

Learning Programme – A-Level Mathematics – Upper Sixth

Topic/Teacher	Content/Objectives/Skills	Homework	Assessment	Success Criteria (A-Level grades)	Stretch & Challenge (Thirst for Learning)
Michaelmas Second Half Term					
Chain Rule, Product & Quotient Rules (A)	Differentiate composite functions using the chain rule. Understand and use the relationship between dy/dx and dx/dy . Differentiate using the product rule. Differentiate using the quotient rule.	Assessment Homework – Differentiation	Half Term Test (week after October half-term)	Mainly determined from Half-Term test, however, class work & homework may also be used. A-Level Grade boundaries dependent on difficulty of test.	Students will be challenged using extension questions on the topics they are studying, designed to develop their ability to solve multi-staged problems.
Differentiation of Specific Functions (A)	Be able to differentiate and integrate trigonometric functions. Be able to use the chain rule, product rule and quotient rule to differentiate more general trigonometric functions. Be able to differentiate the natural exponential function and natural logarithm function.				
Differentiation Problems (A)	Solve rate of change problems using differentiation.				
Implicit Differentiation (A)	Be able to differentiate implicit equations, and find tangents and normals of implicit equations. Be able to integrate differential equations with separable variables				

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Integration of Specific Functions (B)	<p>Be able to integrate standard trigonometric functions.</p> <p>Be able to integrate the natural exponential function.</p> <p>Be able to integrate functions of the form $f(ax+b)$ using inspection (reverse of the chain rule).</p>	Assessment Homework – Integration	Half Term Test (week after October half-term)	<p>Mainly determined from Half-Term test, however, class work & homework may also be used.</p> <p>A-Level Grade boundaries dependent on difficulty of test.</p>	Students will be challenged using extension questions on the topics they are studying, designed to develop their ability to solve multi-staged problems.
Integrating Functions (B)	<p>Be able to integrate relevant functions using integration by parts.</p> <p>Be able to integrate relevant functions using integration by substitution.</p> <p>Be able to integrate certain functions using integration by inspection (also referred to as reverse substitution).</p> <p>Be able to integrate functions that have first been split into partial fractions.</p>				
Trapezium Rule (B)	<p>Use the trapezium rule to evaluate definite integrals and find areas under curves.</p> <p>Determine whether the value found using the trapezium rule is an under or over estimation.</p>				
Differential Equations (B)	<p>Being able to form and solve differential equations that represent rate of change.</p> <p>Be able to switch the variable in differential equations.</p>				