Year 12 Pure Maths Scheme of Learning

	Week	Topic	Notes	Specification ref.
Term 1	1	Binomial expansion	Expanding with positive integer powers only (old Core 2 style). Inc. using to approximate values	4.1
	2	Coordinate geometry (linear graphs) (1)	GCSE review. Finding midpoints, lengths of lines, equations of parallel and perpendicular lines. Problem solving geometrically	3.1
	3	Coordinate geometry (linear graphs) (2)	GCSE review. Finding midpoints, lengths of lines, equations of parallel and perpendicular lines. Problem solving geometrically	4.1
	4	Simultaneous equations, inequalities and surds (1)	GCSE review. Both linear and quadratic simultaneous equations and inequalities. Inc. representing inequalities graphically. Use set notation. Rationalising surds and using surds to solve problems	2.2, 2.4, 2.5
	5	Simultaneous equations, inequalities and surds (2)	GCSE review. Both linear and quadratic simultaneous equations and inequalities. Inc. representing inequalities graphically. Use set notation. Rationalising surds and using surds to solve problems	2.2, 2.4, 2.6
	6	Quadratics	Sketching, completing the square to find turning points and using the discriminant	2.3
	7	Graph transformations	Inc. combinations of transformations where the order matters	2.9
	8	**ASSESSMENT 1 revision, exam, review**		
		HALF TERM		
	9	Circle geometry (1)	Equation of a circle (inc. use of completing the square and equations of circumcircles). Finding equations of tangents and normals. Use of the discriminant. Problem solving geometrically	3.2
	10	Circle geometry (2)	Equation of a circle (inc. use of completing the square and equations of circumcircles). Finding equations of tangents and normals. Use of the discriminant. Problem solving geometrically	4.2
	11	Polynomial division and factor theorem	Inc. sketching cubics	2.6
	12	Quartic, reciprocal and proportionality graphs	Inc. finding equations of asymptotes. Be able to create equations between proportional variables	2.7, 2.11
	13	Indices	GCSE review. Inc. problem solving questions and using indices to create quadratic equations	2.1
	14	Exponentials and logarithms (1)	Sketching exponential and logarithmic graphs (with graph transformations). Logarithm laws (old Core 2 style). Solve exponential and logarithmic equations. Reducing to linear form	6.1, 6.3, 6.4, 6.5, 6.6
	15	Exponentials and logarithms (2)	Sketching exponential and logarithmic graphs (with graph transformations). Logarithm laws (old Core 2 style). Solve exponential and logarithmic equations. Reducing to linear form	6.1, 6.3, 6.4, 6.5, 6.7
		CHRISTMAS		
Term 2	16	Proof (1)	Proof by deduction, proof by exhaustion, proof by contradiction and disproof by counter example	1.1
	17	Proof (2)	Proof by deduction, proof by exhaustion, proof by contradiction and disproof by counter example	2.1
	18	**ASSESSMENT 2 revision, exam, review**		
	19	Differentiation (1)	Differentiation from first principles. Finding tangents and normals to curves, stationary points and points of inflection, increasing/decreasing functions, using the second derivative and	6.2, 7.1, 7.2, 7.3
	20			
	21	Review point 1		
		HALF TERM		
	22	Trigonometry (1) (1)	Revise sine rule, cosine rule and area of a triangle. Use the identities from GCSE Further Maths, radian measure, arc length and areas of sectors, small angles and solving trigonometric equations	5.1, 5.2, 5.3, 5.5, 5.7, 5.8
	23	Trigonometry (1) (2)	Revise sine rule, cosine rule and area of a triangle. Use the identities from GCSE Further Maths, radian measure, arc length and areas of sectors, small angles and solving trigonometric equations	5.1, 5.2, 5.3, 5.5, 5.7, 5.9
	24	Trigonometry (1) (3)	Revise sine rule, cosine rule and area of a triangle. Use the identities from GCSE Further Maths, radian measure, arc length and areas of sectors, small angles and solving trigonometric equations	5.1, 5.2, 5.3, 5.5, 5.7, 5.10
	25	Integration (1) (1)	Old Core 1 & 2 style integration. Finding the area under a curve and between curves. Integrate exponentials and logarithms. Inc. trapezium rule and integration as the limit of a sum	8.1, 8.2, 8.3, 8.4
	26	Integration (1) (2)	Old Core 1 & 2 style integration. Finding the area under a curve and between curves. Integrate exponentials and logarithms. Inc. trapezium rule and integration as the limit of a sum	8.1, 8.2, 8.3, 8.5
	27	Integration (1) (3)	Old Core 1 & 2 style integration. Finding the area under a curve and between curves. Integrate exponentials and logarithms. Inc. trapezium rule and integration as the limit of a sum	8.1, 8.2, 8.3, 8.6
	28	**ASSESSMENT 3 revision, exam, review**		
		EASTER		
Term 3	29	Sequences and series (1)	Old Core 2 style questions. Inc. proofs of sum formula for arithmetic and geometric sequences as well as modelling problems	4.2, 4.3, 4.4, 4.5, 4.6
	30	Sequences and series (2)	Old Core 2 style questions. Inc. proofs of sum formula for arithmetic and geometric sequences as well as modelling problems	4.2, 4.3, 4.4, 4.5, 4.7
	31	Functions and modulus graphs (1)	Range and domain of functions, composite and inverse functions. Sketch modulus graphs and solve equations and inequalities involving modulus functions. Inc. modelling problems	2.8
	32	Functions and modulus graphs (2)	Range and domain of functions, composite and inverse functions. Sketch modulus graphs and solve equations and inequalities involving modulus functions. Inc. modelling problems	3.8
		HALF TERM		
	33	Trigonometry (2) (1)	Secant, cosecant and cotangent graphs and identities. Cover inverse trigonometric graphs. Rewrite using double/compound angles and harmonic form. Solve trigonometric equations. Inc. modelling with trigonometry	2.11, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9
	34	Trigonometry (2) (2)	Secant, cosecant and cotangent graphs and identities. Cover inverse trigonometric graphs. Rewrite using double/compound angles and harmonic form. Solve trigonometric equations. Inc. modelling with trigonometry	2.11, 5.4, 5.5, 5.6, 5.7, 5.8, 5.10
	35	Trigonometry (2) (3)	Secant, cosecant and cotangent graphs and identities. Cover inverse trigonometric graphs. Rewrite using double/compound angles and harmonic form. Solve trigonometric equations. Inc. modelling with trigonometry	2.11, 5.4, 5.5, 5.6, 5.7, 5.8, 5.11
	36	Trigonometry (2) (4)	Secant, cosecant and cotangent graphs and identities. Cover inverse trigonometric graphs. Rewrite using double/compound angles and harmonic form. Solve trigonometric equations. Inc. modelling with trigonometry	2.11, 5.4, 5.5, 5.6, 5.7, 5.8, 5.12
	37	**ASSESSMENT 4 revision, exam, review (IN HALL)**		
	38	**Enrichment Week/Year 12 Work Experience**		
	39	Review point 2		