Year 7

Concept	Cycle 1				Cycle 2			Cycle 3		
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
Number and Ratio		Number skills: adding subtracting, multiplying and dividing		Fractions, decimals and percentages		Working with decimals		Ratio: simplifying ratios; sharing into a given ratio		Generating number sequences
		Factors, multiples, prime numbers, square numbers.				Percentage calculations		Direct and inverse proportion		Investigating number sequences
		Powers and roots.								
Algebra	Algebra skills: collecting like terms; brackets and simplification						Solving linear equations			Straight line graphs
	Using formulae									
	Factorising algebraic expressions									
Geometry and Measure					Geometry of straight lines, triangles and quadrilaterals.				Finding the perimeter and area of rectilinear shapes	
					Angles on parallel lines				Volume and surface area	
					Angles in polygons					
					Converting between units of measure					
Statistics			Constructing and interpreting graphs, tables and charts.							
			Using averages and the range.							

Year 8

Concept	Cycle 1				Cycle 2			Cycle 3			
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11
Number and Ratio	Calculating with square and cube numbers and square and cube roots					Calculating with fractions and mixed numbers					
	Prime factor decomposition					Increasing and decreasing by a percentage					
	Laws of indices; negative and fractional indices					Calculating a percentage change					
	Standard form					Reverse percentages					
	Significant figures; estimation and bounds					Simple and compound interest					
Algebra		Simplifying expressions involving brackets and powers								Plotting and drawing straight line graphs	
		Factorising algebraic expressions								Understand and apply $y = mx + c$	
		Solving linear equations								Plot and draw quadratic graphs	
		Introduction to quadratic equations								Solve simultaneous equations graphically	
Geometry and Measure			Surface area and volume of prisms	Interpret distance-time graphs	Congruency and similarity in shapes		Constructions and loci				Use scale in maps and plans
			Circumference and area of a circle		Transformations: reflections, rotations, translations, enlargements						Measure and use bearings
			Pythagoras' theorem								
			Introduction to trigonometry								
Statistics				Draw and use conversion graphs				Probability	Finding averages from frequency tables		
				Time series graphs				Sampling methods	Scatter graphs and correlation		
									Cumulative frequency and box-plots		
									Histograms		

Concept	Year 9							
	Cycle 1		Cycle 2			Cycle 3		
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Number and Ratio	Prime factor decomposition; HCF and LCM			Fractions and mixed numbers				
	Laws of indices; fractional and negative indices			Use ratio to solve problems				
	Standard form calculations			Convert between currencies and measure				
	Irrational numbers and surds			Recognise and apply direct proportion				
				Percentage calculations				
Algebra		Expanding brackets and factorising				Draw and interpret linear graphs		
		Solving linear equations				Draw and interpret quadratic graphs		
		Algebraic formulae				Draw and interpret cubic graphs		
		Number sequences				Draw and interpret reciprocal graphs		
		Expanding triple brackets				Understand and use the equation of a circle		
		The difference of two squares						
		Factorising quadratic expressions						
Geometry and Measure					Interior and exterior angles of polygons	Distance-time graphs	Perimeter and area of rectilinear shapes	Transformations: fractional and negative enlargements
					Use and apply Pythagoras' theorem	Velocity-time graphs	Upper and lower bound in measure	Bearings and scale drawings
					Use and apply trigonometry	Interpret real-life graphs	Convert between units of area and volume	Constructions and loci
							Circumference and area of a circle	Interpret real-life graphs
							Arc lengths and the area of a sector	
							Volume and surface area	
Statistics			Construct and interpret pie-charts					
			Time series graphs					
			Scatter graphs and correlation					
			Using averages and the range to compare data sets					
			Investigating misleading data					
			Construct and interpret frequency polygons					

Concept	Year 10								
	Cycle 1			Cycle 2			Cycle 3		
	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17
Number and Ratio			Compound percentages; growth and decay						Surds
			Compound measures: speed, density, pressure						
			Direct and inverse proportion						
Algebra	Factorise and solve quadratic equations				Trigonometric graphs		Solving simultaneous equations graphically		Rearranging formulae
	Solve simultaneous equations; one quadratic						Draw and interpret quadratic and cubic graphs		Algebraic fractions
	Solve linear inequalities						Solving quadratic and cubic equations graphically		Composite and inverse functions
							Iterations		Algebraic proof
Geometry and Measure				Congruency and similarity	Trigonometry: sine rule, cosine rule, 3-D trig and Pythagoras			Circle geometry	
Statistics		Probability: conditional probability; tree diagrams; Venn diagrams				Cumulative frequency and box-plots			
		Probability: using set notation				Histograms			
						Comparing data sets			
						Sampling methods			

Concept	Year 11			
	Cycle 1		Cycle 2	Cycle 3
	Unit 18	Unit 19		
Number and Ratio			In Year 11 Cycle 2 and 3 students will follow a bespoke curriculum designed to optimise their GCSE grade. Students will follow a programme of study designed to meet their individual needs. Targeted intervention will be provided using data from internal assessments.	
Algebra		Exponential functions		
		Pre-calculus: tangents, rates of change and area under curves.		
		Transforming graphs		
Geometry and Measure	Vector geometry			
Statistics				

Concept	Year 12								
	Cycle 1			Cycle 2			Cycle 3		
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9
Number and Ratio	Mathematical modelling			Binomial expansions					
	Mathematical proof								
	Logarithmic and exponential functions.								
Algebra		Co-ordinate geometry, graphs and circles.	Inequalities and simultaneous equations	Calculus: differentiation	Calculus: further integration				
		Solving quadratic and cubic equations		Calculus: intergration	Calculating with exponentials and logarithms				
					Solving exponential and log equations				
					Modelling exponential growth				
Geometry and Measure			Trigonometry: trig identities and solving trig equations			Vector geometry	Using quantities and units in mechanics	Motion graphs; constant acceleration; non-uniform acceleration	Forces as vectors
									Magnitude and direction of forces
									Newton's Laws of Motion
Statistics						Statistical sampling	Laws of probability; tree diagrams; independent events, conditional probability	Probability distributions	Hypothesis testing using binomial distributions
						Use and interpret frequency diagrams and histograms		Calculating with binomial distributions	
						Measures of location and dispersion		Modelling using binomial distributions	
						Correlation and regression			

Concept	Year 13						
	Cycle 1			Cycle 2			Cycle 3
	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16
Number and Ratio	Proof by contradiction		Binomial expansions with negative and fractional powers				Numerical methods: iteration, Newton-Raphson, trapezium rule
Algebra	Mappings and functions; composite and inverse functions	Calculus: differentiation; log, exponential and trig functions	Calculus: integration; log, exponential and trig functions	Forming and solving differential equations			
	Modulus graphs	Sequences and series	Calculus: integration; definite integration				
	Transforming graphs	Partial fractions	Calculus: integration by parts				
		Calculus: differentiation; product and quotient rule					
		Calculus: differentiation; parametric equations					
		Calculus: differentiation; implicit differentiation					
Geometry and Measure	Trigonometry: arcs and sectors; small angle approximations	Co-ordinate geometry: parametric equations			Kinematics: projectiles, non-uniform acceleration	Dynamics: resolving forces; friction, Newton's Laws of Motion	Moments, reaction forces and friction
	Trigonometry: inverse trig functions; cosec, sec and cot						Calculating with vectors; vectors in 3-D
	Trigonometry: formulae						
	Modelling with trig functions						
Statistics				Correlation and regression	The normal distribution.	Hypothesis testing using normal distribution	
				Probability; modelling with probability			