PiXL
Partners in excellence

Personalised Learning Checklist

	Red	Amber	Green	How do you know?
-1.Algebra				
Be able to expand brackets and collect like terms.				
Be able to divide one polynomial by another.				
Be able to factorise polynomials of degree **≤ 3.**				
Be able to solve quadratic equations.				
Know how to sketch a quadratic curve.				
Be able to find the discriminant of a quadratic function and understand its significance.				
Know how to use the method of completing the square.				
Solution of quadratic equations by factorisation, use of the quadratic formula and completing the square.				
Be able to solve simultaneous equations in two unknowns where one equation is linear and one is quadratic.				
Know the significance of points of intersection of two graphs with relation to the solution of simultaneous equations.				
Be able to solve linear inequalities.				
Be able to solve quadratic inequalities.				
Be able to use and manipulate surds.				
Be able to rationalise the denominator of a surd.				
Understand the factor theorem and know how to use it to factorise a polynomial.				
Know how to use the factor theorem to solve a polynomial equation.				
Know how to use the factor theorem to find an unknown coefficient.				
Understand the remainder theorem and know how to use it.				
Know how to sketch the curve of a cubic function in factorised form.				
-2. Co-ordinate Geometry				
Be able to form the equation of a straight line through two given points.				
Be able to form the equation of a straight line parallel/ perpendicular to a given line, through a given point.				
Know the relationship between the gradients of parallel lines and perpendicular lines.				
Be able to find the point of intersection of two lines.				
Know how to find the point of intersection of a line and a curve.				
Know how the find the point(s) of intersection of two curves.				
Understand that the equation of a circle, centre (0, 0), radius r is $x^2 + y^2 = r^2$.				
Understand that $(x - a)^2 + (y - b)^2 = r 2$ is the equation of a circle with centre (a,b) and radius r.				
Know that the angle in a semicircle is a right angle.				
Know that the perpendicular from the centre of a circle to a chord bisects the chord.				
Know that the tangent to a circle at a point is perpendicular to the radius through that point.				
Be able to find the equation of a tangent and normal at a given point on a circle.				
-3. Differentiation				
Know that the gradient of a curve at a point is given by the gradient of the tangent there.				
Know that the gradient of the tangent is given by the limit of the gradient of a chord.				
Know that dy/dx gives the gradient of the curve and the rate of change of y wrt x.				
Be able to differentiate $y = kx^n$, k a constant, n an integer, and the sum of such functions.				
Be able to find second derivatives.				
Be able to find the equation of a tangent and normal at any point on a curve.				

Be able to use differentiation to find stationary points on a curve: maxima, minima and points of inflection.				
Understand the terms increasing function and decreasing function.				
-4. Integration				
Know that integration is the inverse of differentiation.				
Be able to integrate y = kx^n , k a constant, n an integer ≠-1, and the sum of such functions.				
Be able to find a constant of integration given relevant information.				