KS4 Mathematics Curriculum Coverage: 2025-26

Year 10H Summer Term

Sequenced	Non-linear graphs	Angles	Statistics: graphs and diagrams	Vectors	Factors, powers and surds	Pythagoras and trigonometry
Key Knowledge	To know: • how to substitute values into an expression • plot coordinates in four quadrants • that $x \times x = x^2$ and $x \times x \times x = x^3$ • that the points plotted to form a quadratic or cubic graph should be joined with a smooth curve • how to draw the tangent to a curve • how to calculate the area of a triangle and a trapezium	To know: • angles around a point sum to 360° • angles on a straight line sum to 180° • vertically opposite angles are equal • angles in a triangle sum to 180° and in a quadrilateral to 360° • the difference between interior and exterior angles of polygons • that sum of the interior angles of polygons increases as the number of sides increases • the sum of the exterior angles of a polygon is 360° • the angle facts involving parallel lines (alternate, corresponding, co-interior) • how to manipulate algebraic expressions and solve equations	To know: • how to measure angles • that the angles around a point sum to 360° • how to draw a number line with equal intervals • the difference between discrete and continuous data • how to find the midpoint of a class interval (the midpoint of $0 \leq t < 5$ is 2.5) • how to read from a scale • how to calculate averages (mean, median, mode) and the range • that the frequency on a histogram is found by calculating the area of each bar (not the height) • how to calculate frequency density	To know: • that vectors have magnitude and direction • that vectors can be represented by diagrams or by numbers in a column vector • how to calculate with directed numbers • that to translate a point is to move it to a different position on a grid	To know: • the difference between the factors of a number and the multiples of a number • that a prime number has exactly two factors • any number can be expressed as a product of prime factors • the meaning of HCF and LCM • that when a number is multiplied by itself it results in a square number • that when a number is multiplied by itself and then again, it results in a cube number • the root symbol and its meaning • that negative indices represent the reciprocal of a number • what is meant by irrational numbers and surds • how to expand brackets	To know: • a right-angled triangle has one 90° angle • the longest side on a right-angled triangle is opposite the right angle and is called the hypotenuse • the three trigonometric ratios: sine, cosine, tangent • how to use the trig functions on a calculator • the exact trig values for 0°, 30°, 45°, 60° and 90° • how to solve one step equations • how to rearrange formulae • how to substitute in formulae • the sine and cosine rule
Key Skills	To be able to: • recognise and plot quadratic graphs using a table of values • recognise and plot cubic graphs using a table of values • approximate solutions to equations using graphs • identify the intercepts and roots of quadratic graphs • give the coordinates of the turning point • find the equation of the tangent to a curve • estimate the area under a curve • recognise and work out the equation of a circle • find the equation of a tangent to a circle	To be able to: • use angle facts (angles around a point, angles on a straight line, vertically opposite angles) to calculate the size of missing angles • calculate the size of angles in a triangle • calculate angles in a quadrilateral • calculate interior and exterior angles of polygons • solve problems involving angles in polygons • calculate alternate, corresponding and co-interior angles in parallel lines • explain why an angle is a certain size using the correct mathematical terms • prove geometric facts • solve problems with angles and algebra	To be able to: • draw and interpret pictograms • draw and interpret line and bar charts • draw and interpret dual and composite bar charts • draw and interpret pie charts • draw and interpret time series graphs • draw and interpret frequency polygons • draw and interpret stem and leaf diagrams • draw and interpret histograms • draw and interpret cumulative frequency diagrams • draw and interpret box plots • compare distributions using box plots	To be able to: • understand and represent vectors • use vector notation • translate by a column vector • multiply a vector by a scalar • add vectors • subtract vectors • solve problems with vectors • describe vector journeys in shapes • describe vector journeys in quadrilaterals • identify the properties of parallel vectors	To be able to: • recognise factors, multiples and primes • express a number as a product of prime factors • find the HCF and LCM of two or more numbers • find powers and roots • find the value of numbers with negative indices and fractional indices • recognise irrational numbers and surds • simplify surds • carry out the four operations with surds • simplify expressions with surds • expand single and double brackets with surds • rationalise the denominator including with complex denominators • solve problems with surds	To be able to: • identify the hypotenuse on a right-angled triangle • use Pythagoras' theorem to calculate the hypotenuse • us Pythagoras' theorem to calculate any side • calculate with squares and square roots • explore the ratios in right angled triangles (by scale drawing and measuring) • use the tangent, sine and cosine ratios to calculate unknown side lengths • use the tangent, sine and cosine ratios to calculate unknown angles • discover and apply exact trigonometric values without a calculator • apply trigonometry and Pythagoras to 3D shapes • calculate the area of any triangle using $\frac{1}{2}ab\ sinC$ • use the sine and cosine rules to find unknown sides and angles in any triangle
Subject specific vocabulary	plot, graph, coordinates, quadratic, cubic, intercept, root, turning point, substitute, circle, tangent, gradient, estimate	angle, turn, parallel, corresponding, alternate, co-interior, vertically opposite, interior, exterior, polygon, triangle, quadrilateral, proof	pictogram, bar chart, dual, composite, pie chart, frequency, frequency polygon, stem and leaf, key, class interval, discrete data, continuous data, mean, median, mode, range, histogram, frequency density, cumulative frequency, upper and lower quartile, interquartile range, box plot, compare, distribution	vector, column vector, scalar, magnitude, direction, translate, parallel	factor, multiple, prime, square number, cube number, HCF, LCM, indices, powers, roots, simplify, expression, expand, bracket, irrational number, rational number, surd, rationalise, denominator	right-angled triangle, hypotenuse, opposite, adjacent, sine, cosine, tangent, Pythagoras' theorem, square, square root, sum, exact value, sine rule, cosine rule