

# Maths Department Curriculum Intent

## Values that Underpin our Curriculum

### Maths Values Statement

At Fulwood Academy, our Mathematics program is designed to foster a love for maths while contributing to students' academic, personal, and social growth. The curriculum goes beyond equations, we aim to enhance cognitive abilities, problem-solving skills, and logical reasoning. Through the exploration of mathematical concepts, pupils develop mental dexterity and perseverance, attributes that contribute to their overall resilience.

1. Educational Excellence: We aim to build a strong foundation in mathematical principles to ensure academic success.
2. Character Development: Our curriculum promotes leadership and collaboration through programs like Sparx Ambassadors, helping students develop critical thinking and perseverance.
3. Service to Communities: Students apply their mathematical knowledge to solve real-world problems and engage in community outreach, showcasing the practical importance of maths.

Our approach instils both academic skills and personal growth, preparing students for lifelong learning and community contribution.

We Care	We Challenge	We Commit
<p><b>Individualised Support:</b></p> <ul style="list-style-type: none"> <li>Implement differentiated instruction to address diverse learning needs within the classroom.</li> <li>Provide additional support for pupils who may require extra assistance in grasping mathematical concepts.</li> </ul> <p><b>Mental Health Awareness:</b></p> <ul style="list-style-type: none"> <li>Create an open and non-judgmental environment.</li> </ul> <p><b>Accessible Resources:</b></p> <ul style="list-style-type: none"> <li>Ensure that learning resources, including textbooks, online materials, and software, are accessible to all pupils, including those with different learning styles or needs.</li> <li>Offer a range of materials that cater to various levels of mathematical proficiency.</li> </ul> <p><b>Sparx Ambassador Programme:</b></p> <ul style="list-style-type: none"> <li>Pupils of all abilities have been recruited to help peers complete their Sparx homework, fostering a sense of community within the mathematics department.</li> </ul> <p><b>Flexible Assessment Strategies:</b></p> <ul style="list-style-type: none"> <li>We have implemented varied assessment methods to accommodate different learning styles and strengths. <b>End of topic tests are completed every 2-3 weeks. This will be teacher marked and then pupils will complete a React task to work on areas of improvement.</b></li> </ul> <p><b>Timely Feedback:</b></p> <ul style="list-style-type: none"> <li>We offer prompt and constructive feedback on pupils' work, highlighting their strengths and providing guidance for improvement. After every topic test we complete a React feedback session.</li> <li><b>Live marking takes place under the visualiser so pupils can see mistakes as they are happening and address misconceptions as a class.</b></li> </ul> <p><b>Celebrating Success:</b></p> <ul style="list-style-type: none"> <li>We acknowledge and celebrate pupils' achievements, both big and small, within the mathematics department with our Star of the lesson and through our Sparx reward programme.</li> <li>We showcase achievements through displays and weekly announcements during our key messages thus promoting a positive and supportive atmosphere.</li> </ul> <p><b>Parental Engagement:</b></p> <ul style="list-style-type: none"> <li>We keep parents informed about pupils' progress and involve them in their child's mathematical education. Parents receive weekly emails regarding the progress their child is making with their homework and the number of questions answered correctly.</li> </ul>	<p><b>Collaborative Problem-Solving:</b></p> <ul style="list-style-type: none"> <li>Peer Tutoring: Through the Sparx Ambassador program, students take leadership roles in the Sparx Maths club, building leadership skills in a mathematical context.</li> </ul> <p><b>Real-World Applications:</b></p> <ul style="list-style-type: none"> <li>Maths in Daily Life: We incorporate real-life examples to demonstrate the practical relevance of maths.</li> <li>Problem-Solving Challenges: Events like a financial maths day help students apply concepts to solve real-world problems, such as addressing financial fraud scenarios.</li> </ul> <p><b>Enrichment Activities:</b></p> <ul style="list-style-type: none"> <li>Math Competitions: An annual times tables challenge for Year 7 students enriches their mathematical experience beyond the curriculum.</li> <li>UK Maths Trust Competitions: Pupils are encouraged to compete at all levels, fostering healthy competition and a drive for excellence.</li> </ul> <p><b>Recognition:</b></p> <p>Achievements in the Sparx journey and "Star Student" awards celebrate effort, perseverance, and mathematical skill development.</p> <p><b>Live feedback on student work (Show Call), using anonymised or named examples under the visualiser allows us to celebrate success and unpick next steps.</b></p>	<ul style="list-style-type: none"> <li>To being the best version of ourselves both as staff and pupils.</li> </ul>

### Vision for KS3 and KS4 Curriculum

Key Stage 3

Key Stage 4

<p>At Key Stage 3, our mathematics curriculum aims to ignite curiosity, critical thinking, and a love for problem-solving. We focus on:</p> <p><b>Proficiency &amp; Fluency:</b> Building strong mathematical skills in areas like algebra, geometry, and statistics.</p> <p><b>Critical Thinking:</b> Encouraging pupils to analyse problems and explore various problem-solving strategies.</p> <p><b>Real-World Applications:</b> Demonstrating maths' relevance through connections to contemporary issues and other subjects.</p> <p><b>Collaborative Learning:</b> Promoting teamwork through peer teaching and group projects.</p> <p><b>Mathematical Literacy:</b> Enhancing pupils' ability to communicate mathematical ideas clearly. <b>Turn and talk tasks are regularly used in lessons to allow pupils to practise key concepts and reasoning. This supports oracy, collaborative thinking, and rehearsal of key vocabulary before whole-class feedback/ written responses/ cold call questions.</b></p> <p><b>Individualized Learning:</b> Offering differentiated support and enrichment for diverse learning needs. <b>Sparx maths allows pupils to continue independent learning at home and is tailored to individual pupils. There are help videos every step of the way to support pupils learning at home.</b></p> <p><b>Resilience:</b> Fostering a growth mindset and perseverance in tackling challenges.</p> <p>This approach aims to create confident, curious, and resilient learners with a lifelong appreciation for maths.</p>	<p>At Key Stage 4, our mathematics curriculum aims to equip pupils with a deep understanding of mathematical concepts, fostering confidence and readiness for future challenges. Key principles include:</p> <p><b>Mastery of Core Concepts:</b> Ensure proficiency in algebra, geometry, statistics, and number theory, enabling complex problem-solving.</p> <p><b>Preparation for Further Education:</b> Equip pupils with practical skills for careers in fields like science, technology, and finance.</p> <p><b>Problem-Solving:</b> Develop creativity and resilience through real-world problem scenarios. <b>Problem solving and reasoning tasks are embedded into the curriculum to allow pupils to practise applying core skills they have mastered.</b></p> <p><b>Mathematical Literacy:</b> Enhance communication skills for articulating mathematical reasoning clearly.</p> <p><b>Differentiated Learning:</b> Provide tailored support and enrichment for diverse abilities.</p> <p><b>Technology Integration:</b> Use modern tools to enhance learning and relevance in the digital age.</p> <p><b>Collaborative Learning:</b> Promote teamwork and effective communication.</p> <p><b>Real-World Applications:</b> Connect mathematical concepts to practical scenarios.</p> <p><b>Exam Preparedness:</b> Ensure readiness for standardised assessments. <b>Online interventions are offered weekly on a Sunday as walking talking mocks and pupils have access to Method maths which allows them to complete past papers.</b></p> <p><b>Lifelong Appreciation:</b> Inspire curiosity and a lasting love for mathematics.</p> <p>This approach prepares pupils for success in academics and beyond.</p>
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**Curriculum- Depth, Breadth and Challenge**

Curriculum Design – Breadth and Depth	Curriculum Challenge	Assessment
<ul style="list-style-type: none"> <li>We follow long term plans / medium terms (as appropriate) as a starting point. These have been developed by our staff</li> <li>We ensure that concepts are taught sensibly and revisited: we know the end point to which we are working and ensure that our plans build towards this, with an emphasis on 'going deeper' rather than duplication.</li> <li>We review schemes of work to identify any gaps and highlight key misconceptions that may arise so we can ensure that our teaching addresses these.</li> </ul>	<ul style="list-style-type: none"> <li>We ask pupils questions to extend their knowledge, make connections, and apply new learning.</li> <li>Pupils identify and address misconceptions, receiving regular feedback from homework, assessments, and classwork, aiming for deeper explanations over simple descriptions.</li> <li>Participation in local and national competitions, challenges, and experiential learning is encouraged.</li> <li>A Level 2 qualification in Further Maths is available for our most able pupils.</li> <li>Lessons include accuracy checks and 'Challenge' tasks or activities.</li> <li>We differentiate questioning and activities to encourage more detailed responses.</li> </ul>	<p>Assessments are curriculum-driven, evaluating how well we deliver a rich, ambitious knowledge-based curriculum and how effectively pupils have mastered it.</p> <p>Assessments follow the teaching of a specific body of knowledge or practiced skills.</p> <p>The goal is to identify individual strengths and weaknesses, as well as any misconceptions within groups, so teaching can be adjusted or reinforced.</p> <p>Since learning focuses on long-term memory, assessments ensure pupils have mastered the basics and are prepared for increasingly complex concepts and skills.</p>

**Cultural Capital**

<ol style="list-style-type: none"> <li><b>Cultural Relevance in Mathematics:</b> We strive to make the mathematics curriculum culturally relevant by incorporating examples, problems, and applications that resonate with the diverse experiences of our pupils. By connecting mathematical concepts to real-world scenarios that reflect the cultural richness of our community, we enhance both engagement and comprehension.</li> <li><b>Diverse Mathematical Role Models:</b> We celebrate a diversity of mathematical role models from various cultural backgrounds, showcasing the contributions of mathematicians from different parts of the world. This approach not only broadens pupils' perspectives on the field but also helps them see themselves as capable contributors to the mathematical community.</li> <li><b>Equitable Access:</b> We are committed to providing all pupils with equitable access to mathematical opportunities. Recognising and valuing cultural capital helps us create an inclusive learning environment where every student feels empowered to contribute, share, and excel in mathematics.</li> </ol> <p>At Fulwood Academy we believe that embracing and leveraging cultural capital in the mathematics curriculum not only enhances academic achievement but also prepares pupils to navigate a globalised world with a deep appreciation for the diverse mathematical landscapes they may encounter.</p>
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**Promoting Equality and Opportunity**

SEND and Provision for Disadvantaged	Literacy
<ul style="list-style-type: none"> <li>Class Profile Sheets used to completed intervention</li> <li>Data analysis includes vulnerable groups</li> <li>Regular data analysis</li> <li>Scaffolding of lesson resources incorporating the I do/ we do/ you do model with examples carefully selected to ensure understanding of key concepts.</li> <li>Adaptive teaching strategies such as mini whiteboard checks and modelling using visuliser are incorporated into lessons.</li> </ul>	<ul style="list-style-type: none"> <li>Maths word of the day is included on Do it Now tasks.</li> <li>Word bank for department</li> <li>Displays for learning</li> <li>Mathematical vocab used routinely in lessons</li> </ul>
<b>SMSC and British Values</b>	<b>Leadership and Enrichment</b>

<p><b>British Values in Mathematics:</b></p> <ul style="list-style-type: none"> <li>• <b>Democracy:</b> Pupils vote on problem-solving approaches and topic selection, promoting participation and shared decision-making.</li> <li>• <b>Rule of Law:</b> Emphasise following mathematical principles and explore consequences when rules aren't followed, ensuring reliability and integrity in results.</li> <li>• <b>Individual Liberty:</b> Encourage personalised problem-solving, celebrating diverse approaches to foster independence.</li> <li>• <b>Mutual Respect and Tolerance:</b> Highlight the contributions of mathematicians from various cultures and create an inclusive, accessible curriculum for all abilities.</li> </ul> <p><b>SMSC in Mathematics:</b></p> <ul style="list-style-type: none"> <li>• <b>Spiritual:</b> Appreciate the beauty and elegance in mathematical patterns, encouraging reflection on discoveries and their global impact.</li> <li>• <b>Moral:</b> Introduce ethical considerations in data use and explore fairness in problem-solving to address societal issues.</li> <li>• <b>Social:</b> Foster collaboration through group work and connect maths to real-world social issues like economics and public policy.</li> <li>• <b>Cultural:</b> Highlight diverse contributions to maths and frame problems in different cultural contexts, emphasizing global awareness and responsibility.</li> </ul> <p>This approach integrates mathematical learning with values that prepare pupils as responsible, engaged citizens.</p>	<ul style="list-style-type: none"> <li>• Maths ambassadors can give tours to prospective pupils during open evenings, highlighting the math classrooms and facilities.</li> <li>• Opportunities beyond the classroom to lead throughout enrichment activities and our Sparx Ambassador program.</li> </ul>
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## Mathematics Department Curriculum Implementation

Rationale		
Curriculum Delivery	Assessments	Quality Assurance
<ul style="list-style-type: none"> <li>• Teachers have a solid understanding of the long-term and medium-term plans, ensuring key concepts are revisited to deepen understanding.</li> <li>• Shared lesson plans maintain consistency across the department. Key staff model strategies and set expectations to guide and support the team.</li> <li>• Leaders conduct purposeful classroom observations, providing feedback that informs teaching practice improvements.</li> <li>• Links with external institutions ensure staff stay updated with the latest developments in mathematics education.</li> <li>• Know the profile of the Year 7 cohort.</li> <li>• <b>Live modelling of I do under the visualiser, with teacher narration and annotation to demonstrate thought processes is a key part of each lesson.</b></li> <li>• <b>Cold Call Questioning</b> is consistently used to ensure all students are accountable for their learning and to check understanding across the class. No hands up policy.</li> <li>• <b>"Show Me" Whiteboards</b> are used regularly for: Immediate formative assessment of retrieval and new learning. Checking understanding before moving on to independent tasks. Encouraging full class participation and identifying misconceptions in real time.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear success criteria guide assessment tasks, identifying and addressing knowledge gaps and misconceptions.</li> <li>• Assessments include challenge questions and may involve re-teaching, follow-up tasks, or personalised learning plans.</li> <li>• Regular assessments with timely feedback are integral, enabling React time.</li> <li>• Data from assessments informs lesson planning and targeted interventions.</li> <li>• <b>Student update their responses and corrections based on visualiser modelling.</b></li> <li>• <b>Clear feedback loops using green pen, guided by live feedback.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Quality assurance involves book checks, pupil discussions, and question-level analysis during formal assessments.</li> <li>• Data collection happens three times per year, with interventions tailored to individual and group needs based on this data.</li> <li>• Question level analysis (on occasions when formal assessments are undertaken).</li> <li>• Moderation takes place for AP assessments.</li> </ul>
Curriculum Breadth		
Cross Curricular Links	Embedding Challenge into the Curriculum	Implementing Wider Reading and Embedding Literacy
<ul style="list-style-type: none"> <li>• Teachers have a shared, clear understanding of schemes of work and how they inter-relate. They know the concepts that pupils have already been taught. They consider connections at the point of planning and use these to re-emphasise key learning and affect long-term memory.</li> <li>• Teachers use open-ended questioning that encourages pupils to make connections for themselves.</li> <li>• Leadership specialism permeates the curriculum.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils engage in inquiry-based learning, tackling challenging problems and working in groups to solve complex tasks.</li> <li>• Lessons include challenge tasks for advanced learners to deepen their understanding.</li> </ul>	<ul style="list-style-type: none"> <li>• Key mathematical vocabulary is displayed and used regularly to promote mathematical literacy.</li> <li>• Pupils are encouraged to explain their reasoning both verbally and in writing, reinforcing clear mathematical communication.</li> <li>• Classroom displays include a literacy focus.</li> </ul>

<ul style="list-style-type: none"> <li>• Maths is integrated with other subjects, such as using data analysis in science and technology, to demonstrate its relevance in various fields.</li> <li>• We work closely with other departments to ensure our sequencing of topics enhances learning in other subjects.</li> </ul>		
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**Promoting Equality and Opportunity**

<b>Staff Collaboration</b>	<b>Intervention and Addressing Knowledge Gaps</b>	<b>Equal Opportunities and Provision for SEND</b>
<ul style="list-style-type: none"> <li>• The Maths department uses department time to explore the curriculum and ensure that there is consistency, quality and relevance (recent news stories, new research) to the curriculum delivered.</li> <li>• Teachers collaborate to develop and share lesson plans, resources, and schemes of work. Peer observations and coaching support continuous professional development.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular retrieval practice and assessments identify knowledge gaps. Feedback informs improvement targets for individual pupils.</li> <li>• Timely intervention strategies ensure gaps and misconceptions are addressed swiftly.</li> <li>• Speedy turn round of assessment data: establish and adhere to set deadlines.</li> <li>• Question level analysis underpinning rapid analysis of issues to be resolved at cohort/class/group/individual level.</li> <li>• AfL in the classroom informs lesson planning and weekly intervention.</li> <li>• Feedback from assessments provides learners with smart targets for improvement.</li> </ul>	<ul style="list-style-type: none"> <li>• ☑ By sharing resources and co-planning, we ensure all pupils have access to high-quality, differentiated mathematical resources that cater to both the most and least able. As a Maths department, our goal is to deliver engaging lessons based on excellent curriculum plans, ensuring all pupils, regardless of ability, are taught by enthusiastic teachers.</li> <li>• ☑ In the Maths department, we take steps to support pupils with SEND by following specialist advice from the Academy to remove barriers to learning. When analysing departmental data, we closely examine the performance of SEND pupils to ensure their needs are met.</li> <li>• ☑ We regularly review the progress of vulnerable groups in Maths, including disadvantaged and SEND pupils. All teachers follow PSPs and PISPs to implement targeted interventions that support the diverse needs of all students.</li> <li>• We use adaptive teaching strategies in all lessons. This includes visualiser being used each lesson, concrete pictorial and abstract examples given to suit all learners.</li> </ul>

**Reducing Workload**

<ul style="list-style-type: none"> <li>• Shared schemes of work and resources reduce planning time.</li> <li>• Online platforms for homework streamline assessments and feedback, with assessment schedules designed to manage workload effectively.</li> <li>• CPD sessions provide opportunities to share best practice.</li> </ul>
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## Mathematics Department Curriculum Impact

<b>Progress and Academic Impact</b>	<b>Personal Development and Behaviour and Attitudes Impact</b>
<ul style="list-style-type: none"> <li>• Regular assessments and enrichment activities track progress and promote retention.</li> <li>• Leadership roles like Sparx Ambassadors enhance both academic and personal growth.</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils show enthusiasm for maths through extra-curricular activities and collaborative problem-solving.</li> <li>• The curriculum fosters resilience, growth mindset, and leadership skills.</li> </ul>