



# CURRICULUM PLAN

MATHS

BRAMHALL HIGH SCHOOL

## Curriculum Intent

The curriculum is designed to ensure that all students regardless of ability leave with some form of mathematics qualification and that all students are numerate and have developed their analytical and problem solving skills. This should facilitate students to go on to suitable post 16 courses.

For most pupils, years 7 and 8 are used to cover the KS3 curriculum although the most able will also study some topics from KS4. The KS4 delivery in year 9 and 10 covers the full syllabus at an appropriate level by the end of Year 10. This allows for a full year of revision and mastery of the curriculum. It also enables flexibility between tier of entry and group moves where required.

All students are entered for GCSE mathematics and are given every opportunity of support to achieve the best outcome for them. Where concerns exist, the Entry Level Certificate in Mathematics is delivered. To stretch and challenge the highest ability students they are entered for the Further Mathematics GCSE qualification. This provides a bridge between the GCSE and A-level courses and also significantly reinforces the grade 7+ questions on the standard mathematics GCSE.

The delivery of the mathematics curriculum provides the lifelong skills of numeracy and a love of mathematics. This is evidenced by the extracurricular opportunities such as Intermediate and Junior maths challenge. We also have other numeracy opportunities running throughout school such as codebreakers and 'numeracy ninjas'.

## YEAR 7

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
<b>Term 1a</b>	<p><b>SUPPORT</b> Types of number; Place Value; Negative numbers in context Simplify, order and find equivalent fractions; Simple FDP equivalence; Order decimals to 3 d.p.</p> <p><b>CORE</b> Ordering directed numbers, Ordering fractions, decimals and percentages Develop fraction skills – simplifying, equivalence, mixed to improper, FDP conversions ; Expand brackets; Substitution; Function machines</p>	4, N6, N2, N3, N8, N10 A23, A25, A1, A2, A4, A7	In-class, Baseline Assessment	Identify if a fraction is recurring or terminating Division of improper and mixed numbers; Decimal multipliers; Find change as a percentage	Equivalent, denominator, numerator, improper, percentage, cent, simplifying, expressions, equation, substitution.

<p><b>Term 1b</b></p>	<p><b>SUPPORT</b>            Plotting coordinates in all four quadrants;            Understand the term “congruence”; Reflection (mirror lines parallel to axes) and translation (worded)            Types of number; Place Value; Negative numbers in context Add, Subtract, Multiply, BIDMAS, Problem solving            Mixed to improper and back; Add/subtract fraction; Multiply/divide fractions by whole number; Easy % of amount. Rounding to nearest.... And to 2 dp; Estimating answers; Working backwards to check an answer</p> <p><b>CORE</b>            Solving equations by working backwards; One and two step, brackets and two unknowns; Cope with negative and fractional answers            Drawing linear graphs,</p>	<p>A8, A10, A12, A17, A18            N1, N2, N3,</p>	<p>In class, assessment towards the end of the Autumn term</p>	<p>PFD; Venn diagrams to find HCF and LCM; Rounding to SF; BIDMAS with powers and roots</p> <p>Intersection of two linear graphs is a solution</p>	<p>Quadrants, congruence, reflection, translation, parallel.</p> <p>Equations, algebra, linear, plotting, gradient, intercept, primes, factors, multiples, indices.</p>
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	<p>understand gradient and intercept Primes; Factors; Multiples; HCF &amp; LCM; Power notation; Square, Cube and Triangular numbers Multiplying and dividing (and with decimals) ; + - x ÷ with negatives, BIDMAS</p>				
<b>Term 2a</b>	<p><b>SUPPORT</b> Convert between units of time; Read information from tables and timetables, Recognise and continue a linear sequence</p> <p><b>CORE</b> +, -, x with proper, improper and mixed numbers; Find percentages; increase and decrease by a percentage Ratio – writing, simplifying, equivalence; Ratio to Fraction; Equivalent ratio problems; Sharing in a ratio. Generate terms of a sequence from either a term-to-term or a position-to-term rule; Deduce expressions to calculate</p>	<p>N10, R4, R5, R8</p>			<p>Hours, seconds, minutes, years, decades.</p> <p>Interest, compound interest, ratio.</p> <p>Sequence, pattern.</p>

	<p>the nth term of linear sequences Building expressions; Simplifying by collecting and multiplying</p>				
<b>Term 2b</b>	<p><b>SUPPORT</b> Use metric conversions of length, mass, capacity to solve problems. Use rough metric to Imperial conversions to solve problems</p> <p><b>CORE</b> Convert fluently between metric units of length, mass, capacity and time Rounding to any number of d.p. and to 1 sig, fig. Estimate by rounding to 1 s.f. Draw and measure lines and angles accurately to nearest degree and mm; Construct triangles; Angle notation; Line and rotational symmetry</p>	<p>R1, N13 G1, G7, G14</p>	<p>In class assessment.</p>	<p>Use a multiplier in a proportion problem; Speed/Distance/Time calculations</p> <p>Angles in irregular and regular polygons</p>	<p>Metric, Imperial, mass, capacity, volume, conversion, estimation, significant figures, triangles, construction, rotational symmetry.</p>

<p><b>Term 3a</b></p>	<p><b>SUPPORT</b>                  Discrete and Continuous data; Calculate and interpret the mean as an average                  Classify 2D shapes in various ways; Properties of special triangles and quadrilaterals; Parts of a circle; Regular and irregular polygons                  Tessellation of 2D shapes; Name of 3D shapes; Recognise nets of 3D shapes; Draw 3D shape on isometric paper</p> <p><b>CORE</b>                  Averages and range from discrete data, averages from data in a frequency table and grouped frequency table                  Faces, Edges and Vertices of 3D shapes; Properties of special quadrilaterals and triangles – to solve angle problems                  Area and perimeter of rectilinear shapes including the trapezium</p>	<p>S3, S4, S7 G14, G16 G3</p>	<p>Whole School Exams after Easter.                  2 x 45 mins.                  Calculator and Non-Calculator</p>	<p>Volume and Surface area of cuboids, Area and Circumference of circles; Composite circles</p>	<p>Volume, surface area, discrete, continuous, circumference, diameter, radius, parallel, perpendicular, equal, segment, sector, chord, tangent, arc, nets, frequency, faces, edges, vertices, area, perimeter, compound, isosceles, scalene, right angled, equilateral, rhombus, rectangle, kite, trapezium, square, parallelogram.</p>
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<b>Term 3b</b>	<p><b>SUPPORT</b>          Plotting coordinates in all four quadrants;          Understand the term “congruence” ; Reflection (mirror lines parallel to axes) and translation (worded)          Draw and interpret the following; Line graphs, Bar Charts, and easy Pie Charts</p> <p><b>CORE</b>          Reflect ( equation of lines parallel to axes and <math>y = x</math> ) ;          Rotation; Translation (using vectors)          Drawing linear graphs, understand gradient and intercept          Discrete and Continuous data; Draw and interpret comparative bar charts, pie charts, histograms(equal class widths); Scatter Graphs and Correlation</p>	A17, A18 S2, S4, S5, S6	In class assessment. Usually done mid-June		Quadrants, congruence, reflection, parallel, translation, linear, graphs, Interpretation, rotation, gradient, Intercept, discrete, continuous, histograms, frequency density, correlation.
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## YEAR 8

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
<b>Term 1a</b>	<p><b>SUPPORT</b></p> <p>Convert fluently between metric units of length, mass, capacity and time</p> <p>Multiplying and dividing (and with decimals) ; + - x ÷ with negatives, BIDMAS</p> <p>Primes; Factors; Multiples; HCF &amp; LCM; Power notation; Square, Cube and Triangular numbers</p> <p>Ordering directed numbers, Ordering fractions, decimals and percentages. Ratio – writing, simplifying, equivalence; Ratio to Fraction; Equivalent ratio problems; Sharing in a ratio</p> <p>Rounding to any number of d.p. and to 1 sig, fig.</p> <p>Estimate by rounding to 1 s.f.</p> <p><b>CORE</b></p>	R1, R6, R7, R11,R12 N7, N9, N15 R2 S2, S6		x, ÷ in Standard Form and use negative indices in these calculations Writing error intervals. Solving bounds problems	Conversion, mass, capacity, volume, prime, factors, multiples, indices, directed number, ratio, simplifying, expressions, equations, Ratio, equivalent, denominator, numerator. Similarity, congruence, similar, pressure, force, area, volume, density, mass, Venn diagrams, Indices, roots, significant, standard form, bounds, error Intervals.

	<p>Use a multiplier in a proportion problem;          Speed/Distance/Time;          Density/Mass/Volume;          Pressure/Force/Area;          Understand Congruence and Similarity; Find missing values in similar shapes          P F D; Venn diagrams to find HCF and LCM;          BIDMAS with powers and roots; Rounding to Sig. fig;          Reading and writing numbers in and out of Standard Form. +, - numbers in Standard Form (with and without a calculator); Calculating with powers and roots;          Identify min and max values of a rounded number.</p>				
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<p><b>Term 1b</b></p>	<p><b>SUPPORT</b>                  Develop fraction skills – simplifying, equivalence, mixed to improper, FDP conversions                  Drawing linear graphs, understand gradient and intercept                  +, -, x with proper, improper and mixed numbers; Find percentages; increase and decrease by a percentage</p> <p><b>CORE</b>                  Division of improper and mixed numbers; Decimal multipliers ; Find change as a percentage; Simple Interest                  Plot quadratic graphs; Distance/Time Graphs; Equations of parallel lines; Rearrange <math>y = mx + c</math> to find gradient and intercept; Find the equation of a line from the gradient and a point.                  Draw compound bar charts, scatter graphs and lines of best fit.</p>	<p>N10, N11                  R9, A9, A10, A12, A15</p>	<p>In class assessment</p>	<p>Understand direct and inverse proportion and recognise their graphs                  Plot cubic and reciprocal graphs</p>	<p>Fraction, decimal, percentage, proportion, top-heavy, direct, inverse, correlation, interest, parallel, gradient, intercept, steepness, rate of change, equidistance.</p> <p>Compound interest, simple interest, line of best fit.</p>
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<p><b>Term 2a</b></p>	<p><b>SUPPORT</b>                  Draw and interpret comparative bar charts, pie charts, histograms(equal class widths); Scatter Graphs and Correlation  <b>CORE</b>                  Single event probability; Listing Outcomes, Venn diagrams; Two way tables; Frequency Trees; Probability Trees ; Relative Frequency</p>	<p>S4, S5                  P1, P2, P3, P4, P5, P6, P7, P8</p>			<p>Comparative, bar chart, histogram, equal, width, area, correlation                   Probability, outcome, Venn diagram, relative frequency.</p>
<p><b>Term 2b</b></p>	<p><b>SUPPORT</b>                  Building expressions; Simplifying by collecting and multiplying; Expand brackets; Substitution; Function machines                  Generate terms of a sequence from either a term-to-term or a position-to-term rule; Deduce expressions to calculate the nth term of linear sequences                  Averages and range from discrete data, averages from data in a frequency table and grouped</p>	<p>A3, A4, A5                  A19, A21, A22                  A24</p>	<p>In class assessment</p>	<p>Solve by elimination – multiplying one equation</p>	<p>Expression, simplify, collect, expand, substitute, generate, function, linear, sequence, mean, mode, median, range, grouped, discrete</p>

	<p>frequency table Solving equations by working backwards; One and two step, brackets and two unknowns; Cope with negative and fractional answers.</p> <p><b>CORE</b> Expand two brackets; Factorise into 1 or two brackets ; Laws of Indices; Change Subject of a formula; Exp, Equ, Formula, Identity Identify if a fraction is recurring or terminating; Solve simultaneous equations by drawing two linear graphs; Solve by elimination ( no multiplying); Understand and use the concepts and vocabulary of inequalities; Solve linear inequalities in one variable; Represent the solution set to an inequality on a number line Recognise and generate a Fibonacci Sequence;</p>				<p>Factorise, index, indices, formula, identity, recurring, terminating, simultaneous, elimination, inequality, quadratic, Fibonacci, sequence.</p>
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	Generate a quadratic sequence. Identify a quadratic sequence and find the 1st and 2nd differences				
<b>Term 3a</b>	<p><b>SUPPORT</b> Use angle facts fluently to solve problems; angles in triangles and quadrilaterals; angles in parallel lines Draw and measure lines and angles accurately to nearest degree and mm; Construct triangles; Angle notation; Line and rotational symmetry; Reflect ( equation of lines parallel to axes and <math>y = x</math> ) ; Rotation; Translation (using vectors)</p> <p><b>CORE</b> Draw, measure and calculate bearings;</p>	G2, G15, G3, G5, G6 G7, G13		Solve by elimination – multiplying one equation	Acute, obtuse, reflex, right, triangle, quadrilateral, parallel, accurate, construct, rotational symmetry, reflect, rotate, translate, transformation, vector, axes, rotation.

	<p>Compass Constructions;                  LOCI Angles in irregular and regular polygons;                  Understand congruence in triangles i.e. SSS, SAS, RHS, ASA;                  Time series graphs; Lines of best fit – when and how to use                  Plans &amp; Elevations;                  Enlargement with positive (whole &amp; fractional) SF</p>				<p>Bearing, locus/loci, irregular, congruence, plan, elevation, enlargement, scale factor</p>
<b>Term 3b</b>	<p><b>SUPPORT</b>                  Faces, Edges and Vertices of 3D shapes; Properties of special quadrilaterals and triangles – to solve angle problems                  Area and perimeter of rectilinear shapes including the trapezium.  <b>CORE</b>                  Volume and Surface area of cuboids, Area and Circumference of circles; Composite circles; Volume and surface area of prisms including cylinders ; Pythagoras;</p>	<p>N8                  G6,G11,G16,                  G17,G20</p>	<p>Whole School Exams mid Jan                  2 x 45 mins.                  Calculator and Non-Calculator</p>		<p>Face, edge, vertex, vertices, area, perimeter, rectilinear, trapezium/trapezoid</p> <p>Volume, surface area, circumference, composite, prism, cylinder, Pythagoras, Pi, radius, diameter.</p>

## YEAR 9

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	<p><b>SUPPORT</b></p> <p>Understand and use the concepts and vocabulary of inequalities; Solve linear inequalities in one variable; Represent the solution set to an inequality on a number line</p> <p>Equations of parallel lines; Rearrange <math>y = mx + c</math> to find gradient and intercept; Find the equation of a line from the gradient and a point. Expand two brackets; Solve simultaneous equations by drawing two linear graphs; Solve by elimination ( no multiplying);</p> <p><b>CORE</b></p> <p>Solve linear inequalities and show the solution on a number line. Show regions on a graph that satisfies inequalities.</p>	A22, G25 A9		<p>Use the form <math>y = mx + c</math> to identify perpendicular lines;</p> <p>Recognise and use the equation of a circle with centre at the origin; Find the equation of a tangent to a circle at a given point</p> <p>Show the region on a graph that satisfies inequalities</p> <p>Quartiles for discrete data; Cumulative Frequency and Box Plots; Histograms</p>	<p>Perpendicular, inequalities, solve, set, equations, parallel, gradient, intercept, expand, solutions, roots, origin, expand</p> <p>Tangent, regions, expand.</p>



	Use the form $y = mx + c$ to identify parallel lines; Find the equation of a tangent to a circle at a given point Expand 2 or more brackets				
<b>Term 1b</b>	<p><b>SUPPORT</b></p> <p>Factorise into 1 or two brackets ; Laws of Indices; Change Subject of a formula Volume and Surface area of cuboids, Area and Circumference of circles; Composite circles; Volume and surface area of prisms including cylinders ; Pythagoras; Plans &amp; Elevations; Enlargement with positive (whole &amp; fractional) SF Recognise and generate a Fibonacci Sequence; Generate a quadratic sequence. Identify a quadratic sequence and find the 1st and 2nd differences</p>	A4,A6,A24 G17,G18, R16 R12, R10, N10 A11,A18	In class assessment	Solve quadratic equations by factorising – $ax^2 + bx + c$ ; Solve related quadratic equations; Solve problems by generating a quadratic equation Find Nth term of Quadratic sequences e.g. $ax^2 + bx + c$ ; Recurring decimals to fractions	Factorise, indices, formula, volume, area, surface area, cuboids, circumference, radius, diameter, composite, prisms, cylinders, Pythagoras, plans, elevations, enlargement, scale factor, sequence, generate, quadratic, difference.

	<p><b>CORE</b>  Harder quadratic factorising including the Diff. Of 2 Squares; Simplify &amp; +, -, x, ÷ algebraic fractions; Proof  Solve quadratic equations by factorising e.g. <math>x^2 + bx + c</math> including the diff of 2 squares. Solve quadratic equations by drawing graphs  Arcs and Sectors of circles; Volume and SA of cones, spheres, pyramids and composite solids  Enlargement – fractional SF; Combined transformations;  Invariance Classify and generate Sequences: Arithmetic, Fibonacci, Geometric and Quadratic</p>				<p>Simplify, prove, arc, sector, cones, spheres, pyramids, transformations, invariance, geometric sequences, arithmetic.</p>
<p><b>Term 2a</b></p>	<p><b>SUPPORT</b>  P F D; Venn diagrams to find HCF and LCM; BIDMAS with powers and roots; Rounding to Sig. fig; Reading and writing numbers in and out of Standard Form. +, -</p>	<p>N6,N7,N15,N16  N10</p>	<p>Whole school assessment</p>	<p>Calculate exactly with surds Evaluate fractional Indices</p>	<p>Prime factor, decomposition, Venn diagrams, rounding, significant figures, standard form, calculate, powers, roots, recurring,</p>

	<p>numbers in Standard Form (with and without a calculator); Calculating with powers and roots; Identify min and max values of a rounded number. Identify if a fraction is recurring or terminating; Division of improper and mixed numbers; Decimal multipliers ; Find change as a percentage; Simple Interest</p> <p><b>CORE</b> Estimate Squares, Cubes, Square roots and cube roots. <math>\times</math>, <math>\div</math> in Standard Form and use negative indices; Standard form problems; Writing error intervals; Bounds problems, Evaluate negative Indices Read/Write recurring decimals; Compound Interest; Growth and decay problems</p>				<p>terminating, improper fractions, mixed numbers, multipliers, interest</p> <p>Error intervals, bounds, evaluate, compound interest, growth/decay,</p>
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<p><b>Term 2b</b></p>	<p><b>SUPPORT</b>                  Draw, measure and calculate bearings;                  Compass Constructions;                  LOCI Angles in irregular and regular polygons;                  Understand congruence in triangles i.e. SSS, SAS, RHS, ASA;  <b>CORE</b>                  Right-angled trigonometry                  Vectors; Working with column vectors; Simple geometric vector problems</p>	<p>G7,G8,G20</p>			<p>Draw, measure, calculate, bearings, constructions, locus/loci, irregular, regular, polygons, similar, congruence, hypotenuse</p> <p>Trigonometry, vector</p>
<p><b>Term 3a</b></p>	<p><b>SUPPORT</b>                  Use a multiplier in a proportion problem;                  Speed/Distance/Time;                  Density/Mass/Volume;                  Pressure/Force/Area;                  Understand Congruence and Similarity; Find missing values in similar shapes                  Plot quadratic graphs</p> <p><b>CORE</b></p>			<p>Solve direct and inverse proportion problems which <b>include finding the multiplier</b> and can include <math>x^2</math>, <math>x^3</math>, <math>\sqrt{x}</math>; Effect of enlargement of Area and Volume</p>	<p>Proportion, formulae, congruence, similarity, quadratic</p> <p>Direct proportion, inverse proportion, theorem</p>

	Use direct and inverse proportion equations to solve problems; Recognise graphs of direct and inverse proportion Circle Theorems				
<b>Term 3b</b>	<p><b>SUPPORT</b> Averages and range from discrete data, averages from data in a frequency table and grouped frequency table Single event probability; Listing Outcomes, Venn diagrams; Two way tables; Frequency Trees; Probability Trees (independent probability) Relative Frequency Time series graphs; Lines of best fit – when and how to use</p> <p><b>CORE</b> Probability; Further tree diagrams for independent and conditional problems ;</p>	P6, P8, P9 S1	In class assessment		<p>Mean, median, mode, range, frequency, probability, outcomes, venn diagrams, independent, relative frequency, frequency</p> <p>Dependent (conditional), unconditional, probability, tree</p>

	AND/OR rule; Product rule; Use Venn diagrams to solve problems and find probabilities Understand the limits of sampling;				diagrams, sample space, event, product, limits, sampling,
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## YEAR 10

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	<p><b>SUPPORT</b> Estimate Squares, Cubes, Square roots and cube roots. <math>\times</math>, <math>\div</math> in Standard Form and use negative indices; Writing error intervals; Bounds problems Enlargement – fractional SF; Right- angled trigonometry</p> <p><b>FOUNDATION</b> Solve angle problems; Measure, draw and calculate bearings; Congruence &amp; Similarity; Angles in regular and irregular polygons</p> <p><b>HIGHER</b> 3D Pythagoras; 3D Trigonometry ; Sine and Cosine rule; Area of a non-right angled triangle Fractional Indices; Bounds – including “safety” problems; surds</p>	G20,G21,G22, G23 N7,N8,N16	In class, non – calculator Just before half term	Recognise the ambiguous case when using sine rule Perform calculations using exact values of sin, cos and tan involving surds	<p>Estimate, standard, form, square roots, cube roots, indices, error intervals, bounds, enlargement, trigonometry, sine, cosine and tangent</p> <p>Solve, measure, bearings, congruence, similarity, regular, irregular, polygons</p> <p>Pythagoras, sine, cosine, surds</p>

<p><b>Term 1b</b></p>	<p><b>SUPPORT</b>  Expand 2 brackets ;  Factorise into 2 brackets including the Diff. Of 2 Squares; Classify and generate Sequences: Arithmetic, Fibonacci, Geometric and Quadratic; Read/Write recurring decimals; Compound Interest</p> <p><b>FOUNDATION</b>  Construct accurate scale drawing  Formulae and Function machines  Solve simultaneous equations by elimination or graphical Building and solving linear equations</p> <p><b>HIGHER</b>  Completing the Square for <math>x^2 + bx + c</math>; Solve equations by completing the square and using the quadratic formula; Iteration; Enlargement (negative SF) + effect on area and volume Functions (Derive and ) Solve linear simultaneous equations by</p>	<p>A4,A7,A11  A18, A19  R16  G7,G19</p>		<p>Complete the Square for <math>ax^2 + bx + c</math>; Rearrange an equation to form an iterative formula</p>	<p>Expand, factorise, classify, generate, arithmetic, fibonacci, geometric, quadratic, recurring, compound interest</p> <p>construct, accurate, formulae, function, simultaneous equations, elimination, solve</p> <p>quadratic formula, iteration, enlargement, scale factor, derive, substitution</p>
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	elimination or substitution where both need multiplying				
<b>Term 2a</b>	<p><b>SUPPORT</b> Use direct and inverse proportion equations to solve problems; Recognise graphs of direct and inverse proportion Arcs and Sectors of circles; Volume and SA of cones, spheres, pyramids</p> <p><b>FOUNDATION</b> Nth term of linear sequences + properties of geometric etc Sketch and interpret non-linear graphs ie quadratic, cubic, reciprocal Direct and Inverse proportion: simple problems and graphs</p> <p><b>HIGHER</b></p>	A12,A15,A25 R13,R14,R15	In class, calculator Mid-January	Interpret the gradient of a curve at a point; Identify roots, intercepts and turning points of quadratic functions to sketch the graph	<p>Direct/inverse proportion, arcs, sectors, volume, surface area, pyramids</p> <p>Nth term, sequences, general rules, geometric, sketch, interpret, quadratic, cubic, reciprocal, proportion</p>

	<p>Sketch and interpret non-linear graphs. Estimate the gradient of a curve using the tangent to the curve; Find the area under a curve and so calculate the distance travelled in speed time graph.</p> <p>Solve direct and inverse proportion problems which include finding the multiplier and can include <math>x^2</math>, <math>x^3</math>, <math>\sqrt{x}</math> ;</p> <p>Nth term of quadratic sequences + properties of geometric</p>				<p>Estimate, gradient, tangent, area, properties</p>
<b>Term 2b</b>	<p><b>SUPPORT</b> Solve linear inequalities and show the solution on a number line. Understand the limits of sampling;</p> <p><b>FOUNDATION</b> Area and Perimeter of 2D shapes including circles. Compound shapes.</p> <p><b>HIGHER</b> Plot and interpret linear inequalities graphically; Solve simultaneous equations where one is</p>	A19,A21,A22	<p>Just before Easter holiday 3 x 90 mins GCSE past paper</p>	<p>Sketch quadratic graphs and use to solve quadratic inequalities</p>	<p>Solve, inequalities, linear, solution, limits</p> <p>Area, perimeter, compound</p> <p>Non-linear, graphically,</p>

	non-linear ie quadratic or a circle.				
<b>Term 3a</b>	<p><b>SUPPORT</b> Use the form <math>y = mx + c</math> to identify parallel lines; Vectors; Working with column vectors; Simple geometric vector problems</p> <p><b>FOUNDATION</b> Histograms (equal width); averages; scatter graphs Standard Form problems; PFD, HCF, LCM</p> <p><b>HIGHER</b> Exponential and Trig graphs. Transforming graphs including sin, cos</p>	A12,A13		Apply the concepts of average and instantaneous rates of change	<p>Equation, gradient, intercept, parallel, vectors</p> <p>Histograms, averages, mean, mode, median, scatter graphs, standard form, prime factor, decomposition</p> <p>Exponential, trigonometric, transform, quartiles, discrete,</p>

	and tan Quartiles for discrete data; Cumulative Frequency graphs and Box Plots; Histograms (unequal class width)				cumulative frequency, box plots, inter-quartile range, histograms, estimate, median, histogram, box plots, continuous.
<b>Term 3b</b>	<p><b>SUPPORT</b> Solve quadratic equations by factorising e.g. <math>x^2 + bx + c</math> including the diff of 2 squares. Solve quadratic equations by drawing graphs Probability; Further tree diagrams for independent and conditional problems ; Product rule; Use Venn diagrams to solve problems and find probabilities <b>Target areas of weakness identified in whole school exams</b></p> <p><b>FOUNDATION</b> Compass constructions and LOCI</p>	A9,A11,A16 G25			<p>Product, quadratic, independent and conditional events.</p> <p>Construction, bisects, perpendicular, loci.</p>

	<p><b>Target areas of weakness identified in whole school exams</b></p> <p><b>HIGHER</b>                  Use the form <math>y = mx + c</math> to identify perpendicular lines; Solve quadratic equations by factorising – <math>ax^2 + bx + c</math> ; Solve related quadratic equations; Solve problems by generating a quadratic equation; Completing the Square to deduce turning points ; Recognise and use the equation of a circle with centre at the origin; Find the equation of a tangent to a circle at a given point                  Using vectors for geometrical proof</p> <p><b>Target areas of weakness identified in whole school exams</b></p>				<p>Perpendicular, reciprocal, completing the square, turning points, vertex, origin, tangent, proof.</p>
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## YEAR 11

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
<b>Term 1a</b>	Pupils will begin Year 11 by focusing on commonly examined topics and the basic skills that are required at an appropriate level for their ability. There will be an emphasis on applying their knowledge in unfamiliar ways and on exam technique			Some very high ability students will be offered the opportunity to study for the GCSE in Further Mathematics. Some students may be entered for QA Entry Level Certificate	
<b>Term 1b</b>	Past paper practice in advance of 1st set of mocks. Mock papers are analysed and for each class this generates a bespoke set of topics that need to be addressed in more detail		Mid-November 3 x 90 mins GCSE past paper	Some very high ability students will be offered the opportunity to study for the GCSE in Further Mathematics. Some students may be entered for QA Entry Level Certificate	

<b>Term 2a</b>	Pupils will continue to “fill the gaps” in their knowledge. This may include teaching some topics that have not previously been covered – depending on target grade and setting Past paper practice in advance of 2nd set of mocks			Some very high ability students will be offered the opportunity to study for the GCSE in Further Mathematics. Some students may be entered for QA Entry Level Certificate	
<b>Term 2b</b>	Mock papers are analysed again and for each class this generates another bespoke set of topics that need to be addressed in more detail		Just after half term 3 x 90 mins GCSE past paper	Some very high ability students will be offered the opportunity to study for the GCSE in Further Mathematics. Some students may be entered for QA Entry Level Certificate	

<b>Term 3a</b>	Pupils will continue to “fill the gaps” in their knowledge			Some very high ability students will be offered the opportunity to study for the GCSE in Further Mathematics. Some students may be entered for QA Entry Level Certificate	
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