

Curriculum map: Mathematics



TERM	YEAR 7	YEAR 8	YEAR 9
Autumn 1	<p>Baseline Assessment</p> <p>Number Calculations -Use four operations with integers and negative numbers</p> <p>Powers and Roots Use powers and roots Identify factors, multiples and primes</p> <p>Expressions and Equations -Use and understand algebraic notation -Expand, simplify, and factorise algebraic expressions -Substitute into expressions -Form and balance linear equations</p>	<p>Indices and Standard Form -Use prime factorisation to calculate the HCF and LCM -Express ordinary numbers in standard form and vice versa</p> <p>Expressions -Multiply and divide algebraic terms -Factorise expressions into a single bracket -Expand and simplify an expression with two or more brackets</p> <p>Equations -Solve equations with fractions and unknowns on both sides -Solve simple quadratic equations</p> <p>Inequalities -Represent inequalities and on a number line and identify the integer values an inequality represents</p>	<p>Number Calculations -Use multipliers to calculate compound interest problems -Round numbers to a given degree of accuracy -Identify the upper and lower bounds for a rounded value</p> <p>Powers and Irrational Numbers - Use the laws of indices for negative powers -Write and order numbers in standard form -Simplify surds</p> <p>Quadratics -Expand double brackets with coefficient for $x^2 = 1$ -Factorise a quadratic expression into brackets where the coefficient for $x^2 = 1$</p>
Autumn 2	<p>Decimals, Rounding and Approximations -Understand and use decimal notation and place value</p>	<p>Percentages and Fractions (calculator) -Use all four operations with proper fractions and mixed numbers</p>	<p>Statistics -Plan a survey and how to collect the data</p>

Curriculum map: Mathematics



<ul style="list-style-type: none"> -Write decimals in size order -Use four operations with decimals -Round decimals to a given degree of accuracy -Estimate answers to calculations <p>Fractions and Percentages</p> <ul style="list-style-type: none"> -Simplify and find equivalent fractions -Use four operations with fractions -Calculate fractions and percentages of an amount <p>Ratio and Proportion</p> <ul style="list-style-type: none"> -Write and simplify ratios -Share an amount into a ratio <p>Probability</p> <ul style="list-style-type: none"> -Use and interpret Venn diagrams -Find the probability of an event occurring 	<ul style="list-style-type: none"> -Convert fractions to decimals and percentages -Understand and use multipliers to carry out calculations involving percentages <p>Calculations (non-calculator)</p> <ul style="list-style-type: none"> -Estimate answers to check if an answer is of the correct size <p>Probability</p> <ul style="list-style-type: none"> -Systematically list outcomes -Use relative frequency to calculate expected outcomes <p>Ratio</p> <ul style="list-style-type: none"> -Use scale factors, scale diagrams and maps -Use unit cost and unit weight to determine which product is better value <p>Real-Life Graphs</p> <ul style="list-style-type: none"> -Draw and interpret graphs of real-life events -Use distance-time graphs to solve problems 	<ul style="list-style-type: none"> -Draw and use frequency polygons and time-series graphs <p>Equations</p> <ul style="list-style-type: none"> -Form and solve equations involving fractions and unknowns on both sides -Solve a pair of linear simultaneous equations -Solve quadratic equations by factorising where the coefficient of $x^2 = 1$ <p>Sequences and Graphs</p> <ul style="list-style-type: none"> -Generate quadratic sequences given the nth term and find the nth term of a simple quadratic sequence -Draw the graph of a linear function from its equation <p>Transformations</p> <ul style="list-style-type: none"> -Transform 2D shapes by applying a combination of transformations -Identify the centre of enlargement and state the scale factor -Recognise and describe single transformations
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Curriculum map: Mathematics



<p>Spring 1</p>	<p>Angles and lines</p> <ul style="list-style-type: none"> -Identify types of angles -Understand and use correct notations when labelling lines and shapes -Use angle facts to calculate missing angles in triangles and quadrilaterals <p>Constructions</p> <ul style="list-style-type: none"> -Construct triangles using a ruler and a protractor given either SSS, SAS or ASA. <p>Mensuration</p> <ul style="list-style-type: none"> -Name common 2D shapes and state their properties -Know and use formulae to calculate area and perimeter for common triangles and quadrilaterals -Convert between different metric units of length and area <p>Volume and 3D Shapes</p> <ul style="list-style-type: none"> -Identify and name 3D shapes -Calculate the volume of cubes and cuboids 	<p>Angles and Polygons</p> <ul style="list-style-type: none"> -Use angle facts to calculate missing angles in 2D shapes -Recognise and use angles in parallel lines to find missing angles -Calculate interior and exterior angles of polygons <p>Pie Charts and Scatter Graphs</p> <ul style="list-style-type: none"> -Construct a pie chart by calculating the angles -Interpret the correlation of data using scatter graphs <p>Circles</p> <ul style="list-style-type: none"> -Label parts of the circle -Calculate the area and circumference of a circle <p>Volume</p> <ul style="list-style-type: none"> -Calculate the volume for a common prism 	<p>Volume and surface area</p> <ul style="list-style-type: none"> -Recall the formulae to calculate the volume common prisms -Calculate the surface area of common prisms -Explore nets of 3D shapes <p>Pythagoras</p> <ul style="list-style-type: none"> -Apply Pythagoras' theorem to calculate a missing length in a right-angled triangle and to determine whether a triangle is right-angled or not
<p>Spring 2</p>	<p>Sequences</p> <ul style="list-style-type: none"> - Use correct terminology for sequences -Calculate the nth term of a sequence and generate linear sequences given the nth term 	<p>Statistics</p> <ul style="list-style-type: none"> -Calculate the mean and mode from a frequency table -Draw a grouped frequency table and calculate the mean and mode 	<p>Constructions</p> <ul style="list-style-type: none"> -Understand and use SSS, ASA, SAS and RHS conditions to prove congruence of triangles

Curriculum map: Mathematics



	<p>Coordinates, Functions and Graphs</p> <ul style="list-style-type: none"> -Draw and label axes in four quadrants -Read and plot coordinates in all four quadrants -Use function machines to substitute values into simple functions 	<p>Constructions and Loci</p> <ul style="list-style-type: none"> -Draw the perpendicular bisector and angle bisector -Solve loci problems using construction <p>Bearings</p> <ul style="list-style-type: none"> -Measure and draw bearings -Solve bearings problems 	<ul style="list-style-type: none"> -Use standard constructions to draw a scale diagram <p>Probability</p> <ul style="list-style-type: none"> -Calculate probabilities from tables and two-way tables -List outcomes of two events occurring and use sample space diagrams to record this -Use tree diagrams to represent probabilities of two independent events occurring
<p>Summer 1</p>	<p>Statistics – collecting and representing data</p> <ul style="list-style-type: none"> -Understand how to plan a survey and collect data -Interpret and draw bar charts, pictograms and tally-frequency tables <p>Statistics – averages and range</p> <ul style="list-style-type: none"> -Calculate the mean, mode, median and range for a data set 	<p>Rearranging formulae</p> <ul style="list-style-type: none"> -Substitute into a formula -Rearrange formulae to find a missing value <p>Sequences</p> <ul style="list-style-type: none"> -Identify the difference between arithmetic and geometric sequences -Recognise and continue the next few terms of special sequences such as Fibonacci sequences, square and triangular numbers 	<p>Functions</p> <ul style="list-style-type: none"> -Use function notation and function machines to explore relationships between input and output -Identify one-to-one mappings and many-to-one mappings -Substitute into functions <p>Algebraic fractions</p> <ul style="list-style-type: none"> -Simplify algebraic fractions -Use four operations with simple algebraic fractions
<p>Summer 2</p>	<p>Transformations</p> <ul style="list-style-type: none"> -Reflect, rotate, translate and enlarge shapes 	<p>Straight line graphs</p> <ul style="list-style-type: none"> -Draw the graphs of linear functions of the form $y = mx + c$ 	<p>Trigonometry</p> <ul style="list-style-type: none"> -Use conventions to name the sides of a right-angled triangle

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	<p>Using a calculator</p> <ul style="list-style-type: none">-Explore use of scientific calculator to aid speed and efficiency of calculations	<ul style="list-style-type: none">-Calculate the gradient and y-intercept of a straight line <p>Algebraic graphs</p> <ul style="list-style-type: none">-Recognise the shape of simple linear, quadratic and cubic graphs <p>Transformations</p> <ul style="list-style-type: none">-Translate shapes using column vectors-Reflect shapes given the equation of a mirror line-Enlarge shapes about a point by a positive scale factor	<ul style="list-style-type: none">-Workout the Sine, Cosine and Tangent of any angle <p>Mathematical Reasoning</p> <ul style="list-style-type: none">-Explain, show, and justify a mathematical solution-Understand how to use mathematical proof-Understand the difference between giving an example and proving an argument
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