

OVERVIEW

Students study topics in each of the five key strands in mathematics: Number, Algebra, Geometry, Ratio & Proportion and Statistics & Probability. Each strand builds on their prior learning from Years 7, 8, 9 and 10. We focus on developing knowledge and skills in each of the five strands which students will then build on to solve problems and reason mathematically.

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Unit 1: Algebraic Proof – equivalent statements, proof from given terms, proof from given statements
Unit 2: Solving Quadratics and Further Simultaneous Equations – solving by factorizing, solving using the quadratic formula, solving by completing the square, solving quadratics from algebraic fractions, solving linear and non linear simultaneous equations
Unit 3: Functions – Introducing functions, composite functions, inverse functions, function problems creating equations
Unit 4: Iteration – introduction to iteration, using iteration to find a solution
Unit 5: Quadratic Inequalities - graphing linear inequalities and shading regions, quadratic inequalities
Unit 6: Bearings & Scale Drawings – measuring and reading, drawing, bearings and angles, bearings, Pythagoras and trigonometry
Unit 7: Circle Theorems – Angle at centre is twice the angle at the circumference, angle in a semi circle, angles in the same segment are equal, opposite angles in a cyclic quadrilateral, Alternate Segment Theorem, tangent and radius meet at a right angle, tangents outside a circle are equal, proof
Unit 8: Further trigonometry – area of a triangle, sine rule, cosine rule

Assessment:

Students will be informally assessed every lesson using questioning, mini whiteboards and marking of independent work.

Students will sit a Paper 1, 2 and 3 during their Mock 1 exams in November.

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Unit 9: Further Statistics – finding quartiles from a data set, box plots, cumulative frequency, histograms
Unit 10: Transformations – reflections, rotations, translations, enlargements, combinations of transformations
Unit 11: Congruence – congruent shapes, congruent triangles
Unit 12: Vectors – vectors from a line segment, adding and subtracting vectors, multiplying vectors, drawing vectors, parallel vectors, midpoints and ratios, co-linear vectors
Unit 13: Gradients and area under a graph – equation of a tangent to a circle, interpreting gradients, finding acceleration, estimating distance travelled
Unit 14: Graphical transformations – translations of functions, reflections of functions
Unit 15: Constructions & Loci – line bisectors, angle bisectors, constructing angles, constructing triangles, loci of a point and a line, loci regions

Assessment:

Students will be informally assessed every lesson using questioning, mini whiteboards and marking of independent work.

Students will sit a Paper 1, 2 and 3 during their Mock 2 exams in March.

Sum

Revision Programme – students follow a bespoke revision programme based on topics identified from assessment QLAs. Topics studied will be selected from the following:

Further statistics, Transformations, Congruence, Vectors, Further gradients, area under a graph and kinematics, Graphical transformations, Bounds, Rearrange formulae, Proportion, Volume & SA, Similar shapes, Circle Theorems, Construction & Loci, Manipulate quadratics, Rearrange formulae, Right angled Trigonometry and Pythagoras, $y=mx+c$ (plotting & algebraic), Surds, Direct and inverse, proportion, Construction & Loci, Bounds, Transformations (inc. fractional and negative), Volume & SA, Further Number, Further Algebra, Tree diagrams, Venn diagrams, Histograms and CF, Graphical transformations

Assessment:

Students will be informally assessed every lesson using questioning, mini whiteboards and marking of independent work.

GCSE exams will take place in May/June

Useful resources for supporting your child at home:

Videos on MathsWatch ([MathsWatch](#))
 Videos on Corbett Maths ([Videos and Worksheets – Corbettmaths](#))
 CGP GCSE Maths Edexcel Revision Guide ([link here](#))
 REVISE Pearson Edexcel GCSE (9-1) Mathematics ([link here](#))

Homework:

Homework will be set on MathsWatch ([MathsWatch](#)).
 Homework will be set once a week and students are expected to achieve over 70% on their homework each week. Homework is bespoke for each class and based on GCSE style exam questions.