

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 taking into account 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 are able to 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 – Place value, addition, and subtraction
- Autumn Term 2 – Multiplication and division
- Spring Term 1 – Negative numbers
- Spring Term 2 – Fractions
- Summer Term 1 – Decimals and percentages
- Summer Term 2 – Algebra, geometry; lines and angles

Year 8 Topics

- Autumn Term 1 – Algebra II, revise and improve Fractions II, revise and improve
- Autumn Term 2 – Fractions and percentages, revise and improve
- Spring Term 1 – Percentages and probability, Geometry
- Spring Term 2 – Geometry; circles and areas; Ratio, proportion, and rates of change
- Summer Term 1 – Ratio, proportion, and rates of change; statistics
- Summer Term 2 – Statistics, geometry; 3D shapes

Year 9 Topics

- Autumn Term 1 – Number
- Autumn Term 2 – Number and Geometric reasoning
- Spring Term – Geometric reasoning, Pythagoras and right-angled trigonometry, sequences, and straight-line graphs
- Summer Term 1 – straight line graphs, compound measures
- Summer Term 2 – Transformations of graphs, Constructions and Loci

Year 10 Topics

- Autumn Term – Number, Algebra (solving equations)

- Spring Term – Graphs, Circle geometry and multiplicative reasoning
- Summer Term 1 – Algebraic fractions, Pythagoras, and advanced trigonometry
- Summer Term 2 – sequences, inequalities, and graphs

Year 11 Topics

- Autumn Term – Statistical diagrams, vectors, Revision based on mocks
- Spring Term – Functions, Revision based on mocks
- 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
- Summer Term 2 – X

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)

