

INTRODUCTION

The National Curriculum in Mathematics can be divided into 4 areas often known as attainment targets.

- (1) Using and applying mathematics
- (2) Number and algebra
- (3) Shape, space and measures
- (4) Handling data

For ease of use the authors have subdivided attainment target 3 into two sections called Shape and Space and Measures.

This glossary can be used to highlight the areas with which the child is unfamiliar or which need explanation and further practice.

There is no time limit when doing the tests.

Rough work may be done in the book but preferably blank paper for this purpose should be provided. A ruler and protractor will be needed for some of the questions.

Many of the mathematical terms used in the units are explained in the glossary.

GLOSSARY

Angles

An angle is the amount of turn from one line to another. Angles are measured in degrees. A *right angle* measures 90° and an *acute angle* is less than 90° . An *obtuse angle* is more than 90° but less than 180° . A *reflex angle* is more than 180° but less than 360° .

Area

The area of a surface is the amount of space it occupies. The area of a rectangle is found by multiplying the length by the breadth. The area of a triangle is half the length of the base times the perpendicular height.

Average (See mean)

Co-ordinates

A pair of numbers used to locate a point on a grid.

Cube

A cuboid with square faces and all its edges the same length.

Cubed Numbers

A number is cubed when it is multiplied by itself twice. e.g. 5 cubed is $5 \times 5 \times 5$, written as 5^3 .
 $5^3 = 125$

Cuboid

A solid with all six faces rectangular.

Faces

The flat sides of a solid shape.

Factors

Any number which can be divided exactly into another number is a factor of that number.
eg. the factors of 12 are:- 1, 2, 3, 4, 6 and 12.
Common factors are the factors which are common or shared by various numbers.
eg. The factors of 12: - 1, 2, 3, 4, 6, 12.
The factors of 9 are:- 1, 3, 9.
The common factors of 9 and 12 are 1 and 3.
The *highest common factor* of 9 and 12 is 3.

Gram (g)

The standard unit used in weighing.
 $1000 \text{ g} = 1 \text{ kg}$ (Kilogram)
(See metric conversions)

Hexagon

A six sided figure. A regular hexagon has six equal sides and six equal angles.

Horizontal

A line is horizontal if it is parallel to the horizon.

Index Form

When a number is written as the power of another number it is said to be in index form.
 5^2 is the index form of 25
 8^2 is the index form of 64 and so is 4^3
(see square and cubed numbers)

Kite

A four sided figure with two pairs of equal sides which are not opposite to each other.

Litre (l)

The standard unit used in measuring liquids.
1 litre = 1000 ml (millilitres)
(See metric conversions)

Mean

Mean is another name for average. To find the mean of six numbers add the numbers together and divide the result by six.

Median

When a set of numbers is arranged in order of size the middle number in the new order is known as the median.

Metre (m)

The standard unit used in measuring length.
1 metre = 100 cm (centimetres)
1 cm = 10mm (millimetres)
1 kilometre = 1000 metres
(See metric conversions)

Metric Conversions

Approximate imperial measures.

1 litre = 1.75 pints
4.5 litres = 1 gallon
1 kilogram = 2.2 pounds
1 metre = 3.3 feet
1 kilometre = 0.62 miles
8 kilometres = 5 miles

Multiples

The multiples of a number are obtained by multiplying the number by the counting number (1, 2, 3, 4, 5 etc).
eg. The multiples of 3 are 3, 6, 9, 12, 15, 18 etc.
Common multiples are the multiples which are common to or shared by various numbers.
eg. Multiples of 3:- 3, 6, 9, 12, 15, 18, 21, 24, 17 etc
Multiples of 4:- 4, 8, 12, 16, 20, 24, 28 etc
Some of the common multiples of 3 and 4 are 12 and 24.

Net

A net is formed when the sides of a solid are folded out and laid flat.

Oblique

Oblique lines are slanting lines. Lines which are neither vertical nor horizontal are oblique.

Parallel

Lines are parallel if all their points are always the same distance apart.

Parallelogram

A four sided figure formed by two pairs of parallel lines.

Pentagon

A five sided figure. A regular pentagon has five equal sides and five equal angles.

Perimeter

The distance around a shape.
A rectangle with sides of 7cm and 3cm has a perimeter of 20cm ($7 + 7 + 3 + 3$).

Perpendicular

When two lines cross at right angles they are said to be perpendicular.

Prime Numbers

A prime number is a number that can only be divided by itself and the number 1 and therefore has only two factors. (see Factors)
eg. The factors of 11 are 1 and 11.
The factors of 19 are 1 and 19.
The prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, etc.

Prism

A solid shape with flat sides. A prism has the same shape along its length.

Probability

The likelihood or not of an event occurring is its probability.
The probability of a new baby being a girl is $\frac{1}{2}$.
The probability of throwing a four on a die is $\frac{1}{6}$.
The probability of throwing an even number on a die is $\frac{1}{2}$.

Pyramid

A solid shape with flat sides. It is made up of a base and triangular sides which meet at a point called the apex.

Rectangle

A four sided figure with opposite sides equal and parallel and four right angles.

Rectangular Prism

A prism with the shape of a rectangle along its length.
(See prism)

Rhombus

A four sided figure with equal sides. The opposite sides are parallel and the opposite angles equal. The angles are not right angles.

Right Angle (See angle)

Roman Numerals

1 = i
5 = V
10 = X
50 = L
100 = C
500 = D
1000 = M

Rotation

Rotation is turning through an angle. A complete rotation measures 360 degrees. A half turn measures 180° and a quarter turn measures 90°.

Rotational Symmetry

A shape has rotational symmetry if, as it is rotated, its shape fits exactly onto its original shape.
eg. If a square is rotated its shape will fit exactly onto its original image, four times. The order of rotational symmetry of a square is therefore 4.

Square Number

A number that can be shown in the shape of a square.

X X 4 X X X
X X
X X X 9
X X X

The square numbers are 1, 4, 9, 16, 25 etc. When a number is squared it is multiplied by itself.
10 squared equals 100 and is written as 10^2 .

Square Prism

A prism with the shape of a square along its length.
(See prism)

Square Pyramid

A pyramid with a square base (See pyramid).

Square Root

Square roots are associated with square numbers. To find the square root of a number is to inverse the process of squaring a number.
The square root of 100 is 10 and is written as $\sqrt{100}$.

Symmetry

A shape with symmetry can be folded so that both parts match exactly.

Tessellation

Shapes tessellate when they fit together without leaving gaps.

Tetrahedron (See triangular pyramid)

Trapezium

A four sided figure with one pair of sides parallel.

Triangular Number

A number that can be shown in the shape of a triangle.

X 3 X
XX 6
XXX

The triangular numbers are 1, 3, 6, 10, 15 etc.

Triangular prism

A prism with the shape of a triangle along its length.

Triangular pyramid

A solid with four triangular faces.

Trundle Wheel

A wheel with a circumference of 1 metre. The wheel is rolled along a distance to be measured and the number of turns is counted.

Vertical

A vertical line is at right angles to the horizon.

Vertices

The plural of vertex. A vertex is a corner of a shape.

Volume

The amount of space occupied by an object.
The volume of a cuboid is found by multiplying its three dimensions - length, breadth and height.
eg $10\text{cm} \times 5\text{cm} \times 2\text{cm} = 100$ cubic centimetres (cm^3).