Subject	*Mathematics*

Introduction:

Setting arrangements

Students are broadly set from year 7 into 4 streams, based on targets, teacher assessment and prior attainment. There are multiple classes in each stream.

Number of periods taught per week at each KS

- KS3 – 4 lessons per week
- KS4 – 4 lessons per week in years 9 & 11 / 5 lessons per week in year 10
- KS5 – 6 lessons per week in year 12 / 5 lessons per week in year 13 + 1 dedicated study period

Contact details

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Course content:

*What is covered in this named year group? **Italics indicate topics that some students will cover***

Year 7	• **Number calculations**, including decimals, negative numbers, indices, fractions/decimals/percentages and calculator skills • **Geometric reasoning**, including measures, *dimensions & scale*, perimeter, area, angles and the definition of shapes including triangles, quadrilaterals and other polygons and transformations • **Algebra**, including sequences, functions, expressions, formulae, coordinates geometry, equations, functions and graphs *including quadratics* • **Ratio and proportion**, including problem solving • **Statistical analysis**, including averages, analysis of data and constructing graphs • **Probability**, *including Venn diagrams and sets*
Year 8	• **Number calculations**, including fractions/decimals/percentages calculations and equivalence, indices, *including negative and fractional, set theory,* problem solving, *Standard Form* and calculator skills • **Geometric reasoning**, including angles and constructions, measures including area, volume and surface area, *including arcs, sectors and cylinders, t*ransformations, *Pythagoras' theorem and trigonometry* • **Algebra**, including sequences *with quadratics,* expressions and formulae with brackets, iteration, equation of a line, *solving inequalities*, *algebraic fractions,* functional notation, forming and solving equations *including graphical representation and quadratics* • **Ratio and proportion**, *including the use of fractions, decimals & percentages to solve problems* • **Statistical analysis**, including construction of charts, samples *and quartiles* • **Probability**, including *theoretical and* experimental
Year 9	• **Number calculations**, including negative numbers, rounding, limits of accuracy, indices *with fractional and negative powers,* factors and multiples and HCF/LCM, fractions with all four operations and solving problems, *including manipulation of algebraic fractions,* decimals terminating and recurring, percentages for comparison and problem solving, calculations in standard form, *irrational numbers* and calculator skills • **Geometric reasoning**, including angles in parallel lines, *circle theorems,* construction, scale, bearings, 2D representation of 3D shapes, volume, area, perimeter *of complex shapes,* Pythagoras' theorem, *trigonometry*, transformations *with vectors and proof* • **Algebra**, including manipulation of expressions and formulae to solve problems, factorisation *of quadratics*, coordinates and graphs, equations of a line *including quadratics, s*equences *including quadratics, s*olving equations with brackets • **Ratio and proportion**, including multiplicative, ratio and fractional relationships to solve problems

	• **Statistical analysis**, including time series, data distribution, bipartite data, *working with quartiles* and probability including frequency trees • **Probability**, including independent *and multiple* events
Year 10	• **Number calculations**, including indices *with fractional and negative, irrational numbers, exact calculations, limits of accuracy,* and calculator skills • **Geometric reasoning**, including measures, compound measurements, error intervals, construction, solving loci problems, volume, area, perimeter *of complex shapes,* congruence and similarity, Pythagoras' theorem, trigonometry *with non-right angle triangles and in 3 dimensions,* angles, properties of polygons, *proof, vector geometry* • **Algebra**, including solving equations to solve problems *with quadratics*, rearranging and solving with brackets and unknowns on both sides, *solving simultaneous equations, c*oordinates and graphs, equations of a line *and quadratics,* interpreting distance/time graphs, *solving quadratic inequalities and simultaneous equations, working with circles, complex graphs, growth and decay and transformations of graphs* • **Ratio and proportion**, including multiplicative, ratio, fractional *and inverse* relationships to solve problems • **Statistical analysis**, including working with grouped data, *histograms* and bipartite data • **Probability**, including *dependent/multiple events and using Venn diagrams*
Year 11	• **Number calculations**, including revision of indices, multiplicative reasoning, number calculation, standard form, fractions, decimals, percentages, estimation, *irrational numbers* and use of calculator • **Geometric reasoning**, including vectors, revision of transformations, 2D representation of 3D shapes, perimeter/area/volume/surface area, circles, bearings, angles, congruence and similarity, Pythagoras and trigonometry • **Algebra**, including problem solving, sketching graphs including quadratics, solving quadratic equations. growth and decay, inequalities, revision of solving *more complex* equations, sequences and factorising • **Ratio and proportion**, including direct and inverse proportion and revision of using ratio and proportion to solve problems including best buys • **Statistical analysis**, including revision of charts and graphs, grouped data, average calculations, *cumulative data and histograms* • **Probability**, including tree diagrams, independent *and dependent* events, multiple events and the use of Venn diagrams • ***Further Maths**, including Calculus (Differentiation and Integration), Trigonometric identities and Matrices*
Year 12	• **Numerical calculations**, including indices and surds, binomial expansion • **Geometric reasoning**, including coordinate geometry, trigonometry, triangles • **Algebra**, including proof, quadratic functions, polynomials, using graphs, logs and exponentials, • **Statistical analysis**, including sampling, hypothesis testing and probability • **Calculus**, including differentiation and integrations • **Mechanics**, including vectors, kinematics, forces and motion • ***Pure Maths**, including complex numbers, matrices, further vectors, polynomials, polar coordinates, proof, hyperbolic functions, further calculus, ellipses, hyperbolas and parabolas* • ***Discrete Maths**, including binary operations and group theory, graphs, networks, linear programming, critical path analysis, game theory* • ***Mechanics**, including dimensional analysis, momentum and collisions, work energy and power and circular motion*

Year 13	• **Numerical calculations**, including numerical methods, binomial theorem, sequences and series • **Geometric reasoning**, including trigonometry and circular measure • **Algebra**, including functions and transformations, parametric equations, partial fractions, differential equations • **Statistical analysis**, including distributions, hypothesis testing and probability • **Calculus**, including further differentiation and integration • **Mechanics**, including kinematics in 2D, equilibrium and resolving, statics and dynamics, moments • ***Pure Maths**, including further complex numbers, matrices, vectors, calculus, algebra and functions, polar coordinates, differential equations, hyperbolic functions, numerical methods* • ***Discrete Maths,** including further work in graphs, network flows, critical path analysis, linear programming, Game theory for zero-sum games, binary operations and group theory.* • ***Mechanics**, including further work in dimensional analysis, momentum and collisions, work energy and power, circular motion and Centres of mass and moments.*

Assessment:

How do you assess progress of students? Tests, coursework, frequency?

KS3	KS4	KS5
• Students take termly assessments • Students are graded between 1-9 • Students take an end-of-year assessment that forms their final grade for the year	• Students take termly assessments • Students are graded between 1-9 • Students take an end-of-year assessment that forms their final grade for the year • Year 11 students are assessed weekly on key topics to topic to facilitate targeted intervention	• Students are assessed at the end of each topic to facilitate targeted intervention • Students take termly exams • Students are graded between A*-U • Students take an end-of-year assessment that forms their final grade for the year

Assessment criteria

Please email your progress grid separately to be inserted here.