

Walthamstow Academy – Maths Curriculum Journey

Our Curriculum Intent

OUR VISION:

To ensure that our maths curriculum challenges, engages, and inspires all learners to be lifelong mathematical thinkers, empowered with mathematical fluency and love of the universal language of mathematics.

Maths is a universal language and we at Walthamstow Academy want every child to understand and enjoy this universal language and use it confidently throughout their adult lives.

All our students have access to our rich maths curriculum which ensures all students gain a good in depth understanding of the taught topics by the end of their five- or seven-year journey in mathematics. We have designed our maths curriculum to build on pupils' prior knowledge of maths, teach new concepts in relation to this prior knowledge (as we know that knowledge is 'sticky' and this is the most efficient way of developing student schemas of mathematical knowledge, and then stretching and challenging the students wherever possible so that they can understand, apply, and enjoy the topics in greater depth.

Our curriculum encompasses the following **three components** to ensure that all students can progress through our maths curriculum:

Recall: Recall, review and build upon prior mathematical knowledge is vital and is planned for before new mathematical concepts are taught.

Fluency: We ensure that pupils of all abilities can access the basic mathematical skill set through regular fluency checks. This is very important to instil the confidence in students, which then enables them to enjoy the content.

Reasoning and Problem Solving: This is an important component of the maths curriculum and enables and empowers our students to understand the skills in greater depth. We first help them develop student fluency and then build on that through discussion and shared problem solving.

OUR PRINCIPLES:

- **Entitlement:** All pupils in maths are exposed to extensive number, algebra, geometry, proportion, and statistics content. This ensures that all pupils can access all areas of maths and have time to develop their skills as they progress through the maths curriculum.
- **Coherence:** Our curriculum has been carefully sequenced to ensure that knowledge is revisited each academic year, and to ensure that common misconceptions in topic areas are avoided, through explicit direct instruction and systematic checking for understanding.
- **Mastery:** Mathematical concepts are taught in-depth and continually revisited through careful interleaving of content into future teaching topics. The focus on retention of knowledge is at the core of the maths curriculum; the mastery approach supports this.
- **Representation:** Maths is universal, providing all pupils with an elegant and logical way of viewing the world. Where our resources include names and places, these have been selected to be inclusive. We believe that a secure understanding of maths is an essential starting point for all young people.
- **Education with character:** Mathematics is a common language in which all pupils can solve, analyse, and problem solve. Our curriculum supports pupils to build logical reasoning, critical thinking and is mentally rigorous.

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Our Curriculum Progression Model

Sequencing is vital and is the basic thread used for weaving the powerful yet complex nature of the curriculum. Sequencing of the topics in our scheme of work is done to ensure the topics are taught in great depth through a mastery structure and as well as spiralled into various points in the key stages to ensure they are revisited and built on further- every time adding a layer of skill on the prior pillar of knowledge. To do this, teachers constantly check for prior knowledge and revisit topics regularly as part of the do now and homework.

When sequencing topics, we aim to ensure that students are equipped with all the necessary skills to progress between the key stages in their learning. We aim to strike a thoughtful balance between introducing new content, emphasising links between mathematical topics and the students' need to spend time revisiting material so that they are successful.

KS3

- The Maths learning journey in Year 7 begins with checking prior KS2 knowledge and building on from there to strengthen the concepts learnt in Y6. This helps pupils build their confidence and then we slowly yet impactfully build on and help them master the previously learnt skills. Much of Year 7 focuses on developing students' proficiency in number and basic algebra, which will enable them to progress through our curriculum in future years. In year 8 and 9, pupils build on further on some prior learnt skills while many new skills especially in shape/measures and data handling are now introduced to create a much needed strong foundation for KS4 Maths.

KS4

- At KS4 pupils build on knowledge and skills developed at KS3. Topics continue to be sequenced methodically at KS4. This could be building on from understanding substitution in year 7 to solving linear equations in Year 8 and 9. This is then used to introduce straight line graphs in year 10 including substituting points in a table to plotting the linear graphs. We don't stop there and we then move on to quadratic graphs, cubic graphs, reciprocal graphs giving pupils the deeper understanding of how they can link algebra and graphs and how any equation can be solved algebraically as well as graphically to get the same solutions.

KS5

- In Sixth form pupils who study A Level Maths work through a series of topics in Y12 which delve further into their GCSE knowledge of important skills like indices.
- Pure and Applied Mathematics are taught concurrently and sequenced such that any prerequisite knowledge needed for Applied Mathematics is taught first in Pure. For example, the binomial expansion is taught before binomial distributions are studied in Statistics.

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Half Term	Curriculum Content	Assessment(s) <i>(assessment title, duration and approx date)</i>	Extra-Curricular Options <i>(Places to visit; wider reading; clubs to join)</i>
Year 7 Curriculum Overview: <i>Year 7 curriculum is a broad range of topics from Number, Algebra, Shapes and Measure and Data</i>			
Year 7 HT1	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Numerical Skills • Order of operations • Introduction to Algebra • Primes, Factors and Multiples (Part 1) 	End of topic tests – 30 min at the end of most topics Progress Point 1 Test: Week Beginning 20 Oct 25	<ul style="list-style-type: none"> • Pupils encouraged to work on XP section of Sparx and explore the topics taught in greater depth. • Maths games on Sparx
Year 7 HT2	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Primes, Factors and Multiples (Part 2) • Expanding and Factorising 1 • Addition and Subtraction • Perimeter 	End of topic tests – 30 min at the end of most topics	<ul style="list-style-type: none"> • Watch following films <ul style="list-style-type: none"> ○ Hidden figures ○ Cube
Year 7 HT3	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Mean • Multiplication and Division • Area of triangles and quadrilaterals (Part 1) 	End of topic tests – 30 min at the end of most topics Pre Public Examinations (PPE1) Week Beginning 05 Jan 26	<ul style="list-style-type: none"> • UKMT clubs for selected pupils
Year 7 HT4	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Area of triangles and quadrilaterals (Part 2) • Fraction Manipulation • Adding and Subtracting Fractions • Comparing and Ordering Fractions 	End of topic tests – 30 min at the end of most topics	Visit <ul style="list-style-type: none"> • Bank of England • Science Museum • V&A Museum • Bletchley Park
Year 7 HT5	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Fractions of amount • Polygons • Angles 	End of topic tests – 30 min at the end of most topics Progress Point 2 Test: Week Beginning 13 April 26	

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	<ul style="list-style-type: none"> Coordinates 		
Year 7 HT6	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Time Powers and Roots Prime Factorisation 	End of topic tests – 30 min at the end of most topics Pre Public Examinations (PPE2) Week Beginning 01 Jun 26	
Term	Curriculum Content	Assessment(s) <i>(assessment title, duration and approx date)</i>	Extra-Curricular Options <i>(Places to visit; wider reading; clubs to join)</i>
Year 8 Curriculum Overview: <i>Year 8 curriculum is a broad range of topics from Number, Algebra, Shapes, Measure and Data</i>			
Year 8 HT1	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Powers and Roots Prime Factorisation Rounding Fractions Solving Equations 1 	End of topic tests – 30 min at the end of most topics Progress Point 1 Test: Week Beginning 20 Oct 25	<ul style="list-style-type: none"> Pupils encouraged to work on XP section of Sparx and explore the topics taught in greater depth. Maths games on Sparx
Year 8 HT2	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Angles in Parallel Lines Circumference Fractions, decimals and percentages 	End of topic tests – 30 min at the end of most topics	<ul style="list-style-type: none"> Watch following films <ul style="list-style-type: none"> Hidden figures Cube
Year 8 HT3	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Percentage calculations Direct Proportion Ratio 1 Area of circles and trapezia (Part 1) 	End of topic tests – 30 min at the end of most topics Pre Public Examinations (PPE1) Week Beginning 05 Jan 26	<ul style="list-style-type: none"> UKMT clubs for selected pupils
Year 8 HT4	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Area of circles and trapezia (Part 2) 	End of topic tests – 30 min at the end of most topics	Visit <ul style="list-style-type: none"> Bank of England

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	<ul style="list-style-type: none"> • 3-D visualisation • Volume 1 		<ul style="list-style-type: none"> • Science Museum • V&A Museum • Bletchley Park
Year 8 HT5	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Statistics 1 (presenting and interpreting data) • Averages and Spread 	End of topic tests – 30 min at the end of most topics Progress Point 2 Test: Week Beginning 13 April 26	
Year 8 HT6	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Decimal Manipulation • Related Calculations • Plans and Elevations 	End of topic tests – 30 min at the end of most topics Pre Public Examinations (PPE2) Week Beginning 01 Jun 26	
Term	Curriculum Content	Assessment(s) (assessment title, duration and approx date)	Extra-Curricular Options (Places to visit; wider reading; clubs to join)
Year 9 Curriculum Overview: <i>Year 9 is a critical year as it helps bridge the gap between KS3 and KS4.</i>			
Year 9 HT1	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Decimal Manipulation • Estimation & Limits of Accuracy • Related calculations • HCF and LCM of large numbers • Fraction Calculations 	End of topic tests – 30 min at the end of most topics Progress Point 1 Test: Week Beginning 20 Oct 25	<ul style="list-style-type: none"> • Pupils encouraged to work on XP section of Sparx and explore the topics taught in greater depth. • Maths games on Sparx
Year 9 HT2	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Algebraic Manipulation • Index Laws • Standard Form • Expanding and Factorising 2 • Forming expressions & substitution 	End of topic tests – 30 min at the end of most topics	<ul style="list-style-type: none"> • Watch following films • The theory of Everything • Imitation game • A beautiful mind • The Man who knew about infinity • Hidden figures
Year 9 HT3	Students will learn about/ develop skills of: <ul style="list-style-type: none"> • Sequences • Direct and Inverse Proportion 	End of topic tests – 30 min at the end of most topics	<ul style="list-style-type: none"> • UKMT clubs for selected pupils

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	<ul style="list-style-type: none"> Probability 1 	Pre Public Examinations (PPE1) Week Beginning 05 Jan 26	
Year 9 HT4	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Solving equations 2 Inequalities 1 Pythagoras 	End of topic tests – 30 min at the end of most topics	Visit <ul style="list-style-type: none"> Bank of England Science Museum V&A Museum Bletchley Park
Year 9 HT5	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Interior and Exterior Angles Vectors 1 Transformations 1 Arcs and Sectors 	End of topic tests – 30 min at the end of most topics Progress Point 2 Test: Week Beginning 13 April 26	
Year 9 HT6	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Plans and Elevations Surface Area Volume 2 Compound Measures 	End of topic tests – 30 min at the end of most topics Pre Public Examinations (PPE2) Week Beginning 01 Jun 26	
Term	Curriculum Content	Assessment(s) <i>(assessment title, duration and approx date)</i>	Extra-Curricular Options <i>(Places to visit; wider reading; clubs to join)</i>
Year 10 Curriculum Overview: <i>Y10 is the beginning of the GCSE path. Students learn the topics over 2 years which will be tested in the GCSE exam</i>			
Year 10 HT1	Students will learn about/ develop skills of: <ul style="list-style-type: none"> Solving Equations (Foundation Only) Rearrange formulae Linear Graphs Linear Simultaneous Equations Volume 2 Compound Measures (Higher Only) Quadratics – Graphical (Higher Only) 	End of topic tests – 30 min at the end of most topics Progress Point 1 Test: Week Beginning 20 Oct 25	<ul style="list-style-type: none"> Pupils encouraged to work on XP section of Sparx and explore the topics taught in greater depth. Maths games on Sparx

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<p>Year 10 HT2</p>	<p>Students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • Compound Measure (Foundation Only) • Quadratics – Graphical (Foundation Only) • Quadratics – algebraic • Further graphs • Probability 2 (Higher Only) 	<p>End of topic tests – 30 min at the end of most topics</p>	<ul style="list-style-type: none"> • The theory of Everything • Imitation game • A beautiful mind • The Man who knew about infinity • Hidden figures
<p>Year 10 HT3</p>	<p>Students will learn about/ develop skills of:</p> <p>Higher:</p> <ul style="list-style-type: none"> • Statistics 2 • Cumulative Frequency and Box Plots • Growth & Decay • Ratio 2 <p>Foundation:</p> <ul style="list-style-type: none"> • Probability 2 • Statistics 2 	<p>End of topic tests – 30 min at the end of most topics</p> <p>Pre Public Examinations (PPE1) Week Beginning 05 Jan 26</p>	<ul style="list-style-type: none"> • UKMT clubs for selected pupils
<p>Year 10 HT4</p>	<p>Students will learn about/ develop skills of:</p> <p>Higher</p> <ul style="list-style-type: none"> • Ratio 3 • Similar Shapes <p>Foundation</p> <ul style="list-style-type: none"> • Ratio 2 • Growth and Decay 	<p>End of topic tests – 30 min at the end of most topics</p>	<p>Visit</p> <ul style="list-style-type: none"> • Bank of England • Science Museum • V&A Museum • Bletchley Park
<p>Year 10 HT5</p>	<p>Students will learn about/ develop skills of:</p> <p>Higher</p> <ul style="list-style-type: none"> • Transformations 2 • Algebraic proportion • Surds • Right angled Trigonometry <p>Foundation</p> <ul style="list-style-type: none"> • Pythagoras Review • Bearings and scale drawings 	<p>End of topic tests – 30 min at the end of most topics</p> <p>Progress Point 2 Test: Week Beginning 13 April 26</p>	

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Year 10 HT6	<p>Students will learn about/ develop skills of:</p> <p>Higher</p> <ul style="list-style-type: none"> • Bounds • Bearings and scale drawings • Recurring Decimals • Quadratic Sequences <p>Foundation</p> <ul style="list-style-type: none"> • Revision Programme based on Question Level Analysis 	<p>End of topic tests – 30 min at the end of most topics</p> <p>Pre Public Examinations (PPE2) Week Beginning 01 Jun 26</p>	
Term	Curriculum Content	Assessment(s) <i>(assessment title, duration and approx date)</i>	
<p>Year 11 Curriculum Overview: <i>Topics are taught to Y11 students up to Dec for Foundation tier and March for the Higher tier. After this we follow an intense revision program. The Y11 exam consists of 3 papers - each of 80 marks and the total is calculated out of 240. Grades are awarded on the total mark.</i></p>			
Year 11 HT1	<p>Higher Tier will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • Quadratic sequences • Functions • Iteration • Gradients (Further), and area under a graph • Inequalities 2 • Further Trigonometry <p>Foundation Tier will learn about/ develop skills of</p> <ul style="list-style-type: none"> • Algebra Review • Right angled Trigonometry • Similar shapes • Congruence 	<p>End of topic tests – 30 min at the end of most topics.</p> <p>Weekly Past Papers (45 min)</p> <p>Progress Point 1 Test: Week Beginning 29 Sep 25</p>	
Year 11 HT2	<p>Higher Tier will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • Simultaneous equations 2 • Circle theorems • Algebraic proof 	<p>End of topic tests – 30 min at the end of most topics</p> <p>Weekly Past Papers (45 min)</p>	

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	<ul style="list-style-type: none"> Histograms <p>Foundation Tier will learn about/ develop skills of</p> <ul style="list-style-type: none"> Constructions & Loci Start the foundation revision programme 	<p style="text-align: center;">Pre Public Examinations (PPE) Week Beginning 03 Nov 25</p>
<p>Year 11 HT3</p>	<p>Higher Tier will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Graphical transformations Congruence Constructions & Loci Vectors 2 <p>Foundation Tier will continue with the revision program</p>	<p style="text-align: center;">End of topic tests – 30 min at the end of most topics</p> <p style="text-align: center;">Weekly Past Papers (45 min)</p> <p style="text-align: center;">Pre Public Examinations (PPE) Week Beginning 23 Feb 26</p>
<p>Year 11 HT4</p>	<ul style="list-style-type: none"> Intense Revision program for both Higher and Foundation tier 	<p>Past paper practice</p>
<p>Year 11 HT5</p>	<ul style="list-style-type: none"> Intense Revision program for both Higher and Foundation tier 	<p>Past paper practice</p> <p>GCSE PUBLIC EXAMINATIONS BEGIN 1ST Week of May 26</p>
Term	Curriculum Content	Assessment(s) <i>(assessment title, duration and approx date)</i>
<p>Year 12 Curriculum Overview: Pupils are taught the AS course in one year. Maths is taught over 10 lessons a fortnight – 7 in Pure and 3 in Applied.</p>		
<p>Year 12 HT1</p>	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Algebra and functions Coordinate geometry in the (x, y) plane <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Statistical sampling Data presentation and interpretation Probability 	<p style="text-align: center;">End of topics tests for 1 hour after every topic</p> <p style="text-align: center;">Progress Point 1 Test: Week Beginning 20 Oct 25</p>
<p>Year 12 HT2</p>	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Further algebra <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Statistical distributions 	<p>End of topics tests for 1 hour after every topic</p>

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	<ul style="list-style-type: none"> Statistical hypothesis testing Probability 	
Year 12 HT3	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Trigonometry Vectors (2D) <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Quantities and units in mechanics Statistical hypothesis testing Probability 	<p>End of topics tests for 1 hour after every topic</p> <p style="text-align: center;">Pre Public Examinations (PPE) Week Beginning 14 Jan 26</p>
Year 12 HT4	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Differentiation <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Kinematics 1 (constant acceleration) 	<p>End of topics tests for 1 hour after every topic</p>
Year 12 HT5	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Integration <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Forces & Newton's laws 	<p>End of topics tests for 1 hour after every topic</p> <p style="text-align: center;">Progress Point 2 Test: Week Beginning 13 April 26</p>
Year 12 HT6	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Exponentials and logarithms <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Kinematics 2 (variable acceleration) 	<p>End of topics tests for 1 hour after every topic</p> <p style="text-align: center;">Pre Public Examinations (PPE2) Week Beginning 15 Jun 26</p>
Term	Curriculum Content	Assessment(s) <i>(assessment title, duration and approx date)</i>
Year 13 Curriculum Overview: Maths A Level exam has 2 Pure exams of 100 marks each and 1 exam of Applied for 100 marks		
Year 13 HT1	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> Proof Algebraic and Partial Fractions Functions and modelling 	<p>End of topics tests for 1 hour after every topic</p> <p style="text-align: center;">Progress Point 1 Test: Week Beginning 29 Sep 25</p>

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	<p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • Regression and Correlation • Probability 	
Year 13 HT2	<p>In Pure Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • Sequences and Series • The Binomial Theorem • Trigonometry <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • The Normal Distribution 	<p>End of topics tests for 1 hour after every topic</p> <p>Pre Public Examinations (PPE) Week Beginning 10 Nov 25</p>
Year 13 HT3	<p>In Pure Maths, students will learn about</p> <ul style="list-style-type: none"> • Parametric Equations • Differentiation • Numerical Methods <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • Moments: Force's turning effect • Forces and Friction 	<p>End of topics tests for 1 hour after every topic</p>
Year 13 HT4	<p>In Pure Maths, students will learn about</p> <ul style="list-style-type: none"> • Integration • Vectors <p>In Applied Maths, students will learn about/ develop skills of:</p> <ul style="list-style-type: none"> • Applications of kinematics Projectiles • Application of forces • Further Kinematics 	<p>End of topics tests for 1 hour after every topic</p> <p>Pre Public Examinations (PPE) Week Beginning 23 Feb 26</p>
Year 13 HT5	Intense Revision Program	Past paper practice