Fern Hill Mathematical Glossary

Acute angle	An **angle** of less than 90°.
Addition	Finding the total value of two or more numbers. Denoted by the symbol '+'.
Analogue clock	A clock which tells the time using an hour hand to indicate the hour and a minute hand to indicate minutes to and past the hour.
Angle	The space between two intersecting lines, measured in **degrees**.
Area	The amount of space taken up by a 2D shape. Measured in square centimetres, metres etc. Also shown as cm^2, m^2 and so on.
Arithmetic	Maths which deals with the properties of numbers and how to manipulate numbers using the four **operations**.
Array	A pictorial representation to help children understand multiplication and division. Typically shown as rows of dots, for example, 2 x 3 would be shown as two rows of three dots.
Arrow cards x	Used to help children understand **partitioning** and **recombining** in place value, Each card shows a hundreds, tens or ones number, e.g. 200, 500, 50, 70, 3, 4, and can be placed on top of one another to make 2- and 3-digit numbers and so on.
Average	The average of a set of values is the 'middle' value, calculated by finding the total of the values then dividing by the number of values.
Axes	The **horizontal** and **vertical** lines used to frame a **graph** or **chart.**
Bar chart	A chart that displays information using blocks of different heights displayed on **axes**.
Block graph	A simple **chart** which displays information using blocks, displayed on a **horizontal axis** labelled with categories, and a **vertical axis** labelled with numbers. Each block represents one unit.
BODMAS	This acronym helps children to remember what order they should do calculations in a multi-step calculation. It stands for Brackets, Orders, Division, Multiplication, Addition, Subtraction.
Bridging through 10	A mental method of adding two numbers whose total is greater than 10. Pupils are taught to count on to 10 and then add the remainder of the number to 10. For example: 7 + 9 – bridging from 7 to 10 requires 3, which leaves 6 (from the original 9), 10 + 6 = 16.
Calculation	Working out the amount or number of something, usually by using one of the four **operations.**
Capacity	The term used when measuring how much fluid fits inside a container. Measured in millilitres and litres.
Cardinal numbers	Numbers used to count a set of objects and give information about quantity – one, two, three, four and so on.
Carroll diagram	A way of sorting and presenting information using columns and rows.
Chunking	A method used for dividing large numbers. Children are taught to use rough estimates of how many times a number will go into another number and then to adjust until the right answer is found (**repeated subtraction** of the **divisor** and multiples of the **divisor** – in other words, working out how many groups of a number fit into another number).
Circle	A 2D shape with one curved **face** and no **vertices**.
Circumference	The measurement of the distance all the way around the outside of a **circle**.
Clockwise and	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

anti-clockwise	the left, against the direction of a clock's hands.
Coordinates	The numbers which show the position of a particular point in space – for example on a map or a graph. The points are marked according to numbers of the **horizontal axis** (x-axis) and **vertical axis** (y-axis).
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.
Commutativity	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: $3 + 2 = 5$, $2 + 3 = 5$; $4 \times 6 = 24$, $6 \times 4 = 24$. Subtraction and division are not commutative.
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.
Cone	A **3D shape** with two **faces**, one circular, one **edge** and one **vertex.**
Converting into the same units	Understanding the connection between units of measurement and how they can be converted one to another. For example, length can be measured in centimetres or metres; there are 100cm in a metre.
Corner	Used to describe the angles of a **2D shape**.
Cube	A **3D shape** with six square **faces**, 12 **edges** and eight **vertices**.
Cube numbers	A number which is the result of multiplying a number by itself and then by itself again. For example 27 is the cube number of 3: $3 \times 3 \times 3 = 27$, $3^3 = 27$
Cuboid	A **3D shape** with six **faces**, some or all of which are rectangular, 12 **edges** and eight **vertices**.
Cylinder	A **3D shape** with two circular **faces**, one rectangular **face**, two **edges** and no vertices.
Data handling	Now known as **Statistics**. The area of maths which looks at representation and analysis of information through charts and graphs.
Decimal	A decimal number is expressed in the scale of tens. More simply, numbers are referred to as decimal if they contain a decimal point and represent a whole number plus a fraction of a whole number (tenths, hundredths, etc.)
Degree	The unit of measurement for angles and also for temperature. Represented by the symbol ° for angles (e.g. 90°) or °C (degrees Centigrade) and °F (degrees Fahrenheit) for temperature.
Denominator	In a **fraction**, the number below the line.
Diagonal	A straight line that joins two **vertices** of a shape that are not next to each other.
Diameter	A straight line that joins two points on the **circumference** of a **circle** and passes through the centre.
Dienes	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.
Digital clock	A clock which tells the time using numbers only.
Division	The process of dividing a number up into equal parts, and finding how many equal parts can be made and whether there is a **remainder**. It is represented by the symbol '÷' or sometimes '/'.
Division fact	A division **number sentence** related to the **times tables**. For example, the division fact $16 \div 4 = 4$ is related to the 4x table.

Divisor	The number of groups that a number is to be divided into as part of a division calculation e.g. in the calculation 10 ÷ 5 the divisor is 5.
Edge	The place on a 3D shape where two **faces** meet.
Equation	A **number sentence** where both sides are equal – for example 10 + 2 = 8 + 4
Equilateral triangle	A **triangle** with three equal sides and three equal angles.
Equivalent fractions	Fractions which represent the same amount but are expressed using different numbers. For example $^{1}/_{3}$ is the same as $^{2}/_{6}$ and $^{4}/_{12}$.
Estimate	Sometimes called an 'educated guess'. Estimating is roughly guessing a number of objects or the answer to a calculation based on existing knowledge.
Even numbers	All numbers that are exactly divisible by 2. Even numbers always end with 0, 2, 4, 6 or 8.
Exchanging	The correct terminology for the 'carrying/borrowing' in column addition and subtraction.
Expanded method	Writing number sentences where the numbers have been **partitioned**. For example 43 + 26 could be written as 40 + 3 + 20 + 6.
Face	Any flat surface of a **3D shape**. Faces can be flat or curved and of many different shapes.
Factor	A **factor** is one of two or more numbers that divides a given number without a remainder. In the number sentence 4 x 5 = 20, both 5 and 4 are factors of 20.
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.
Formula	A formula is a group of mathematical symbols and numbers that show how to work something out. Formulae children will learn in primary school include the formula for calculating the **perimeter** and **area** of **2D shapes** and the formula for the **volume** for **3D shapes**.
Fraction	A fraction is a number which represents part of a whole. It can be represented using a **numerator** and **denominator** e.g. $^{1}/_{2}$, or as a **decimal** e.g. 0.5.
Geometry	The study of shape, position and movement. Includes such aspects as **2D and 3D shapes**, **angles, symmetry**, pattern, **tessellation**, turns and position.
Graph	A pictorial way of representing and comparing information. Types taught in primary school include **block graphs, bar charts, pictograms, pie charts** and **line graphs**.
Greater than (>) and less than (<)	The inequality signs used to show the relative size of numbers. The wide end of the symbol always faces the larger number, e.g. 25 > 10.
Grid method	The **grid method** is a written technique used to teach children multiplication. It involves partitioning numbers into tens and units before they are multiplied, and placing them in a grid. The numbers are then multiplied two by two and the results are added together to give a total answer.
Hexagon	A **2D shape** with six **sides** and six **vertices**.
Highest common	The highest common factor of two numbers is the largest whole number which is a

factor	**factor** of both.
Horizontal	A horizontal line runs from left to right joining equivalent points on two opposite sides of a shape.
Improper fraction	An improper **fraction** has a higher number on top (the **numerator**) than the bottom (the **denominator**).
Integer	See **whole number**
Inverse operation	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. For the calculation 3 x 2 = 6, we can also say 2 x 3 = 6 (**commutativity**), 6 ÷ 2 = 3, 6 ÷ 3 = 2.
Investigation	Maths investigations require pupils to apply skills and knowledge to solving problems. Investigations differ from **word problems** because there isn't always just one way of one way of working them out, and the solution might have to be found through trial and error. Sometimes there may be several answers.
Irregular shapes	**2D shapes** whose sides and angles are not all the same.
Isosceles triangle	A **triangle** with two **sides** the same length and two **angles** the same size.
Jottings	Informal written work done to help to work out the answer to a calculation or a problem.
Line graph	A **graph** used to show changes over time, for example changes in temperature through a day. It is created by plotting points and joining them with straight lines.
Long division	A written method of dividing a large number, usually by another large (at least 2-digit) number.
Long multiplication	A written method of multiplying two large numbers.
Lowest common dominator	The smallest number that is exactly divisible by the **denominator** of a set of fractions. For example, the lowest common denominator of ½, ¾ and $^{5}/_{6}$ would be 12, as it the smallest number divisible by 2, 4 and 6.
Lowest common multiple	The lowest common **multiple** of two whole numbers is the smallest number that is a **multiple** of both. For example, the lowest common multiple of 3 and 4 is 12.
Mass	This refers to the weight of an object. It is measured in grams (g) and kilograms (kg).
Mean	In a set of data, the mean is the total sum of all the values divided by the number of values in the set. A type of average.
Measurement	In Maths, children learn about different forms of measurement, including length, weight (**mass**), **capacity**, time and temperature.
Median	The middle number in a list of numbers that has been ordered from smallest to largest. So in the list 2, 2, 3, 3, **3**, 4, 5, 6, 6 the median value is 3. A type of average.
Mental method	Calculations and problem solving carried out mentally, without the need to write down any working out.
Mirror line	A line which can be drawn onto a shape to show that both sides have exact **reflective symmetry**.
Mixed number	A number that is made up of a **whole number** and a **fraction**, for example 3½.
Mode	The value that appears most often in a set of data. So in the list 2, 2, 3, 3, 3, 4, 5, 6, 6 the modal number is 3 as it appears most often. A type of average.

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 x 5 = 20, 20 is a multiple of 4 and a multiple of 5.
Multiplication	Finding how many altogether in a given number of equal sized groups. Represented by the symbol 'x'.
Multiplication fact	The answer to a multiplication calculation. For example in 3 x 3 = 9, the multiplication fact is 9.
Multiplication tables	The multiplication calculations for all numbers from 1 x 2 to 12 x 10. Usually grouped by the number being multiplied. Children begin by learning the 2x, 5x and 10x tables, and the English curriculum requires that multiplication tables and the related division facts are known by heart by the end of Year 6.
Multiplier	The number by which a given quantity is multiplied. So in the calculation 5 x 3 = 15, the multiplier is 5.
Negative number	A number that is less than zero, for example -3, -52.
Net	What a **3D shape** would look like if it was opened out flat.
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**.
Number ladder	A vertical version of a **number line**.
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 sentence	An arrangement of numbers and symbols. 3 + 4 = 7 is an **addition** number sentence, 7 – 3 = 4 is a **subtraction** number sentence. 3 x 5 = 15 is a **multiplication** number sentence, 15 ÷ 3 = 5 is a **division** number sentence.
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.
Numerator	In a **fraction**, the number above the line.
Numicon	A primary school teaching aid consisting of plastic tiles with holes which represent the numbers 1 to 10 and can be used to teach place value, ordering and calculation.
Oblong	A **quadrilateral** with two pairs of parallel sides, and adjacent sides of different lengths. (Referred to as **rectangle** in the UK).
Obtuse angle	An **angle** greater than 90° but less than 180°.
Odd numbers	All whole numbers which are not exactly divisible by 2. Odd numbers always end in 1, 3, 5, 7 or 9.
Octagon	A **2D shape** with eight **sides** and eight **vertices**.
Operation	The four mathematical operations are **addition**, **subtraction**, **multiplication** and **division.**
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 =**).

Ordinal numbers	Numbers which indicate order – 1st, 2nd, 3rd and so on.
Parallel	Lines which have exactly the same distance between them for their full length, and will never cross.
Partitioning	See also **recombining**. 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.
Pentagon	A **2D shape** with 5 **sides** and 5 **vertices**.
Percentage	A number or ratio expressed as a fraction of 100. Using percentages suggests a number which has been divided into 100 parts.
Perimeter	The distance all the way around a **2D shape** – the total length of all its sides.
Perpendicular	Lines which intersect at a **right angle** are perpendicular.
Pictogram	A **chart** or **graph** which uses pictures to represent data. They are set out the same way as **bar charts** but use pictures instead of bars. Each picture could represent one item or more than one.
Pie chart	A circular **chart** divided into sections to represent different values in a set of data.
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.
Place Holder	Used to describe the digit '0' in a place value column. For example, in the number 304, 0 is a place holder representing there are no tens. Without it, the number would be 34.
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.
Prime numbers	A number greater than 1, which cannot be divided exactly by any number except 1 and itself. The first few prime numbers are 2, 3, 5, 7, 11, 13 – all numbers which can only be divided exactly by 1 and themselves.
Prism	A **3D shape** with flat sides and identically shaped end faces. The cross section of a prism is the same all the way through. Examples are a triangular prism and a hexagonal prism.
Probability	Also known as **chance** or likelihood. The study of how likely something is to happen. It can be described in words (e.g. 'It is certain that the sun will set tonight'; 'it is unlikely that my face will turn green') or using numbers or percentages (e.g. 'I have a one in 6 chance of throwing a 3 using a normal dice').
Product	The product of two numbers is the result achieved when they are **multiplied** together.
Proportion	Studying a portion or part in relation to a whole. See also **ratio**.
Pyramid (square-based)	A **3D shape** with 4 triangular **faces**, one square **face** and 5 **vertices.**
Pyramid (triangular-based)	A **3D shape** with 4 triangular **faces** and four **vertices**.
Quadrilateral	Any shape with four **sides**.
Radius	A straight line drawn from the centre of a circle to any point on its **circumference**.
Range	The **difference** between the largest and smallest number in a set of data.
Ratio	Comparing values in relation to one another, looking at how much of one thing there is in relation to another. See also **proportion.**
Recombining	See also **partitioning**. 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.
Rectangle	A **2D shape** with four straight sides and four right angles. Opposite sides are the same length.
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.
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.
Reflex angle	An angle of between 180° and 360°.
Regular shapes	**2D shapes** with closed sides, where all sides are the same length and all angles are the same.
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.
Repeated addition	A way of teaching about multiplication as the repeated grouping of the same number. For example, 4 x 2 is the same as four groups of 2, or 2 + 2 + 2 + 2.
Repeated subtraction	A way of teaching about division as the repeated subtraction of the same number down to zero. For example 15 ÷ 3 is the same as 15 shared into 3 groups of 5, or 15 – 5 – 5 – 5 = 0.
Right angle	An angle of exactly 90°. The two lines which make a right angle are **perpendicular**.
Right-angled triangle	A triangle with one angle of 90°. Also known as a quarter turn, because it is one quarter of a full turn.
Roman numerals	The numbers that were used in ancient Rome, combinations of letters from the Roman alphabet (I, V, X, L, C, D, M).
Rotation of shapes	The movement of shapes around a fixed point, by a given number of **degrees** and in a certain direction (**clockwise** or **anticlockwise**). The shape itself will remain the same but its position in the space will change.
Rotational symmetry	When a shape or a pattern can be rotated around a fixed point but remains the same.
Rounding numbers	Adjusting digits up or down to the nearest tens, hundreds, thousands number etc. in order to make calculations easier.
Scale factor	When increasing the size of a **2D shape** the scale factor is the amount by which the size is increased.
Scalene triangle	A triangle with thee sides of different lengths and three different angles.
Sharing	Children learn early on how to share a number of objects into equal groups. This develops an early understanding of **division**.
Side	One of the lines, straight or curved, which encloses a **2D shape**.
Simplifying fractions	Finding an **equivalent fraction** where the numbers are reduced as much as possible. For example, the fraction $^{16}/_{24}$ in its simplest form would be $^{2}/_{3}$.
Sphere	A **3D shape** with one curved **face**, no **edges** and no **vertices**.
Square	A **2D shape** with four equal **sides**, four **vertices** and four **right angles**.
Square number	A number which is the result of multiplying a number by itself. For example 16 is the square of 4: 4 x 4 = 16, $4^2 = 16$.
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.
Statistics	The term used for teaching the collection, presentation and analysis of information or data. This includes all forms of **graphs** and **charts** as well as analysis tools such as finding the **mean, median, mode** and **range.**
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Subtraction	Taking one number away from another, finding the difference between the two. Denoted by the symbol '-'.
Subtraction on a number line	See also **finding the difference**. Children are taught to use a **number line** to carry out subtraction calculations, either by counting back from the starting number or by finding the difference between the smaller and greater number in the calculation.
Sum	The result of adding two numbers together.
Tally chart	A chart used for the initial collection of data. Usually presented as a table with different categories along the top or down the side, and tallies (groups of 5 marks) used to show how many in each category. One vertical mark represents one item, and when five are counted the fifth mark is crossed through the first four.
Tessellation	When **2D shapes** fit together exactly with no gaps. Tessellating shapes are commonly found in floor tiles.
Time interval	The length of time between two given times.
Times tables	See **multiplication tables.**
Translation of shapes	Moving a **2D shape** into a different position without changing it in any way.
Triangle	A **2D shape** with three straight **sides** and three **vertices**. Can be **equilateral, isosceles, right-angled** or **scalene.**
Triangular numbers	A sequence of numbers created by organising rows of dots into equilateral triangles.
Turns	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°.
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.
Unit fractions	A fraction where the **numerator** is 1 and the **denominator** is a whole number.
Venn diagram	A way of sorting information using two or more circles, which may or may not be overlapping.
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**.
Vertical	A line which runs up and down a page or shape, from top to bottom. It will intersect a **horizontal** line at **right angles.**
Volume	The amount of space taken up by an object.
Whole number	A number which contains no fractions or parts of a whole such as decimal numbers.
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.
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.
24 hour clock	The 12 hour clock runs from 1 o'clock to 12 o'clock twice per day. The 24 hour clock runs from 00:00 hours (midnight or 12.00 am) through 24 hours to 23:59 (11.59 pm).
2D shapes	Shapes which are flat, having only two dimensions – height/length and width.
3D shapes	Shapes which have a solid form, having 3 dimensions – height/length, width and depth.

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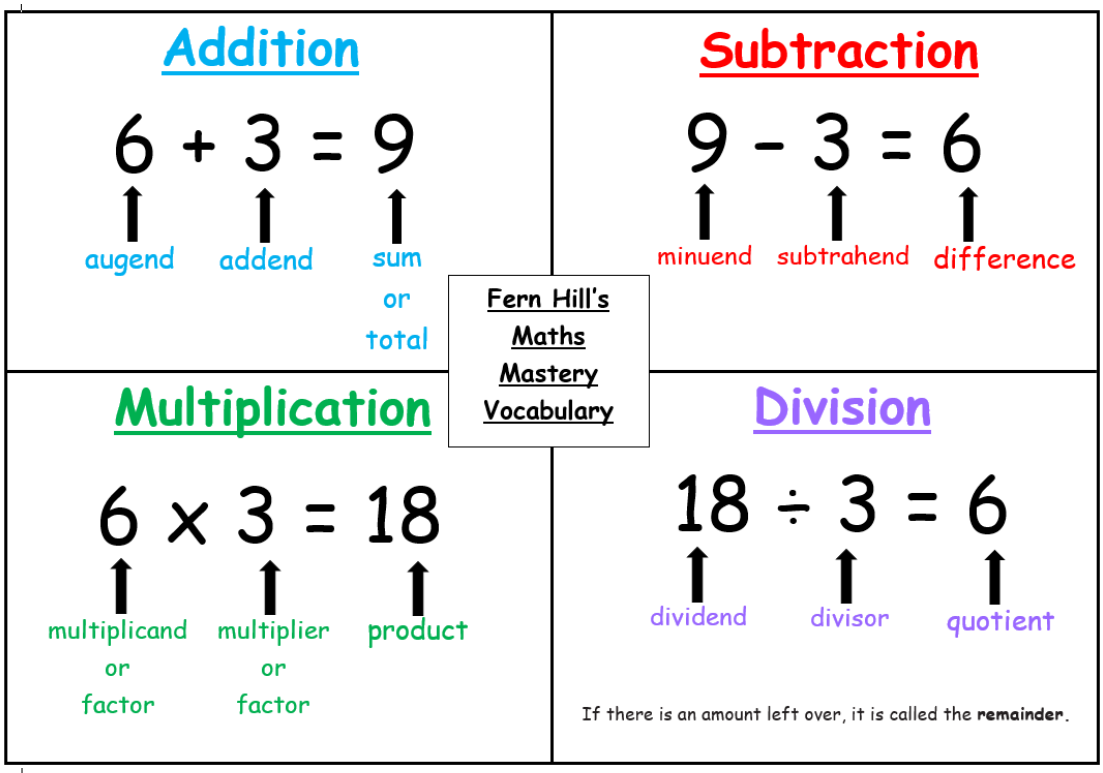

KS2 :