Unit	Detailed topic
Function notation	Function notation and mappings introduction
	Domain and range – Excluded values for domain – reciprocal function or root Range – usually quadratic, reciprocal
	Composite functions with numbers fg(3)
	Composite functions fg(x) including solving fg(x) = 10
	Inverse functions –including need to factorise
	Inverse functions – quadratic complete the square
Graphs	Complex perpendicular lines e.g. Kites/ perpendicular bisectors Including simultaneous equations for gradient and length with an unknown Ax+by+c=0
	Plotting (and recognizing) cubic and reciprocal graphs – use table function on calculator
	Sketching quadratic graphs - (recap) Find intercepts, max/min Solving by plotting a line
	Plotting and sketching trig graphs (sinx, cosx, tanx) Basic solving sinx = 1/2
	Find the gradient using a tangent line
Transformations	Transformation of functions f(x) + a, f(x-a), af(x), f(ax), -f(x), f(-x) Transformation of points of graphs
	Interpreting and sketching transformed trig graphs e.g. asin(bx) +c or acos(x-b)+c Transforming points on trig graph
Advanced Trig	3D Pythagoras and trig –3D shapes and elevation/depression
	Sine rule, cosine rule and area of a triangle.
Bearings	Introduction to bearings and reverse bearings
	Bearing problems including SOHCAHTOA and sine/cosine rule

Unit	Detailed topic
Probability	Basic probability – find missing value in a table and relative frequency
	Probability from Venn Diagrams
	Tree diagrams including conditional
	Algebraic probability trees
	And/or worded problems
Calculus	Introduce as rate of change and basic differentiation
	Find gradient using given point and reverse (find point from given gradient)
	Maximum and minimum points – including nature from shape of graph
	Find where the gradient is positive/negative
	Find equation of a tangent
	Optimisation
	Kinematics
Vectors	Representing and describing vectors
	Manipulating vectors – adding, multiplying etc
	Magnitude of a vector
	Defining vector pathways including midpoint/ratio/fractions
	Prove vectors are parallel or collinear
	Equating coefficients
Sequences	Introduce using $$U_n = a + (n-1)d$$ $$S_n = \frac{n}{2}(2a + (n-1)d)$$
	Finding a,d,n using simultaneous equations
	Solving problems involving term and sum formula
	Algebraic terms – find k to find a sum or term E.g. first three terms are $2k+1, 3k-1, 4k-3$