

What are the aims and intentions of this curriculum?

Students are taught how to work with numbers, algebra, ratio, proportions and rates of change, geometry and measures, probabilities and statistics. At the end of each topic, a closing-the-gap-questionnaire in the form of a review sheet is required to be completed by the students.

Term	Topics	Knowledge and key terms	Skills developed	Assessment
Autumn 1	Number	<i>Decimal, Digit, Value, Negative, Positive, Estimate, Short Division, Long Division, BIDMAS, Long Multiplication, Grid, Square, Square Root, Cube, Cube Roots, Power, Index, Factor, HCF, Prime, Prime Decomposition</i>	Use written and mental methods to add and subtract decimals. Add, subtract, multiply and divide positive and negative numbers. Calculate squares, square roots, cubes and cube roots. Use index notation for powers of numbers. Estimate the square root of a number. Use order of operations to calculate combination of powers, roots and brackets. Rearrange formulae to change the subject. Substitute numbers into formulas involving powers and roots. Simplify expressions involving Use brackets, use rules for indices and factorise expressions. Use index notation. Express a number as a product of its prime factors. Use prime factor decomposition to find the HCF and LCM,	End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment
	Area and Volume	<i>Triangle, Parallelograms, Trapezium, Solid, Face, Edge, Vertex, Net, Surface Area, Volume, Prism, Cross-Section, Volume</i>	Derive and use the formula for the area of a triangle, parallelogram and trapezium. Describe the properties of 2D shapes that make up 3D shapes. Recognise and describe 3D shapes and their properties using the correct mathematical terminology. Sketch nets of 3D solids. Calculate the surface area and volume of cubes and cuboids.	
Autumn 2	Expression and Equations	<i>Expression, Function Machine, Formulae, Simplify, Algebraic, Factorise, Expand, Equations, Solutions, Inverse, Expand and Substitution.</i>	Understand and simplify algebraic expressions which include powers. Expand single and double brackets. Write expressions and formula from descriptive text. Factorise expressions. Solve one/two-step equations using function machine and the balancing method. Manipulate to solve equations with the unknown number on both sides.	End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment
	Real life graphs	<i>Convert, Estimate, Function, Equation, Horizontal, Vertical, Straight, Speed Distance Time graph, Real and Time-Series.</i>	Reading values from conversion, distance-time, line and real life graphs. Plot and interpret conversion, distance-time, line and real life graphs from a table of values and descriptive text. Use conversion, distance-time, line and real life graphs to solve problems. Describe trends and make predictions based on information presented graphically.	

Spring 1	<p><i>Decimals and Ratio</i></p> <p><i>Lines and Angles</i></p>	<p><i>Order, Round, Symbols, Negative, Unitary Method, Multiplier and Divider, Inequality, Greater than, less than, equal.</i></p> <p><i>Angle, Triangle, Perpendicular, Parallel, Intersecting, Quadrilateral, Vertically Opposite, Alternate, Corresponding, Co-interior, Sum, Interior, Exterior, Polygons</i></p>	<p>Round to place value for integers and decimals. Order positive and negative decimals. Use inequality $>$ and $<$ to compare negative decimals. Add, subtract, multiply and divide decimals of any size. Multiply and divide by decimals by 0.1 and 0.01. Use ratios that involve decimals. Solve proportion problems that involve decimals.</p> <p>Recognise quadrilaterals and describe their properties. Solve geometrical problems using side and angle properties of triangles and quadrilaterals. Identify alternate, corresponding and co-interior angles in parallel lines. Solve problems using properties of angles in parallel and intersecting lines. Calculate the sum of the interior and exterior angles of a polygon. Calculate the interior and exterior angles of a polygon.</p>	<p>End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment</p>
Spring 2	<p><i>Calculating with fractions</i></p> <p><i>Revision</i></p>	<p><i>Numerator, Denominator, Common Denominator, Mixed Number, Improper fraction, Equivalent fraction, Reciprocals</i></p>	<p>Add and subtract fractions with any size denominator. Multiply integers and fractions by a fraction. Convert fractions to decimals. Write one amount as a fraction of another. Find the reciprocal of a number. Divide integers and fractions by a fraction. Use the four operations with mixed numbers.</p>	<p>End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment</p>
Summer 1	<p><i>Straight line graphs</i></p> <p><i>Percentage, decimals and fractions</i></p>	<p><i>Vertically, Intersect, Function, Coordinates, Gradient, Midpoint, Y-intercept</i></p> <p><i>Numerator, Denominator, Common Denominator, Mixed Number, Improper fraction, Equivalent fraction, Percentage, Original Price, Selling Price, Percentage profit, Percentage loss, Reverse percentage, Credit Cost Price and Deposit</i></p>	<p>Recognise when two variables are in direct proportion. Plot and draw straight line and linear graphs from a table of values. Describe and determine the variables of an equation of a straight line $y = mx + c$. Graphically, determine the gradient of a straight line graph. $\Delta y / \Delta x$. Graphically, determine the y-intercept of a straight line graph (where it crosses the y-axis.) Find midpoints of line segments. Write the equations of straight line graphs in the form $y = mx + c$.</p> <p>Distinguish between recurring and terminating decimals. Recall equivalent fractions, decimals and percentages. Convert between decimals, percentages or equivalent fractions to arrange them in order. Use the equivalence of fractions, decimals and percentages to compare proportions. Express one number as a percentage of another. Find percentage increase and decrease of any amount. Use a multiplier to calculate percentage increase and decrease. Use the unitary method to solve percentage problems.</p>	<p>End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment</p>

Summer 2

Statistics, graphs and charts

Primary, Secondary, Sample, Survey, Questionnaire, Discrete, Continuous, Categorical Data, Pie chart, Frequency diagram, Average, Mean, Median, Mode, Range, Scatter Graph, Stem and leaf, Key, Correlation, Sketch, Plot

Understand the difference between sources of primary and secondary data. Select an appropriate sample size and understand what data is to be collected. Identify factors that may affect data collection and plan to reduce bias. Design and explain what makes a good questionnaire. Design and use data collection sheets and tables. Interpret simple pie charts. Calculate angles and draw pie charts. Draw and interpret two-way tables. Calculate the mean from a simple frequency table. Tally data into a grouped frequency table, using $a \leq x < b$ notation. Find modal class and estimating range in grouped frequency table. Draw and interpret stem and leaf diagrams with different stem values. Find the averages (mean, median, mode) and range from stem and leaf diagrams, and compare them for different data sets. Compare data using averages and range, including mean calculated from frequency table. Compare data using the shape of a line graph or pie chart. Draw line graphs to compare sets of data. Decide on the most appropriate average to use. Draw and interpret scatter graphs. Describe types of correlation present between two variables.

End of topic review
Homework
Bookmarking
Classroom feedback
Half-term formal assessment