




AS Level Core 1

	What You Need To Know			
1. Language	<ul style="list-style-type: none"> Understand and use correct mathematical language and grammar. 			
2. Surds	<ul style="list-style-type: none"> Be able to simplify surds Be able to do operations involving surds Be able to rationalise the denominator. 			
3. Quadratic Functions	<ul style="list-style-type: none"> Quadratic functions and their graphs. The discriminant of a quadratic function. Factorisation of quadratic Polynomials Completing the square. Solution of quadratic equations. Simultaneous equations, e.g. one linear and one quadratic, analytical solution by substitution. Solution of linear and quadratic inequalities. 			
4. Algebra	<ul style="list-style-type: none"> Algebraic manipulation of polynomials, including expanding brackets and collecting like terms. Simple algebraic division. Use of the Remainder Theorem. Use of the Factor Theorem 			
5. Graphs of Functions	<ul style="list-style-type: none"> Sketch Linear, Quadratic and cubic graphs and graphs of circles. Using graphs to find solutions to functions and simultaneous functions Know and understand the transformation of function including the transformation of quadratic graphs and graphs of circles. 			
6. Co-ordinate geometry	<ul style="list-style-type: none"> Understand the equation of a straight line Find the gradient of parallel and perpendicular lines Find the equation of a straight line given two point (A and B) To understand the equation of a circle. To use completing the square to find the centre and radius of a circle from its function. The equation of the tangent and normal at a given point to a circle. The intersection of a straight line and a curve. 			
7. Differentiation	<ul style="list-style-type: none"> The derivative of $f(x)$ as the gradient of the tangent to the graph of $y = f(x)$ at a point; the gradient of the tangent as a limit; interpretation as a rate of change. Differentiation of polynomials. Applications of differentiation to gradients, tangents and normals, maxima and minima and stationary points, increasing and decreasing functions. Using second order derivatives to find the maxima and minima. 			
8. Integration	<ul style="list-style-type: none"> Indefinite integration as the reverse of differentiation Integration of polynomials. Evaluation of definite integrals. Interpretation of the definite integral as the area under a curve. 			