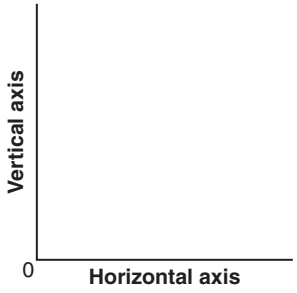
Illustrated Glossary

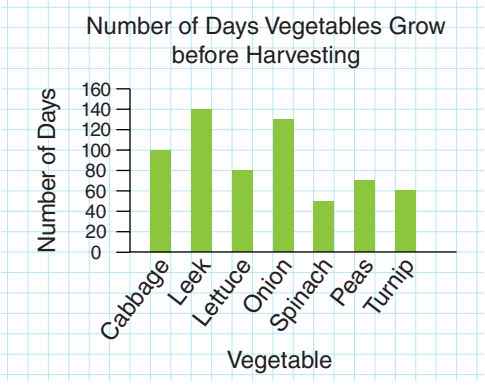
a.m.: A time between midnight and just before noon.

Area: The amount of surface a shape or region covers. We measure area in square units, such as square centimetres or square metres.

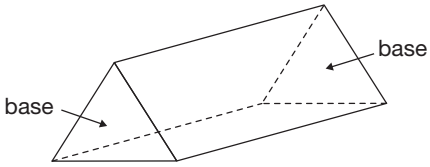
Axis (plural: axes): A number line along the edge of a graph. We label each axis of a graph to tell what data it displays. The horizontal axis goes across the page. The vertical axis goes up the page.



Bar graph: Displays data by using bars of equal width on a grid. The bars may be vertical or horizontal.

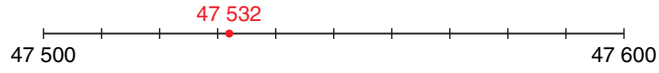


Base: The face that names an object. For example, in this triangular prism, the bases are triangles.

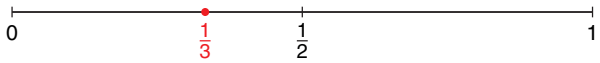


Benchmark: Used for estimating by writing a number to its closest benchmark; for example,

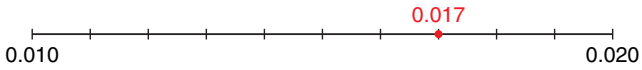
1. For whole numbers: 47 532 is closer to the benchmark 47 500 than to the benchmark 47 600.



2. For fractions: $\frac{1}{3}$ is closer to $\frac{1}{2}$ than to 0 or to 1.



3. For decimals: 0.017 is closer to 0.020 than to 0.010.



Capacity: A measure of how much a container holds. We measure capacity in litres (L) or millilitres (mL).

Carroll diagram: A diagram used to sort numbers or attributes.

Centimetre: A unit used to measure length.
We write one centimetre as 1 cm.
1 cm = 0.01 m
1 cm = 10 mm
100 cm = 1 m

Certain event: An event that always happens.

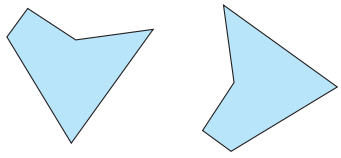
Clockwise: The hands on a clock turn in a clockwise direction.

Compatible numbers: Pairs of numbers that are easy to work with; for example,

1. The numbers 340 + 160 are compatible for adding because 40 + 60 = 100.
2. Multiples of 10 or 100 are compatible for estimating products because they are easy to multiply.

Compensation: A strategy for estimating; rounding one number up and rounding the other number down when the numbers are added.

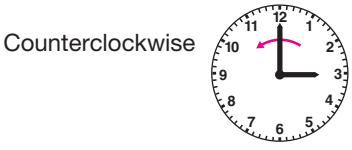
Congruent shapes: Two shapes that match exactly.



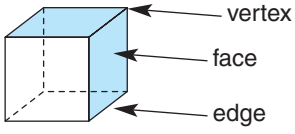
Consecutive numbers: Numbers that follow in order;
for example, 4, 5, 6, 7, …

Core: See **Repeating pattern**.

Counterclockwise: A turn in the opposite direction to the direction the hands on a clock turn.



Cube: An object with 6 faces that are congruent squares. Two faces meet at an edge. Three or more edges meet at a vertex.

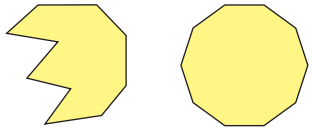


Cubic centimetre (cm^3): A unit to measure volume.
A centimetre cube has a volume of one cubic centimetre.
We write one cubic centimetre as 1 cm^3.

Cubic metre: A unit to measure volume.
One cubic metre is the volume of a cube with edge length 1 m.
We write one cubic metre as 1 m^3.

Data: Information collected from a survey or experiment.

Decagon: A polygon with 10 sides.



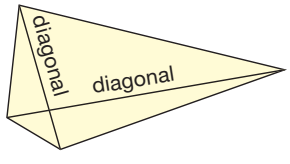
Decimal: A way to write a fraction. The fraction $\frac{2}{10}$ can be written as the decimal 0.2.

Decimal point: Separates the whole number part and the fraction part in a decimal. We read the decimal point as "and." We say 3.2 as "three **and** two-tenths."

Degree: A unit to measure temperature. We write one degree Celsius as 1°C.

Denominator: The part of a fraction that tells how many equal parts are in one whole. The denominator is the bottom number in a fraction.

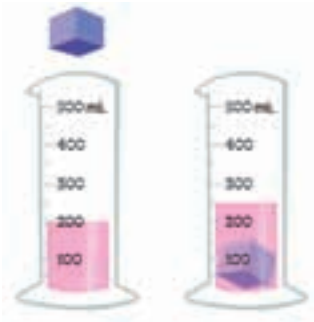
Diagonal: A line segment that joins opposite vertices of a shape.



Difference: The result of a subtraction. The difference of 5 and 2 is 3: $5 - 2 = 3$

Dimensions: **1.** The measurements of a shape or an object. A rectangle has 2 dimensions, length and width. A cube has 3 dimensions, length, width, and height.
2. For an array, the dimensions tell the number of rows and the number of columns.

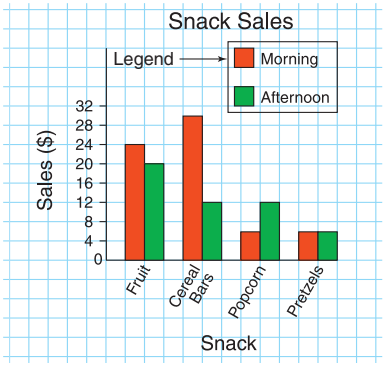
Displacement: The volume of water moved or displaced by an object put in the water. The displacement of this cube is 50 mL or 50 cm^3.



Dividend: The number to be divided. In the division sentence $77 \div 11 = 7$, the dividend is 77.

Divisor: The number by which another number is divided. In the division sentence $77 \div 11 = 7$, the divisor is 11.

Double bar graph: Displays two sets of data at once.



Edge: Two faces of a solid meet at an edge. See also **Cube**, **Prism**, and **Pyramid**.

Equally likely events: Two or more events, each of which is as likely to happen as the other. For example, if you toss a coin, it is equally likely that the coin will land heads up as tails up.

Equally probable: See **Equally likely events**.

Equation: **1.** Uses the = symbol to show two things that represent the same amount. $5 + 2 = 7$ is an equation.
2. Uses the = symbol with a variable, an operation such as $+, -, \times$, or $\div$, and numbers to show two things that represent the same amount; for example, $20 = p + 6$. See **Solution of an equation**.

Equivalent decimals: Decimals that name the same amount. 0.4, 0.40, and 0.400 are equivalent decimals.

Equivalent fractions: Name the same amount; for example, $\frac{1}{3}, \frac{2}{6}, \frac{3}{9}, \frac{10}{30}$ are equivalent fractions.

Estimate: Close to an amount or value, but not exact.

Event: The outcomes or a set of outcomes from a probability experiment. For example, when a die labelled 1 to 6 is rolled, some events are: rolling a number greater than 3, rolling an even number, rolling a 6.

Expanded form: Shows a number as a sum of the values of its digits; for example,

1. For whole numbers:

$123\,456 = 100\,000 + 20\,000 + 3000 + 400 + 50 + 6$

2. For decimals:

$5.713 = 5 + 0.7 + 0.01 + 0.003$

Experiment: In probability, a test or trial used to investigate an idea.

Expression: Uses a variable and numbers to represent a pattern; for example, $d + 2$ represents the number of dots on Figure d in the pattern shown in the table below.

Figure Number	Number of Dots
1	3
2	4
3	5
4	6
5	7

Face: Part of an object. See also **Cube**, **Prism**, and **Pyramid**.

Factors: Numbers that are multiplied to get a product. In the multiplication sentence $3 \times 7 = 21$, the factors of 21 are 3 and 7.

Fair game: A game where all players have the same chance of winning.

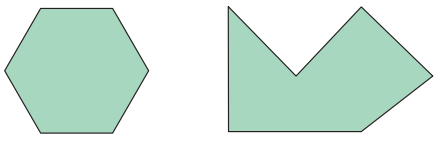
First-hand data: Data you collect yourself.

Front-end rounding: Using only the first digit of each number to get an estimate; for example,

1. For adding: 23 056 + 42 982 is about 20 000 + 40 000 = 60 000
2. For multiplying: 72×23 is about $70 \times 20 = 1400$

Gram: A unit to measure mass. We write one gram as 1 g. 1000 g = 1 kg

Hexagon: A polygon with 6 sides.

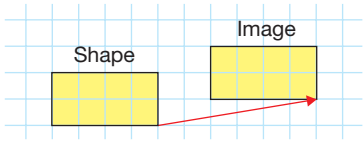


Horizontal: A line that is parallel to the horizon.

Horizontal axis: See **Axis**.

Hundredth: A fraction that is one part of a whole when it is divided into 100 equal parts. We write one-hundredth as $\frac{1}{100}$ or 0.01.

Image: The shape that is the result of a transformation. This is a rectangle and its image after a translation of 6 squares right and 1 square up.



Impossible event: An event that cannot happen.

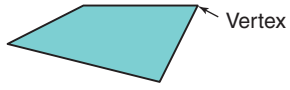
Improbable event: An event that is unlikely to happen but not impossible.

Improper fraction: A fraction that shows an amount greater than one whole. The numerator is greater than the denominator. $\frac{3}{2}$ is an improper fraction.

Increasing pattern: A pattern where each frame or term is greater than the previous frame or term.

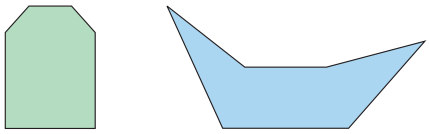
1, 3, 8, 10, 15, 17, 23, …

Intersect: 1. For shapes, when two sides meet, they intersect in a point called the vertex.



2. For objects, when three or more edges meet, they intersect in a point called the vertex. When two faces meet, they intersect in an edge. See **Cube**.

Irregular polygon: A polygon that does not have all sides equal or all angles equal. Here are two irregular hexagons.

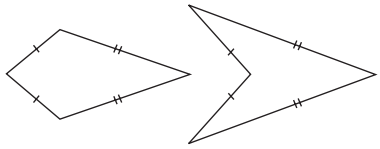


Key: See **Pictograph**.

Kilogram: A unit to measure mass. We write one kilogram as 1 kg.
1 kg = 1000 g

Kilometre: A unit to measure long distances. We write one kilometre as 1 km. 1 km = 1000 m

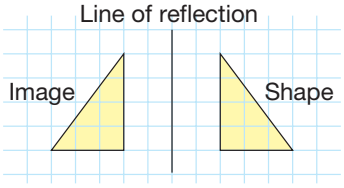
Kite: A quadrilateral with two pairs of adjacent sides equal.



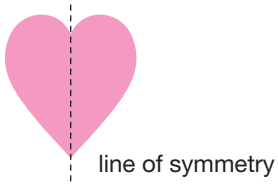
Legend: Tells the scale on a double bar graph and what each bar represents. See **Double bar graph**.

Likely event: An event that will probably happen.

Line of reflection: A line in which a shape is reflected. See **Reflection**.



Line of symmetry: Divides a shape into two congruent parts. If we fold the shape along its line of symmetry, the parts match.



Linear dimension: Length, width, depth, height, thickness.

Litre: A unit to measure the capacity of a container. We write one litre as 1 L.
1 L = 1000 mL

Mass: Measures how much matter is in an object. We measure mass in grams or kilograms.

Metre: A unit to measure length. We write one metre as 1 m.
1 m = 100 cm
1 m = 1000 mm

Milligram: A unit to measure mass. We write one milligram as 1 mg.
1000 mg = 1 g

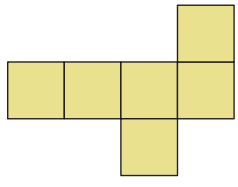
Millilitre: A unit to measure the capacity of a container. We write one millilitre as 1 mL.
1000 mL = 1 L
1 mL = 1 cm^3

Millimetre: A unit to measure length. We write one millimetre as 1 mm.
One millimetre is one-tenth of a centimetre: 1 mm = 0.1 cm
10 mm = 1 cm
One millimetre is one-thousandth of a metre: 1 mm = 0.001 m
1000 mm = 1 m

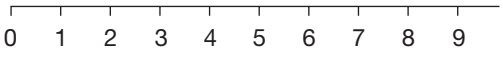
Multiple: Start at a number, then count on by that number to get the multiples of that number. To get the multiples of 3, start at 3 and count on by 3:
3, 6, 9, 12, 15, …

Multiplication fact: A sentence that relates factors to a product.
$3 \times 7 = 21$ is a multiplication fact.

Net: An arrangement that shows all the faces of an object, joined in one piece. It can be folded to form the object.

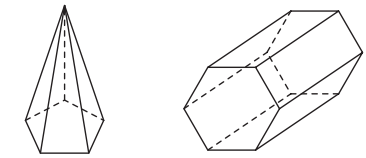


Number line: Has numbers in order from least to greatest. The spaces between pairs of consecutive numbers are equal.

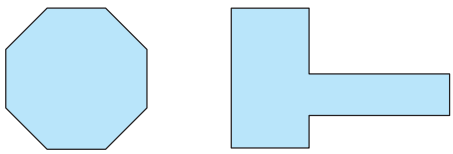


Numerator: The part of a fraction that tells how many equal parts to count. The numerator is the top number in a fraction. In the fraction $\frac{2}{3}$, the numerator is 2. We count 2 thirds of the whole.

Object: Has length, width, and height. Objects have faces, edges, vertices, and bases. We name some objects by the number and shape of their bases.



Octagon: A polygon with 8 sides.

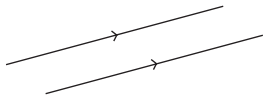


Operation: Something done to a number or quantity. Addition, subtraction, multiplication, and division are operations.

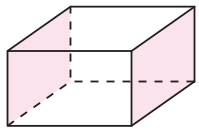
Outcome: One result of an event or experiment. Tossing a coin has two possible outcomes, heads or tails.

p.m.: A time between noon and just before midnight.

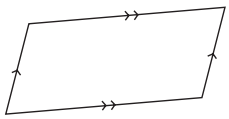
Parallel: 1. Two lines that are always the same distance apart are parallel.



2. Two faces of an object that are always the same distance apart are parallel; for example, the shaded faces on the rectangular prism below are parallel.



Parallelogram: A quadrilateral with 2 pairs of opposite sides parallel.



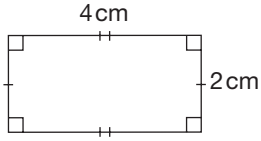
Partial products: Used as a strategy for multiplying 2-digit numbers; for example,

$$\begin{aligned} 42 \times 57 &= (40 + 2) \times (50 \times 7) \\ &= (40 \times 50) + (40 \times 7) + (2 \times 50) \\ &\quad + (2 \times 7) \\ &= 2000 + 280 + 100 + 14 \\ &= 2394 \end{aligned}$$

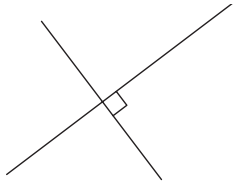
There are 4 partial products.

Pattern rule: Describes how to make a pattern. For the pattern 1, 2, 4, 8, 16, …, the pattern rule is: Start at 1. Multiply by 2 each time.

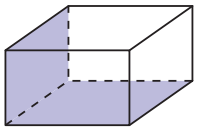
Perimeter: The distance around a shape. It is the sum of the side lengths.
The perimeter of this rectangle is:
2 cm + 4 cm + 2 cm + 4 cm = 12 cm



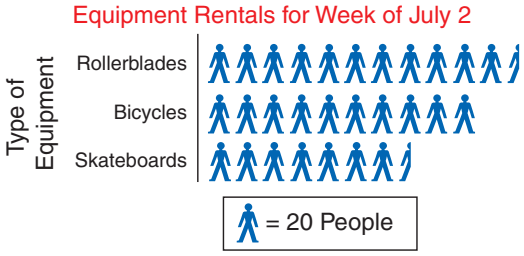
Perpendicular: 1. Two lines that intersect at a right angle are perpendicular.



2. Two faces that intersect on a rectangular prism or a cube are perpendicular.



Pictograph: Uses pictures and symbols to display data. Each picture or symbol can represent more than one object. A key tells what each picture represents.

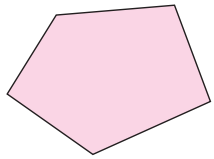


Place-value chart: It shows how the value of each digit in a number depends on its place in the number; see page 44 for whole numbers and page 184 for decimals.

Placeholder: A zero used to hold the place value of the digits in a number. For example, the number 603 has 0 tens. The digit 0 is a placeholder.

Point of rotation: The point about which a shape is rotated. See **Rotation**.

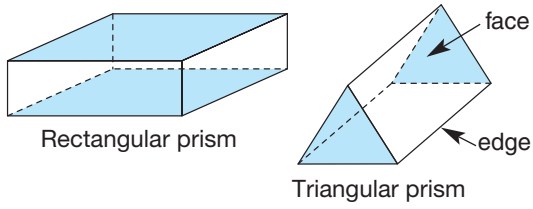
Polygon: A shape with three or more sides. We name a polygon by the number of its sides. For example, a five-sided polygon is a pentagon.



Possible event: An event that may happen.

Prediction: You make a prediction when you decide how likely or unlikely it is that an event will happen.

Prism: An object with 2 bases.



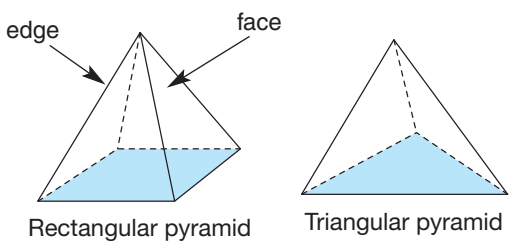
Probability: Tells how likely it is that an event will occur.

Probable event: An event that is likely but not certain to happen.

Product: The result of a multiplication. The product of 5 and 2 is 10: $5 \times 2 = 10$

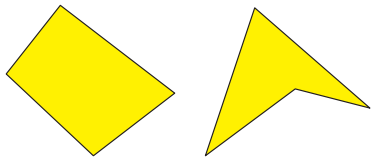
Proper fraction: Describes an amount less than one. A proper fraction has a numerator that is less than its denominator. $\frac{5}{7}$ is a proper fraction.

Pyramid: An object with 1 base.

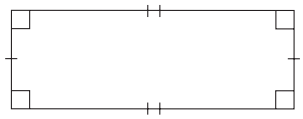


Quotient: The number obtained by dividing one number into another. In the division sentence $77 \div 11 = 7$, the quotient is 7.

Quadrilateral: A shape with 4 sides.



Rectangle: A quadrilateral, where 2 pairs of opposite sides are equal and each angle is a right angle.



Rectangular prism: See **Prism**.

Rectangular pyramid: See **Pyramid**.

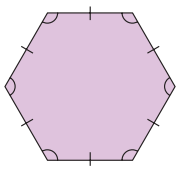
Referent: Used to estimate a measure; for example, a referent for:
a length of 1 mm is the thickness of a dime.
a length of 1 m is the width of a doorway.
a volume of 1 cm^3 is the tip of a finger.
a volume of 1 m^3 is the space taken up by a playpen.
a capacity of 1 L is a milk pitcher.
a capacity of 1 mL is an eyedropper.

Reflection: Reflects a shape in a line of reflection to create a reflection image. See **Line of reflection**.

Reflection image: The shape that results from a reflection. See **Reflection**.

Regular shape: See **Regular polygon**.

Regular polygon: A regular polygon has all sides equal and all angles equal. Here is a regular hexagon.



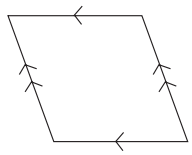
Related facts: Sets of addition and subtraction facts or multiplication and division facts that have the same numbers. Here are two sets of related facts:

$2 + 3 = 5$	$5 \times 6 = 30$
$3 + 2 = 5$	$6 \times 5 = 30$
$5 - 3 = 2$	$30 \div 6 = 5$
$5 - 2 = 3$	$30 \div 5 = 6$

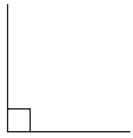
Remainder: What is left over when one number does not divide exactly into another number. For example, in the quotient $13 \div 5 = 2$ R3, the remainder is 3.

Repeating pattern: A pattern with a core that repeats. The core is the smallest part of the pattern that repeats. In the pattern: 1, 8, 2, 1, 8, 2, 1, 8, 2, …, the core is 1, 8, 2.

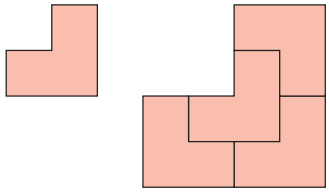
Rhombus: A quadrilateral with all sides equal and 2 pairs of opposite sides parallel.



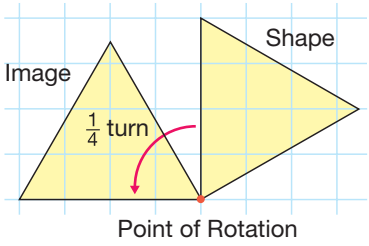
Right angle: Two lines that are perpendicular make a right angle.



Rep-tile: A polygon that can be copied and arranged to form a larger polygon that has the same shape.



Rotation: Turns a shape about a point of rotation in a given direction. This is a triangle and its image after a rotation of a $\frac{1}{4}$ turn counterclockwise about one vertex:



Rotation image: The shape that results from a rotation. See **Rotation**.

Scale: The numbers on the axis of a graph show the scale.

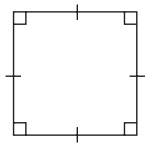
Second: A small unit of time. There are 60 seconds in 1 minute. 60 s = 1 min

Second-hand data: Data collected by someone else.

Solution of an equation: The value of a variable that makes the equation true; for example, $p = 14$ is the solution of the equation $20 = p + 6$.

Speed: A measure of how fast an object is moving.

Square: A quadrilateral with equal sides and 4 right angles.



Square centimetre: A unit of area that is a square with 1-cm sides. We write one square centimetre as 1 cm^2.

Square metre: A unit of area that is a square with 1-m sides. We write one square metre as 1 m^2.

Standard form: The number 579 328 is in standard form; it has a space between the thousands digit and the hundreds digit.
See **Place-value chart**.

Standard units: Metres, square metres, cubic metres, kilograms, and seconds are some standard units.

Sum: The result of addition.
The sum of 5 and 2 is 7:
$5 + 2 = 7$

Survey: Used to collect data. You can survey your classmates by asking them which is their favourite ice-cream flavour.

Symmetrical: A shape is symmetrical if it has one or more lines of symmetry.

Tenth: A fraction that is one part of a whole when it is divided into 10 equal parts. We write one-tenth as $\frac{1}{10}$ or as 0.1.

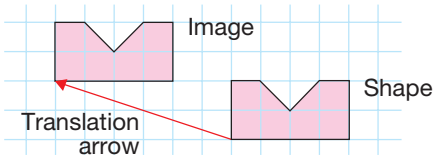
Term: One number in a number pattern. For example, the number 4 is the third term in the pattern 1, 2, 4, 8, 16, …

Thousandth: A fraction that is one part of a whole when it is divided into 1000 equal parts. We write one-thousandth as $\frac{1}{1000}$, or 0.001.

Tonne: A unit used to measure a very large mass. We write one tonne as 1 t.
1 t = 1000 kg

Transformation: A translation (slide), a reflection (flip), and a rotation (turn) are transformations.

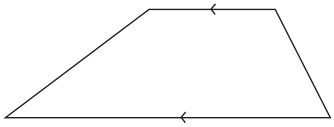
Translation: Slides a shape from one location to another. A translation arrow joins matching points on the shape and its image. This shape has been translated 6 squares left and 2 squares up.



Translation arrow: See **Translation**.

Translation image: The shape that results from a translation. See **Translation**.

Trapezoid: A quadrilateral with exactly 1 pair of sides parallel.



Triangular prism: See **Prism**.

Triangular pyramid: See **Pyramid**.

Unlikely event: An event that will probably not happen.

Variable: A letter, in italics, that is used to represent a number in an equation, or a set of numbers in a pattern. See **Equation** and **Expression**.

Vertex (plural: vertices): **1.** The point where two sides of a shape meet. **2.** The point where three or more edges of an object meet.

Vertical: A line that is perpendicular to the horizon.

Vertical axis: See **Axis**.

Volume: The amount of space occupied by an object or the amount of space inside an object. Volume can be measured in cubic centimetres or in cubic metres.