



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 10			
Term	Topic	Knowledge and Skills	Useful Links
1		Knowledge and Skills: Pupils will learn:	



Unit 12 – Geometry and measures: Transformations	<ul style="list-style-type: none">• how to work out the order of rotational symmetry for a 2D shape• how to translate, reflect, rotate and enlarge 2D shapes• what is meant by a transformation• how to add and subtract vectors	Multiple transformations Foundation KS4 Y10 Maths Lesson Resources Oak National Academy
Unit 13 – Probability: Probability and events	<ul style="list-style-type: none">• how to use the probability scale and the language of probability• how to work out the probability of an outcome of an event happening• how to work out the probability of an outcome of an event not happening• how to recognise mutually exclusive and exhaustive outcomes• how to work out experimental probabilities and relative frequencies from experiments• how to predict the likely number of successful outcomes, given the number of trials and the probability of any one outcome• how to use systematic strategies to list and count outcomes	Conditional probability KS4 Y11 Maths Lesson Resources Oak National Academy Probabilities involving algebra Foundation KS4 Y11 Maths Lesson Resources Oak National Academy Probability test questions - National 4 Maths - BBC Bitesize
Unit 14 – Geometry and measures: Volumes and surface areas of prisms	<ul style="list-style-type: none">• how to calculate the volume of a composite shape made from cuboids• how to calculate the volume and surface area of a prism• how to calculate the volume and surface area of a cylinder	Lesson: Prisms and cylinders Oak National Academy Volume and Surface Area 1 (Prisms) KS4 Y10 Maths Lesson Resources Oak National Academy



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	Unit 19 – Geometry and measure: Construction and loci Unit 20 – Geometry and measure: Curved shapes and pyramids Unit 21 – Algebra: Number and sequences	Knowledge and Skills: Pupils will learn: <ul style="list-style-type: none">• how to construct a triangle from given data• how to bisect a line and an angle• how to construct angles of 60° and 90°• how to define a locus• how to solve locus problems <ul style="list-style-type: none">• how to calculate the length of an arc• how to calculate the area and angle of a sector• how to calculate the volume and surface area of a pyramid• how to calculate the volume and surface area of a cone and a sphere <ul style="list-style-type: none">• how to recognise rules for sequences• how to express a rule for a sequence, in words and algebraically• how to generate the terms of a linear sequence, given a formula for the nth term	Constructing loci Foundation KS4 Y11 Maths Lesson Resources Oak National Academy Loci and construction KS4 Y11 Maths Lesson Resources Oak National Academy Parts of circles 2 (Arcs and Sectors) KS4 Y10 Maths Lesson Resources Oak National Academy Linear Sequences KS4 Y10 Maths Lesson Resources Oak National Academy Linear sequences - BBC Bitesize



Thomas Mills
High School & Sixth Form

		<ul style="list-style-type: none">• how to find the nth term of a linear sequence	
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