

Year 7

Year 7 take part in an induction week in their form groups in the first week of Autumn term, before being assigned to their new banded classes. This is designed to help them settle and to help those who have been wary of maths to see that it can be fun. We hope to break down some of the anxieties that a small number of students come to us with from primary school.

In Year 7, after the induction week, we cover the following topics (bold topics are higher tier only):

Half Term 1
Place value (integers)
Use of mathematical symbols ($=$, \neq , $<$, $>$, \leq , \geq)
Ordering negative numbers
Addition & subtraction methods
Multiplication methods
Simplifying calculations (addition & subtraction)
Geometrical vocabulary (polygon, regular, irregular)
Geometrical symbols (equal lengths)
Perimeter
Units of length
Tally charts & frequency tables
Two-way tables
Frequency trees
Mode
Range
Bar charts (including multiple and composite bars)
Pictograms
Mode and range from tables and charts
Graphical misrepresentation (in bar charts and pictograms)
Half Term 2
Rounding to the nearest 10, 100, 1000 etc.
Multiples, common multiples & lowest common multiple
Powers

Estimation
Simplifying calculations (multiplication)
Geometrical vocabulary (parallel, perpendicular, right-angle)
Geometrical symbols (parallel, perpendicular, right-angle)
Properties of squares, rectangles & parallelograms
Area of a rectangle
Area of rectilinear shapes
Area of a parallelogram
Units of area
Algebraic vocabulary (equation, formula)
Systematic listing strategies (e.g. menu choices)
The product rule for counting
Half Term 3
Addition & subtraction of negative numbers
Place value (decimals)
Addition & subtraction of decimals
Rounding to the nearest whole number
Division methods
Multiplication & division of negative numbers
Inverse operations
Algebraic manipulation, including understanding of:
- ab in place of $a \times b$
- $3y$ in place of $y + y + y$ and $3 \times y$
- a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$, a^2b in place of $a \times a \times b$
- coefficient of 1 not shown
Algebraic vocabulary (expression, term)
Translation of simple situations or procedures into algebraic expressions
Algebraic substitution
Algebraic simplification by collecting like terms
Function notation
Function machines
Half Term 4

Powers and roots
Rounding to decimal places
Estimating the root of any given positive number
Calculating with roots
Factors, common factors & highest common factor
Definition: fraction
Expression of one quantity as a fraction of another
Equivalent fractions (including mixed and improper fractions)
Ordering fractions
Division with remainder
Division by powers of 10
Division of decimals by integers
Geometrical vocabulary for 2D shapes: points, lines, vertices, planes
Geometrical representation for 2D shapes:
- point: A
- line: AB
- angle: ABC
- shape: ABCD
Measurement of line segments in geometrical figures
Conversion between metric units of length
Angle rules: angles at a point
Angle rules: angles at a point on a straight line
Angle rules: vertically opposite angles
Measurement of angles using a protractor
Half Term 5
Conversion between terminating decimals and fractions
Finding a fraction of an amount
Multiplication of fractions
Multiplication of decimals
Simplifying calculations (division)
Order of operations
Ratio notation

Equivalent ratios
Properties of triangles (including types of triangle)
Definition: congruent
Angle rules: sum of angles in a triangle
Angle rules: base angles of an isosceles triangle
Use the sum of angles in a triangle to find the sum of angles in any polygon
Interior angles of polygons
Exterior angles of polygons
Use maps & scale drawings
Median
Quartiles and the interquartile range from a list of data
Advantages and implications of merging data
Median from tables & charts
Class containing the median (for grouped data)
Half Term 6
Express the division of a quantity into two parts as a ratio
Definition: percentage
Conversion between percentages and fractions
Conversion between percentages and decimals
Finding a percentage of an amount
Division of decimals by decimals
Addition & subtraction of fractions
Division of and by fractions
Use of place value to simplify calculations
Prime numbers and prime factorisation
Simple interest
Repeated proportional change (e.g. compound interest, depreciation etc)
Area of a triangle
Area of composite shapes
Conversion between metric units of area
Coordinates in all four quadrants
Straight-line graphs of the form $y=a$ and $x=a$

Bar charts (including percentage composite bars)