



At Thomas Mills, our Key Stage 4 Mathematics curriculum is designed to equip pupils with the knowledge, skills, and confidence required to succeed in their GCSE examinations and beyond. We aim to develop mathematically fluent, logical and independent learners who can apply their understanding to solve problems in both familiar and unfamiliar contexts.

Our intent is for all KS4 pupils to:

- **Master key mathematical concepts and techniques** with accuracy and efficiency, ensuring strong fluency across all areas of the GCSE syllabus.
- **Develop sophisticated mathematical reasoning** by constructing clear, logical arguments and critically evaluating mathematical information.
- **Apply their mathematics confidently to solve complex problems**, demonstrating creativity, perseverance, and the ability to interpret and model real-world situations.

The KS4 curriculum is structured to build on prior knowledge from KS3, consolidating and extending skills with increasing challenge. It provides a balanced approach between procedural fluency, conceptual understanding and problem solving, ensuring pupils are well-prepared for both foundation and higher-tier GCSE examinations.

We strive to foster a positive and resilient mindset by:

- Emphasizing the relevance of mathematics in everyday life, higher education, and careers.
- Encouraging independent learning, self-reflection, and continuous improvement.
- Providing targeted support and stretch opportunities to meet the needs of all learners.

By the end of Key Stage 4, pupils will be confident, competent mathematicians ready to progress to further study or employment, equipped with the mathematical skills essential for success in the modern world.

Year 11			
Term	Topic	Knowledge and Skills	Useful Links
1	Unit 22 – Triangles	Knowledge and Skills: Pupils will learn:	



	Unit 23 – Graphs	• how to use trigonometric ratios to solve more complex 2D problems and 3D problems • how to calculate the sine, cosine and tangent of any angle from 0° to 360° • how to use the sine and cosine rules to solve problems involving non right-angled triangles • how to use the formula $A = \frac{1}{2} ab \sin C$ to calculate the area of a triangle • how to work out speed from a distance–time graph • how to interpret the gradients of straight lines on a velocity–time graph • how to calculate and interpret the area under a velocity–time graph consisting of straight lines • how to draw a graph of the depth of liquid as a container is filled • how to estimate and interpret the area under a curve • how to work out and interpret a gradient at a point on a curve • how to find the equation of a tangent to a circle • how to recognise and draw cubic, reciprocal and exponential graphs • how to transform a graph.	Solve problems using sine and cosine rule- Higher - Trigonometry - Edexcel - GCSE Maths Revision - Edexcel - BBC Bitesize https://thenational.academy/pupils/lessons/problem-solving-with-non-right-angled-trigonometry?share=true The area of any triangle Higher KS4 Y11 Maths Lesson Resources Oak National Academy Tangents - Constructing and using tangents - Higher tier only - WJEC - GCSE Maths Numeracy (WJEC) Revision - BBC Bitesize https://thenational.academy/pupils/lessons/estimate-the-gradient-of-a-curve-65qker?share=true https://thenational.academy/pupils/lessons/estimate-the-gradient-of-a-curve?share=true
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Assessments		At the end of each unit, pupils will complete a written assessment designed to evaluate their understanding of the key concepts, methods and problem-solving skills covered throughout the unit. These assessments provide an opportunity for pupils to demonstrate their mathematical thinking, fluency and application of knowledge in a range of contexts.	
2	Unit 24 – Algebraic fractions and functions Unit 25 – Vector geometry	Knowledge and Skills: Pupils will learn: • how to combine fractions algebraically and solve equations with algebraic fractions • how to rearrange and change the subject of a formula where the subject appears twice, or as a power • how to find the inverse function and the composite of two functions • how to find an approximate solution for an equation using the process of iteration • how to add and subtract vectors • the properties of vectors • how to use vectors to solve geometrical problems • how to prove geometric results.	Add and subtract rational expressions - Higher - Algebraic fractions - OCR - GCSE Maths Revision - OCR - BBC Bitesize Adding and subtracting algebraic fractions - Applying the four operations to algebraic fractions - National 5 Maths Revision - BBC Bitesize https://thenational.academy/pupils/lessons/solving-equations-with-algebraic-fractions?share=true https://www.bbc.co.uk/bitesize/guides/zqvbb9a/revision/1 https://thenational.academy/pupils/lessons/addition-with-vectors?share=true



Thomas Mills
High School & Sixth Form

CURRICULUM OVERVIEW: Mathematics

Assessments		At the end of each unit, pupils will complete a written assessment designed to evaluate their understanding of the key concepts, methods and problem-solving skills covered throughout the unit. These assessments provide an opportunity for pupils to demonstrate their mathematical thinking, fluency and application of knowledge in a range of contexts.	
3		This term is dedicated to revision and consolidation activities for Year 11 pupils in preparation for the GCSE Maths examination.	
Assessment			