The English Martyrs Catholic School and Sixth Form College

Year 11 Maths Higher	Module 1	Module 2	Module 3
Topic Theme and Intent	Within this first Module, Year 11 students will cover 3 main areas of the curriculum which are: Number, Algebra and Shape.	Tailored curriculum This may vary from class to class based on a RAG analysis of November mock.	Exam revision which may vary from class to class based on RAG analysis of March mock.
Knowledge and Skills	Number: Calculating with bounds Algebra: Algebraic fractions, functions, inverse functions, composite functions, transformation of functions, trigonometric graphs, Iteration, sketching quadratics, graphical simultaneous equations, inequalities on graphs and complex rearranging the formula Shape: Trigonometric values, complex vectors, circle geometry and geometric proof.	Students will complete a tailored curriculum that addresses their mathematical weakness and misconceptions identified from their term 1 mock. At this stage some students may extend their knowledge within certain topics to access more challenging content.	Students fine tune their exam technique, further their understanding of mark schemes and fully prepare themselves for their GCSE exam.
Literacy Links	**Reading**: Read and interpret trigonometric graphs. **Writing**: Write down upper and lower bounds. **Oracy**: Articulate reasoning with geometric proof	**Reading**: Picking out important information from applied and problem-solving questions. **Writing**: Model good answers. **Oracy**: Making sure students use the correct vocabulary when giving verbal answers.	**Reading**: Picking out important information from applied and problem-solving questions. **Writing**: Model good answers. **Oracy**: Making sure students use the correct vocabulary when giving verbal answers.
Essential Vocabulary	Inverse, composite, changing the subject, geometric, iteration	Surds, bounds, direct & inverse proportion, Quadratic formula, algebraic fractions, trigonometric graphs, iteration, Sine, Cosine.	Quadratic simultaneous equations, transforming graphs, proof, completing the square, quadratic sequences, quadratic inequalities, velocity time graph, vectors,
Catholic Values Links	**Stewardship and Responsibility** Topics like budgeting, interest rates, and financial planning can be tied to Catholic values of stewardship. Discuss how managing finances wisely reflects responsible stewardship of resources. **Justice and Fairness** Equitable Solutions: In teaching ratios, proportions, and statistical analysis, discuss concepts of fairness and equity. For example, explore how mathematical models can be used to address social inequalities or ensure fair distribution of resources. **Unity and Wholeness** The circle is a shape with no beginning or end, symbolizing eternity and the infinite nature of God. It can represent the unity and completeness of God's love and the eternal nature of the divine. **Order and Structure** Catholic teachings often emphasize the importance of order and structure in life, mirroring the logical and systematic nature of algebra. Just as algebra relies on following rules and patterns to solve problems, Catholic life is guided by moral and spiritual principles that provide a framework for making decisions and understanding the world.		

- **Problem-Solving and Reflection**

Algebra teaches problem-solving skills, which can be seen as a metaphor for the reflective and contemplative aspects of Catholic life. Both involve examining a situation, considering various factors, and finding a solution or deeper understanding.

- **Symbolism and Language**

Algebra uses symbols and abstract language to represent relationships and solve equations. Similarly, Catholicism uses symbols, rituals, and language to convey spiritual truths and divine mysteries. Both systems use symbols to communicate deeper meanings and truths.

- **Creation and Order**

Geometric Order: Catholic teachings emphasize the order and purpose in creation. Shapes and geometric principles reflect the divine order and harmony present in the natural world, mirroring the belief that God created the universe with purpose and structure.
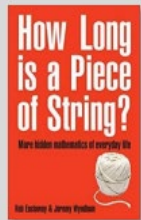
Sacred Geometry: Many religious traditions, including Catholicism, use sacred geometry to express divine truths. For example, the use of specific geometric shapes in church architecture (like the use of the pentagon, hexagon, or octagon) can symbolize spiritual truths and the divine order.
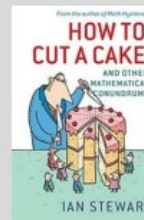

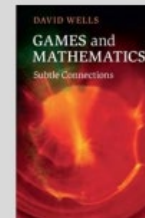**Disciplinary Reading**   **Reading for Pleasure**
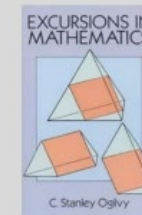
The Code Book by Simon Singh

How Long Is a Piece of String by Rob

How to Cut a Cake by Ian Stewart

Game and Mathematics by David Wells

Excursions in Mathematics by C. Standley Ogilvy