Unit	Detailed topic	No. of lessons	CTL Topics	Max grade	Link to resources
Function notation	Function notation and mappings introduction	1		5	Dr Austin Dr Frost Maths genie
	Domain and range – Excluded values for domain – reciprocal function or root Range – usually quadratic, reciprocal	2		6-7	
	Composite functions with numbers fg(3)	1		5-6	
	Composite functions fg(x) including solving fg(x) = 10	2		7	
	Inverse functions –including need to factorise	2		7-8	
	Inverse functions – quadratic complete the square	2		8-9	
Graphs	Complex perpendicular lines e.g. Kites/ perpendicular bisectors Including simultaneous equations for gradient and length with an unknown Ax+by+c=0	3		9	Dr Austin Dr Frost Maths Genie Maths genie 2
	Plotting (and recognizing) cubic and reciprocal graphs – use table function on calculator	2		6	
	Sketching quadratic graphs - (recap) Find intercepts, max/min Solving by plotting a line	2		7-8	
	Plotting and sketching trig graphs (sinx, cosx, tanx) Basic solving sinx = 1/2	2		7-8	
	Find the gradient using a tangent line	1		6	
Transformations	Transformation of functions f(x) + a, f(x-a), af(x), f(ax), -f(x), f(-x) Transformation of points of graphs	3		7-8	Maths genie Dr Austin Dr Frost
	Interpreting and sketching transformed trig graphs e.g. asin(bx) +c or acos(x-b)+c Transforming points on trig graph	2		9	

Unit	Detailed topic	No. of lessons	CTL Topics	Max grade	Link to resources
Advanced Trig	3D Pythagoras and trig –3D shapes and elevation/depression	3		7	Dr Austin Dr Frost Maths genie – sine Maths genie - cosine
	Sine rule, cosine rule and area of a triangle.	5		7	
Bearings	Introduction to bearings and reverse bearings	1		5	
	Bearing problems including SOHCAHTOA and sine/cosine rule	3		7	

Unit	Detailed topic	No. of lessons	CTL Topics	Max grade	Link to resources
Probability	Basic probability – find missing value in a table and relative frequency	1		4	Dr Austin Dr Frost Maths genie – algebraic
	Probability from Venn Diagrams	1		6	
	Tree diagrams including conditional	3		7	
	Algebraic probability trees	2		8-9	
	And/or worded problems	2		8-9	
Calculus	Introduce as rate of change and basic differentiation	2		6	Dr Austin Dr Frost Maths genie
	Find gradient using given point and reverse (find point from given gradient)	1		6-7	
	Maximum and minimum points – including nature from shape of graph	2		8	
	Find where the gradient is positive/negative	1		8	
	Find equation of a tangent	2		9	
	Optimisation	2		8-9	
	Kinematics	2-3		8-9	
Vectors	Representing and describing vectors	1		6	Dr Austin Save my exams Dr Frost
	Manipulating vectors – adding, multiplying etc	1		6	
	Magnitude of a vector	1		6	
	Defining vector pathways including midpoint/ratio/fractions	3		7	
	Prove vectors are parallel or collinear	2		8-9	
	Equating coefficients	3		8-9	

Unit	Detailed topic	No. of lessons	CTL Topics	Max grade	Link to resources
Sequences	Introduce using $U_n = a + (n-1)d$ $S_n = \frac{n}{2}(2a + (n-1)d)$	2		6	Dr Austin Mixed questions Maths genie
	Finding a,d,n using simultaneous equations	1		7	
	Solving problems involving term and sum formula	2		8-9	
	Algebraic terms – find k to find a sum or term E.g. first three terms are $2k$+1,$3k$−1,$4k$−3	2		8-9	