Maths

Maths is a core subject and as such is studied by every student in the academy. Maths is an important part of daily life where qualities that are used in mathematics can be applied. Such as abstract or special thinking, critical thinking, creativity, reasoning and problem solving. Mathematics can even promote effective communication skills used in daily life.

Students follow a linear GCSE in mathematics with the aim to complete the course in a final exam in the summer of Year 11. The course has two tiers of entry and students are assessed on ability regularly and entered for the appropriate tier. The two tiers are:

- Foundation grades - 5 -1
- Higher grades – 9-4

AQA exam board will be used.

Below is a link to the specification that will be used
https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300

Below is a link to onmaths, this is a useful resource for practicing exam style GCSE questions:

https://www.onmaths.com/

Below is a list of topics that are covered over the two year course

Number
Calculations Decimal numbers Place value Factors and multiples Squares, cubes and roots Index notation Prime factors
Algebra
Algebraic expressions Simplifying expressions Substitution Formulae Expanding brackets Factorising Using expressions and formulae
Graphs, tables and charts
Frequency tables Two-way tables Representing data

Time series Stem and leaf diagrams Pie charts Scatter graphs Line of best fit
Fractions and percentages
Working with fractions Operations with fractions Multiplying fractions Dividing fractions Fractions and decimals Fractions and percentages Calculating percentages
Equations, inequalities and sequences
Solving equations Solving equations with brackets Introducing inequalities More inequalities More formulae Generating sequences Using the *n*th term of a sequence
Angles
Properties of shapes Angles in parallel lines Angles in triangles Exterior and interior angles More exterior and interior angles Geometrical patterns
Averages and range
Mean and range Mode, median and range Types of average Estimating the mean Sampling
Perimeter, area and volume
Rectangles, parallelograms and triangles Trapezia and changing units Area of compound shapes Surface area of 3D solids Volume of prisms More volume and surface area Circumference of a circle Area of a circle Semicircles and sectors Composite 2D shapes and cylinders Pyramids and cones Spheres and composite solids
Graphs
Coordinates

Linear graphs Gradient $y = mx + c$ Real-life graphs Distance-time graphs More real-life graphs
Transformations
Translation Reflection Rotation Enlargement Describing enlargements Combining transformations
Ratio and proportion
Writing ratios Using ratios Ratios and measures Using ratios Comparing using ratios Using proportion Proportion and graphs Proportion problems
Right-angled triangles
Pythagoras' theorem Trigonometry: the sine ratio Trigonometry: the cosine ratio Trigonometry: the tangent ratio Finding lengths and angles using trigonometry
Probability
Calculating probability Two events Experimental probability Venn diagrams Tree diagrams More tree diagrams
Multiplicative reasoning
Percentages Growth and decay Compound measures Distance, speed and time Direct and inverse proportion
Constructions, loci and bearings
3D solids Plans and elevations Accurate drawings Scale drawings and maps Constructions Loci and regions Bearings
Quadratic equations and graphs

Expanding double brackets Plotting quadratic graphs Using quadratic graphs Factorising quadratic expressions Solving quadratic equations algebraically
Fractions, indices and standard form
Multiplying and dividing fractions The laws of indices Writing large numbers in standard form Writing small numbers in standard form Calculating with standard form
Congruence, similarity and vectors
Similarity and enlargement More similarity Using similarity Congruence Vectors
More algebra
Graphs of cubic and reciprocal functions Non-linear graphs Solving simultaneous equations graphically Solving simultaneous equations algebraically Rearranging formulae Proof

How parents can help develop skills;

You can support the work we are doing by attending parent events, keeping up to date by regularly accessing our website and enquiring about what your child is doing in school. Encourage your child to use maths at home by using mathematical language during your discussions, for example involving them in cooking activities where there is a need to weigh convert and measure and ask them what the ratio of milk to flour may be. Allow your child to help calculate home budget expenditures for example ask them to estimate shopping budgets for special occasions such as Christmas then involve them ion the process to see if they had estimated costs accordingly.

We understand that some parents may feel they lack confidence with mathematics and that the curriculum is forever evolving. At Endeavour Academy we have excellent relationships with East Durham College where there are a number of courses available to enhance adult numeracy skills. Should you be interested in brushing up on your numeracy skills then please see the link below;

https://www.eastdurham.ac.uk/Functional_Skills_Maths_English

Should you wish to find out more about what our students learn from Mathematics lessons and how we apply this across our curriculum then please contact Endeavour Academy.