PiXL Partners in excellence Personalised Learning Checklist	Red	Amber	Green	How do you know?
-1. Algebra and Graphs				
Be able to sketch the graph of y = f(x) using symmetry, asymptotes, intercepts with the axes, behaviour for large x.				
Be able to ascertain the direction from which a curve approaches an asymptote.				
Be able to use a curve to solve an inequality.				
Be able to sketch the graphs of simple parabolas, ellipses and hyperbolas.				
Be able to form an equation whose roots relate to the roots of a given equation by a linear transformation.				
-2. Complex Numbers				
Understand the language of complex numbers including conjugate, modulus, argument.				
Be able to add, subtract, multiply and divide complex numbers in the form: x + yi where x,y real.				
Know the condition for equality of two complex numbers.				
Be able to solve quadratic equations with real coefficients and complex roots.				
Be able to solve equations of higher degree with real coefficients in simple cases.				
Know that the complex roots of real polynomial equations with real coefficients occur in conjugate pairs.				
-3. Roots and coefficients of a quadratic equation				
Appreciate the relationship between the roots and coefficients of quadratic equations.				
-4. Series				
Be able to sum a simple series using standard formulae for the sum of the squares and cubes.				
-5. Calculus				
Be able to differentiate simple polynomials by first principles.				
Be able to evaluate simple improper integrals.				
-6. Numerical methods				
Be able to solve equations of the form f(x) = 0 numerically by interval bisection.				
Be able to solve equations of the form f(x) = 0 numerically by linear interpolation.				
Be able to solve equations of the form f(x) = 0 numerically using the Newton-Raphson process.				
Be able to solve differential equations of the form dy/dx = f(x).				
Be able to reduce a relation to a linear law.				
-7. Trigonometry				
Be able to find the general solution to trigonometric equations.				
Be able to use exact values for sin, cos , tan of $\pi/6$, $\pi/4$, $\pi/3$.				
-8. Matrices and Transformations				
Be able to add and subtract matrices.				
Be able to multiply a matrix by a scalar.				
Be able to find the product of matrices 2x2 or 2x1.				

Know the zero and identity matrices, and what is meant by equal matrices.				
Be able to find the matrix associated with a linear transformation and vice-versa.				