

Year 8

In Year 8, alongside revision of Year 7 topics, we cover the following topics (bold topics are higher tier only):

Half Term 1
Highest Common Factor of larger numbers
Lowest Common Multiple of larger numbers
Convert fractions into recurring decimals
Laws of indices (multiplication & division)
Laws of indices (power of a power)
Laws of indices (power of 1 and power of 0)
Value for money & best buys
Using recipes
Manipulation of algebraic expressions using inverse operations
Algebraic manipulation, including understanding of:
- a/b in place of $a \div b$
- coefficients written as fractions rather than as decimals
- brackets
Algebraic simplification by collecting like terms
Algebraic substitution
Units of mass (including conversion)
Units of length (including conversion between metric and imperial)
Units of money
Units of time (including conversion between decimal hours and minutes for example)
Reflection symmetry
Rotational symmetry
The probability scale
Theoretical probabilities
Randomness and fairness in probability
Expected outcomes of multiple future experiments
Half Term 2
Rounding to significant figures

Estimation
Laws of indices (negative power)
Convert between normal numbers and standard form
Convert numbers such as 15×10^6 into standard form
Dividing quantities into ratios
Working with fractions in ratio problems
Generation of terms of a sequence from a term-to-term rule
Generation of terms of a sequence from a position-to-term rule
Sequences of triangular numbers
Sequences of square numbers
Sequences of cube numbers
Simple arithmetic progressions (linear sequences)
Vocabulary: mutually exclusive & exhaustive
The addition law for two mutually exclusive events
The property that the probabilities of an exhaustive set of outcomes sum to one
Notation: $P(A')$
Relative frequency (probability)
Relationship between sample size, relative frequency and theoretical probability
Bias and fairness in probability
Stem and leaf diagrams
Half Term 3
Calculate with surds
Simplify surds
Simplify expressions involving surds
nth term of linear sequences
Fibonacci type sequences
Algebraic simplification by multiplying
Algebraic simplification by division
Algebraic simplification including powers of terms
Multiplying out single brackets
Factorising into single brackets
Vocabulary: equation, formula & identity

Solve multi-step linear equations (with one unknown visible)
Diagrammatic and column representations of vectors
Translations
Properties of the special types of quadrilateral
Half Term 4
Multiply numbers which are in standard form
Divide numbers which are in standard form
Derive & solve equations, interpreting the solutions
Translate simple situations or procedures into algebraic formulae
Use the nth term to identify whether a value given is a term in a sequence
Transformations between sequences and their corresponding nth terms
Area of a trapezium
Areas of composite shapes (not including circles)
Properties of cubes, cuboid, prisms, pyramids, cones & spheres
Surface area of prisms & pyramids
Vertical line charts
Line graphs for time series data
Frequency polygons
Pie charts
The appropriate use for each table, chart & diagram
Graphical misrepresentation
Half Term 5
Add & subtract numbers which are in standard form
Truncation
Error intervals
Express one quantity as a percentage of another
Compare two quantities using percentages
Increase or decrease by a percentage
Multipliers for percentages
Expand two or more binomials
Vocabulary: inequalities
Solve linear inequalities in one variable

Represent the solution set from inequalities on a number line
Circle properties: centre, radius, chord, diameter, circumference, tangent, arc, sector & segment
Circumference of a circle
Perimeters of composite shapes (which can include circles or simple sectors)
Calculate with multiples of π
Mean
Mean from a frequency table or chart
Pros and cons of the mean, median & mode
Half Term 6
Solve linear equations with the unknown on both sides of the equation
Constructing a perpendicular bisector of a line segment
Constructing a perpendicular to a given line at a given point
Constructing a perpendicular to a given line from a given point
Knowledge that the perpendicular distance from a point to a line is the shortest distance to the line
Population pyramids
Choropleth maps
Comparative 2D & 3D representations
Median from grouped data (equal or unequal class widths) (using linear interpolation)
Estimated mean from grouped data
Scatter graphs
Vocabulary: explanatory (independent) variables and response (dependent) variables
Correlation and causation
Vocabulary of correlation: positive, negative, zero, causation, association, interpolation and extrapolation
Estimated lines of best fit (by eye)
Using lines of best fit to make predictions
Interpolation and extrapolation from apparent