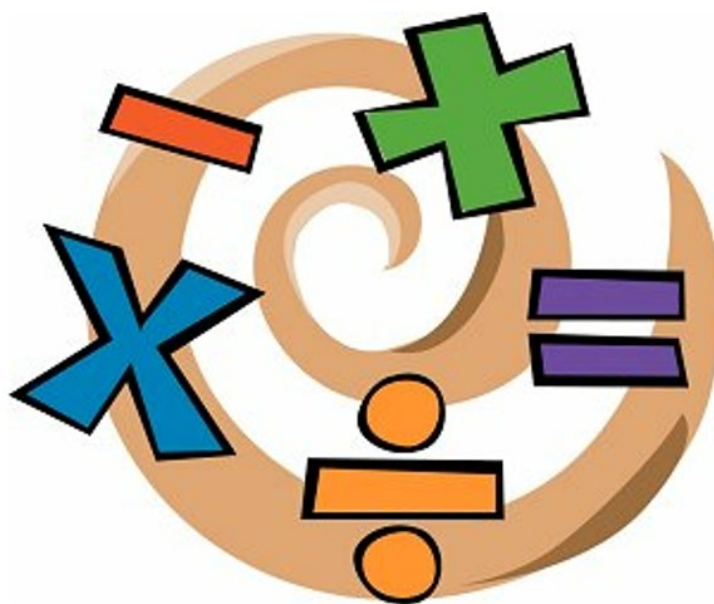




# St Aidan's Primary School Maths Dictionary



## < and >

< and > are symbols representing one number being 'greater than' or 'less than' another. For example  $16 > 8$  or  $8 < 16$  says that 16 is greater than 8 and 8 is less than 16.

## 12-hour and 24-hour clock

The 12-hour clock goes from 1 am in the morning to 12 noon and from 1 pm in the afternoon to 12

midnight. This is known as 'analogue' time. The 24-hour clock goes from 00:00 (midnight) to 23:59 (one minute to midnight). This is known as 'digital' time.

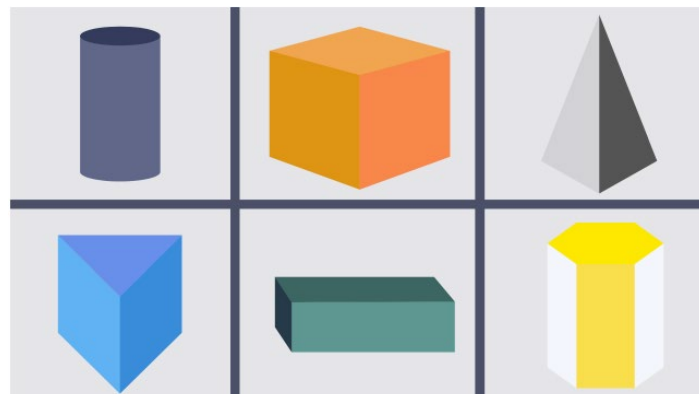
## 2D Shapes

A 2D shape is any flat or 'two-dimensional' shape, such as a square, circle or triangle.



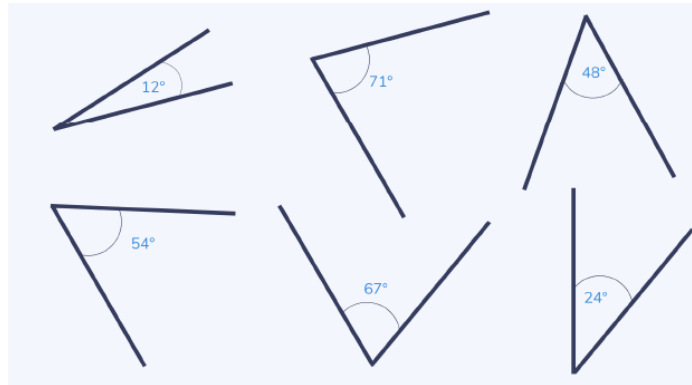
## 3D Shapes

A 3D shape is 'three-dimensional' and has volume, for an example a cube (cardboard box), pyramid or cylinder (tube).



## Acute Angle

An acute angle is any angle less than  $90^\circ$ .



## Addition

Finding the total value of two or more numbers For example:  $1 + 2 = 3$  Denoted by the symbol '+'.

## Algebra

Algebra is the part of mathematics that helps represent problems or situations in the form of mathematical expressions Algebra uses letters in the space of unknown numbers.

## Algebra

In algebra, letters and symbols are used to represent numbers in equations or formulae. For example, if  $w = 3$ , what is  $6w + 7$ ?

## Analogue and Digital Clock

An analogue clock is a clock with the numbers 1 to 12 around the outside and two hands, one short hand that represents hours and one long hand that represents minutes. A digital clock uses 24-hour time and always has four digits. For example, 15:30 is half-past three in the afternoon on a digital clock.

## Angles

Angles are formed when 2 straight lines meet. Angles of different sizes have different names.

- Acute: This type of angle is less than 90 degrees
- Right Angle: This angle is exactly 90 degrees

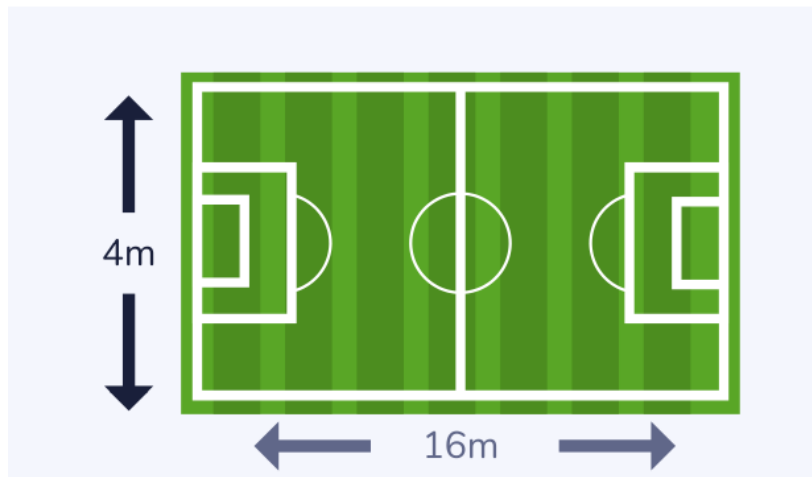
- Obtuse: An angle that is larger than 90 degrees but smaller than 180 degrees
- Reflex: An angle larger than 180 degrees but smaller than 360 degrees.

### Approximate

To estimate using a number, amount or total that is not exact.

### Area

The area of a shape, surface, piece of land etc. means the amount of space it takes up. For example, a rectangular football field has an area of  $64\text{m}^2$  or 64 squared metres.



### Array

An array is a pictorial representation of a calculation, using rows of dots, to help children understand multiplication and times tables.

### Arrow Cards

Arrow cards are a maths tool useful for explaining place value and how to partition numbers (separate them into ones, tens, hundreds etc).

### Ascending Order

To ascend means to go up, so numbers given in ascending order are going from smallest to largest. For example, 1, 2, 3, 4, 5, 6 are numbers in ascending order.

### Associate Property

The associative property says that when we add or multiply numbers, it doesn't matter how we group them (which we calculate first).

For example,  $(7 + 5) + 3 = 7 + (5 + 3)$  or  $(4 \times 5) \times 2 = 4 \times (5 \times 2)$

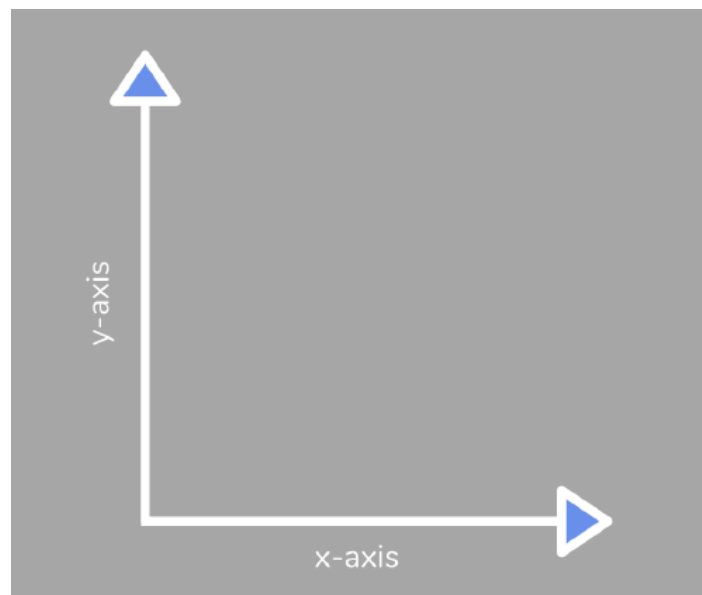
## Average

The average of a set of numbers is found by adding all the numbers together and dividing by how many numbers there are.

For example, the average of 12, 10, 8 and 6 is 9 because  $(12 + 10 + 8 + 6 = 36 \div 4)$ .

## Axes

The axes of a graph or chart are the horizontal and vertical lines that create it, often known as the x-axis and y-axis.



## Bar Chart

A bar chart is a form of graph that displays information using rectangular bars of different heights, according to their numerical value.

## Bar Model

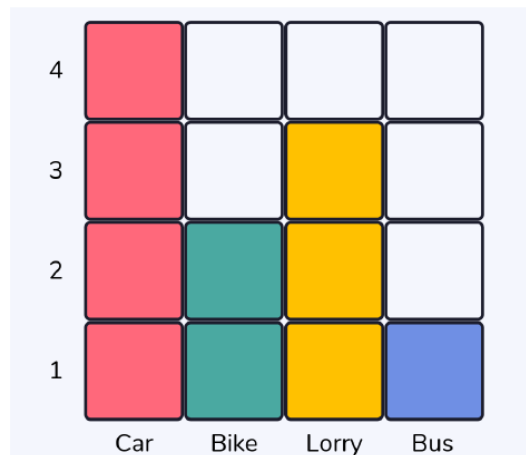
A bar model is a method that uses diagrams of rectangular bars to represent maths problems in a visual way, making them easier for children to see which operation to use to work out a calculation. Younger children may use cubes to physically represent this.

## BIDMAS

BIDMAS is a rule for the order to work out calculations with mixed operations. It stands for Brackets, Indices, Division, Multiplication, Addition, Subtraction and is sometimes seen as BODMAS (Brackets, Orders, Division, Multiplication, Addition, Subtraction).

### Block Graph

A block graph is a simpler version of a bar chart, but using blocks to represent the data, with each block worth 1 unit.



### Brackets

Brackets - These are included in many maths questions and look like these ( ). You must complete the sum inside the brackets first.

### Bridging

Bridging through 10 is a way of adding numbers greater than 10 in your head. For example, to add  $8 + 7$ , you add 2 (from the 7) to get 10, then add the remaining 5 to get 15.

### Bus Stop Method

The 'bus stop' method or short division is a way of dividing numbers with two or more digits by one or two digit numbers.

### Calculate

To work something out.

## Capacity

The capacity of a container is how much that container can hold, measured using units such as litres, millilitres, pints etc.






## Cardinal Number

A cardinal number tells you how many of something there are; they refer to a set of objects. For example, there are three marbles in my hand. This is in contrast to an ordinal number which tells you the position of something in a list, for example first, second, third.

## Carroll Diagram

A Carroll diagram is a way of organising information and grouping according to what criteria it fits into.

	Has curved lines	Has straight lines
Has more than three sides		
Has three sides or fewer than three sides		

## Centre

The middle.

## Chart

Another term for a graph or way of representing information.

## Circle

A circle is a simple curved 2D shape, with 1 edge, no corners and infinite lines of symmetry.

## Circumference

The circumference is the length around the edge of a circle.

## Classify

To organise into categories or to arrange into groups based one or more attributes or properties.

## Clockwise

To move in a clockwise direction means to 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. If something moves in the opposite direction to the hands of a clock, it is moving in an anticlockwise direction.

## Column (formal) Method

The column method is way to solve addition and subtraction calculations, that sometimes involve 'exchanging' amounts from one column to the next (which in the past has been called 'carrying' and 'borrowing'). The numbers are written on top of each other, with the correct digits in each column (e.g. hundreds, tens, ones).

$$\begin{array}{r} \overset{6}{\cancel{7}} \overset{1}{2} \\ - 56 \\ \hline 16 \end{array}$$

### Common Factors

A common factor is **a whole number which is a factor of two or more numbers**. Eg, 2, 5 and 10 are common factors of 30 and 20. 1 is a common factor of all whole numbers.

### Common Multiples

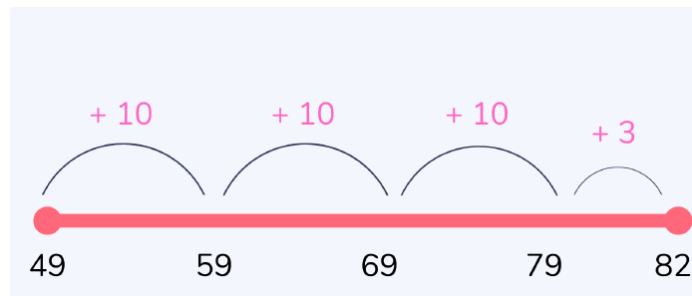
The multiples common to two or more numbers are called the common multiples of those numbers. For example, 6 appears in the 2 and 3 times table which makes it a common multiple of 2 and 3.

### Commutative Property

The commutative property states that addition and multiplication calculations can be carried out with the numbers in any order, whereas for subtraction and division, the numbers must be in a particular order. For example,  $8 \times 9 = 72$  or  $9 \times 8 = 72$

### Complementary Addition

Complementary addition is a method for subtraction that involves using a number line to jump from the smaller number to the bigger number and counting the number of jumps. This method is useful in KS1 for teaching children to 'find the difference' between two numbers.



### Concrete, pictorial, abstract approach

The concrete, pictorial, abstract approach is a way of teaching mathematical concepts and theories in various stages, in order to help children fully understand and master what they are learning. The concrete stage involves using items, models and objects, giving children a chance to be 'hands-on'. For example, children may solve a problem adding groups of toys together using real toys.

The pictorial stage uses visual representations of concrete objects to model problems, encouraging children to make connections between the physical object and the picture that represents the object. For example, children may use drawing of toys to solve a problem adding toys.

### Congruent

The term "congruent" means exactly equal shape and size. If two figures can be placed precisely over each other, they are said to be 'congruent' figures.

### Consecutive

Numbers that follow each other in an unbroken sequence

### Converting Units

When you convert measurements into the same units, you understand that the same length, weight or capacity can be shown in different units of measurement. For example, a bottle of water can be measured in litres or millilitres and there are.

### Coordinates

The coordinates of a shape or object refer to where on a map or graph they are, by looking at the two axes and recording the numbers they are at. These can be taught with the phrase "along the corridor and up/ down the stairs" to refer to looking at the x-axis first then looking at the y-axis

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## Cube

A symmetrical 3D shape made up of 6 equal square faces. An example of this shape is a rubix cube.

## Cube Numbers

A cube number is the result of when a number is multiplied by itself three times. When writing cube numbers, we write a small three above the number, e.g.  $3 \times 3 \times 3$  or  $3^3 = 27$ .

## Cumulative Frequencies

Cumulative means "**how much so far**"

## Data Handling

Data handling is another term for statistics, meaning how we collect, display and interpret data or information, such as the most popular flavour of ice cream in a class, using tables, tally charts, pictograms, block diagrams, bar charts, line graphs and pie charts.



## Decimal

A decimal is **a way of writing a number that is not whole**. Decimal numbers are 'in between' numbers. For example, 10.4 is in between the numbers 10 and 11. It is more than 10, but less than 11.

A decimal is a number that contains tenths, hundredths, thousandths etc, with a decimal point between the ones and tenths. Money is often used to teach decimals.

For example, 3.4, 2.18, £56.99

## Degrees

We use degrees as the unit of measurement for measuring angles, usually symbolised with a small circle above the number. For example, a right angle is  $90^\circ$  (90 degrees).

## Denominator

A denominator is the name for the bottom number in a fraction. For example, in the fraction  $\frac{4}{10}$ , 10 is the denominator. This number represents 'the whole' or how many pieces there are altogether.

## Descending Order

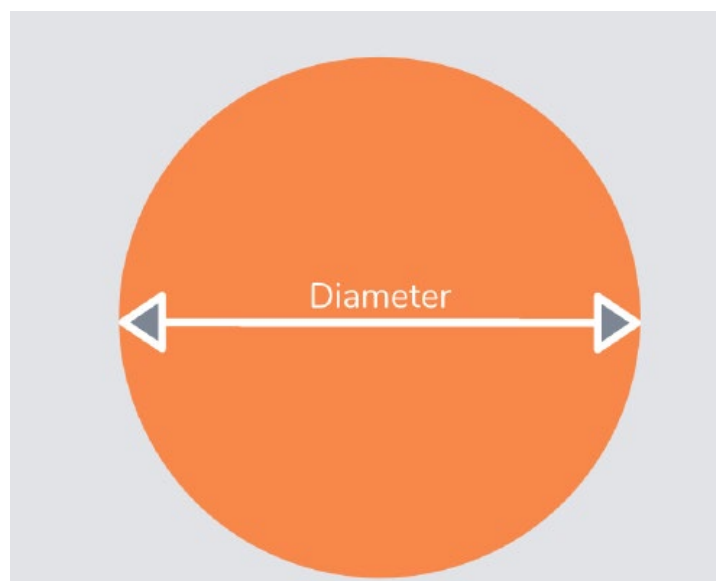
Descending order means to go from the largest number to the smallest and is the opposite of ascending order. For example, 90, 80, 70, 60, 50 are numbers in descending order.

## Diagonal

A diagonal is a line joining two opposite corners of a square, rectangle or other shape.

## Diameter

The diameter is a straight line going from one side of a circle to another, through the centre.



## Difference

Finding the difference between two numbers is the same as subtracting a smaller number from a larger number. This method is usually taught using a number line, counting the jumps from one number to another.

## Distributive

Distributive Law in Maths states that multiplying a group of large 2 or 3-digit numbers will create the same value as those numbers being partitioned, multiplied and added together.

Some examples are:

$$50 \times 8 = 400$$

This is the same as  $(5 \times 8) + (1 \times 10)$ . For this question, we have distributed or separated the 50 into two units: 5 and 10. Then all we need to do is multiply the  $5 \times 8$  which equals 40. By multiplying this by 10, we get 400!

## Divide

The process of breaking a number up into equal parts, and finding out how many equal parts can be made. For example, dividing 15 by 3 means splitting 15 into 3 equal groups of 5.

## Discrete

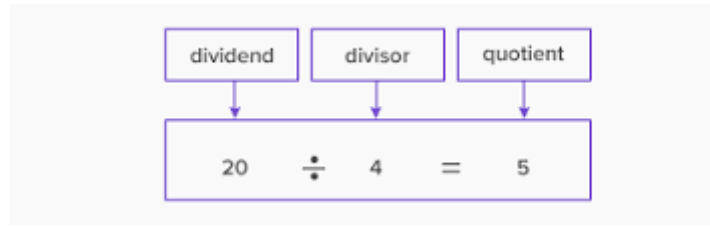
Discrete data is data that can be counted in whole numbers and does not have in between values. An example of this is the number of pets per household. If a class does a survey to find out how many pets everyone has, the data they collect will be discrete - whole numbers.

## Division Factors

Division facts are the division calculations related to times tables. For example,  $50 \div 5 = 10$  and  $25 \div 5 = 5$  are division facts related to the 5 times table.

## Divisor

A divisor is **a number that divides another number either completely or with a remainder**. Here 4 is the number that divides 20 completely into 5 parts and is known as the divisor.

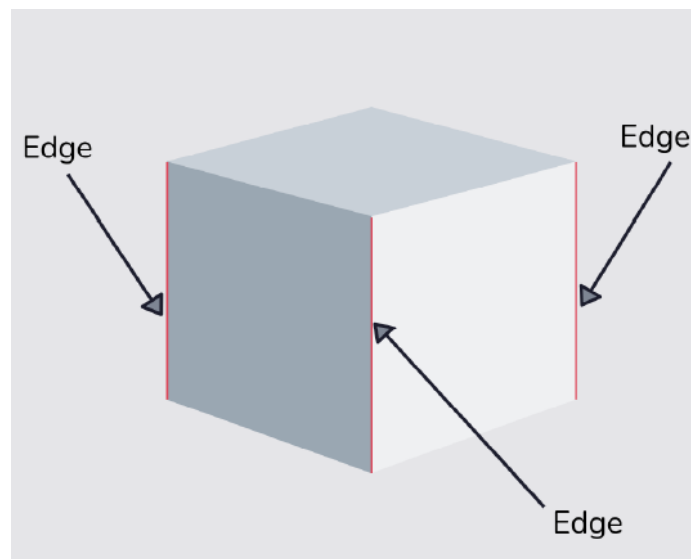


## Dividend

The number that's being divided (see above diagram).

## Edge

An edge is the name for lines created when two faces in a 3D shape meet.

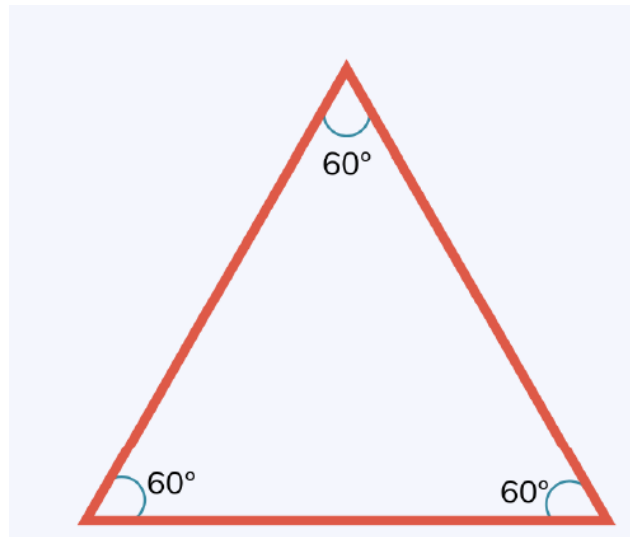


## Equation

An equation is another name for a number sentence where both sides equal the other.  
For example,  $12 - 5 = 3 + 4$

## Equilateral Triangle

An equilateral triangle is a triangle with three equal sides and three equal angles.



## Equivalent Fraction

An equivalent fraction is one that is equal in terms of size to another, but written using different numbers. For example,  $\frac{1}{2}$  is equivalent to  $\frac{4}{8}$  and  $\frac{7}{14}$ .

## Estimate

To estimate is to make a clever guess to the answer of a question, by roughly calculating the value. For example, children estimated the length of the playground to be 100 metres.

## Equivalent Fractions

Fractions which represent the same amount but are expressed using different numbers. For example  $\frac{1}{3}$  is the same as  $\frac{2}{6}$  and  $\frac{4}{12}$ .

## Expanded Notation

Expanded notation means to write a number showing the value of each digit, with each digit being multiplied by its matching place value (ones, tens, hundreds etc). For example,  $352 = 3 \times 100 + 5 \times 10 + 2 \times 1$ .

## Even Numbers

An even number is any number that can be divided into two equal groups and always end in 0, 2, 4, 6 and 8.

An odd number is any number that cant be divided into two equal groups and always end in 1, 3, 5, 7 and 9.

## Exchange

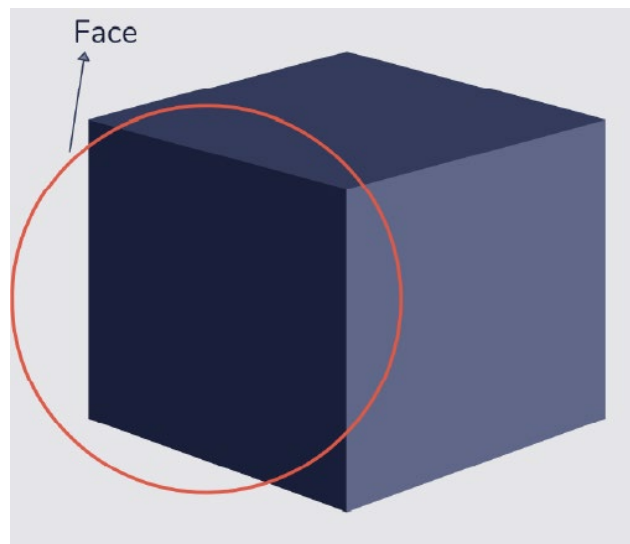
When subtracting, amounts can be 'borrowed' from one place value column and carried over to another. We call this exchanging.

## Expression

Symbols that represent a number or quantity

## Face

Any flat surface of a 3D shape. Faces can be flat or curved and of many different shapes.



## Factor

A factor is a number that can divide exactly into another number.  
For example, 2, 3, 4 and 6 are all factors of 12, as 12 can be divided into them exactly.

### Factor Pairs

In math, a factor pair is defined as **a set of two factors, which, when multiplied together, give a particular product**. When finding the factors of any number, it is wise to do it 'systematically'. For example, to find the factors of 28,  $1 \times 28$   $2 \times 14$   $4 \times 7$

### Formula

A formula is a group of numbers and maths symbols that show how to work something out. In primary school, we encounter formulae for finding the area and perimeter of 2D shapes and for finding the volume of 3D shapes.

### Fraction

**A fraction is an equal part of a whole.**

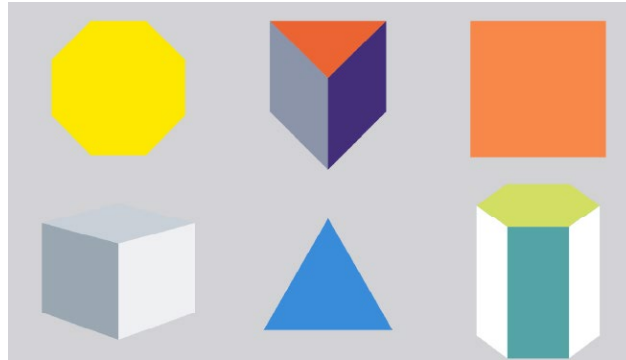
The amount which the whole is split up into, is called the denominator. The number of equal parts being counted is the numerator. **Eg.  $\frac{1}{5}$  is 1 out of 5 equal parts.** If you cut a pizza into 10 equal slices and eat three of them, you've taken a fraction of the pizza and not the whole thing.

### Frequency

The total number.

### Geometry

Geometry is the branch of maths where children learn about the properties, measurements, position and relationships of points, lines, angles and shapes.



### Grid method

The grid method is a way for working out multiplication calculations, especially with larger numbers, involving partitioning the numbers, multiplying each part and adding the totals.

x	30	5
7	210	35

$210 + 35 = 245$

### Half

One of two equal parts.

### Height

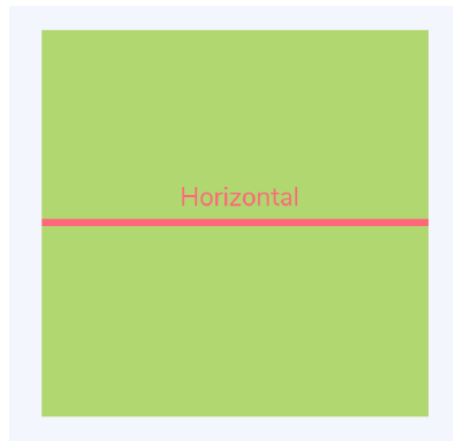
The measurement of someone or something from head to foot or from base to top

### Highest Common Factor

The highest common factor is the largest whole number which is a factor of two or more numbers. For example, 6 is the highest common factor of 12 and 18.

### Horizontal Line

A horizontal line is one that goes from left to right and vice versa.



## Imperial

Imperial units are units of measurement that were used in the UK before the metric system was introduced. Children, especially from Year 5 on, will be taught how to convert from, for example, miles to kilometres.



## Improper Fraction

An improper fraction is one where the numerator is larger than the denominator and is also known as a 'top-heavy' fraction. For example,  $11/4$ ,  $6/2$  and  $21/5$  are all improper fractions.

## Investigation

A mathematical investigation allows children to apply the skills and knowledge they've learnt to solve problems, which may have more than one way to work them out and more than one.

## Integer

An integer is simply a whole number, either positive or negative. For example, 8, -23, 502 and -1000 are all integers.

## Inverse

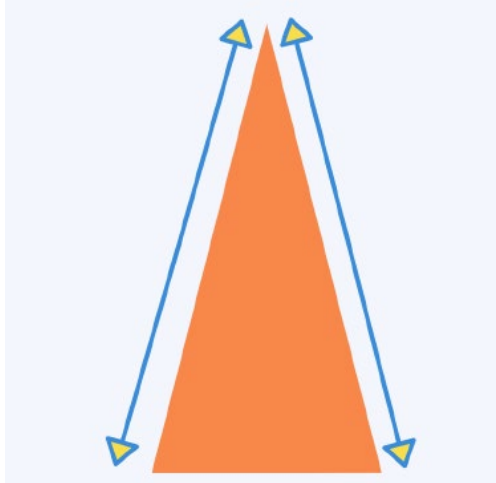
An inverse operation is another way of saying an opposite operation, which can often be used to check calculations are correct. For example, addition and subtraction are inverse operations, as are multiplication and division.

## Irregular Shapes

2D shapes whose sides and angles are not all the same.

## Isosceles

An isosceles triangle is one with two equal sides and two equal angles.



## Jump

A move made when practising addition or subtraction – forwards or backwards respectively – on a number line.

## Kite

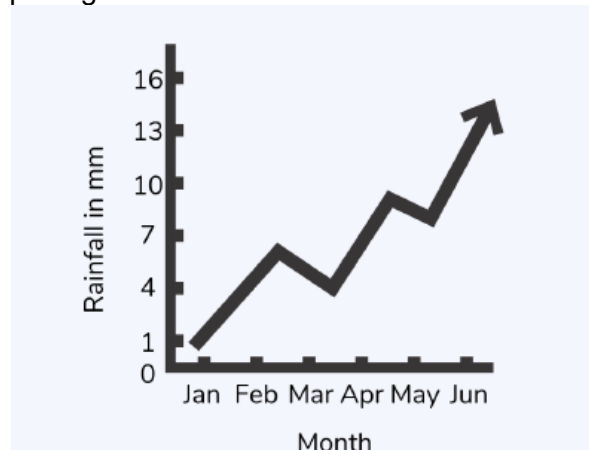
A quadrilateral (four-sided shape) with two pairs of adjacent (next-door) sides that are congruent (equal in length). The diagonals of a kite are perpendicular (meet at a right angle).

## Length

The length of an object is how long or short something is, and is usually measured in metric units such as centimetres, metres and kilometres.

## Line Graph

A line graph is one where a line connects points, showing how values change over time. For example, a line graph might show the amount of rainfall over six months.



## Long Division

Long division is a written method showing how to divide larger numbers (such as three or four-digit numbers) by other large numbers. Children will move onto long division in KS2, once they've mastered short division.

$$\begin{array}{r}
 1 - 24 \\
 2 - 48 \\
 3 - 72 \\
 4 - 96 \\
 5 - 120 \\
 6 - 144 \\
 7 - 168 \\
 8 - 192 \\
 9 - 216
 \end{array}
 \begin{array}{r}
 543 \\
 24 \overline{)13032} \\
 \underline{-120} \phantom{0} \\
 103 \phantom{0} \\
 \underline{-96} \phantom{0} \\
 72 \phantom{0} \\
 \underline{-72} \\
 00
 \end{array}$$

### Long Multiplication

Long multiplication, which is sometimes known as column multiplication, is a way of multiplying larger numbers together. Just like column addition and subtraction, the numbers are put in columns according to their place value.

$$\begin{array}{r}
 \phantom{x} \phantom{0} 2 \phantom{0} 5 \\
 x \phantom{0} \phantom{0} 1 \phantom{0} 4 \\
 \hline
 \phantom{x} \phantom{0} 1 \phantom{0} 0 \phantom{0} 0 \\
 + \phantom{x} \phantom{0} 2 \phantom{0} 5 \phantom{0} 0 \\
 \hline
 \phantom{x} \phantom{0} 3 \phantom{0} 5 \phantom{0} 0
 \end{array}$$

### Lowest Common Denominator

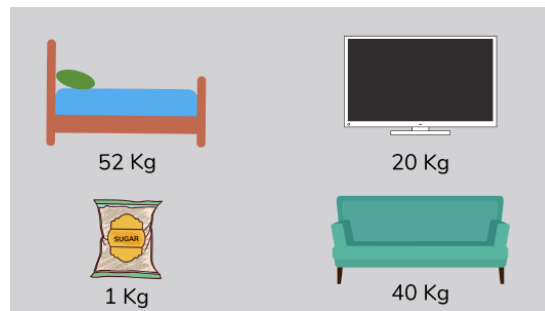
The lowest common denominator of two or more fractions is the smallest number that can be exactly divided by each denominator. For example, 12 is the lowest common denominator of  $\frac{1}{2}$ ,  $\frac{1}{3}$  and  $\frac{1}{4}$ .

### Lowest Common Multiple

The lowest common multiple is the smallest number which is a multiple of two or more numbers. For example, the lowest common multiple of 4 and 5 is 20.

### Mass

The mass of an object is how much it weighs and is usually measured in grams and kilograms. For example, the mass of a bag of sugar is 1 kilogram.



## Mastery

Having mastery in a maths topic means that children not only understand how to work out problems, but can also explain how they worked it out and apply their knowledge to more complicated word problems and investigations.

## Mental Method

Calculations and problem solving carried out mentally, without the need to write down any working out.

## Mean

Mean is another word for average, and is found by adding a set of values and dividing the total by the number of values in the set. For example, the mean of 2, 4, 5, 7 and 12 is 6 because  $(2 + 4 + 5 + 7 + 12 = 30 \div 5 = 6)$

## Median

The median of a set of numbers is the middle number in that list. The numbers in the list must first be sorted into ascending order, then children can find the median number. For example, the median of 1, 2, 3, 4, 5, 6, 7 is 4.

## Metacognition

Metacognition means to be aware of and analyse your thoughts and learning processes in order to make necessary changes to your learning behaviour. Techniques such as modelling problems and getting children to ask questions about their work are ways of improving their metacognition.

## Metric Units

Metric units are units of measurement that are common around the world and are based on the metric system. For example, grams, centimetres, litres and seconds are all examples of metric units.



### Mirror Line

A mirror line is a line that can be drawn through the centre of a shape or picture to show that both sides are exactly the same.

### Mixed Number

A mixed number is one with both a whole number and a fraction. For example,  $8\frac{2}{3}$  and  $5\frac{10}{12}$  are mixed numbers.

### Mode

The mode of a set of numbers is the one that appears most often. For example, the mode of 2, 3, 4, 5, 5, 6, 7 is 5.

### Multiple

A multiple is the result of multiplying one integer by another. Multiples of a number are those in that number's times table. For example, multiples of 7 include 14, 35, 49 and 84.

### Multiplication

Finding how many altogether in a given number of equal sized groups. Represented by the symbol 'x'. For example,  $2 \times 4 = 8$

## Multiplier

The number by which a given quantity is multiplied. So in the calculation  $5 \times 3 = 15$ , the multiplier is 5.

## Multiplicand

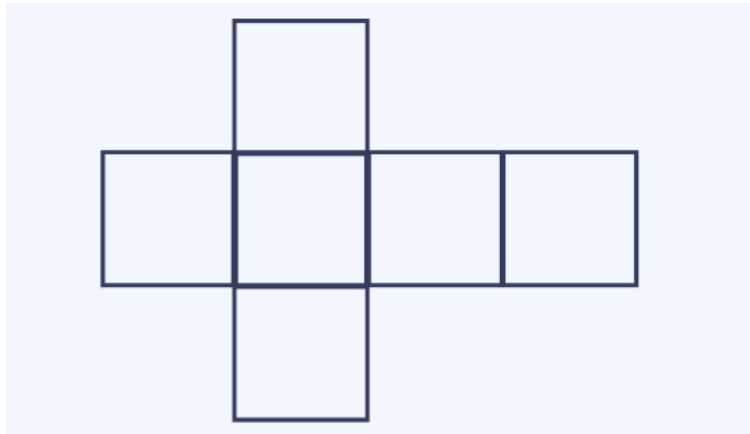
The **multiplicand** is the number being multiplied and  
The **multiplier** is the number doing the multiplying.  
The answer is called the product or multiple

## Negative Number

A negative number is any number lower than 0 and is commonly taught using temperatures. For example, -2, -14, -67.

## Net

A net is the flat outline of a 3D shape, before it is folded together.



## Number Bonds

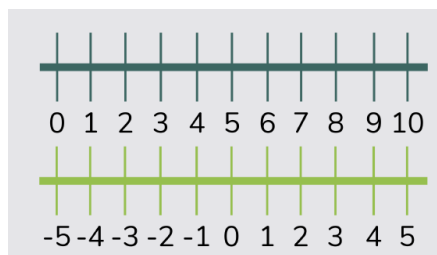
Number bonds are pairs of numbers that add together to make a given number. For example,  $2 + 8$  and  $4 + 6$  are number bonds to 10, whereas  $43 + 57$  and  $81 + 19$  are number bonds to 100.

## Number Facts

Number facts are simple addition, subtraction, multiplication and division calculations that children should be able to mentally recall easily. For example,  $50 + 50 = 100$  or  $2 \times 2 = 4$  are number facts.

## Number Line

A number line is a horizontal line, with numbers going up the bottom of the line. The numbers will typically increase in size and the space between the numbers doesn't usually matter. Number lines are especially used in Key Stage 1 to teach number bonds and adding using jumping. A number ladder is a number line drawn vertically.



## Number Ladder

A vertical version of a number line.

## Number Sentence

A number sentence is how a calculation is written, using numbers and symbols.  $3 + 4 = 7$  is an addition number sentence,  $7 - 3 = 4$  is a subtraction number sentence.  $3 \times 5 = 15$  is a multiplication number sentence,  $15 \div 3 = 5$  is a division number sentence.

## Number Square

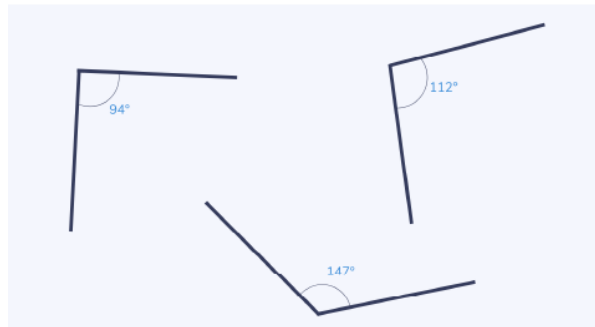
A number square is a maths aid used in primary schools, showing numbers in order from 0 up to, for example, 20 or 100. Number squares are useful for helping with counting and seeing patterns in number sequences.

## Numerator

A numerator is the name for the top number in a fraction. For example, in the fraction  $5/15$ , 5 is the numerator. It shows the number of parts we're looking at, indicated by the whole (denominator).  
Numerator.

## Obtuse

An obtuse angle is any angle that measures between  $90^\circ$  and  $180^\circ$ .



### Odd and even numbers

An even number is any number that can be divided into two equal groups and always end in 0, 2, 4, 6 and 8.

An odd number is any number that can't be divided into two equal groups and always end in 1, 3, 5, 7 and 9.

### Operation

In maths, the four types of operation 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

An ordinal number tells us what position something is in a list, often taught using dates or the results of races. For example, Ben finished in 1st place, Chris in 2nd and Alex in 3rd. The contrast of this is a cardinal number.

### Parallel Line

A parallel line is a straight line that always stays the same distance from another line and never meets. Shapes are often used to teach parallel lines. For example, a square has two pairs of parallel lines.

## Partition

To partition a number means to separate a number into separate parts (ones, tens, hundreds, thousands etc). Partitioning makes understanding place value easier and is also used when using column methods or grid methods.

For example, 5246 can be partitioned into 5 thousands, 2 hundreds, 4 tens and 6 ones or  $5000 + 200 + 40 + 6$ .

## Part Whole Model

The part whole model is **a pictorial representation that shows the relationship between a whole and its parts**

## Percentage

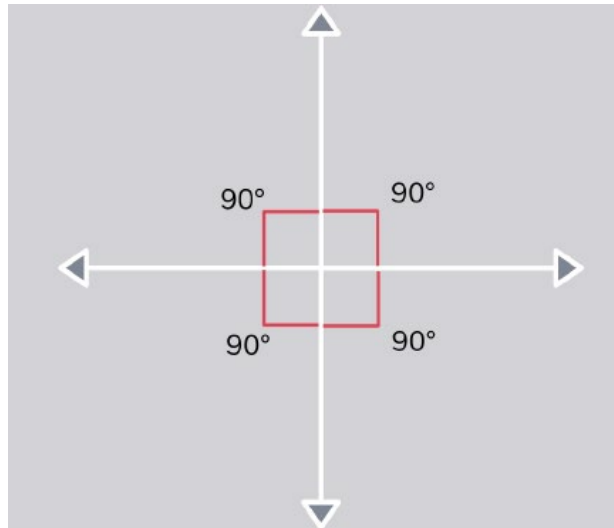
Percentage means 'out of 100' and is used to show a number or ratio expressed as a fraction of 100. Children often use percentages when talking about sales in shops. For example, this £80 jacket had 20% off in the Christmas sale.

## Perimeter

The perimeter is the distance around a 2D shape and is often taught using the example of fences around a field or garden.

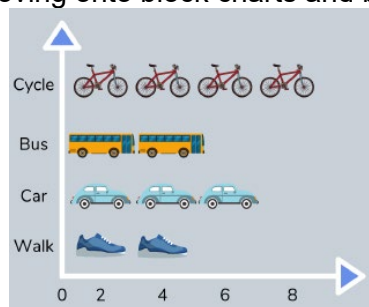
## Perpendicular Lines

Perpendicular lines are two lines that meet to create a right angle, often seen in shapes.



## Pictogram

A pictogram is a type of graph that uses pictures to represent information. These are often taught in Key Stage 1 before moving onto block charts and bar charts.



## Pie Charts

A pie chart is a circular chart divided into sections, representing different values, which can be fractions, decimals, percentages or angles.

## Place Holder

The position the digits are placed in a number affects the value of the number. Zeros can hold the value of the number. For example: 502 could be mistaken for 52 without the zero in the tens place.

## Place Value

The place value of a number is how much each digit in the number represents. For example, the place value of 157 is 1 hundred, 5 tens and 7 ones.

## Polygon

A polygon is any 2D shape with straight, closed sides. Any shapes with open or curved sides are not polygons. For example, triangles, squares and parallelograms are polygons, but circles and ovals are not

## Prime Number

A prime number is any number greater than 1 that can only be divided equally by itself and 1. For example, 5, 7, 11 and 13 are prime numbers.

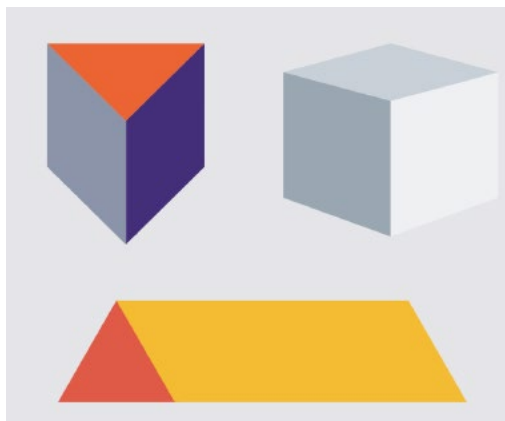
## Prime Factors

A factor that is a prime number.

In other words: any of the prime numbers that can be multiplied to give the original number. For example, the prime factors of 15 are 3 and 5 (because  $3 \times 5 = 15$ , and 3 and 5 are prime numbers).

## Prism

A prism is a 3D shape with two identical flat sides and ends. Cubes and cuboids are examples of prisms.



## Probability, chance and likelihood

Probability is the study of how likely or how big a chance there is that something will happen. It can be described in words, fractions, percentages or ratios. For example, there is a 20% chance of rain tomorrow.

### Product

A product of two numbers is the name for the answer to a multiplication calculation. For example, 35 is the product of  $5 \times 7$ .

### Proper Fraction

A proper fraction is **a fraction that has a smaller numerator than denominator, and represents a number less than 1**. For instance,  $\frac{3}{4}$  is a proper fraction. Out of four equal amounts or pieces, we have three.

### Proportion

A proportion is a portion or part of a whole, and is often taught alongside ratio.

### Protractor

A protractor is an instrument used to measure angles.

### Pyramid

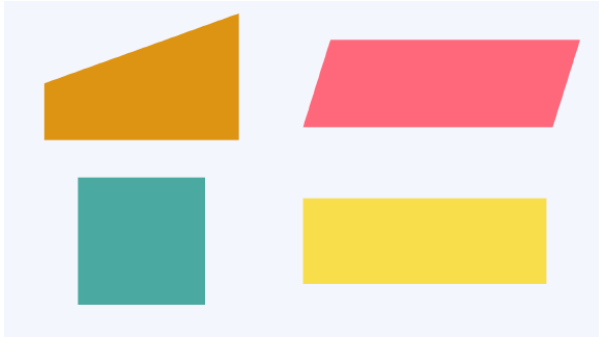
A pyramid is a 3D shape with triangular sides that join at a point, with a polygon base.

### Quadrant

A **quadrant is the area contained by the x and y axes**; thus, there are four quadrants in a graph.

### Quadrilateral

A quadrilateral is any 2D shape with four sides, including a square, rhombus, kite and trapezium.



### Qualitative Data

Data categories such as food, sport, hobbies.

### Quantity

Quantity is the amount or number of something.

### Quantitative Data

Data that can be counted or measured.

### Quarter

One of four equal parts.

### Quotient

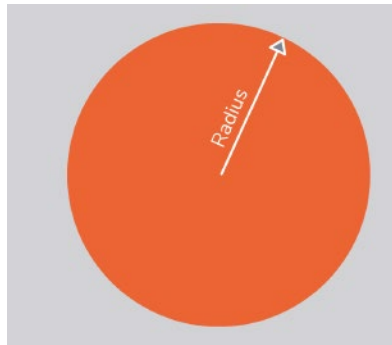
The number we obtain when we divide one number by another is the quotient.

$$\begin{array}{r} 24 \\ 4 \overline{) 98} \\ \underline{- 8} \phantom{0} \\ 18 \\ \underline{- 16} \\ 02 \end{array}$$

The diagram shows a long division problem with four labels pointing to specific parts: 'Quotient' points to the result '24', 'Divisor' points to the number '4', 'Dividend' points to the number '98', and 'Remainder' points to the final result '02'.

### Radius

The radius is the distance from the centre of a circle to its circumference and is half the diameter.



### Range

The range of a set of numbers is the difference between the smallest and largest numbers in the set. For example, in the set of numbers 50 to 60, the range is 10.

### Ratio

A ratio is used to compare values, showing the relative value of one to another. It is taught using real-life examples, such as comparing the number of boys to girls in class. For example, the ratio of boys to girls was 2:1, meaning there are two boys for every one girl.

### Recurring Decimal

A decimal which has repeating digits.

### Reflection of

A reflection of a shape is a drawing of a shape reflected in a mirror line, with the reflection on the other side of the line but facing in the opposite direction.

### Reflective Symmetry

Reflective symmetry is a type of transformation, looking at when a shape or pattern is reflected in a mirror or line of symmetry. The reflected shape should be exactly the same size and distance from the mirror line as the original.

### Reflex Angle

A reflex angle is any angle between  $180^\circ$  and  $360^\circ$ .

## Regular and Irregular Shapes

A regular shape is one where all the sides and interior angles are equal, whereas an irregular shape has sides and angles of different lengths and sizes.

## Regular and Irregular Shapes

Sometimes, when you do a division, there will be a **number left over**. This is called the 'remainder'.  $7 \div 2 = 3 \text{ r}1$ .

## Right Angle

A right angle is an angle that measures  $90^\circ$ . It is also known as a quarter turn, as it is  $\frac{1}{4}$  of a full turn, which measures  $360^\circ$ .

## Right-angled

A right-angled triangle is a 2D shape with three sides and one angle that measures  $90^\circ$ .



## Roman Numerals

Roman numerals are the numbers used in ancient Rome, with letters from the Latin alphabet representing certain numbers. They are commonly taught using years. For example, V = 5, X = 10, C = 100, M = 1000, so 1066 is MLXVI.

## Rotation of Shapes

A rotation of a shape is when a shape is moved around a fixed point, either clockwise or anticlockwise and by a certain number of degrees. However, the shape doesn't change size.

## Rotational Symmetry

Rotational symmetry is a type of transformation, where a shape is turned around a central point, without changing its size.

## Rounding Numbers

To round a number means to adjust it up or down to a number that makes calculating with it easier. Numbers are usually rounded up to the nearest 10, 100 or 1000, with decimals being rounded to the nearest whole number, tenth or hundredth. There is a rule that if a digit is 4 or less it rounds down and if it is 5 or more it rounds up. For example, 426 rounds to 430 to the nearest 10, but 400 to the nearest 100.

## Repeated Addition

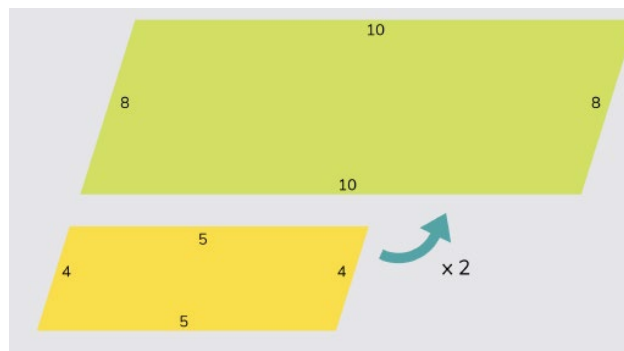
Repeated addition is a technique used to teach multiplication in Key Stage 1, where children add 'lots' of numbers together. For example, 3 'lots' of 5 is  $5 + 5 + 5$  as well as  $3 \times 5$ .

## Sample

A selection of a whole group.

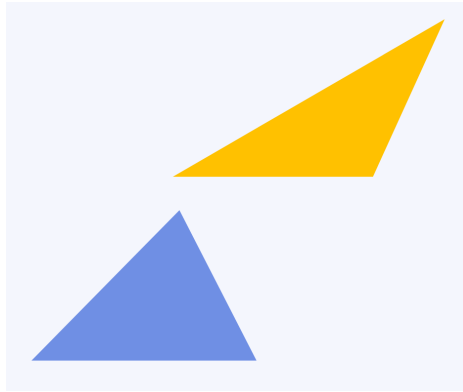
## Scale Factor

A scale factor is used when we increase or decrease a 2D shape in size, so we make the shape larger or smaller depending on the scale factor. For example, this shape has been increased by a scale factor of 2.



## Scalene

A scalene triangle is a 2D three-sided shape where all the sides and angles are unequal.



## Sequence

An ordered set of numbers that follows a particular pattern.

## Shared Between

'Shared between' is a phrase used when introducing division, to show how a set of objects can be 'shared' into equal sized groups.

## Simplifying Fractions

To simplify a fraction means to reduce it to its lowest form, by dividing the numerator and denominator by the same number. For example  $\frac{8}{10}$  can be simplified to  $\frac{4}{5}$  by dividing both the numerator and denominator by 2.

## Squared Numbers

A square number is the result of multiplying a number by itself. When writing this, we write a small two next to and above the number. For example,  $7^2 = 7 \times 7 = 49$ .

## Square Route

The square root of a number is **the factor that we can multiply by itself to get that number. For example, the square route of 16 is 4 as  $4 \times 4 = 16$ .**

## Standard and Non-standard units

Standard units are the units of measurement we normally use to indicate the length, mass or capacity of an object. For example, centimetres, metres, grams, kilograms, millilitres and litres. Non-standard units are used by when introducing measurement in KS1, for example the length of a pencil or hand spans.

## Subtraction

Taking one number away from another, finding the difference between the two. Denoted by the symbol '-'.

## Sum

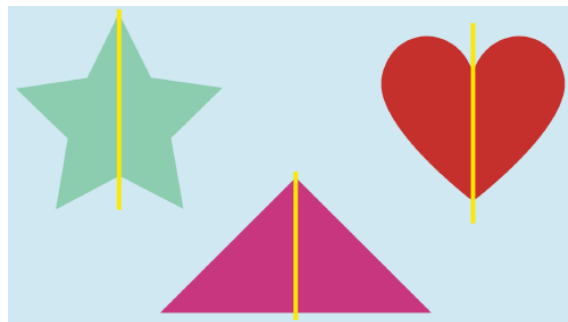
A sum of two numbers is another name for the result of an addition calculation. For example, the sum of 15 and 23 is 38.

## Surfaced Area

The total number of surfaces on a 3D shape.

## Symmetry

When a picture or shape is the same on both sides, we call it 'symmetrical', and this can be shown by drawing a line of symmetry through the centre and seeing if both sides are the same.



## Tally Chart

A tally chart uses marks instead of numbers to represent information. One vertical mark is used to represent each one unit, with five being shown as a fifth line crossed through the first four lines.

Chocolate	Tally	Frequency
Milk		16
Dark		7
White		13

## Tessellations

When shapes fit together exactly with no gaps, we call this Tessellation. An example of this in real life are floor tiles.



### Third

One of three equal parts.

### Time Intervals

A time interval is the length of time between two times. For example, the time interval between 1:15 and 1:45 is 30 minutes.

### Translation of Shapes

Translation is a type of transformation, where a shape is moved into a new position, without being changed in any way.

### Triangle

A triangle is a 2D shape with three sides, angles and corners. There are 4 basic triangles:

Right angled – one angle equal to 90 degrees

Isosceles – two sides of equal length

Equilateral – all sides of equal length

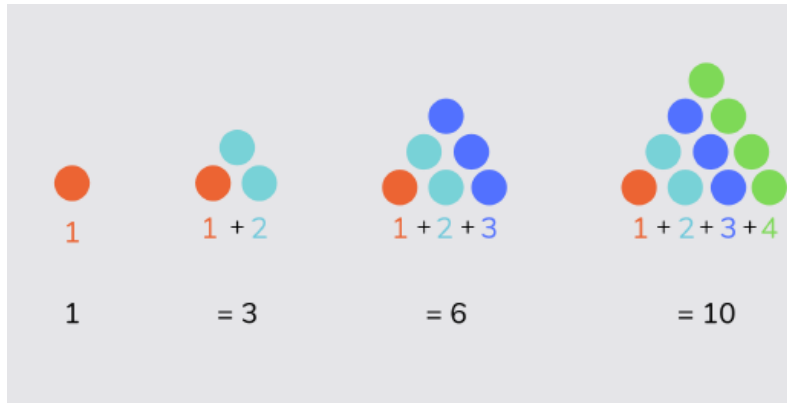
Scalene – No equality in any of the sides

### Triangular Number

A triangular number is a number that can make a triangular dot pattern. For example,  $1 + 2 =$

$3, 2 + 3 = 5, 3$

$+ 5 = 8, 5 + 8 = 13$  etc.



## Turns

Turns are a movement in a circle, with a quarter turn being the same as  $90^\circ$ , a half turn as  $180^\circ$  and a full turn as  $360^\circ$ , either clockwise or anticlockwise.

## Two-step problems

A two-step problem is a word problem which needs two calculations to solve it. A multi-step problem requires more than two calculations to solve it.

## Unit and non-unit fractions

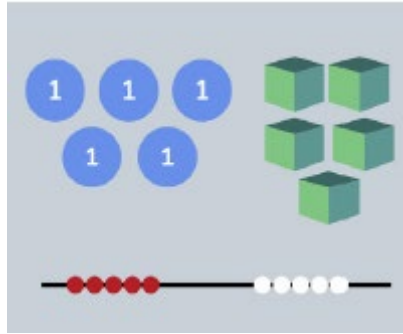
A unit fraction is any fraction with 1 as the numerator. It represents 1 shaded part of all the equal parts of the whole. The term "unit" means one. Whereas a non-unit fraction is any fraction with a number greater than 1 as the numerator. For example,  $\frac{1}{6}$  is a unit fraction, whereas  $\frac{2}{6}$  is a non-unit fraction.

## Venn Diagram

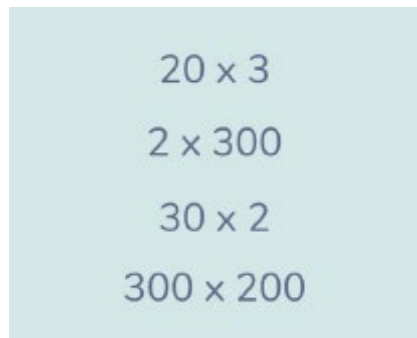
A Venn diagram is a visual way of sorting different objects or numbers into overlapping circles with different rules, with anything in the overlapping part sharing both rules.

## Variatio

In primary maths, there are two types of variation, conceptual and procedural variation. Conceptual variation means looking at a maths idea in various representations. For example, showing a number using multilink, diennes block, 100 square or partitioned, to explain place value.



Procedural variation is used to support a child's deeper understanding of a maths process by extending a problem by varying the number, varying the processes to solve a problem or varying the problems by applying the same method to a group of similar problems.



### Vertex/ Vertices

Vertex is another name for a corner of a 2D shape or the points where edges in a 3D shape meet.

### 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 volume is the amount of space an object occupies, especially 3D shapes. Children will learn the formula for finding the volume of a shape, which is the length x width x height, with the answer having units with a cube number, for example  $\text{cm}^3$ .

### Whole Number

A whole number is **any positive number that does not include a fractional or decimal part** (Including 0).

## Width

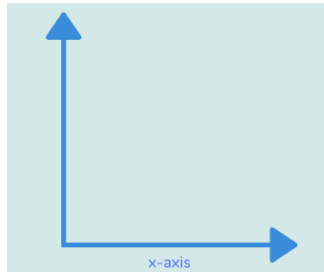
Distance across from side to side

## Word Problem

A word problem or a story problem is a real-life situation where a maths calculation is needed to solve a problem. For example, 'If half a class of children have pets and there are 36 children in the class, how many have pets?'

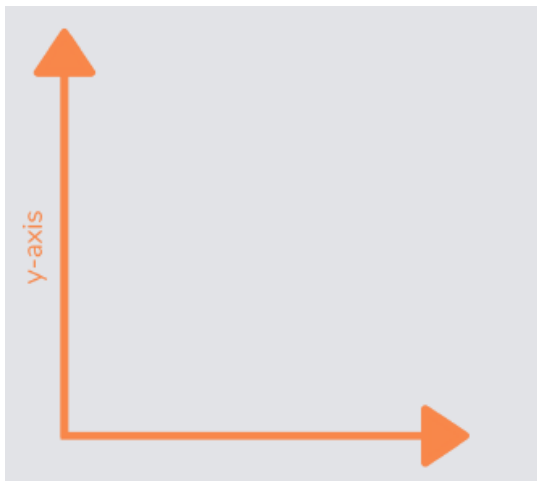
## X-axis

The x-axis is the horizontal axis on a graph, along which we find the x-coordinate (by going 'along the corridor').



## Y-axis

The y-axis is the vertical axis on a graph, along which we find the y-coordinate (by going 'up the stairs').



## Zero

Zero is a placeholder between +1 and -1, it has no value but changes the value of other numbers. For example, in the number 703 it changes the number 73 to the much larger 703.

**Missing Vocabulary**