

## **Mathematics-Year 9-11 GCSE Higher Curriculum Map**

<b>Content (Intent)</b>	<b>Links to prior learning</b>	<b>Skills and Assessment (Implementation)</b>	<b>Expected Learning Outcomes (Impact)</b>
<b>Term 3 Year 9</b> Number Algebra	Calculations, checking and rounding Indices, roots, reciprocals and hierarchy of operations Factors, multiples, primes, standard form and surds (Year 7, term 1, 3, 4, 5 and 6) (Year 8, term 1, 3 and 4). Algebra: the basics, setting up, rearranging and solving equations Sequences (Year 7, term 1) (Year 8, term 1)		Solve GCSE problems involving place value, indices, factors, multiples, primes. Use index and surd laws to solve problems. Basic algebra and expression manipulation. Form, generate and interpret linear and non-linear sequences.
<b>Term 4 Year 9</b> Interpret and representing data Fractions, Ratio and Percentages	Averages and range Representing and interpreting data and scatter graphs (Year 7, term 1 and 3) (Year 8, term 1 and 3) Fractions and percentages (Year 7, term 2) (Year 8, term 2) Ratio and proportion (Year 7, term 5) (Year 8, term 5) (Year 9, term 2)	Formal Assessment	Calculate and compare measures of average and spread. Represent data using appropriate charts and graphs. Convert between fractions decimals and percentages. Calculate using fractions and percentages. Solve basic ratio and proportion problems.
<b>Term 5 Year 9</b> Angles and Trigonometry	Polygons, angles and parallel lines (Year 7, term 2) (Year 8, term 2)		Apply a variety of angle laws to solve problems in 2D shapes.

	Pythagoras' Theorem and trigonometry (Year 7, term 1 and 2) (Year 8, term 1 and 6) (Year 9, term 1)		Use algebra to solve problems involving Pythagoras' theorem and trigonometry.
<b>Term 6 Year 9</b> Revision for Assessment Graphs	Real-life graphs Linear graphs and coordinate geometry Quadratic, cubic and other graphs (Year 7, term 2 and 3) (Year 8, term 2)	Formal Assessment	Link algebra to graphical representations and real-life contexts. Plot cubic quadratic and graphs of other functions such as circles.
<b>Term 1 Year 10</b> Area and Volume Transformations and constructions	Perimeter, area and circles 3D forms and volume, cylinders, cones and spheres (Year 7, term 1 and 4) (Year 8, term 1 and 4) (Year 9, term 1) Transformations (Year 7, term 3) (Year 8, term 3) (Year 9, term 2) Constructions, loci and bearings (Year 7, term 4) (Year 8, term 4) (Year 9, term 1 and 2)	Formal Assessment	Find measures of 2D and 3D shapes. Perform, describe and combine transformations. Construct triangles and bisectors and use these skills to solve loci, scale drawing and bearing problems.
<b>Term 2 Year 10</b> Equations and inequalities Probability	Solving quadratic and simultaneous equations Inequalities (Year 7, term 2 and 3) (Year 8, term 1 and 2)		Use algebraic and graphical techniques to solve quadratics, simultaneous equations and inequalities.

	(Year 9, term 1) Probability (Year 7, term 5) (Year 8, term 5) (Year 9, term 2)		Explore theoretical and experimental probability. Represent frequencies and probabilities using diagrams and algebra to solve problems.
<b>Term 3 Year 10</b> Multiplication reasoning Similarity and congruence	Multiplicative reasoning (Year 7, term 1, 2 and 5) (Year 8, term 1, 2 and 5) (Year 9, term 1 and 2) Similarity and congruence in 2D and 3D (Year 7, term 1 and 3) (Year 8, term 1 and 3) (Year 9, term 1 and 2)	Formal Assessment	Use multiplicative reasoning to solve problems involving compound interest, compound measures, ratio and proportion problems (algebraically and graphically). Use rules of congruence and similarity to solve problems in 2D and 3D shapes.
<b>Term 4 Year 10</b> More Trigonometry Further Statistics	Further trigonometry Graphs of trigonometric functions (Year 7, term 1, 2 and 3) (Year 8, term 2) (Year 9, term 1, 2) Collecting data Cumulative frequency, box plots and histograms (Year 7, term 1 and 3) (Year 8, term 1 and 3)		Use, apply and solve problems involving further trigonometry. Plot, analyse and transform trigonometric functions graphically. Learn exact trigonometric values. Understand the need for different sampling, data collection and data representation methods. Link cumulative frequency, box plots and histograms. Use statistics to compare distributions.
<b>Term 5 Year 10</b> Equations and graphs Revision for end of Year Exams	Quadratics, expanding more than two brackets, sketching graphs, graphs of circles, cubes and quadratics	End of Year 10 Exams	Explore further expansion of algebraic factors and different functions to represent graphically.

	(Year 7, term 2 and 3) (Year 8, term 1 and 2)		
<b>Term 6 Year 10</b> Circle Theorems More Algebra	Circle theorems Circle geometry and recap angles (Year 7, term 2 and 3) (Year 8, term 2) Changing the subject of formulae (more complex), algebraic fractions, solving equations arising from algebraic fractions, rationalising surds, proof (Year 7, term 2 and 3) (Year 8, term 2 and 3) (Year 9, term 1)		Apply and derive circle theorems to solve geometric problems. Use an equation of a circle and the negative reciprocal to solve tangent and radii problems. Apply simple algebraic techniques to solve more complex problems involving functions, proofs, algebraic fractions and surds.
<b>1 Year 11</b> More Algebra Vectors and Geometric Proof	Changing the subject of formulae (more complex), algebraic fractions, solving equations arising from algebraic fractions, rationalising surds, proof Vectors and geometric proof (Year 7, term 2 and 3) (Year 8, term 2 and 3) (Year 9, term 1 and 2)		Apply simple algebraic techniques to solve more complex problems involving functions, proofs, algebraic fractions and surds. Use vectors to solve geometric problems.
<b>Term 2 Year 11</b> <i>Mock Exams 1</i> Proportion and Graphs	Reciprocal and exponential graphs; Gradient and area under graphs Direct and inverse proportion Year 7, term 2, 3 and 5) (Year 8, term 2, 3 and 5) (Year 9, term 1 and 2)	Mock Examination	Plot, sketch, solve and transform further functions such as reciprocals and exponentials. Find estimates of instantaneous rate of change and area under graphs.

### Additional features:

All units are cross referenced to KS3 teaching to ensure continuity.

Each unit and each topic have a specific number of hours allocated to it.

Formative (deep marking/End of unit test) and summative assessment dates have been included to ensure students progress is accurately and timely measured.

A cross-curricular section is introduced to allow students to apply the knowledge gained in other contexts. E.g. science, D.T etc.

Reference to ICT; MyMaths, ActiveLearn, mathsbot and mathsbox.

			Solve further algebraic ratio and proportion problems.
<b>Term 3 Year 11</b> General Revision from mock exams			Answer problems of an exam nature through recapping content.
<b>Term 4 Year 11</b> <i>Mock Exam 2</i> Revision with Past Papers		Mock Examination	Answer problems of an exam nature through recapping content.
<b>Term 5 Year 11</b> Revision with Past Papers			Answer problems of an exam nature through recapping content.

