

Strategies that are based on splitting numbers into two or more parts and then combining them in a different way, for example, 26 + 9 can be partitioned into 26 + 4 + 5 and then combined as 30 + 5.

Percentage

A rate expressed as a number or amount out of each hundred.

Pictograph

A pictorial representation of some statistical information (often category data).

Place value

In our number system, the value of any digit depends on its place. For example, the place value of the 7 in the number 3,715 is 700, because the 7 is in the hundreds place.

Plane shape

A shape that has length and breadth but no depth; a two-dimensional shape.

Power of

The product obtained when a number is multiplied by itself a given number of times (the ‘power’ gives the number of times).

Prism

Any geometrical solid with identical parallel ends and straight sides.

Progression

A set of steps along a continuum, each step representing a significant learning development (refer **here** for more information).

Proportional reasoning

Reasoning that is based on comparing the relative size of objects (using multiplication or division) rather than their absolute size (using addition or subtraction).

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Range

In statistics, the difference (found by subtraction) between the least and greatest values in a data set.

Reasonableness

A judgment about an answer based on the learner asking: “Bearing in mind the known details and the context, is the answer reasonable/plausible?”

Repeated addition

Adding the same number multiple times in order to find the answer to a multiplication problem. For example, finding the answer to 3 x 4 by saying 4 + 4 + 4 = 12.

Rotational symmetry

A figure with rotational symmetry fits exactly onto itself more than once as it is rotated through a complete turn.

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Scatter plot

A graph on which the values of two variables are plotted as points. The pattern of the points suggests what kind of relationship (if any) exists between the two variables.

Skip-count

To count in regular amounts, skipping the intervening numbers, for example, counting in threes: 3, 6, 9 …

Spread

In statistics, the extent to which data are clustered round some central value.

Stem-and-leaf plot

A way of ordering data in order of size, from least to greatest value. Two-digit numbers are sorted first by the tens digit and then by the ones digit.

A data set consisting of the numbers 12, 67, 5, 20, 10, 17, 22 and 78 can be arranged in a table in which the tens digits are the stems and the ones digits the leaves:

Figure 1: stem-and-leaf plot example

Stem	Leaf
0	5
1	0, 2, 7
2	0, 2
6	7
7	8

Strategies

Knowledge, skills and/or awareness combined and used for a particular purpose.

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T

Teen facts

Sums in which a single-digit number is added to 10. For example, 10 + 3 = 13 (see also Basic facts).

Tidy numbers

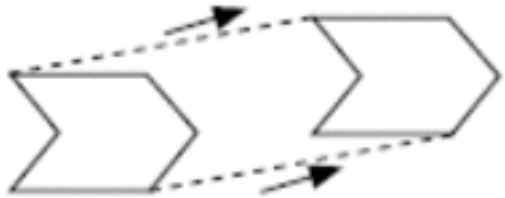
Numbers that end in a 0 (10 and multiples of 10).

Time-series data

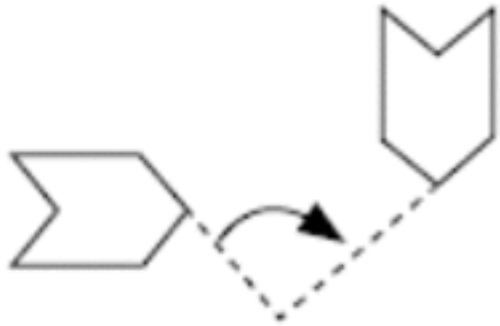
A set of observations, usually measurements or counts, ordered by time (for example, a shop's daily takings for each day in May).

Transformations

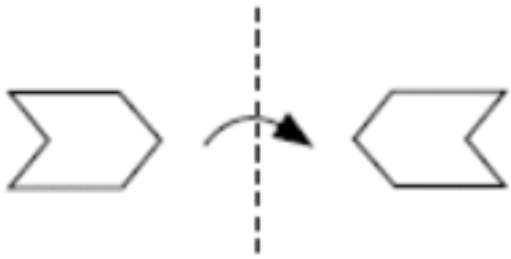
Changes in position and size of a shape. Translation (or slide) is the movement of a shape so that all its points move the same distance in the same direction.



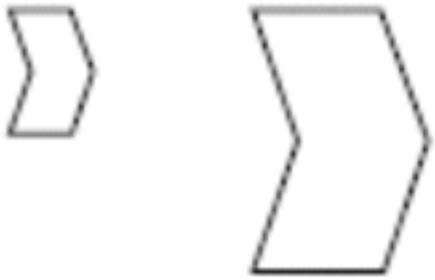
Rotation (or turn) is the movement of a shape when it is turned through an angle about a point in a plane.



Reflection (or flip) is the movement of a shape when it is reflected (or flipped) over a line in the plane of the figure.



Dilation is an enlargement or reduction of a shape in which all the linear measures are multiplied by the same number (called the scale factor).



Tree diagram

A diagram that systematically represents all outcomes for a sequence of events.

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Unit fraction

Any fraction that has a numerator of 1, for example, 1/3, 1/9, 1/2 .

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V

Variable

A symbolic quantity, often represented by a letter such as x, that may take many values, for example, personal income, height.

Vertex (plural: vertices)

Each angular point (‘corner’) of a polygon, polyhedron or other figure.

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Whole numbers

All numbers in the set {0, 1, 2, 3 ...}. This set excludes all negative and all fractional numbers.