Stratton Upper School

Mathematics

Curriculum Area Leader: C Lopez clopez@stratton.school

Key Stage 3 Mathematics	Curriculum intent	Curriculum content Mathematics	Curriculum delivery Typical curriculum allocation: 6-8
Year 8 Transition project	The Year 8 curriculum builds on the knowledge and skills gained in year 7. There is a focus on algebraic understanding and curriculum allows students to develop their understanding through concrete, pictorial and abstract representations.	Algebraic notation, expanding and factorising single brackets, substitution, solving linear equations, rearranging simple formulae, angles in parallel lines and polygons, area of 2D shapes, surface area of 3D shapes, area and circumference of circles, volume of prisms, linear sequences, simple probability, tree diagrams, types of data, calculating with averages.	Delivered in feeder middle schools. 3 activities designed to assess students' current skills in key areas of computing. Assessment Taken in feeder schools to stablish a baseline for students 1 calculator paper 1 non-calculator paper .

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Exam board link:
https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study

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Key Stage 3 and 4 Mathematics	Curriculum intent	Curriculum content Mathematics	Curriculum delivery Typical curriculum allocation: 6-8
Year 9	The aim of GCSE study in Year 9 is to begin to build upon the key constructs of the year 7/8 mastery curriculum. The curriculum is designed to allow students to follow a curriculum that underpins both foundation and higher content. The vast majority of the students' tiers are decided by the end of Year 10. Each topic is taught so that the key skills are mastered. Students then develop fluency through reasoning and problem solving	**AQA GCSE Mathematics (8300)** 3 papers: one non-calculator, two calculator. (1.5 hours, 80 marks per paper) **Number:** arithmetic, working with fractions, decimals and percentages, surds, standard form , rounding, factors and multiples. **Algebra:** algebraic manipulation, equations, formulae, inequalities, functions, identities, graphing functions, sequences, real life graphs. Ratio, Proportion & Rates of change: growth and decay, compound measures, conversion graphs, best buys. **Geometry & Measure**: angles, trigonometry, Pythagoras' Theorem, similarity and congruence, area, perimeter, surface area and volume, transformations, loci and constructions, 2D/3D shapes. **Probability:** basic probability, independent/mutually exclusive events, reprinting probabilities, relative frequency. **Statistics:** Analysing and representing bivariate/univariate data, averages. .	Lessons are designed so that they address the objectives as outlined by the AQA specification. However, real world contexts and enrichment activities are completed to allow for enjoyment of the subject. Students are prepared for cumulative assessments. Assessments are written using board specific exam level questions.
Year 10			The first two assessments are cumulative assessments based on previous learning and compiled using exam level questions. At the end of the year students will sit an official GCSE paper.
Year 11	A greater focus is put upon exam technique and cross topic fluency. Time is allowed for students to develop as independent learners and refine and improve their own mathematical ability.		Students complete preparation examinations in November and February. In each of these windows students will sit official exam papers. **Assessment** **Paper 1: non-calculator (1h 30 min)** **Paper 2: calculator (1h 30 min)** **Paper 3: calculator (1h 30 min)**

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Exam board link:
https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300/subject-content

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Mathematics

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Key Stage 5 Mathematics	Curriculum intent	Curriculum content A Level Mathematics: Edexcel	Curriculum Delivery Typical curriculum allocation: 8-9
Year 12	To invite pupils to enhance the breadth and depth of their mathematical knowledge covering pure maths, mechanics and statistics with a deeper emphasis on developing and accessing reasoning, problem-solving skills and modelling. A Level Mathematics challenges pupils to gain mastery in their subject in order to fully develop the skills required to study Mathematics, in any sense, at higher education.	PURE • Review of Summer/transition work • Algebraic Expressions • Quadratics • Equations and inequalities • Straight line graphs • Graphs and transformations • Circles • Algebraic methods • The binomial expansion • Vectors • Trigonometric ratios • Differentiation STATISTICS • Data collection • Probability • Data processing, presentation and interpretation • Statistical Hypothesis Testing using Binomial Distribution MECHANICS • Forces and Newton's Laws of Motion • Kinematics Variable acceleration	At the end of each, not necessarily immediately though, a unit "test" must be taken by each student through Integral Maths. In-depth content information offers opportunities to address the over-arching themes of the course: • Mathematical argument, language and proof (OT1) • Mathematical problem solving (OT2) Mathematical modelling (OT3)
Year 13		PURE • Algebraic methods • Functions and groups • Sequences and series • Binomial expansion • Radians	**Assessment** **Paper 1: Core Pure 1 (120 min)** **Paper 2: Core Pure 2 (120 min)** **Paper 3: Statistics/Mechanics (120 min)**

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		• Trigonometric functions • Trigonometry and modelling • Parametric equations • Differentiation • Numerical methods • Integration • Vectors STATISTICS • Hypothesis testing • Numerical methods • Probability • Probability distributions MECHANICS • Kinematics • Force and motion • Friction • Moments • Projectiles	

Exam board link:
Pearson Edexcel AS and A level Mathematics (2017) | Pearson qualifications