

Subject: Mathematics

HoD:

Ms Pimentel Klother

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.

Course Content

Amongst other topics students study the following:

- Number
- Algebra
- Ratio and proportion
- Geometry and measure
- Probability and sets
- Statistics

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

Year 9 Topics

- Autumn Term 1 – Algebra and Number
- Autumn Term 2 – Geometric reasoning and perimeter, area and volume
- Spring Term – Probability and Algebra (simultaneous equations and inequalities)
- Summer Term 1 – Sequences and Transformations
- Summer Term 2 – Graphs and Data handling

Year 10 Topics

- Autumn Term – Number, Algebra (Quadratics) and Trigonometry
- Spring Term – Graphs, Circle geometry and Algebraic fractions
- Summer Term 1 – Similarity and congruence and Trigonometric graphs
- Summer Term 2 – Vectors and Probability

Year 11 Topics

- Autumn Term – Statistical diagrams, Number and Functions and graphs
- Spring Term – Algebra, Area, volume and surface area and Ratio and proportion
- Summer Term 1 – Revision and Exam Techniques

Specification details and assessment

Pearson Edexcel GCSE (9-1) in Mathematics

Assessment is through terminal examinations. Students will be guided and supported towards their target grades by teacher marking and feedback. Students will be exposed to all areas of mathematics tested in the examinations.

Requirements

This is a compulsory subject until the end of year 11 followed by all students in the school.

Key Stage 5 Overview

Course Content

Amongst other topics students study the following:

- **Pure Mathematics**, including
 - Proof
 - Algebra and functions
 - Coordinate geometry in the (x, y) plane
 - Sequences and series
 - Trigonometry
 - Exponentials and logarithms
 - Differentiation
 - Integration
 - Numerical methods
 - Vectors

- **Mechanics**, including
 - Quantities and units in mechanics
 - Kinematics
 - Forces and Newton's laws
 - Moments

- **Statistics**, including
 - Statistical sampling
 - Data presentation and interpretation
 - Probability
 - Statistical distributions
 - Statistical hypothesis testing

Year 12 Topics

- Autumn Term – Algebra and functions, Coordinate geometry in the (x, y) plane, Statistical sampling, Data presentation and interpretation Quantities and units in mechanics, Kinematics
- Spring Term – Proof, Trigonometry, Calculus, Vectors, Probability, Statistical distributions, Statistical hypothesis testing, Forces and Newton's laws, Kinematics
- Summer Term 1 – Revision and Exam Techniques
- Summer Term 2 – Algebraic and partial fractions, Functions and modelling, regression and correlation, Moments

Year 13 Topics

- Autumn Term – Series and sequences, The binomial theorem, Calculus, Probability, The Normal distribution, Forces, Kinematics
- Spring Term – Calculus, Vectors (3D), The Normal distribution, Further kinematics
- Summer Term 1 – Revision and Exam Techniques
- Summer Term 2 – X

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