Mathematics – Year 11 Curriculum Map

Foundation

	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1
Units	• Non-calculator arithmetic • Use of a calculator • FDP conversions • Decimal Arithmetic • Estimation and Approximation • Index laws • Understanding algebraic notation • Algebraic manipulation	• Continue Algebraic manipulation • Expanding and factorising expressions • Angles • Angles in Polygons **MOCK EXAM SEASON**	• Vectors • Transformations • Describing transformations • Pythagoras' theorem • Primes factors and multiples • Theoretical and Experimental Probability • Sample spaces and Venn diagrams	• Probability tree diagrams • Fraction arithmetic • Percentages • Inequalities • Ratio • Direct and inverse proportion • 2D and 3D representations • Perimeter, Area and Volume • Averages	• Bivariate data • Circles, Cylinders, Spheres, Cones and Pyramids • Sequences • Y = mx + c • Compound units • Trigonometry • Congruent and similar shapes • Loci and constructions
Key concepts and skills	• Understanding place value. • Non-calculator arithmetic including negative numbers • Inverse operations • Order of operations • Using a calculator effectively • Ordering decimals • Decimal arithmetic • FDP conversions • Rounding to powers of 10, decimal places and significant figures • Estimating calculations • Error intervals • Know and apply law	• Solving one step and two step equations • Solve equations that include brackets • Solve equations with the unknown on both sides of the equation. • Setting up and solving equations in context • Recap - substitute positive or negative numbers into more complex formulae including kinematic formulae. • Recap expanding single brackets • Expanding double brackets	• Angles in parallel lines • Properties of quadrilaterals • Identify quadrilaterals from written descriptions. • Using properties of quadrilaterals to calculate missing angles. • Calculate interior irregular polygons • Calculate interior and exterior angles of regular polygons • Vector arithmetic • Drawing column vectors	• Complete and draw tree diagrams • Calculate probabilities from tree diagrams • 4 operations with proper fractions • 4 operations with mixed numbers • Percentages non-calculator • Percentages using a multiplier – calculator • Percentage increase & decrease • Reverse percentages • Percentage change • Simple interest • Compound interest	• Calculate the arc length and area of a sector of a circle given its angle and radius. • Calculate the volume and surface area of cylinders. • Calculate the surface area and volume of a pyramid, spheres, cones and simple composite solids (formulae will be given). • Nth term linear sequence • Geometric sequence • Fibonacci sequence

of indices • Negative powers • Understand the difference between an expression, equation, formulae and identity • Collecting like terms and simplifying expressions • Simplifying algebraic products and quotients (use law of indices) • Expand a single bracket. • Expand two single brackets and simplify. • Recap the difference between an expression, equation, formulae and identity. • Show how algebraic expressions are equivalent. • Formulate simple formulae and expressions from real-world contexts. • Use algebra to construct arguments.	• Factorising simple expressions • Factorising quadratics • Solve quadratics by factorising • Identifying acute, obtuse, reflex and right angles • Measure and estimate angles • Notation for labelling lines and angles • Basic angle facts • Know and use terms parallel and perpendicular.	• Plotting and reading coordinates • Translation • Reflection • Rotation • Enlargements • Describing transformations • Pythagoras' theorem to finding missing lengths • Proof of a right angled triangle • Pythagoras' theorem in context • Number types • Prime factor decomposition • HCF and LCM • Probability scale • Theoretical probabilities • Calculating basic probabilities • Expectation • Systematic listing • Reading and drawing Venn diagrams • Calculating probabilities form Venn diagrams	financially • Compound interest growth and decay. • Solving linear inequalities • Representing linear inequalities on a number line • Simplify ration including in the form 1:n • Split a quantity into a given ratio • Combining ratios • Recipe problems • Exchange rates • Direct proportion • Inverse proportion • Recognise nets of common 3D shapes • Isometric drawings • Interpret and construct plans and elevations of simple 3D solids. • Representation (e.g. using isometric paper) of solids from plans and elevations. • Review perimeter and area of 2D shapes including composite shapes • Calculate the surface area of cuboids and composite prisms. • Calculate the volume of cuboids and other right prisms. • Work out missing dimensions of a 3D	• Find the gradient and intercept of straight lines • Use y=mx + c to sketch equations of straight lines. • Find the equation of a line through one point and a given gradient or through two points • Recognise and identify parallel lines by considering the gradient. • Find distance between points on a graph. • Speed, distance and time • Density, mass and volume • Force, pressure and area • Trigonometry • Non-calculator trigonometry • When to use Pythagora's theorem vs Trigonometry • Identify congruent triangles. • Identify and apply congruent triangles in calculations and simple proofs. • Prove that two triangles are congruent using the cases: 3 sides (SSS), 1 angles, 1 side (ASA), 2

				shape, given the surface area or volume. • Basic averages • Averages from tables • Comparing populations • Pie charts • Time series data	sides, included angle (SAS) and right angle, hypotenuse, side (RHS). • Identify similar triangles. • Prove that two triangles are similar. • Use similarity and ratios to determine missing sides or scale factors. • Construct the perpendicular and angle bisectors. • Construct the perpendicular from a point to a line. • Construct the perpendicular to a line at a point. Know that the perpendicular distance from a point to a line is the shortest distance to the line. • Use ruler and compass constructions to construct figures and identify the loci of points.