

# Key vocabulary glossary

**2D** describes a shape that has area on a plane surface, and can be thought of as the face of a 3D shape. 2D shapes include triangles, squares, **rectangles**, **pentagons**, circles and semi-circles.

**3D** describes a shape that has a **volume** in space. 3D shapes can have flat faces and **curved surfaces**. 3D shapes include **cuboids**, **spheres** and **cones**.

## A

**acute** describes an angle that is smaller in size than a quarter turn, or less than  $90^\circ$ . See also obtuse; right angle

**addition** the term addition includes:

- combining parts into a whole. For example, if there are 5 red cars and 3 blue cars in a car park, then  $5 + 3$  gives the whole number of cars in the car park.
- adding more to a given number or amount. For example, if you have 5 points, then score 3 more, the total increases by 3 and is given by the addition **expression**  $5 + 3$ .

In  $5 + 7 = 12$ , 5 and 7 are called 'addends' and the 12 is called the 'sum'. These technical terms are not used directly in *Power Maths*. See also subtraction; multiplication; division

**am** stands for *ante-meridiem*, which means any time before midday. See also pm

**analogue** a measure that is continuously divisible, and often shown through mechanical movement. Analogue time is shown using the motion of hands on a clock or watch face, where the hands make a continuous movement. See also digital time

**approximately** describes a measure or quantity that is close enough to an exact answer to be useful for practical purposes or to check that a given answer is reasonable. An approximation is usually given as a 'round number', such as the nearest 10, 100 or 1,000. For example, if there are 686 pupils in a school, then 700 would be a reasonable approximation.

**array** a representation in which objects or shapes are organised into rows and columns. Each row must contain the same number and each column must contain the same number. 15 marbles can be organised into an array of 5 rows with 3 in each row.

**ascending** describes a number sequence in which each number is greater than the previous number. See also descending

**average** a collective term for different ways of thinking about the meaning of a set of data. By finding one value that represents the whole set of values, the average can help give a sense of what the data shows in context. One type of average is the **mean**.

## B

**bar chart** a chart where quantities are shown as solid **rectangles** or blocks, and their value is read against a **scale** or axis. The bars may be oriented vertically or horizontally. See also pie chart; pictogram

**brackets** when used in calculations of more than one operation, brackets prevent ambiguity. For example, the outcomes of  $(14 - 3) \times 2$  and  $14 - (3 \times 2)$  are different.

$$\begin{array}{ccc} (14 - 3) \times 2 & & 14 - (3 \times 2) \\ \downarrow & & \downarrow \\ 11 \times 2 & & 14 - 6 \end{array}$$

See also order of operations

## C

**capacity** the maximum **volume** or number of objects that a container can contain. For example, an egg box may have a capacity of 6 eggs, and a water bottle may have a capacity of 1 litre. Capacity is sometimes confused with volume, which is the actual amount in a container at a particular time.

**circumference** the outer edge of a circle. The circumference of a circle is analogous to the **perimeter** of a square or triangle. The length of the circumference is always just over 3 times as long as the **diameter** of a circle. See also radius

**common denominator** when two **fractions** have a **denominator** that is equal, they are said to have a common denominator.  $\frac{3}{4}$  and  $\frac{1}{4}$  have a common denominator of 4. Finding common denominators is useful for comparing, **adding** and **subtracting** fractions. Where two fractions have a different denominator, **equivalent** fractions are used to write them with the same denominator. For example,  $\frac{2}{15}$  and  $\frac{2}{20}$  can both be written with a denominator of 60, as  $\frac{12}{60}$  and  $\frac{6}{60}$ .

**common factor** a number that is a **factor** of two or more given numbers. 5 is a common factor of 25, 30 and 100, but 10 is not, because it is not a factor of 25. The common factor that is greatest in value is called the highest common factor. For example, the highest common factor of 24 and 36 is 12. The highest common factor of 50 and 100 is 50. Finding the highest common factor is a useful thing to do when simplifying **fractions**.

**common multiple** a number that is a multiple of two or more given numbers. Common multiples of 5 and 6 include 30, 60 and 90. Common multiples of 4 and 6 include 12, 24 and 36. Common multiples of 2, 4 and 8 include 8, 16 and 24.

**commutative** describes a property of **addition** and **multiplication**, which may informally be understood as 'can be done in any order'.

- addition:  $3 + 4$  gives the same total as  $4 + 3$ .
- multiplication:  $3 \times 4$  gives the same product as  $4 \times 3$ .

**Subtraction** and **division** are not commutative. For example,  $20 - 5$  does not produce the same total as  $5 - 20$ .

**composite number** a whole number that has more than two **factors**. For example, 25 is a composite number because it has three factors: 1, 5 and 25. Another way to think about it is that if a number can be produced by multiplying two numbers together, neither of which are 1, it must be composite. For example, 75 can be produced by  $3 \times 25$ , so it is a composite number.

**compound shape** a shape constructed by joining two or more simpler shapes along a side.

**concentric** two or more circles are concentric if they have the same centre. Concentric circles form 'rings', similar to an archery target.

**cone** a **3D** shape with a circular base and a **curved surface** narrowing to a point. *See also* cuboid; cube; sphere; cylinder; pyramid

**coordinates** ordered pairs of position measures that describe the position of a point. In **2D** coordinates, the coordinates are presented in brackets and give the distance along the *x*-axis and the *y*-axis in that order. For example, (3, 5) specifies a point level with 3 on the *x*-axis, and 5 on the *y*-axis.

**cube** a **3D** shape with six identical square faces. Cubes can be presented from different angles and tilted on a point, as well as resting on a horizontal 'base'. *See also* cuboid; cone; sphere; cylinder; pyramid

**cube number** a number that is produced by multiplying three numbers together, where all three numbers are the same. For example,  $3 \times 3 \times 3$  gives 27, so 27 is a cube number. We say: 3 cubed is 27, and write  $3^3 = 27$ . 1 is also a cube number because  $1 \times 1 \times 1$  equals 1. *See also* square number

**cubic centimetre (cm<sup>3</sup>)** a unit of measure for **volume**; a cube measuring 1 cm along each **edge**. *See also* square centimetre

**cuboid** a **3D** shape with six faces made of **rectangles**. Boxes are often cuboids. *See also* cube; sphere; cone; cylinder; pyramid

**curved surface** the term 'curved surface' is used in *Power Maths* to describe the special faces of **3D** shapes such as **spheres**, **cylinders** and **cones**. This helps to distinguish these shapes from 3D shapes with only flat faces.

**cylinder** a **3D** shape with two circular faces joined by a **curved surface**. *See also* cuboid; cube; sphere; cone; pyramid

## D

**decimal** the place value number system we use, based on the number 10. We often use the word 'decimal' to mean a number that uses place value columns to the right of the ones place, and we use a decimal point to show where this place is. *See also* recurring decimal

**denominator** the number placed below the line in a fraction. This gives the size of the unit being considered. If the denominator of a fraction is 9, then it takes 9 equal parts to complete a whole. *See also* common denominator; numerator

**descending** describes a number sequence in which each number is less than the previous number. *See also* ascending

**diameter** the distance from any point on the **circumference** of a circle, through the centre of the circle, to the opposite side of the circumference. It is the widest possible line to draw across a circle, and is twice the **radius**.

**difference** a comparison between two numbers or quantities, calculated using a **subtraction**. For example, the difference between 7 and 9 is 2, because  $9 - 7 = 2$ . It is possible to work out the difference by considering how much needs to be added to the lesser amount to find the greater. For example, the difference between 9 and 7 can be found by counting on 2 from 7.

**digit** a single numeral that may occur in any place-value position of a number. For example, in the number 19 there are two digits: the 1 has a value of 1 ten, and the 9 has a value of 9 ones.

**digital time** a method of measuring time in discreet jumps, where the **digits** increase by one whole step. *See also* analogue

**division** the term 'division' is introduced through two main approaches.

- sharing equally: 20 pens shared equally between 5 pots may be the context for  $20 \div 5 = 4$ .
- grouping equally: 20 pens sorted into groups of 5 pens may be the context for  $20 \div 5 = 4$ .

There are technical terms for the parts of a division. In  $15 \div 5 = 3$ , 15 may be called the 'dividend', 5 the 'divisor', and 3 the 'quotient'. These terms are not used directly in *Power Maths*. *See also* addition; subtraction; multiplication

**duration** the length of time that an event or action takes from beginning to end. For example, a lesson may have a duration of 45 minutes.

## E

**edge** any straight line formed where exactly two faces of a **3D** shape meet.

**efficient** describes a method of calculating or solving a problem that requires fewer steps than another method. Also describes a way of representing a problem in a way that reveals the relationship between calculations and the context of a problem. For example, when adding 99p to £1.50, an efficient method would be to add £1, then subtract 1p from the total.

**equation** a statement given when two **expressions** are said to be equal to one another. For example,  $3 + 17 = 17 + 3$ ;  $15 - a = 12$ ;  $100 - 2a = 5 + b$ .

**equilateral** describes any triangle with three sides of equal length (and therefore three angles of equal size). See also scalene; right angle; isosceles

**equivalent** two fractions are equivalent if:

- the **numerators** are in the same proportion as the **denominators**. For example,  $\frac{2}{3} = \frac{6}{9}$
- the proportions of the numerator and denominator in each fraction are the same. For example,  $\frac{5}{15} = \frac{10}{30}$  and  $\frac{3}{9} = \frac{12}{36}$

**even** any number that is divisible by 2, leaving no **remainder**. Even numbers always have a 0, 2, 4, 6 or 8 digit in the ones place. See also odd

**exchange** the process of converting between units when performing written or mental calculations. For example, 10 tens may be exchanged for 1 hundred to solve the addition  $350 + 461$ .

**expression** a statement given where numbers that may be known or unknown are operated on in an order. Expressions do not contain any =, < or > signs. Examples of expressions are:  $3 + 17$ ;  $25 \times 4 - 2$ ;  $15 - a$ ;  $6 \times (5y - 41)$

## F

**fact family** a collection of **number sentences** that all describe the same relationship between three numbers. For example, this is a fact family of eight **addition** and **subtraction** facts.

|               |               |
|---------------|---------------|
| $18 + 7 = 25$ | $25 - 7 = 18$ |
| $7 + 18 = 25$ | $25 - 18 = 7$ |
| $25 = 18 + 7$ | $18 = 25 - 7$ |
| $25 = 7 + 18$ | $7 = 25 - 18$ |

Fact families may also be used to find related **multiplication** and **division** facts. For example,

|                   |                 |
|-------------------|-----------------|
| $4 \times 5 = 20$ | $20 \div 5 = 4$ |
| $5 \times 4 = 20$ | $20 \div 4 = 5$ |
| $20 = 4 \times 5$ | $5 = 20 \div 4$ |
| $20 = 5 \times 4$ | $4 = 20 \div 5$ |

**factor** a number is a factor of another number if it divides the number without a **remainder**. For example, 5 is a factor of 35 because there is no remainder given by  $35 \div 5$ . 7 is not a factor of 30 because  $30 \div 7$  gives a remainder. A given whole number may have many factors. For example, the factors of 20 are 1, 2, 4, 5, 10 and 20. See also common factor

**foot** an **imperial** measure of length. One foot is 12 **inches**, which is approximately 30 cm. The heights of people and measurements of furniture are often given in feet and inches. See also yard

**formula** an algebraic equation that gives the general relationship between variables. For example, the formula for the area of a triangle is

Area =  $\frac{1}{2} \times$  base  $\times$  height. Formulas can be written using algebra:  $A = \frac{1}{2} \times b \times h$

**fraction** the concept of fraction includes:

- equal parts of a whole. For example, a millimetre is a fraction of a metre
- a way to name numbers on the number line, including numbers between whole numbers.
- a way to measure a distance that is not a whole number of units. For example, a person may be  $3\frac{1}{2}$  **feet** tall, or playtime may last for  $\frac{1}{4}$  of an hour.
- an operation on a whole, for example, finding  $\frac{1}{4}$  of a class.

See also unit fraction; non-unit fraction; improper fraction

## G

**gallon** an **imperial** measure of **volume**. One gallon is equal to 8 **pints**. This is just over  $4\frac{1}{2}$  litres. A gallon is most often used to measure large volumes such as fuel, or water to fill a swimming pool.

## H

**hexagon** any closed **2D** shape with six straight sides and six corners. See also pentagon; octagon; polygon; quadrilateral; rectangle

## I

**imperial** a system of units of measure used historically in the UK, although less commonly used now than metric measures. Metric measures are defined in **decimal** units, whereas imperial measures vary. Imperial measures such as 12 **inches per foot** allow for easier use of **fractions** than decimal measures, because 12 has more whole number **factors** than 10. Similarly, dividing an hour into 60 equal minutes allows us to find halves and quarters of an hour.

**improper fraction** any **fraction** in which the **numerator** is greater than the **denominator**. These are sometimes called 'top-heavy' fractions.

**inch** an **imperial** measure of length. One inch is between 2.5 cm and 3 cm. 12 inches is very close to 30 cm, the length of many rulers used in schools. See also foot; yard

**inequality** asserts one **expression** is less than or greater than another in a mathematical statement, for example:  $34 < 51$ ;  $3 \times 5 > 2 \times 5$ . Inequality statements can also be a chain, for example:  
 $4 \times 6 < 5 \times 6 < 6 \times 6$

**interval** the length or size of a gap between two points on a **number line** or **scale**.

**inverse operation** an operation that is the reverse of another operation. Doing an inverse operation is a useful way to check your answer to a calculation. The inverse of **addition** is **subtraction**; the inverse of **multiplication** is **division**, and vice versa. For example,

$$5 + 6 = 11 \quad 11 - 6 = 5$$

and

$$7 \times 3 = 21 \quad 21 \div 7 = 3$$

**irregular** a **2D** shape is irregular if either:

- all sides are not of equal length  
or
- all interior angles are not of equal size.

**isosceles** describes a triangle in which two sides are exactly the same length. In isosceles triangles, two angles are always equal in size. An isosceles triangle may contain one **right angle**. *See also* scalene; equilateral; right angle

## K

**kilogram (kg)** a metric unit of measure. 1 kg is equivalent to 1,000 grams, and it is the weight of 1 litre of water.

## L

**line graph** a way of presenting data undergoing a continuous change, such as temperature, sea level or the exchange of currency. Line graphs are useful for finding intermediate values.

**long division** a method of **division** using repeated **subtraction** and working from left to right, from the number with the greatest place value to the number with the least.

**lowest common multiple** the multiple that is least in value and common of two or more numbers. This is useful when **adding** or **subtracting** fractions efficiently. For example, to solve  $\frac{3}{10} + \frac{8}{15}$  you can find the lowest common multiple of 10 and 15 to generate **equivalent** fractions.

$$\frac{3}{10} + \frac{8}{15} = \frac{9}{30} + \frac{16}{30}$$

Using this technique can be called finding the lowest **common denominator**.

## M

**mean** a type of **average** found by adding up all the values and **dividing** by the number of elements. The mean height of three trees with heights 10 m, 15 m and 11 m is given by finding the total ( $10 + 15 + 11 = 36$ ), and then dividing the total by the number of trees ( $36 \div 3 = 12$ ). The mean height of these three trees is 12 m.

**multiplication** the term multiplication includes ideas of:

- equal groups: 4 groups of 5 children is introduced in *Power Maths* as  $4 \times 5$ , although it may also be presented as  $5 \times 4$ .
- repeated **addition**:  $4 + 4 + 4 + 4 + 4 = 5 \times 4$
- **commutativity**:  $4 \times 5 = 5 \times 4$
- an inverse relationship with **division**
- times tables

In  $5 \times 3 = 15$ , 5 and 3 are called the **factors**, and 15 is called the 'product'. *See also* addition; subtraction; division

## N

**net** the **2D** pattern made when a **3D** shape is unfolded. A **cube** has 11 distinct nets.

**non-unit fraction** any **fraction** with a **numerator** that is not 1. For example,  $\frac{2}{3}$ ,  $\frac{5}{11}$  or  $\frac{1,002}{1,001}$  *See also* unit fraction

**number line** a continuous line along which numbers are represented as points. This representation differs from a **number track**.

**number sentence** a mathematical statement including an equals sign, or an **inequality**. Pupils should build confidence seeing number sentences in a variety of ways. For example,

$$2 + 7 = 9$$

$$9 - 3 = 6$$

$$6 = 9 - 3$$

$$3 + 6 = 2 + 7$$

$$5 + ? = 10$$

$$4 = ? - 2$$

**number track** a way of presenting a sequence of numbers in a row of boxes. It is often used to introduce counting numbers, but represents numbers differently from a **number line**.

**numerator** the number placed above the line in a **fraction**. This gives the number of equal parts represented. The numerator 3 in  $\frac{3}{4}$  tells us that we are working with 3 out of 4 equal parts of a whole. *See also* denominator

## O

**obtuse** an angle greater than a quarter turn and less than a half turn, or between  $90^\circ$  and  $180^\circ$ . *See also* right angle, acute

**octagon** a **2D** shape with eight straight sides and eight corners. *See also* pentagon; rectangle; polygon; quadrilateral; hexagon

**odd** any number that leaves a **remainder** of 1 when divided by 2. Odd numbers always have a 1, 3, 5, 7 or 9 **digit** in the ones place. *See also* even



**order of operations** an agreed convention to avoid ambiguity in calculations involving more than one operation. This is often memorised as BODMAS (**B**rackets, **O**rders, **D**ivision, **M**ultiplication, **A**ddition, **S**ubtraction). This may be confusing, so writing the stages of the calculation may be less prone to error.

$$20 - 5 \times 3$$

↓

$$20 - 15$$

**ounce (oz)** an **imperial** measure of mass. There are 16 ounces in 1 **pound**. *See also* stone

## P

**parallel** two or more lines are parallel to one another if they are oriented in exactly the same direction. If the lines were extended, they would never meet. *See also* perpendicular

**partition** to split or break a number into two or more parts. Partitioning is often used for understanding place value. For example, 352 may be partitioned into 300 and 50 and 2. It is also useful to understand partitioning flexibly. For example, when **dividing** 42 by 3, it may be more **efficient** to partition 42 into 30 and 12, rather than into 40 and 2.

**part-whole diagram** a diagram used to help work out how two or more parts combine to make a whole. For example, in a tank there may be 3 clown fish and 4 zebra fish (the parts) which is 7 fish in total (the whole). This can be shown in a part-whole diagram.

**pattern** an arrangement of numerals, letters, shapes etc. Patterns can have different structures. Repeating patterns have a unit of repeat, for example, ABABABABAB...

**pentagon** any closed **2D** shape with five straight sides and five corners. Pupils may be familiar with traditional 'house-shaped' pentagons or **regular** pentagons, but will need experience with pentagons in a range of orientations and proportions, and with a variety of interior angles. *See also* rectangle; octagon; polygon; quadrilateral; hexagon

**perimeter** the total length of all sides of a given shape. Perimeter is commonly measured in centimetres or metres.

**perpendicular** describes two lines that are oriented at **right angles** to one another. The lines may cross each other, or may not cross. If they do not cross, then that may still be described as perpendicular to one another by thinking about what angle would be formed if they were extended far enough to intersect. *See also* parallel

**pictogram** a way to present data using symbols to represent quantities. The value that one symbol represents could be any number, but is most commonly 1, 2, 5 or 10 when introduced.

**pie chart** a chart presenting the proportions of different sets of a whole as **fractions** of a circle. *See also* bar chart; pictogram

**pint** an **imperial** measure of **volume**. One pint is **approximately** 568 ml, which is just over half a litre. A pint is most often used to measure drinks, such as milk, and may be used in recipes. *See also* gallon

**pm** stands for *post-meridiem*, which means any time after midday. *See also* am

**polygon** a closed **2D** shape with only straight sides. The number of corners is always equal to the number of sides. *See also* pentagon; rectangle; octagon; hexagon; quadrilateral

**pound** an **imperial** measure of mass. The symbol for pound is lb. One lb is just under half a **kilogram**. The weight of new born babies is often given in pounds and **ounces**. *See also* stone

**prime number** a number that has exactly two **factors**. For example, 29 is a prime number because it has only two factors: 1 and 29. Some discussion may be around the definition 'It can only be divided by 1 and itself'. However, this definition includes the number 1, which does not have two factors, and is not a prime number. *See also* composite number

**prism** a **3D** shape in which two opposite faces are identical and joined by **rectangular** faces. The triangular prism is a commonly seen example, and a **cuboid** is a special kind of prism.

**pyramid** a **3D** shape with a base and triangle faces meeting at a point. Common pyramids have triangle or square bases, but other shape bases are possible. *See also* cuboid; cube; sphere; cylinder; cone

## Q

**quadrant** when **coordinate** axes are used, the grid is split into four quadrants. The quadrant with positive *x* and positive *y* values is called the first quadrant.

**quadrilateral** any closed **2D** shape with four straight sides. Common kinds of quadrilateral are: square, **rectangle**, parallelogram, kite and trapezium. *See also* pentagon; rectangle; octagon; polygon; hexagon

## R

**ratio** the part-to-part relationship of quantities. If there are 3 cats for every 2 dogs in a group, then the ratio of dogs to cats is 3 to 2, which is written 3 : 2. The following pairs are all in the ratio 3 : 2.

- 3, 2
- 6, 4
- 9, 6
- 12, 8

**radius** the distance from the centre of a circle to its **circumference**. A radius can be described as all the points that are a given distance from a centre. This is how compasses are used to draw circles. *See also* diameter

**rectangle** a **2D** shape with four sides and four **right angles**. A square is a special kind of rectangle. *See also* pentagon; octagon; polygon; quadrilateral; hexagon

**rectilinear** describes any shape in which all the sides or sides meet at **right angles**. This may be a simple shape such as a **rectangle**, or a **compound shape** that may look like two or more rectangles joined together along one side.

**recurring decimal** a **decimal remainder** in a **division**, which repeats infinitely. When a division produces a remainder, the remainder can be represented as a decimal. For example,

$$25 \div 2 = 12 \text{ r } 1 \text{ or } 12.5$$

$$23 \div 4 = 5 \text{ r } 3 \text{ or } 5.75$$

Some divisions, such as  $10 \div 3$ , produce a decimal answer of  $3.333333\dots$ , which is known as a recurring decimal. The repeat may be of a **pattern of digits**. For example,  $10 \div 11 = 0.9090909\dots$

**reflect** a transformation in which a shape is reflected in a line of symmetry. The line may be horizontal, vertical or in a diagonal orientation.

**regular** a **2D** shape is regular if both the following conditions are true:

- all sides are of equal length  
and
- all interior angles are of equal size.

A square is a commonly seen example of a regular shape.

**remainder** the amount left over after a **division** is completed. The remainder can never be equal to or greater than the number you are dividing by. For example, when sharing 23 sweets between 4 people, each person can receive 4 whole sweets, leaving 3 that cannot be shared whole between the 4 people.

**right angle** an angle that is exactly one quarter of a whole turn. Because we use  $360^\circ$  as the unit of one whole turn, a right angle measures exactly  $90^\circ$ . *See also* acute; obtuse

**rule** a **number sentence** or **equation** used to show a general **pattern** or relationship that occurs, often in sequences or growing patterns. For example, if a cat needs 2 kg of food each week, you can use the rule  $2 \times n$ , or  $2n$  to work out how many kg of food you need for  $n$  weeks. In *Power Maths*, the rules are given in practical contexts so that the algebra and the rules can be understood meaningfully.

## S

**scale** a **number line** with **intervals** of equal size, used to measure **volume** or the value presented in a chart. The intervals are commonly given in units of 1, 2, 5 or 10, or in multiples or **factors** of 100 and 1,000.

**scalene** describes any triangle with three sides of different length (which also means three angles of different size). *See also* equilateral; right angle; isosceles

**scale factor** a length or quantity can be multiplied by a scale factor. If a shape is scaled by a factor of 3, then the length of each side is multiplied by 3.

**similar** two shapes are similar if the proportions of their sides are in the same **ratio**. For example, a **rectangle** with sides 2 cm by 10 cm is similar to a rectangle measuring 6 cm by 30 cm because, in both, one side is 5 times as long as the other.

**simplify** to simplify a **fraction** is to find an **equivalent fraction** in which the **numerator** and **denominator** are the smallest whole numbers possible. For example,  $\frac{8}{12}$  simplifies to  $\frac{4}{6}$  and further to  $\frac{2}{3}$ .  $\frac{9}{10}$ , however, does not simplify any further as there is no equivalent fraction that has a smaller numerator and denominator. Pupils may make the mistake of only considering whether they can halve the numerator and denominator to simplify. In the fraction  $\frac{5}{25}$ , neither the 5 nor the 25 can be halved, but it simplifies to  $\frac{1}{5}$ .

**sphere** a **3D** shape with one **curved surface**. Balls are often spherical. *See also* cuboid; cube; cylinder; cone; pyramid

**square centimetre (cm<sup>2</sup>)** a unit used to measure area. A square measuring 1 cm along each side has an area of 1 cm<sup>2</sup>. An area of  $3\frac{1}{2}$  cm<sup>2</sup> means an area equivalent to the total area of  $3\frac{1}{2}$  such squares. *See also* cubic centimetre; square metre; square number

**square metre (m<sup>2</sup>)** a unit used to measure area. A square measuring 1 m along each side has an area of 1 m<sup>2</sup>. An area of 6 m<sup>2</sup> means an area equivalent to the total area of six such squares. *See also* square centimetre; square number

**square number** a number that is produced by **multiplying** two whole numbers together, where both numbers are the same. For example,  $4 \times 4 = 16$ , so 16 is a square number. We say 4 squared is 16, which may be written as  $4^2 = 16$ . 1 is also a square number. *See also* cube number

**stone** an **imperial** measure of mass. One stone is 14 **pounds**. A stone is a commonly used unit of measure for the weight of humans. *See also* ounce

**substitute** to give a variable a numerical value in an algebraic **expression**, and use that to calculate a total. For example,  $2y - 5$  is an expression. If we substitute  $y = 3$  into the expression then we can calculate the value:  $2 \times 3 - 5 = 1$ .

**subtraction** the term subtraction covers:

- **partitioning**, where one number is split into two parts. For example, if there are 7 cars and 6 are washed, then the subtraction  $7 - 6$  calculates the number of unwashed cars.
- taking away, where a total is reduced by removing a certain number. For example, if there are 8 apples to begin with, and 3 are then eaten, the subtraction  $8 - 3$  calculates the number of apples remaining.
- comparing, where a subtraction gives the **difference** between two quantities. For example, if there are 6 red cones and 4 blue cones, then  $6 - 4$  calculates how many more red than blue, and how many fewer blue than red.

There are other technical terms for the different parts of subtraction. In  $7 - 3 = 4$ , the 7 is the 'minuend' and the 3 is the 'subtrahend'. These terms are not used directly in *Power Maths*. See also addition; multiplication; division

## T

**tetrahedron** a triangle-based **pyramid**.

**translation** a transformation of a shape in which it slides without changing proportion or orientation. If a shape is translated 6 squares to the right, then each **vertex** of the shape moves exactly 6 squares to the right.

## U

**unit fraction** any **fraction** with a **numerator** of 1. For example,  $\frac{1}{3}$ ,  $\frac{1}{11}$  or  $\frac{1}{1,000}$  See also non-unit fraction

## V

**vertex/vertices** the corner or point on a **2D** or **3D** shape. In *Power Maths*, the word is used mainly for 3D shapes, although it can equally accurately be applied to corners of 2D shapes.

**volume** the amount of **3D** space occupied by a solid object, or by a liquid or gas in a container.

## Y

**yard** an **imperial** measure of length. One yard is **3 feet**, which is **approximately** 90 cm, and can be closely estimated as the length of one adult stride. See also inch