

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	
Place Value and BIDMAS Data Analysis Nets and Surface Areas	Mathematical Diagrams Ratio Basic Algebra Angles	FDP Probability Linear Graphs	Money and Time Formulae Polygons Units of Measure	Speed, Distance and Time Questionnaires and data collection	Transformations Maths in Action GCSE: Data Handling

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 (weeks)	Learning Objectives/Outcomes
Mathematical Diagrams	1	<ul style="list-style-type: none"> • Mathematical Diagrams • Mileage charts • Flow charts and networks

Factors, multiples and primes; index notation, squares and roots	1	<ul style="list-style-type: none"> • Products of primes • LCM and HCF • Simplifying expressions using index notation • Squares, cubes, square roots and cube roots
Number Bases and Binary	1	<ul style="list-style-type: none"> • Writing numbers in different bases • Base 5 • Working in Binary
End of term activities	1	<ul style="list-style-type: none"> • End of term activities • Tessellations • Isometric drawings
Rounding and estimating, BIDMAS and use of a calculator.	2	<ul style="list-style-type: none"> • Rounding to given number of decimal places • Rounding to given number of significant figures • Estimating calculations by rounding to one SF • Efficient use of calculator • Using correct order of operations (including negatives)
Data Analysis	2	<ul style="list-style-type: none"> • Averages and Range • Pie charts • Scatter graphs • Stem and leaf diagrams • Comparing data • Estimate of mean from grouped data
Nets and Surface Areas	2	<ul style="list-style-type: none"> • Drawing accurate nets of solids • Calculating surface area • Calculating volume of prisms • Plans and elevations • Constructing triangles • Isometric drawings
Ratio	2	<ul style="list-style-type: none"> • Sharing quantities in a given ratio • Simplifying ratio • Best buys • Unitary method • Currency conversions • Link with scale drawings and maps

Algebra	1	<ul style="list-style-type: none"> • Expanding brackets • Simplifying by collecting like terms • Forming Equations from Geometric problems • Solving linear equations
Angles	2	<ul style="list-style-type: none"> • Calculating missing angles on parallel lines • Compass directions with bearings • Calculations with Bearings • Constructing Bearings accurately • Revise angle properties of special triangles and quadrilaterals
Fractions, Decimals and Percentages	2	<ul style="list-style-type: none"> • FDP conversions • Calculations with percentages (in context) • Four rules of fractions • Fractions of / Percentages of quantities • Increasing and decreasing by given percentage (use of multipliers)
Probability	1	<ul style="list-style-type: none"> • Probability of single events • Sample space diagrams • Probability of successive events • Listing outcomes
Linear Graphs	1	<ul style="list-style-type: none"> • Plotting linear graphs from table of values • Plotting linear graphs using own axes • Recognising parallel lines • Investigation into gradient and y-intercepts of linear graphs
Money and Time	2	<ul style="list-style-type: none"> • Looking into wages/bills • Expenses involved in running a home • SMSC comparing countries •
Formulae	1	<ul style="list-style-type: none"> • Substituting values into given formulae (including negatives) • Rearranging Formulae
Polygons	1.5	<ul style="list-style-type: none"> • Interior angle sums of polygons • Exterior angles of Polygons • Regular Polygons • Combined polygons – calculating missing angles • Naming all polygons up to 10 sided

Units Estimating capacity, length, mass and conversions	1	<ul style="list-style-type: none"> • Conversions between units • Metric and imperial units • Estimating capacity, length • Density, mass and volume • Converting between units, metric and imperial
Speed, Distance and Time	1	<ul style="list-style-type: none"> • Calculations involving speed, distance and time • Interpreting distance time graphs • Constructing distance time graphs • Looking into other travel graphs
Questionnaires and data collection	1	<ul style="list-style-type: none"> • Forming questions to be used in questionnaires • Being critical of bad questionnaires. • Discuss biased and leading questions • Designing data collection sheets
Transformations	1	<ul style="list-style-type: none"> • Carrying out Rotations, Reflections, Translations • Describing Rotations, Reflections and Translations • Enlargements • Link enlargements with similarity
Maths in Action	1	