



Mathematics Higher



Archdiocese of Liverpool

Curriculum intent:

It is the intention of St Gregory's Mathematics department to deliver a curriculum that will develop the skills set out in the National curriculum and promote an appreciation of Mathematics as a creative and highly interconnected discipline providing the solution to some of history's most intriguing problems. Aiming to provide students with a sense of enjoyment and curiosity about the subject together with an appreciation of the beauty and power of Maths in different cultures.

We endeavour to provide support across a range of subjects with an emphasis on problem-solving and developing Mathematical fluency across the whole school curriculum, narrowing gaps that students may have with the basic numeracy skills essential within everyday life.

Year 10 (H)

Content

TERM 1

Multiplying and Dividing Decimals, Using Place Value Calculator Questions, Rounding to Significant Figures, Estimating Answers, BODMAS/BIDMAS, Squares, Cubes and Roots, Reciprocals, Working with Indices, Index notation, Negative Indices, Fractional Indices, Product of Primes, HCF / LCM, Mathematical Reasoning, Standard Form, Surds - Introduction to Surds, Expanding Brackets and simple factorisation, Expanding and Simplifying Brackets, Factorising and Solving Quadratics, The Difference of Two Squares Factorising Hard Quadratics, Solving Equations, Rearranging Simple Formulae, Forming Formulae and Equations, Rearranging difficult Formulae, nth Term, Special Sequences, Fibonacci Sequences, Geometric Progressions, Finding the nth Term of a Quadratic, Averages from a table, Frequency Tables and Diagrams, Pie Charts Scatter Diagrams, Time Series, Histograms, Cumulative Frequency, Boxplots, Adding and Subtracting Fractions - A Standard Method, Finding a Fraction of an Amount

Multiplying Fractions / Dividing, Fractions, Percentages, Decimals, Percentage of an Amount, Change to a Percentage, Increase/Decrease by a Percentage, Percentage Change, Reverse Percentage Problems, Simple Interest, Recurring Decimals to Fractions, Recurring Decimals – Proof, Value for Money, Exchanging Money. Sharing using Ratio. Ratios, Fractions and Graphs

Concepts and Skills

- knowledge of core principles
- application of skills
- problem solving
- evaluation
- group work
- peer coaching
- revision skills
- examination technique

TERM 2

Angles and Parallel Lines, Angles in a Triangle, Angle Sum of Polygons, Circle Theorems, Pythagoras' Theorem, Trigonometry, The Sine Rule, The Cosine Rule, Area of a Triangle Using Sine, Straight Line Graphs, Sketching Functions, Midpoint of a Line on a Graph, The Gradient of a Line, Finding the Equation of a Straight Line - $y=mx+c$, Perpendicular Lines

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Year 10 (H)

Content

Drawing Quadratic Graphs, Cubic and Reciprocal Graphs, Equation of a Circle, Problems on Coordinate Axes, Area of a Parallelogram and Trapezium, Circle Definitions, Tangents, Arcs, Sectors and Segments, Area and Circumference of a Circle, Sectors of a Circle Surface Area of a Prism - Cuboids and Triangular Prisms, Volume of a Cuboid and Prism, Spheres, Pyramids, Cones and Frustrums

Concepts and Skills

- knowledge of core principles
- application of skills
- problem solving
- evaluation
- group work
- peer coaching
- revision skills
- examination technique

Introduction to Bounds, Error Intervals, Upper and Lower Bounds, Combinations of Transformations, Enlargements, Enlargement - Negative Scale Factor, Bisecting an Angle, Constructing Perpendiculars, Draw a Triangle Using Compasses, Loci, Bearings, Simultaneous Equations Graphically, Simultaneous Equations Algebraically, Simultaneous Equations with a Quadratic, Factorising and Solving Quadratics, Solving Quadratics with the Formula, Factorising Hard Quadratics, Completing the Square, Inequalities on a Number Line, Solve Linear Inequalities, Regions, Solve Quadratic Inequalities, Experimental Probabilities, Possibility Spaces, Venn Diagrams, Probability using Venn Diagrams, Simple Tree Diagrams, Harder Tree Diagrams, And and Or Probability Questions, Exact Trigonometric Values

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