RAYNES PARK HIGH SCHOOL

Mathematics

Statement of Intent

Mathematics provides a powerful universal language and an intellectual toolkit for abstraction, generalisation and synthesis. It is of central importance to a modern society as mathematics underpins the knowledge of the economy and is the language of science to enable us to develop new technologies.

Mathematical skills are highly valued and sought after by a variety of employers. Mathematics disciplines the mind, develops logical and critical reasoning and develops problem-solving skills to a high degree. Employment surveys show that graduates in mathematical subjects are in increasing demand in the UK economy.

Key Stage 3 Curriculum

Pupils have 4 Mathematics lessons a week and will receive 2 'Hegarty Maths' homework tasks a week. Key stage 3 follow a mastery curriculum. The aim of the mastery curriculum is to enhance pupils' enjoyment, resilience, understanding and attainment in Mathematics. The curriculum is designed in relatively small carefully sequenced steps resulting in pupils acquiring a deep, long-term, secure and adaptable understanding of the subject.

Key Stage 4 Curriculum

For GCSE Mathematics we follow the Edexcel course and at the end of Year 11 pupils will sit three 90 minute exams, 1 non-calculator and 2 calculator papers. The main strands of the course are: Number, Algebra, Geometry & Measures, Statistics & Probability.

Functional elements have been embedded in the course so that pupils are able to use mathematics in real-life contexts. In their 'Using and Applying' of Mathematics pupils will develop their thinking skills so they will learn how to form convincing arguments, to justify findings and general statements and to work logically towards results and solutions. Students have 4 lessons a week and receive 90 minutes of homework a week.

Key Stage 5 Curriculum

We offer A-Level Mathematics and A-Level Further Mathematics. We follow the Edexcel course and both A-Levels are 2 year course with all the exams being sat at the end of the course. Both A levels have pure and applied modules. In A-Level Mathematics pupils will study pure Mathematics, mechanics and statistics. In Further Mathematics pupils study pure Mathematics and statistics to a greater depth and get introduced to decision Mathematics.

Pupils have 5 lessons a week and receive homework after every lesson.

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Extended Learning

What we offer to extend the learning of our students

All pupils have the opportunity to compete in the UKMT challenges. This is a national competition which encourages mathematical reasoning, precision of thought, and fluency in using basic mathematical techniques to solve interesting problems.

Older pupils also have the opportunity to take part in the team and senior team Mathematics Challenge competition, giving them the opportunity to tackle a variety of engaging mathematical activities while developing teamwork and communication skills.

Raynes Park High School also hosts an annual Mathematics Feast, this is a team competition testing mathematical understanding, team-working and communication skills. This is for Year 10 pupils and gives them to compete against other local schools.

Our weekly after school Puzzle Club also gives pupils the opportunity to develop logic and strategy skills.

What parents can do to support extended learning in this subject

It is incredibly important that parents are positive about Mathematics. Avoid saying things like "I can't do Mathematics" or "I hated Mathematics at school"; your child might start to think like that themselves.

Help to build your child's real life mathematics skills by involving them in real life Mathematics problems. In everyday life adults have to negotiate mathematics problems and if possible involve your child in these decisions. It could be from deciding which is the best car insurance deal to comparing a "buy one get one free" deal with a "buy 3 for 2" deal in a supermarket.

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KS3 Curriculum Map

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 7	• Sequences • Understanding and using algebraic notation • Equality and equivalence	• Place value and ordering integers and decimals • Fraction, decimal and percentage equivalence	• Solving problems with addition and subtraction • Solving problems with multiplication and division	• Four operations with directed number • Addition and subtraction of fractions	• Constructing, measuring and using geometric notation. • Developing geometric reasoning.	• Developing number sense. • Sets and probability. • Prime numbers and proof.
Year 8	• Ratio and scale • Multiplicative change • Multiplying and dividing fractions	• Working in the Cartesian plane • Collecting and representing data • Tables	• Brackets, equations and inequalities • Sequences • Indices	• Fractions and percentages • Standard Index form • Number sense	• Angles in parallel lines and polygons • Area of trapezia and circles • Line symmetry and reflection	• The data handling cycle • Measures of location
Year 9	• Percentages • Recipes • Best buys • Algebraic expressions • Expanding brackets	• Factorising • Solving linear equations • Circles • Volume	• Angles • Pythagoras' Theorem • Estimating • HCF/LCM	• Drawing graphs • Systematic listing • Probability	• Reflections • Rotations • Translations • Two way tables	• Frequency polygons • Averages • Pie Charts • Scatter graphs

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KS4 Curriculum Map

Edexcel GCSE Mathematics

		Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 10	Foundation Tier	• Repeated percentage increase • Percentage multipliers • Best buys • Algebraic expressions • Expanding brackets	• Factorising • Solving linear equations • Circles • Volume	• Multi step angle problems • Pythagoras' Theorem • Estimating • HCF/LCM	• Sample space diagrams • Independent events • Relative frequency	• Reflections • Rotations • Translations • Two way tables	• Frequency polygons • Averages • Pie Charts • Scatter graphs • Scale drawings
	Higher Tier	• Related calculations • Compound Interest • Reverse percentages • Percentage change • Exchange rates • Ratio problems	• Forming & solving linear equations • Factorising quadratics • Surface area • Arc lengths & sectors • Angles in polygons • Trigonometry	• Index Laws • Standard form • Inequalities • Simultaneous equations • Y=mx+c	• Probability trees • Frequency trees • Sets & Venn diagrams • Enlargements • Similar Triangles • Congruent triangles	• Sampling • Quartiles • Average & range problems	• Speed • Density • Pressure • Bounds

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Year 11	**Foundation Tier**	• Related calculations • Compound Interest • Reverse percentages • Percentage change • Exchange rates • Ratio problems	• Forming & solving linear equations • Factorising quadratics • Surface area • Angles in polygons • Trigonometry • Index Laws • Standard form • Inequalities	• Simultaneous equations • Y=mx+c • Probability trees • Frequency trees • Sets & Venn diagrams	• Enlargements • Similar Triangles • Congruent triangles • Sampling • Quartiles • Average & range problems	• Speed • Density • Pressure • Bounds	
	Higher Tier	• Recurring decimals • Advanced ratio • Algebraic inverse & direct proportion	• Changing the subject • Solving quadratics • Algebraic fractions • Volume & surface area of complex 3D shapes • Advanced trigonometry	• Surds • Quadratic sequences • Functions • Iteration • Quadratic graphs	• Graph transformations • Similarity • Vectors	• Box plots • Histograms	

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KS5 Curriculum Map

Edexcel A Level Mathematics

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 12	Pure Mathematics • Algebraic Expressions • Quadratics • Algebraic Methods • Binomial Expansion 1 • Differentiation (Part 1) Applied (Mechanics) • Modelling in mechanics • Constant acceleration Applied (Statistics) • Measure of location and spread • Statistical distribution	Pure Mathematics • Differentiation (Part 2) • Integration Applied (Mechanics) • Constant acceleration Applied (Statistics) • Probability • Data collection	Pure Mathematics • Vectors 2D • Straight line graphs • Circles Applied (Mechanics) • Force and motion Applied (Statistics) • Hypothesis Testing	Pure Mathematics • Trigonometric ratios • Trigonometric identities and equations • Equations and inequalities • Graphs and transformations Applied (Mechanics) • Force and motion Applied (Statistics) • Correlation	Pure Mathematics • Exponentials and Logs Applied (Mechanics) • Variable acceleration Applied (Statistics) • Representation of data	Pure Mathematics • Proof • Algebraic Methods • Radians (Part 1) Applied (Mechanics) • Forces and friction Applied (Statistics) • Normal distribution

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Year 13	Pure Mathematics • Trigonometric functions • Differentiation (Yr2) Applied (Mechanics) • Forces and friction Applied (Statistics) • Normal distribution 1	Pure Mathematics • Integration (Yr2) • Functions and graphs Applied (Mechanics) • Moments • Application of forces 1 Applied (Statistics) • Normal distribution 2	Pure Mathematics • Series and sequences • Binomial expansion 2 • Radians • Trigonometry and modelling 1 Applied (Mechanics) • Application of forces 1 • Projectiles 1 Applied (Statistics) • Conditional probability 1	Pure Mathematics • Trigonometry and modelling 2 • Parametric equations Applied (Mechanics) • Projectiles 2 • Variable acceleration Applied (Statistics) • Conditional probability 2 • Regression 1	Pure Mathematics • Numerical methods • Vectors 3D Applied (Mechanics) • Further kinematics Applied (Statistics) • Regression 2	Pure Mathematics • Revision for external exams Applied (Mechanics) • Revision for external exams Applied (Statistics) • Revision for external exams