

Year: 13

Subject: A-level Further Maths

SpringTerm			
What has come before and what comes later:	Core 1, decision and further statistics year 1		
	Core	Decision	Further Statistics
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<ul style="list-style-type: none"> <li>Do you understand and can you use polar coordinates?</li> <li>Can you convert between polar and cartesian coordinates?</li> <li>Can you sketch curves with <math>r</math> given as a function of <math>\theta</math>?</li> <li>Can you find the area enclosed by a polar curve?</li> <li>Can you find tangents parallel to, or at right angles to, the initial line?</li> <li>Do you understand the definitions of hyperbolic functions?</li> <li>Can you sketch the graphs of hyperbolic functions?</li> <li>Do you understand and can you use the inverse hyperbolic functions?</li> <li>Can you prove identities and solve equations using hyperbolic functions?</li> <li>Can you differentiate hyperbolic functions?</li> <li>Can you integrate hyperbolic functions?</li> <li>Can you solve first-order differential equations using an integrating factor?</li> <li>Can you solve second-order homogeneous differential equations using the auxiliary equation?</li> <li>Can you solve second-order non-homogeneous differential equations using the complementary function and the particular integral?</li> <li>Can you find particular solutions to differential equations using given boundary conditions?</li> <li>Can you model real-life situations with first-order differential equations?</li> <li>Can you use differential equations to model simple harmonic motion?</li> <li>Can you model damped and forced oscillations using differential equations?</li> <li>Can you model real-life situations using coupled first-order differential equations?</li> </ul>	<ul style="list-style-type: none"> <li>Do you understand and can you use slack and surplus variables?</li> <li>Can you solve maximising and minimising linear problems using simplex tableaux?</li> <li>Can you use the simplex tableau method to solve linear programming problems requiring integer solutions?</li> <li>Do you understand and can you use the two-stage simplex method for maximising and minimising problems which may include <math>\leq</math> and <math>\geq</math> constraints?</li> <li>Do you understand and can you use the Big-M method for maximising and minimising problems which may include <math>\leq</math> and <math>\geq</math> constraints?</li> <li>Can you construct resource histograms?</li> <li>Can you construct scheduling diagrams?</li> </ul>	<ul style="list-style-type: none"> <li>Do you know what a type 1 error is?</li> <li>Do you know what a type 2 error is?</li> <li>Can you find type 1 and 2 errors for a normal distribution?</li> <li>Can you calculate the size and power of a test?</li> <li>Can you draw a graph of the power function for a test?</li> </ul>

*Year: 13*

*Subject: A-level Further Maths*