Year 11
Module 1: Graphs and real life problems
Module 2: Vectors
Module 3: Functions
Module 4: Trigonometric functions
Module 5: Area and circumference of circles
Module 6: Surface area and volume
Module 7: Indices and algebraic functions
Module 8: Proportionality
Module 9:Sine and cosine rule
Module 10: Simultaneous equations
Module 11: Algebraic proof

Autumn Term Year 11		**Topic: Graphs and Real Life Problems Module: 1 Recommended Time: 7 Hours**	**Resources /Work related/ A level extension**
	NA6d	o Constructing linear functions and plotting the corresponding graphs from real-life problems	
	NA6d	o Discussing and interpreting graphs modelling real situations	Oxford pg 311 tax calculations
		o Understanding and using compound measures, speed and density	10√ L7/8-6 pg29 10√ L9/10-5 pg 31-32 Faster and Faster Internet Challenge Working holiday activity Oxford pg 506
		Topic: Vectors Module: 2 Recommended Time: 7 Hours	**Resources /Work related/ A level extension**
	SMM3f	o Understanding and using vector notation	(i , j) notation Complex Numbers
Autumn Term Year 11	SSM3f	o Calculating, and representing graphically the sum of two vectors, the difference of two vectors and a scalar multiple of a vector	3D Vectors
	SMM3f	o Calculating the resultant of two vectors	Planetary motion
	SSM3f	○ Solving simple geometric problems in 2-D using vector methods	
		Topic: Functions Module:3 Recommended Time: 4 Hours	**Resources /Work related/ A level extension**
		o Drawing graphs and recognising shapes of these functions	10√ L7/8-3 pg37-38
	NA6e	o Quadratic	Conic sections Internet Challenge
	NA6f	o Cubic	Activity Sheet NA16
	NA6f	o Reciprocal	Famous Curves Internet Challenge
		o Equation of a circle centre the origin	Equation of a circle centre other than (0,0) Working with ellipse in engineering

	Topic:Functions Module: 4 Recommended Time: 7 Hours	Resources /Work related/ A level extension
NA6g	o Applying to the graph of y = f(x) the transformations y = f(x) + a, y = f(ax), y = f(x+a), y = af(x) and combined transformations	Activity Sheet NA13 Key Maths ICT H pg 515 Modulus function y=lxl
SMM2g	o Drawing, sketching and describing the graphs of trigonometric functions for angles of any size, including transformations involving scalings in either or both the x and y directions	Maths Agony 11Mar 05 10√ L9/10-2 pg 19-29 Activity Sheet SSM21 Activity Sheet NA19 Activity Sheet NA18 Sound curve, root mean square current

		Topic: Area and circumference of circles Module: 5 Recommended Time: 7 Hours	**Resources /Work related/ A level extension**
	SSM2g	o Understand similarity of triangles and other plane figures	10√ L9/10-3 pg9, 13-14 Key Maths H pg 197 Key Maths H pg199
	SSM4d	o Finding circumferences of circles and areas enclosed by circles	Measuring the Earth Internet Challenge
	SSM4d	o Calculating the lengths of arcs and sectors of circles	Measuring angles in radians
	SSM4d	o Convert between area measures, including square centimetres and square metres, and volume measures including cubic centimetres and cubic metres	
	NA3n	o Using surds and pi in exact calculations, without a calculator	
Autumn Term Year 11		**Topic: Surface Area and volume Module: 6 Recommended Time: 11 Hours**	**Resources /Work related/ A level extension**
	SSM4d	o Finding the surface area of simple shapes made by using the formulae for the areas of triangles, rectangles and circles	Activity Sheet SSM20 Heron's formula Internet Challenge
	SSM2i	o Draw and interpret plans and elevations	10√ L6-2 pg 40-41
	SSM4b	o Draw nets and solids and recognise solids from nets	
	SSM3b	o Draw planes of symmetry in 3-D shapes	
	SSM2i	o Solving problems involving surface areas and volumes of o Prisms o Cylinders o Cones o Pyramids o Spheres	Key Maths H pg329 Water recycling Oxford pg 80-81 Packaging problems
	SSM2g	○ Understanding the relationship between areas and volumes of similar shapes	

	SSM4d	○ Convert between volume measures, including cubic centimetres and cubic metres	
	NA3n	○ Using surds and pi in exact calculation, without a calculator	
	SSM3d	○ Understanding the difference between formulae for perimeter, area and volume by considering dimensions	
		Mock Exam	
Spring Term, Year 11		**Topic: Indices, algebraic functions and exponential functions Module: 7 Recommended Time: 7 Hours**	**Resources /Work related/ A level extension**
	NA2b	o Using index notation and index laws for multiplication and division of integers	
	NA3g	o Using the fact that $n^0 = 1$ and $n^{-1} = 1/n$ for positive integers n, the corresponding rule for negative integers, $n^{½}$ = square root n and other fractional powers as well as negative fractional powers	Expanding brackets with a selection of powers
		○ Find the values of p and q in the function $y = pq^x$ given the graph of $y = pq^x$	Half life radioactivity
		Topic:Proportionality Module: 8 Recommended Time: 4 Hours	**Resources /Work related/ A level extension**
	NA5h	o Setting up and using equations to solve word problems involving direct proportion or inverse proportion and relating algebraic solutions to graphical representations of the equations	Wind power :variation activity Oxford pg 528
Spring Term.	NA3l	o Calculating an unknown quantity from quantities that vary in direct or inverse proportion	
		Topic: Sine and cosine rule Module: 9 Recommended Time: 11 Hours	**Resources /Work related/ A level extension**
	SMM2g	o Drawing, sketching and describing the graphs of trigonometric functions	Link to the unit circle

	SSM2g	o Using the sine and cosine rules to solve 2-D problems	Navigational, orienteering
	SSM2g	o Calculating the area of a triangle using ½ ab sinC	
	SSM2g	○ Using the sine and cosine rules to solve 3-D problems	
		Topic: Simultaneous equations Module: 10 Recommended Time: 7 Hours	**Resources /Work related/ A level extension**
	NA6e	o Finding the intersecting points of the graphs of linear and quadratic function	
	NA6h	o Constructing the graph of $x^2 + y^2 = r^2$ for a circle of radius r centred at the origin	
	NA6l	o Finding graphically the intersection points of a given straight line and a circle	
	NA5l	○ Solving exactly, by elimination of an unknown, two simultaneous equations in two unknowns, one of which is linear in each unknown, and the other is linear in one unknown and quadratic in the other, or where the second is in the form $x^2 + y^2 = r^2$	Solving 3 variables in 3 simultaneous equations
	NA5i	○ Solving equations by the method of intersecting graphs	Number of solutions for horizontal y=c and intersection with a cubic
		Topic: Algebraic Proof Module: 11 Recommended Time: 4 Hours	**Resources /Work related/ A level extension**
	NA1k	o Understand the difference between a proof and a demonstration	
	NA1k	o Give a rigorous and logical algebraic proof	
		REVISION	
		○ Non Calculator Topic Exam Bank ○ GCSE Topic Exam Bank	

		○ Past Papers	