

Subject: Mathematics

Curriculum Intent

The mathematics curriculum is academically rigorous, exposing students to a broad and rich syllabus ensuring all students develop deep mathematical understanding and a love for the subject. Key skills and knowledge which form the foundation for more complex mathematical themes are mastered in earlier years considering prior understanding developed at KS2 to ensure cumulative learning over time.

Trips and participation in local and national competitions expose students to mathematical problem-solving in a non-academic environment. These experiences give them an opportunity to apply skills and knowledge learned in lessons and to gain a deeper appreciation for the subject both within and outside of the Riverside curriculum.

We prepare our students to become successful, analytical young mathematicians who can draw upon learnt knowledge and skills. This enables them to apply problem-solving and numeracy successfully in their future pathways and careers.

Year 7 Topics

- Autumn Term 1 – Primes Factors and Multiples, Fractions
- Autumn Term 2 – Place Value and Proportion
- Spring Term 1 – Perimeter and Area, Averages and Decimals
- Spring Term 2 – Negative numbers and Introduction to Algebra
- Summer Term 1 – Algebra and Probability
- Summer Term 2 – Percentages

Year 8 Topics

- Autumn Term 1 – Algebra II
- Autumn Term 2 – Circles and Ratio
- Spring Term 1 – Statistics
- Spring Term 2 – 3D Shape
- Summer Term 1 – Sequences and Straight-Line Graphs
- Summer Term 2 – Transformations, Constructions and Loci

Year 9 Topics

- Autumn Term 1 – Place Value, Fractions, Decimals and Percentages and Indices
- Autumn Term 2 – Surds and Geometric Reasoning
- Spring Term 1 – Pythagoras and Right-Angled Trigonometry
- Summer Term 1 – Probability and Sequences
- Summer Term 2 – Compound Measures

Year 10 Topics

- Autumn Term 1 – Number and Linear Graphs
- Autumn Term 2 – Inequalities and Non-Linear Equations and their graphs
- Spring Term 1 – 3D shapes and Circle Theorems
- Summer Term 1 – 3D Pythagoras and Advanced Trigonometry
- Summer Term 2 – Algebraic Fractions

Year 11 Topics

- Autumn Term – Statistics and Transformations and functions
- Spring Term – Vectors and Proof and Revision based on mock examinations
- Summer Term 1 – Revision and Exam Techniques

Year 12 Topics

- Autumn Term –
Pure: Algebra and functions, Coordinate geometry in the (x, y) plane, Algebraic methods
Statistics: Statistical sampling, Data presentation and interpretation Quantities and units
Mechanics: Vectors (from pure), modelling, deriving SUVAT, Kinematics
- Spring Term –**Pure:** Binomial expansion, Proof, Trigonometry, Calculus,
- **Statistics:** Representation of data, Probability, Statistical distributions, Statistical hypothesis testing,
- **Mechanics:** Forces and motion, Newton's laws, vectors Kinematics
- Summer Term 1 – **Pure:** Integration, exponentials, logarithms, revision for VIMA III,
Statistics: Hypothesis testing, A2: regression and correlation
- **Mechanics:** Functions of time, A2: Vectors chapter 12
- Summer Term 2 –**Pure:** Exponentials, revision for VIMA III, Pure 2: Algebraic and partial fractions,
- **Statistics** A2: regression and correlation
- **Mechanics:** A2 Vectors chapter 12

Year 13 Topics

- Autumn Term – **Pure:** CH1 and CH2 recap from A2, Radians, trigonometry and trigonometric modelling, Parametric equations, differentiation
- **Statistics:** The Normal distribution, conditional probability, regression, and correlation (review)
- **Mechanics:** Moments, vectors review (CH12), forces and friction, projectiles,
- Spring Term – **Pure:** Differentiation, sequences and series, integration
- **Statistics:** Numerical methods, Binomial expansion
- **Mechanics:** Projectiles, application of forces, Further kinematics
- Summer Term 1 – Revision and Exam Techniques

GCSE Specification Details and Assessment: Pearson Edexcel GCSE (9-1) in Mathematics

A-Level Specification Details and Assessment: Pearson Edexcel Level 3 Advanced GCE in Mathematics (9MA0)