

MATHS

Vision and Aims			
OPPORTUNITY	PURPOSE	SUPPORT	SUCCESS
Pupils will have the opportunity to engage in education through bespoke, individualised timetables to re-engage in mainstream education and vocational learning.	Pupils will be encouraged to discover their purpose in education after being permanently excluded or at risk of being permanently excluded from mainstream settings to provide them with a clear direction for the future.	Pupils will be supported through their individual challenges to develop and improve their wellbeing, social interaction, academic progress and achievements.	Pupils will experience success through their curriculum pathways to fulfil their individual potential enabling them to secure positive and aspirational futures.

Maths Curriculum Intent

Maths can be challenging for pupils who have missed opportunities to consolidate knowledge and understanding. Often hindered by a lack of success in the subject, many pupils arrive with a fear of failure in maths. Our aim is to provide pupils with the **opportunity** to reengage in maths lesson and achieve individual **success**. We aim for pupils to develop appropriate maths skills to be able to function as full members of a modern society and in the future. Pupils are able to develop mental discipline, resilience and confidence through logical and effective thinking. We aim for pupils to understand the **purpose** of learning about maths and developing their skills. They will learn that making mistakes is often key to developing the ability to reason and analyse which is a fundamental part of personal growth and an **opportunity** to learn.

Our curriculum ensures that pupils are ready for their future education, whether this is to return to mainstream, study GCSEs at our academy or move to post 16 education or employment. We aim for pupils to have the necessary maths skills for them to experience individual **success** and secure the maths skills that they will need in their lives beyond our academy.

Our intent enables pupils to:

- Experience individual success in maths;
- Build independence and confidence in maths;
- Develop problem solving and reasoning skills;
- Make mistakes and build resilience;
- Learn about the role that maths plays in the wider world;
- Leave our academy with relevant maths skills so that they can be functional in their next setting and the world.

Content

Maths content is shared in the long term curriculum plan below. Content is divided into 6 academic terms for pupils who are site based. Curriculum content is taken from elements of the National Curriculum.

Pupils who attend the Alternative Provision Team each have bespoke, individualised content planned for based on gaps in their knowledge identified from BKSb baseline assessments. Content is delivered for pupils to achieve a Functional Skills in Maths. An example of the curriculum content for these pupils can be seen in the example long term plan. Individual long term plans are devised per pupil. Where appropriate, pupils will be entered for GCSE Maths.

Implementation

Delivery of maths is either via site based small classes, targeted intervention or one to one teaching. This allows pupils to learn in an appropriate environment and positively promotes engagement in learning. We encourage learning with flexible and bespoke **support** strategies identified per individual pupil in their 'pupil information pack'.

The sequencing of maths ensures that content is taught in a logical order so that pupils build on knowledge. The curriculum is designed to allow for revisiting of content and transfer knowledge into subsequent topics. This allows pupils to utilise knowledge and skills and make cross-curricular links. When pupils transition between our academy sites they are able to transfer their basic maths skills and apply these.

Interventions take place for individual pupils in order to provide a solid foundation and build confidence in individual abilities. Interventions may include Maths Ninjas, catch-up numeracy or one to one teaching. Interventions will aid in the acceleration of progress so that individual pupils can achieve their target and experience **success**.

At KS4, maths is delivered in line with the qualifications on offer. Our aim is to provide the **opportunity** for pupils at KS4 with a qualification in Maths, either Functional Skills and/or GCSE Maths. Some KS3 pupils may also work towards the Maths Functional Skills qualification. We aim for all pupils to make maximum progress whilst with our academy.

In the Alternative Provision Team, pupils have the **opportunity** to develop their mathematical knowledge and reasoning skills so that they can function in society beyond year 11. Pupils have Maths delivered on an individual basis by their keyworker often through additional **support** in the home.

Assessment

Pupils complete a diagnostic baseline assessment when they join the Academy. This may be through use of a standardised assessment or BKSB. This ensures that all pupils are set appropriate targets and work can be differentiated accordingly. Assessments are used as appropriate to each site to evidence progress towards targets.

Pupils are continually assessed on their grasp of content covered and outcomes are set each lesson to support or extend their understanding. Formative teacher assessment will take place during maths lessons.

Summative assessments at the end of topics will be completed for all pupils not working towards formal qualifications. Summative assessment for KS4 pupils and some KS3 pupils will be their formal exam result.

KS4 pupils' working towards GCSEs will complete mock exams which generate a GCSE grade in order to track their progress. Their performance on these assessments is analysed and used to inform intervention to take place in preparation for their GCSE Maths exam. KS3 and 4 pupils have the **opportunity** to access Functional Skills exams throughout the year which will evidence assessment and progress in Maths.

All pupils are also assessed for progression in accordance with the whole academy bespoke assessment and tracking 14 Step Scale. All pupils will have a baseline and target set using the maths 14 Step Scale. This enables our academy to track progress in maths across all pupils. Pupils are

able to move between our academy sites if appropriate and continue to track knowledge and skill development through the 14 Step Tracking Scale.

All pupils have a bespoke short term numeracy target set in their ILP 6 times per year. This allows for individual progress and **success**, increasing confidence and self- esteem.

Impact

Pupils experience progress through the individual baseline assessments and bespoke **support** strategies implemented. We aim for all pupils to experience individual **success** in Maths through the curriculum, individual target setting and use of high expectations.

There is an emphasis on the fundamentals in Maths which builds onto the Functional Skills pupils require for their next step. Positive re-engagement allows for closing of gaps in preparation for a view to return to a mainstream learning environment. For those pupils who can access **opportunities** for qualifications, early entry for Functional Skill is intended. GCSEs are governed by the examination boards and pupils who are able to achieve a qualification will be entered. Pupils will be inspired to work towards the next level qualification where time allows. All pupils are encouraged to make maximum progress whilst on roll with short term and long -term target setting. Aspirational targets are set to support high expectations and encourage **success**. Some pupils on are roll for very short periods. Our ethos allows pupils to have the **opportunity** to achieve a qualification and experience **success** regardless of time on roll. Some pupils may achieve both GCSE and Functional Skill qualifications. Skills developed are able to be transferred successfully to our vocational qualifications offered through our Alternative Provision commissioning process. Qualifications such as Construction will require pupils to apply their Maths skills throughout the course in order to complete their BTEC qualification.

Career links with the Maths Curriculum

The maths long-term plans have a careers focus for each term which links the topic to related maths careers (see LTP). Throughout the curriculum there are **opportunities** to apply mathematical applications to 'real life' situations.

Teachers make reference to different careers available within the boundaries of a particular subject, e.g. Engineering for Maths. Progression pathways, next steps training and post-16 education **opportunities** are identified. Pupils are given opportunities to research career pathways

and expand their knowledge of different careers. They are encouraged to be aspirational and are exposed to a wide variety of careers. Careers is delivered by both teachers and teaching assistants and is also embedded in the timetabled curriculum at each academy site.

MATHS QUALIFICATION PATHWAYS					
	Entry Level 1	Entry Level 2	Entry Level 3	Level 1	Level 2
Alternative Provision Team	Edexcel Functional Skills Entry Level 1	Edexcel Functional Skills Entry Level 2	Edexcel Functional Skills Entry Level 3	Edexcel Functional Skills Level 1 AQA GCSE 1-3	Edexcel Functional Skills Level 2 AQA GCSE 4-9
Sawley site	Edexcel Functional Skills Entry Level 1	Edexcel Functional Skills Entry Level 2	Edexcel Functional Skills Entry Level 3	Edexcel Functional Skills Level 1 AQA GCSE 1-3	Edexcel Functional Skills Level 2 AQA GCSE 4-9
Bennerley	Edexcel Functional Skills Entry Level 1	Edexcel Functional Skills Entry Level 2	Edexcel Functional Skills Entry Level 3	Edexcel Functional Skills Level 1	

Maths Long Term Plan 2021 - 2022

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Number and Place Value <u>KS2</u> Read, write, order and compare numbers to 10 000 000 Rounding to powers of 10 Use negatives in context and calculate across zero Count forwards and backwards in steps of powers of 10 Read and write roman numerals to 1000 (M) Place value of decimals to 1/1000 <u>KS3</u>	Application of number <u>KS2</u> Multiply and divide by powers of 10 Add and subtract using formal written methods Multiply up to 4 digits by 2 digits using formal written methods Divide numbers up to 4 digits by 2 digits using formal written methods or short method Calculate in context (money) Common factors, multiples prime numbers to 100 Mental calculations	Fractions, Decimals and Percentages <u>KS2</u> Recognise and show fractions Equivalent fractions Simplify fractions Count up and down in hundredths Compare and order fractions Add & subtract fractions Multiply fractions Divide fractions by a whole number Identify basic FDP equivalents Convert improper and mixed number fractions Ratio	KS2 Measurement KS3/KS4 Algebra <u>KS2</u> Convert between units of measure Convert between metric and imperial Calculate the area and perimeter of rectilinear shapes Area of parallelograms and triangles Calculations involving measure Estimate, compare and calculate with money Read write and convert between analogue and digital	Statistics and Probability <u>KS2</u> Pictograms, Bar charts and time graphs Pie charts and line graphs Calculating the mean Read, write and compare tables including timetables Using words from probability Representing probabilities as a fraction KS2 Algebra Use simple formula Generate and describe number sequences Express problems algebraically	Geometry <u>KS2</u> Draw 2D shapes Recognise 3D shapes Build and make 3D nets Compare and classify geometric shapes based on properties Illustrate parts of a circle Know angle facts, estimate and compare Draw and measure angles Angles around a point Angles on a straight line Describe positions on full coordinate grid (four quadrant)

<p>Read and write numbers- integers & decimals Ordering numbers Representing inequalities Rounding- integers & decimals Rounding Negative numbers Time</p> <p>KS4 Read and write numbers Ordering numbers Rounding – significant figures Estimation Error intervals Upper and lower bounds Converting reoccurring decimals</p> <p>FS Focus Using numbers and the number system</p>	<p>Recall multiplication and division facts up to 12 x 12 Order of operations (BIDMAS) KS3 Addition & subtraction including decimals Integer and decimal multiplication including negatives Integer and decimal division Multiplying & dividing by powers of 10 Bank statements Area and perimeter of rectangles Types of numbers Power and Roots Indices rules HCF & LCM Product of Primes Order of operations</p> <p>KS4 Four calculations Order of Operation</p>	<p>solve problems involving the relative sizes of two quantities solve problems involving the calculation of percentages solve problems involving similar shapes where the scale factor is known or can be found</p> <p>solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p> <p>KS3 Representing Fractions Expressing one quantity as a fraction of another Equivalent fractions Order and compare fractions Fractions of amounts Fractional increase and decrease</p>	<p>KS3 Simplifying expressions Substitution Expanding single brackets Function machines Solving linear equations Arithmetic sequences Nth term</p> <p>KS4 Substitution Algebraic manipulation Expanding and factorising single and double brackets Substitution into formula Solving linear equations including unknowns on both sides and inequalities Basic simultaneous equations Forming and solving equations Changing the subject</p>	<p>Find pairs of numbers that satisfy an equation</p> <p>KS3 MMMR Tally's, pictograms, bar and line charts. Pie charts Scatter graphs Conversion graphs Probability of events Probability adding to 1 Sample space diagrams Combinations, listing outcomes</p> <p>KS4 Discrete representation MMMR Scatter Graphs Mean from a table Pie charts Comparing statistics Probability of events Probability adding to 1</p>	<p>Draw and translate on the coordinate plane</p> <p>KS3 2D shapes Area and perimeter of compound shapes Area of Triangles Area of Quadrilaterals Area & circumference of a circle Types of triangles & quadrilaterals Working with coordinates Symmetry Measuring angles Angles around a point and a straight line Angles in triangles & quadrilaterals Scale drawings Bearings</p>
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<p>Solving mathematical problems and decision making</p>	<p>Types of number Indices rules Product of Primes HCF & LCM using Venn Diagram Standard Form simplifying Standard Form calculations</p> <p><u>FS Focus</u> Using common measures, shape and space Solving mathematical problems and decision making</p>	<p>Convert between mixed and improper fractions Four calculations with fractions Understanding percentages FDP Expressing quantities as percentages Comparing two quantities using percentages Percentage of amounts Percentage increase/decrease</p> <p>Ratio Simplifying Ratios Dividing into ratios Given part of a ratio find the whole or other parts SDT Proportion – recipes</p> <p><u>KS4</u> Fraction of amounts Fraction operations</p>	<p>Arithmetic sequences Nth term Quadratic sequences & nth term</p> <p><u>FS Focus</u> Using numbers and the number system Solving mathematical problems and decision making</p>	<p>Sample space diagrams Combinations, listing outcomes Experimental probability Frequency trees Venn diagrams Tree diagrams</p> <p><u>FS Focus</u> Using common measures, shape and space Solving mathematical problems and decision making</p>	<p>Constructing shapes – isometric drawings, plans & elevations Properties of 3d shapes Nets</p> <p><u>KS4</u> Basic perimeter and area Area and circumference of circles Surface Area Volume Translation, reflection & Rotation Enlargements Describing transformations Angle properties Angles in triangles Angles in parallel lines Interior and exterior angles Bearings Pythagoras</p> <p><u>FS Focus</u></p>
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		<p>Mixed number fraction operations Reverse fraction FDP Percentage of amount, increase/decrease Percentage change Reverse percentages Simple/compound interest Depreciation</p> <p>Ratio Ratio Recap Proportion recipes Best buys Three-way ratio Conversion Graphs SDT DMV</p> <p>FS Focus Handling information and data Solving mathematical problems and decision making</p>			<p>Handling information and data Solving mathematical problems and decision making</p>
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Half Termly Career Focus

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Retail Construction	Bank Clerk Financial Services	Accountant	Chartered Surveyor	Statistician Actuary	Software Engineer