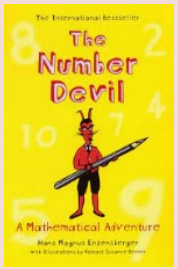
# The English Martyrs Catholic School and Sixth Form College

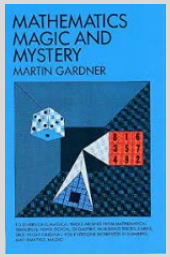
| Year 9 Maths | Module 1 | Module 2 | Module 3 |
|---|---|---|---|
| **Topic Theme and Intent** | Number / Algebra / Ratio and Proportion / Shape<br>**Extend and Challenge** | Data / Number / Algebra / Shape / Ratio and Proportion.<br>**Extend and Challenge** | Data / Algebra / Shape / Ratio and Proportion<br>**Extend and Challenge** |
| **Knowledge and Skills** | Number: Types of Numbers, Highest Common Factor and Lowest Common Multiple, Standard Form, Bounds with decimal places and **significant figures; and an introduction into Fractional and Negative Indices.**<br>Algebra: Expand and simplify single and double brackets and factorise into single and double brackets (quadratics with the coefficient of x only being 1)<br>Ratio and Proportion: use a ratio in different contexts, use recipes, find the best buy and solve problems using direct and indirect Proportion, **including using algebra.**<br>Shape: finding the area of compound shapes (including all 2D shapes), **finding the area and arc length of a sector**, finding the volume of prisms (cylinders) and **finding the surface area of a cylinder.** | Data: Probability, Sample Space, Two-Way Tables, Frequency Trees, I**ndependent Events, Tree Diagrams** and Venn Diagrams.<br>Number: Adding, Subtracting, Multiplying and Dividing Fractions and Mixed Numbers, **Basic Algebraic Fractions**, Percentages Increase and Decrease, Percentages Multipliers**, Reverse Percentages**, Simple Interest and **Compound Interest.**<br>Algebra: Nth Term of a Linear Sequence, Nth Term of a Patterned Sequences, Generate Sequences from the Nth Term, **Nth Term of a Quadratic Sequence** and **Fibonacci Sequences**<br>Shape: Angles and Equations, Angles in Parallel Lines, Angles in Polygons (Interior and **Exterior**)<br>Ratio and Proportion: Speed Distance Time, **Kinematic Formulae** and Density | Data: Mean, Mode and Median from a Table (including a Grouped Table), C**omparing Data using Averages and Range** and **Reverse Mean**<br>Algebra: Solving Equations, Solving Inequalities, **Forming and Solving Equations**, and Changing the Subject of a Formula.<br>Shape: Pythagoras' Theorem, **Trigonometry,** Loci and Bearings<br>Ratio and Proportion: Similar Shapes and Triangles, **Similar Shapes involving Area and Volume**, Converting Units of Length, **Area** and **Volume,** and Currency Conversions<br>Algebra: Midpoint between two points, **Distance between two points**, Gradient of a Line, Equation of a Line, Parallel and **Perpendicular** Lines, and Plotting Quadratic Graphs |
| **Literacy Links** | **Reading**: Identifying when to use HCF or LCM from an applied question<br>**Writing**: Using the correct symbols for direct and indirect proportion<br>**Oracy**: describe the net of a cylinder to understand how to work out the surface area, | **Reading**: interpret information to be able to construct sample spaces and frequency trees.<br>**Writing**: using the correct units for speed and density<br>**Oracy**: explain the reasons for finding missing angles | **Reading**: form an expression and an equation from a worded problem<br>**Writing**: to know that an equation of line needs to be written as $y = mx + c$<br>**Oracy**: explain verbally the origin of Pythagoras' Theorem, $a^2 + b^2 = c^2$ |
| **Essential Vocabulary** | Reciprocal<br>Bounds/Error Interval/Limits<br>Direct / Indirect / Inverse Proportion<br>Sector / Arc Length<br>Prism / Cylinder | Independent<br>Venn Diagram / Intersection / Union<br>Compound Interest<br>Fibonacci<br>Kinematics / SUVAT Equations | Integer<br>Subject of a Formulae<br>Trigonometry / Opposite / Adjacent / Hypotenuse<br>Loci / Locus / Equidistant<br>Gradient / y = mx + c / y-intercept<br>Parallel / Perpendicular |

## Disciplinary Reading



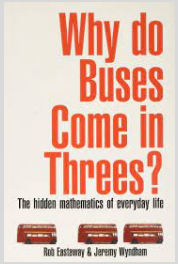

The Number Devil
By
Hans Magnus Enzensberger

## Reading for Pleasure




Mathematics Magic and Mystery
By
Martin Gardner


How Many Socks Make a Pair?
By
Rob Eastaway




Why do Buses Come in Threes?
By
Rob Eastaway &
Jeremy Wyndham