Maths

Mathematics: working hard together, achieving together, making every lesson count

The Mathematics Department will provide students with exciting, relevant and challenging Mathematics, delivered by dedicated staff.

Students will understand the underlying principles of the mathematics they learn, making links and developing reasoning skills and logical thinking.

They will progress towards being independent mathematicians who can identify correct and incorrect work for themselves.

Students will have their confidence encouraged and their complacency challenged in order to maximise potential.

Autumn		Spring		Summer	
Recurring decimals Surds Quadratics: graphing, solving, sequences	Compound Measures Transformations Scale Drawing Constructions Loci	Personalised Mock Exam Preparation Pythagoras' Theorem Basic Trigonometry	Simultaneous Equations Linear Inequalities	Advanced Trigonometry Proportionality Properties of 2D shapes Circle Theorems	P,A,V Bounds

Students will receive one piece of homework per week that will be marked and returned to the student at the next available opportunity. The piece of work will be designed to last between 1 hour and 1 and a half hours. Unless otherwise stated by the teacher students should complete homework in their book and show all working out. Homework could take a variety of formats including:

- Worksheet
- Research Project
- Mymaths
- Revision
- Exam Practice

Unit	Duration (lessons)	Learning Objectives/Outcomes
Algebra	25	• To be able to change the subject of a formula • To be able to plot and find the gradient of straight line graphs • To interpret and analyse straight line graphs • To interpret straight line graphs

Number	10	• To convert a recurring decimal into a fraction • To manipulate with surds
Algebra	20	• To plot a quadratic function • To solve a quadratic equation across different method • Find the nth term of a quadratic sequence
Geometry & Measure	20	• Interpret a range of scales • Convert to and from a range of imperial and metric measures • To be able to describe and perform transformations
Number	10	• Convert to and from standard form • To calculate with standard form
Geometry & Measure	25	• To interpret a scale drawing • To draw and describe bearings • To make accurate constructions (include Loci) • Use Pythagoras' theorem in 2D and 3D
Algebra	5	• To work with co-ordinates in 3D
Geometry & Measure	5	• To use basic trigonometry to solve problems in 2D and 3D • To use advanced trigonometry to solve problems in 2D and 3D • To use advanced trigonometry to find the area of a triangle
Algebra	15	• To solve simultaneous equations using a variety of methods • To solve simultaneous equations – quadratic and linear • To solve inequalities and represent solutions on a number line
Geometry & Measure	10	• To use trigonometry across topics
Algebra	10	• To calculate an unknown quantity from quantities that vary in direct or inverse proportion • To solve problems using proportionality

Geometry & Measure	25	• To know the properties of quadrilaterals • To know and use circle theorems to solve problems • To calculate arc lengths and sector areas • To calculate area of segments • To find surface area and volumes of complex solids
Number	10	• To calculate upper and lower bounds working with measurements • To solve problems, involving geometry and measure, using upper and lower bounds