



Maths

Numbers and Calculating

Place Value	The value of all the digits in a number. For example, in the number 627, the digit '2' is worth 20, the digit '6' is worth 600.
Partitioning	Partitioning is dividing a number into the individual values of its digits, and helps children to understand the values of these digits. For example 782 can be partitioned into $700 + 80 + 2$.
Recombining	Recombining is putting the individual digit place values of a number back together to make the original number. For example $200 + 50 + 3$ is recombined to make 253.
Even Numbers	All numbers that are exactly divisible by 2. Even number always end with 0, 2, 4, 6, 8
Odd Numbers	All numbers which are not exactly divisible by 2. Odd numbers always end with 1, 3, 5, 7, 9
Estimate	Sometimes called an 'educated guess'. Estimating is roughly guessing a number of objects or the answer to a calculation based on existing knowledge.
Operation	The four mathematical operations are addition, subtraction, multiplication and addition.
Calculation	Working out the amount or number of something using one of the four operations (addition, subtraction, multiplication, division)
Number sentence	An arrangement of numbers and symbols. EG $4 + 3 = 7$ is an addition number sentence.
Sum	The result of adding two numbers together.
Addition	Finding the total value of two or more numbers. + is the symbol
Subtraction	Taking one number away from another number, Finding the difference between the two. Subtraction is also used to find how much 'more than' or 'less than' one number is from another - to compare numbers or amounts. - is the symbol
Multiplication	Finding how many altogether in a given number of equal sized groups. Represented by the symbol 'x'. EG. 3×2 can be referred to as 3 lots of/groups of 2.
Division	The process of dividing a number into equal parts and finding how many equal parts can be made. \div is the symbol
Number bonds	Pairs of numbers that add up to a specific number. For example, the number bonds to 10 are $10 + 0$, $9 + 1$, $8 + 2$ and so on. Children are taught these bonds early on, as they help calculation skills and also show patterns that are repeated for other number bonds, for example to 20 or 100.
Number facts	Basic addition, subtraction, multiplication and division facts that children should learn to recall instantly to support more complex calculations. Examples include number bonds and multiplication tables. Also known as 'Learn It' facts as the children learn to recall these from memory.

Commutativity	<p>Addition and multiplication have the property of commutativity – when two numbers are added or multiplied, this can be done in any order and the same answer will be obtained: $3 + 2 = 5$, $2 + 3 = 5$; $4 \times 6 = 24$, $6 \times 4 = 24$.</p> <p>Subtraction and division are not commutative.</p>
Inverse operation	<p>The calculation which is opposite to a given calculation, and effectively reverses it. Addition is the inverse of subtraction. multiplication is the inverse of division. So for the calculation $4 + 3 = 7$, the following calculations also apply: $3 + 4 = 7$ (commutativity), $7 - 4 = 3$, $7 - 3 = 4$.</p> <p>For the calculation $3 \times 2 = 6$, we can also say $2 \times 3 = 6$ (commutativity), $6 \div 2 = 3$, $6 \div 3 = 2$.</p>
Fact Family	A set of 4 related number facts based around inverse operations.
Switcher	The swapping of digits in a number sentence when they can be calculated in any order. (commutativity) EG in addition, the switcher for $2 + 3 = 5$ is $3 + 2 = 5$.
Finding the difference	A way of carrying out subtraction calculations by finding the numerical difference between two numbers. So to solve the number sentence $47 - 34$, find the difference between 34 and 47. Most often taught by using a number line to count on from the smaller to the bigger number.
Bridging through 10	This refers to adding two numbers whose total is greater than 10. Children are taught to count on to 10 using their number bonds and then add the remainder of the number to 10. EG $7 + 9$. We bridge from 7 to 10 by adding 3 which leaves 6 from the original 9 to left to add.
Multiple	A multiple is a number that can be divided by another number a certain number of times without a remainder. In the number sentence $4 \times 5 = 20$, 20 is a multiple of 4 and a multiple of 5.
Multiplication fact	The answer to a multiplication calculation. For example in $3 \times 3 = 9$, the multiplication fact is 9.
Multiplication tables	The multiplication calculations for all numbers from 1×2 to 12×10 . Usually grouped by the number being multiplied. Children begin by learning the 2x, 5x and 10x tables in Key stage 1. The English curriculum requires that multiplication tables and the related division facts are known by heart by the end of Year 4 when they complete a multiplication check.
Repeated addition	<p>A way of teaching about multiplication as the repeated grouping of the same number. For example, 4×2 is the same as four groups of 2, or $2 + 2 + 2 + 2$.</p> <p>Children learn that these number sentences are equivalent (mean the same)</p>
Repeated subtraction	A way of teaching about division as the repeated subtraction of the same number down to zero. For example, $15 \div 3$ is the same as 15 shared into 3 groups of 5, or $15 - 5 - 5 - 5 = 0$.
Sharing	Children learn early on how to share a number of objects into equal groups. This develops an early understanding of division.
Remainder	The amount left over when a number cannot be exactly divided by another number. For example, if we divide 10 by 3, we get three groups of 3 with a remainder of 1.
Word problem	A mathematical calculation presented in words. Pupils are taught to find the key information, work out what type of calculation is needed and then work out the answer.

Two-step and multi-step problems	Word problems which require pupils to work out more than one step in order to find the eventual answer. Answering the second part of the question requires information derived from the first part, etc.
Working	Written work which supports finding an eventual answer to a calculation or a problem. Important as it shows how a pupil tackled the problem and the skills they used to work out the problem.
Written method	A way of carrying out a calculation which is done on paper rather than entirely mentally.
Number line	A visual representation of numbers along a horizontal line. Can start at zero or represent a set of numbers from elsewhere in the number system. Used to support counting, place value and calculation skills.
Number square	A set of numbers written in sequence in a square format. Often used with numbers from 1 to 100, it is a valuable primary school teaching aid as it teaches number sequences and patterns, as well as basic addition and subtraction.
Equation	A number sentence where both sides are equal in value – for example $10 + 2 = 8 + 4$
Column Method	A method of calculation where the numbers to be added or subtracted are set out above one another in columns. The calculation is done by 'exchanging' numbers from column to column. (Expanded column method shows the addition/subtraction of the ones given as one row and the tens as a row below and these are then 'recombined' as the final answer)
Concrete Materials	Anything which children may use to help them carry out practical maths activities, for example counters to help with addition, cubes and rods for place value or playdough to make 3D shapes. (May also be called apparatus)
Dienes/Base 10	Wooden or plastic cubes, rods and flats used to support children in learning place value. Each small cube represents one unit, a rod represents 10, a flat represents 100 and a large cube represents 1000.
Jottings	Informal written work done to help to work out the answer to a calculation or a problem. EG drawing tens and ones to count the total when adding.
Array	A pictorial representation to help children understand multiplication and division. This is usually shown as rows of dots for example 2×3 would be two rows of three dots.
Mental method	Calculations and problem solving carried out mentally, without the need to write down any working out. Also known as 'Brain Only'
Fraction	A fraction is a number which represents part of a whole. EG. $\frac{1}{2}$
Unit fraction	A fraction where the numerator is 1 and the denominator is a whole number.
Numerator	In a fraction, the number above the line.
Denominator	In a fraction, the number below the line.
Ordering	Putting numbers in the correct order according to size. Ascending order goes smallest to largest, descending order from largest to smallest. Ordering also involves using the greater than, less than and equals symbols ($<$, $>$ and $=$).
Greater than ($>$) and less than ($<$)	Symbols used to show the relative size of numbers. The wide end of the symbol always faces the larger number, EG $25 > 10$.

Measuring	
Measurement	In Maths, children learn about different forms of measurement, including length, weight (mass), capacity, time and temperature.
Standard and non-standard units	Standard units are the common units used in measurement, for example centimetres, litres, grams. Non-standard units are used for measurement with younger children, to introduce them to the concept of measuring - for example, they might investigate how many cupfuls of sand fill a bucket, or how many cubes weigh the same as a book.
Capacity	This term is used when measuring the maximum amount that a container can hold when it is full. Measured in millilitres (ml) or litres (l)
Volume	The amount of space taken up by an object or liquid.
Mass	This refers to the weight of an object. It is measured in grams (g) and kilograms (kg).
Analogue clock	A clock which tells the time using an hour hand to indicate the hour and a minute hand to indicate the minutes past and to the hour.
Digital clock	A clock which tells the time using numbers only.
Time interval	The length of time between two given times.
Geometry/Shape	
2D shapes	Shapes which are flat, having only two dimensions – height/length and width.
Regular shapes	2D shapes with closed sides, where all sides are the same length and all angles are the same.
Irregular shapes	2D shapes whose sides and angles are not all the same.
Polygon	A 2D shape with straight, fully closed sides. A polygon can have any number of sides. The most common are triangles, squares, hexagons etc.
Corner	Also known as a vertex/vertices. The place on a 3D shape where three faces meet. Also used to describe the angles of a 2D shape.
Side	One of the lines, straight or curved, which encloses a 2D shape.
3D shapes	Shapes which have a solid form, having 3 dimensions – height/length, width and depth.
Edge	The place on a 3D shape where two faces meet.
Face	Any surface of a 3D shape. Faces can be flat or curved and of many different shapes.
Vertex/vertices	Also known as corner/s. The place on a 3D shape where three faces meet. Also commonly used to describe the corners of a 2D shape.
Net	What a 3D shape would look like if it was opened out flat.
Right angle	An angle of exactly 90°. The two lines which make a right angle are perpendicular.
Perpendicular	Lines which intersect at a right angle are perpendicular. (They make a shape like an L)
Horizontal	A horizontal line runs from left to right joining equivalent points on two opposite sides of a shape.

Vertical	A line which runs up and down a page or shape, from top to bottom.
Reflective symmetry	When a shape or pattern is reflected in a mirror line or line of symmetry. The reflected shape will be an exact mirror image of the original, the same size and the same distance from the mirror line.
Reflection of shapes	Drawing the reflection of a shape in a mirror line means drawing the shape on the other side of the line as if it has been flipped over the line.
Mirror line	A line which can be drawn onto a shape to show that both sides have exact reflective symmetry.
Turn	A movement in a space, either clockwise or anticlockwise. A quarter turn is 90° , a half turn is 180° , a three-quarter turn is 270° and a full turn is 360° .
Clockwise and anti-clockwise	A way of indicating the direction of a turn. Clockwise involves a turn to the right as if following the hands of a clock, anti-clockwise involves a turn to the left, against the direction of a clock's hands.