1. Cube Numbers

$1^3 = 1$

$2^3 = 8$

$3^3 = 27$

$4^3 = 64$

$5^3 = 125$

$6^3 = 216$

$7^3 = 343$

$8^3 = 512$

$9^3 = 729$

$10^3 = 1000$

$11^3 = 1331$
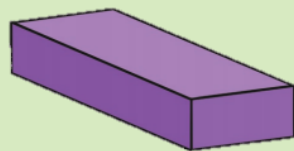
$12^3 = 1728$

2. 3D Shapes

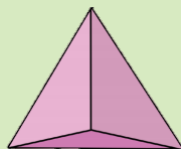Cube   Cuboid   Sphere   Triangular Prism

Cylinder   Square based pyramid   Tetrahedron   Cone

3. Geometric Language

Faces are the flat surfaces on a solid 3D shape.

An **edge** is a line segment where two faces meet.

A **vertex** is a corner point where edges or line segments meet. A vertex can be on a 2D or 3D shape.

The plural of a vertex is **vertices.**

A **prism** is a 3D shape with a uniform cross-section. The two end faces of a prism are the same and the other faces are rectangles. E.g. a cube is a prism, but a tetrahedron is not.

The **cross-section** of a prism is the shape revealed by a straight line cut through it e.g. the cross section on a cube is a square

Polygons are 2D shapes made by three or more straight sides.

Plan view is the view of an object from above.

Side elevation is the view of an object from a side.

Front elevation is the view of an object from the front.

4. Volume and Surface Area

Volume is the amount of space taken up by a 3-dimensional object.

To find the **volume** of a **prism** you multiply the area of the **cross section** by the depth.

Volume is measured in **cubic** units e.g. cm^3

Surface area is the total area of all the faces for a 3-dimensional shape.
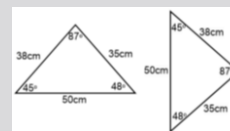
Surface area is measured in **square** units e.g. m^2

A **net** is a pattern of polygons that you can fold to make a model of a 3D shape.

A net can be used to calculate the surface area of a 3D shape.

5. Congruency

Congruent shapes are identical in shape and size. Their lengths and angles are equal, but one shape may be turned or flipped.

e.g. these triangles are congruent

We mostly look at congruent triangles. To prove that two triangles are congruent you must use one of the four reasons:

SSS (Side, Side, Side) – All the sides are the same.

ASA (Angle, Side, Angle) – An angle, a side, and another angle are the same size and in the same order.

SAS (Side, Angle, Side) – A side, an angle and another side are the same size and in the same order.

RHS (Right angle, Hypotenuse, Side) – There is a right angle and the hypotenuse and another side are the same size.

6. Constructions

A **locus** is a path of points that follow a rule e.g. are a set distance from a point.

Loci is the plural of locus.

Equidistant points are the same distance from a point.

You **bisect** an angle or **bisect** a line by cutting it into two equal parts.

Perpendicular lines intersect at a right angle.

Some examples of constructions are:
- An angle bisector
- A perpendicular bisector
- Perpendicular line from a point
- Constructing different types of triangles