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 \(1\ \text{cm}^3\).

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 \(1\ \text{m}^3\).

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 \(1\ ^\circ\text{C}\).

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 cm³.

**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.

<table>
<thead>
<tr>
<th>Figure Number</th>
<th>Number of Dots</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

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: \(72 \times 23\) is about \(70 \times 20 = 1,400\)

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.

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.

![Irregular hexagons](image)

**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.

![Kite](image)

**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 reflection](image)

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

![Line of symmetry](image)

**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 cm³

**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 × 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,

\[
42 \times 57 = (40 + 2) \times (50 + 7) = (40 \times 50) + (40 \times 7) + (2 \times 50) + (2 \times 7) = 2000 + 280 + 100 + 14 = 2394
\]

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:

\[
2 \text{ cm} + 4 \text{ cm} + 2 \text{ cm} + 4 \text{ cm} = 12 \text{ cm}
\]
**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 cm³ is the tip of a finger.
- a volume of 1 m³ 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:

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

**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. $60 \text{ s} = 1 \text{ min}$

**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 $1 \text{ cm}^2$.

**Square metre**: A unit of area that is a square with 1-m sides. We write one square metre as $1 \text{ m}^2$.

**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. $1 \text{ t} = 1000 \text{ kg}$

**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.