Maths – Curriculum Statement

Students are admitted to Endeavour academy at various points during Key Stage 4, some students are admitted in Yr 11 and will therefore be with us for shorter periods of time. Many students have missed large amounts of time in school prior to their admission. For this reason, our timetables need to be flexible and personalised with all courses offering a variety of qualification routes and supporting pathways to post 16 learning.

Intent

To provide students with key skills within the area of mathematics to allow them to progress to their next transition point. Students will learn key functional / life skills with regards to maths and how this can be useful in their future, such as with financial maths and different career paths.

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.

Course Level

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

Edexcel exam board will be used.

Below is a link to the specification that will be used
https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

We also offer Functional Skills Maths at Entry Level 3, Level 1 and Level 2 through the Northern Council for Further Education (NCFE). This qualification is awarded via on demand assessments that students are entered for based on their current level and is Pass / Fail at that level.

Functional Skills - English and Maths | NCFE | NCFE

Learning Content

Below is a list of the content within GCSE Mathematics

Number	**Transformations**
Calculations Decimal numbers Place value Factors and multiples Squares, cubes and roots Index notation Prime factors	Translation Reflection Rotation Enlargement Describing enlargements Combining transformations
Algebra	**Ratio and proportion**
Algebraic expressions Simplifying expressions Substitution Formulae Expanding brackets Factorising Using expressions and formulae	Writing ratios Using ratios Ratios and measures Using ratios Comparing using ratios Using proportion Proportion and graphs Proportion problems
Graphs, tables and charts	**Right-angled triangles**
Frequency tables Two-way tables Representing data Time series Stem and leaf diagrams Pie charts Scatter graphs Line of best fit	Pythagoras' theorem Trigonometry: the sine ratio Trigonometry: the cosine ratio Trigonometry: the tangent ratio Finding lengths and angles using trigonometry
Fractions and percentages	**Probability**
Working with fractions Operations with fractions Multiplying fractions Dividing fractions Fractions and decimals Fractions and percentages Calculating percentages	Calculating probability Two events Experimental probability Venn diagrams Tree diagrams More tree diagrams
Equations, inequalities and sequences	**Multiplicative reasoning**
Solving equations Solving equations with brackets Introducing inequalities More inequalities More formulae Generating sequences Using the *n*th term of a sequence	Percentages Growth and decay Compound measures Distance, speed and time Direct and inverse proportion
Angles	**Constructions, loci and bearings**
Properties of shapes Angles in parallel lines Angles in triangles	3D solids Plans and elevations Accurate drawings

Exterior and interior angles More exterior and interior angles Geometrical patterns	Scale drawings and maps Constructions Loci and regions Bearings
Averages and range	**Quadratic equations and graphs**
Mean and range Mode, median and range Types of average Estimating the mean Sampling	Expanding double brackets Plotting quadratic graphs Using quadratic graphs Factorising quadratic expressions Solving quadratic equations algebraically
Perimeter, area and volume	**Fractions, indices and standard form**
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	Multiplying and dividing fractions The laws of indices Writing large numbers in standard form Writing small numbers in standard form Calculating with standard form
Graphs	**Congruence, similarity and vectors**
Coordinates Linear graphs Gradient $y = mx + c$ Real-life graphs Distance-time graphs More real-life graphs	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	

Implementation

Following the Edexcel GCSE Mathematics specification alongside the NCFE Functional Skills Mathematics specification; lessons are taught each day with some students receiving intervention through the national tutoring program. Functional skills are used within the lessons to help students solve context problems that they may face

in their future using key maths skills. Students are assigned individual learner plans to follow based on their ability within a topic to allow them to make progress relevant to their ability.

Assessment

On admission, all students complete a baseline assessment to allow teachers to identify starting points, track progress and apply interventions where necessary. End of topic assessments and mock exams using past papers are part of our summative assessment procedures. Feedback and opportunities for students to discuss their learning form part of our planning and marking procedures.

Periodic skills checks are used with students to help them practice and recall key skills within maths as well as identify gaps or misconceptions in knowledge. These range from stage 1-11 and students work at their appropriate stage. These are used to help inform planning for general topics as well as targeted intervention with students about specific topics / skills.

In every lesson, formative assessments take place in the shape of multiple-choice quizzes, discussions, and true and false questioning. This information helps inform our planning which can change to take into account any gaps identified.

Impact

Baseline assessment information is used to evaluate progress from point of entry to point of leaving Yr 11. Our main goal is for our students to be able to clearly explain what they have learned and demonstrate these skills across the curriculum and outside of the classroom setting. Students make progress within the subject during their time at Endeavour Academy and leave with a qualification that is suitable to their ability and their next stage of progression

Core curriculum links

Maths	**English**	**Science**
Calculating Predicting Problem solving Estimating Deducting Value	Vocabulary Justifying Speaking Listening	Predicting Estimating Analyse Interpret Data

Careers in Mathematics

Science	Banking	Buying
Construction	Statistics	Teaching
Accountancy	Insurance	Health sciences
Economics	Actuarial work	Administration
Pharmacy	Bookkeeping	Stockbroking
Engineering	Astronomy	Surveying
Retail and sales	Management	Meteorology
Air traffic control	Architecture	Cyber security
Industrial design	Sound technology	Market research
Network management	Investment analysis	Medical technology
Transport and logistics	Software development	Computer games design

Extension tasks and revision programmes

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

https://www.onmaths.com/

Below is a link to HegartyMaths, which is an online learning platform for maths and will be one of the main tools used for homework within maths:

https://hegartymaths.com/

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.