



Network School KS4 Long Term Curriculum Plan - 2020

Subject - Additional Mathematics				
Year Group	Term 1 (Aug – Oct)	Term 2 (Oct – Dec)	Term 3 (Jan – Mar)	Term 4 Mar – Jun)
Year 10	<p>Unit 1</p> <p>1 – Functions A – Relations and functions B – Function notation C – Domain and range D – The modulus function E – Composite functions F – Sign diagrams</p> <p>Review / Topic tests</p> <p>2 – Quadratic functions A – Quadratic equations B – Quadratic inequalities C – The discriminant of a quadratic D – Quadratic functions E – Finding a quadratic from its graph F – Where functions meet G – Problem solving with quadratics H – Quadratic optimisation</p> <p>Review / Topic tests</p> <p>3 - Equations, inequalities and graphs</p>	<p>Unit 2</p> <p>4 – Surds, Indices and Exponentials A – Surds B – Indices C – Index laws D – Rational indices E – Algebraic expansion and factorisation F – Exponential equations G – Exponential functions H – The natural exponential e^x</p> <p>Review / Topic tests</p> <p>5 – Logarithms A – Logarithms in base 10 B – Logarithms in base a C – Laws of logarithms D – Logarithmic equations E – Natural logarithms F – Solving exponential equations using logarithms G – The change of base rule H – Graphs of logarithmic functions</p> <p>Review / Topic tests</p>	<p>Unit 3</p> <p>7 – Straight Line Graphs A – Equations of straight lines B – Intersection of straight lines C – Intersections of a straight line and a curve D – Transforming relationships to straight line form E – Finding relationships from data</p> <p>Review / Topic tests</p> <p>8 – The Unit Circle and Radian Measure A – Radian measure B – Arc length and sector area C – The unit circle and the trigonometric ratios D – Applications of the unit circle E – Multiples of $\pi/6$ and $\pi/4$ F – Reciprocal trigonometric ratios</p>	<p>Unit 4</p> <p>10 – Counting and The Binomial Expansion A – The product principle B – Counting paths C – Factorial notation D – Permutations E – Combinations F – Binomial expansions G – The Binomial Theorem</p> <p>Review / Topic tests</p> <p>11 – Vectors A – Vectors and scalars B – The magnitude of a vector C – Operations with plane vector D – The vector between two points E – Parallelism F – Problems involving vector operations G – Lines H – Constant velocity problems</p>



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	<p>A – solve equations graphically or algebraically B – Solve inequalities graphically or algebraically C – Use substitution to form and solve quadratic equations D – Sketch the graphs of cubic polynomials and their moduli E – Solve cubic inequalities</p> <p>Review /Topic test</p>	<p>6 – Polynomials A – Real polynomials B – Zeros, roots and factors C – The remainder theorem D – The factor theorem E – Cubic equations</p> <p>Review /Topic tests</p>	<p>Review/Topic tests</p> <p>9 – Trigonometric Functions A – Periodic behavior B – The sine function C – The cosine function D – The tangent function E – Trigonometric equations F – Trigonometric relationships G – Trigonometric equations in quadratic form</p> <p>Review/Topic tests</p>	<p>Review /Topic tests</p>
Year 11	<p>Unit 5 12 – Series A – Recognise arithmetic and geometric progression B – Use the formula for n^{th} term and for the sum of the first n terms to solve problems involving arithmetic and geometric progressions C – Use the conditions for the convergence of a geometric progression, and the formula for the sum to infinity of a convergent geometric progression.</p>	<p>Unit 6 14 – Applications of Differential calculus A – Tangents and normals B – Stationary points C – Kinematics D – Rates of change E – Optimisation F – Related rates</p> <p>Review /Topic tests</p> <p>15 – Integration A – The area under a curve B – Antidifferentiation C – The fundamental theorem</p>	<p>Exam practice/revision 1 Structured questions for units 5 and 6. 2 Past papers 3 Mock exam 4 Test corrections 5 More revision in preparation for exams.</p>	<p>Study leave and IGCSE exam</p>



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	<p>Review / Topic test</p> <p>13 – Introduction to Differential Calculus</p> <p>A – Limits</p> <p>B – Rates of change</p> <p>C – The derivative function</p> <p>D – Differentiation from first principles</p> <p>E – Simple rules of differentiation</p> <p>F – The chain rule</p> <p>G – The product rule</p> <p>H – The quotient rule</p> <p>I – Derivatives of exponential functions</p> <p>J – Derivatives of logarithmic functions</p> <p>K – Derivatives of trigonometric functions</p> <p>L – Second derivatives</p> <p>Review / Topic tests</p>	<p>of calculus</p> <p>D – Integration</p> <p>E – Rules for integration</p> <p>F – Integrating $f(ax+b)$</p> <p>G – Definite integrals</p> <p>Review / Topic tests</p> <p>16 – Applications of Integration</p> <p>A – The area under a curve</p> <p>B – The area between two functions</p> <p>C – Kinematics</p> <p>Review / Topic tests</p>		
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