Autumn Term plan

Year 12 Mathematics A Level

Mrs Laidler/Mr Storey-Scott	Mr Bullock/Mr Ahluwalia
CORE **Quadratic Functions** • Solve Quadratic equations in multiple ways in order to focus on key parts of the function. • Sketch graphs labelling all key points. • Use the discriminant to identify types of roots. **Simultaneous Equations** • Solve simultaneous equations in two variables, including one linear and one quadratic equation. • Understand the relationship between the algebraic solution and the intersection of the corresponding graphs. • Solve linear simultaneous equations using their calculators. **Coordinate Geometry** **Lines** • Understand the equation of a straight line • Solve problems involving midpoints, gradients and distance between two points **Circles** • Understand the coordinate geometry of a circle • Solve problems involving circles using circle properties **Inequalities** • Solve linear inequalities algebraically and interpret graphically • Understand the associated notation **Differentiation** • Understand and use differentiation • Differentiate from first principles • Understand and use the second derivative • Find and classify stationary points **Integration** • Understand the relationship between differentiation and integration • Integrate indefinite integrals • Integrate definite integrals	**CORE** **Indices and Surds** • Understand and use the laws of indices for all rational exponents • Use and manipulate surds, including rationalising the denominator **Algebraic manipulation** • Manipulate polynomials including expanding brackets and collecting like terms • Factorise polynomials up to cubic functions • Understand and use the binomial theorem with whole number indices • Perform algebraic division • Understand and use the Factor Theorem **Proof** • Understand and use mathematical proof including proof by deduction, proof by exhaustion and disproof by a counter example **Trigonometry** • Understand and use sine, cosine, tangent • Draw the related graphs and understand symmetries and periodicity • Use the sine and cosine rules • Use the first two trigonometric identities • Solve trigonometric equations **STATISTICS** **Statistical Sampling** • Understand populations and samples • Use different sampling techniques and know why each would be used • Understand the effect of increasing the sample size **Data Presentation** • Interpret measures of central tendency and variation including standard deviation • Use and interpret boxplots, cumulative frequency graphs, histograms, scatter diagrams • Select and critique data presentation techniques in the context of a problem
End of term assessment	