Further Maths A-Level Curriculum Intent	
KS5	Students should build upon their existing mathematical knowledge, developing logical thinking skills and problem solving skills. Students should develop conceptual understanding, and the ability to find and appreciate links between different elements of mathematics (and other closely related disciplines) moving beyond a purely procedural understanding. Students will leave with the required skills and knowledge needed to pursue the study of mathematics or another STEM discipline at a higher level, as well as a deeper appreciation of the beauty of mathematics.

Further Maths A-Level Curriculum Implementation						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 12	***Maths "Year 1" pure content*** **Algebra** Proof Index law Quadratics Simultaneous equations Inequalities Binomial theorem Algebraic division **Graphs** Straight lines Circles Transformations **Trigonometry** Triangle problems Trig graphs CAST diagram Solving equations **Calculus**	***Maths "Year 1" applied content*** **Statistics** Collecting and representing data Discrete random variables **Mechanics** Kinematics Forces and Newton's Laws ***Maths "Year 2" pure content*** **Algebra** Further proof Functions Partial fractions **Trigonometry** Radian measure	**Sequences & Series** Arithmetic Geometric **Trigonometry** Inverse trig functions Reciprocal trig functions Compound angles $a\cos\theta + b\sin\theta$ **Algebra** Parametric equations **Calculus** Differentiation, including chain run, product rule Integration including substitution and by parts **Statistics** Probability Binomial distribution	**Calculus cont…** **Binomial Theorem** **Statistics** Hypothesis Testing **Numerical methods** Iteration Newton-Raphson method **Vectors** 3D Vectors ***Maths "Year 2" applied content*** **Mechanics** Kinematics in 2D Projectiles Statics Dynamics Moments	**Vectors** 3D Vectors (cont'd) **Mechanics** Dynamics (cont'd) **Statistics** Conditional Probability Normal Distribution ***Further Maths "Year 1" core pure content*** **Complex numbers** Properties Arithmetic Solving equations Argand diagrams Modulus argument form Loci **Matrices**	**Matrices (cont'd)** Transformations **Algebra and series** Roots of polynomials Summing powers Proof by induction **Vectors** Straight lines Scalar product Planes

	Differentiation integration **Vectors** 2D vectors **Exponentials and Logs** Laws of logs Exponential functions Curve fitting		Hypothesis Testing		Properties Arithmetic	
Year 13	**Calculus** Volumes of revolution ***Further Maths "Year 2" core pure content*** **Complex numbers** De Moivre Roots of unity **Series** **Polar Coordinates** **Calculus** Improper integrals Inverse trig functions	**Calculus (cont'd)** Inverse trig functions Hyperbolic functions Partial fractions Polar graphs and areas **Differential equations** First order Second order Simple harmonic motion Modelling Coupled **Hyperbolics** ***Further Maths chosen units*** **Further Mechanics 1** Momentum Collisions Impulses **Further Statistics 1** Discrete random variables	**Further Mechanics cont'd** Work energy power Hooks Law Momentum Collisions Impulses **Further Statistics 1** **Poisson distribution** Negative binomial distribution Geometric distribution CLT PGF	**Further Mechanics cont'd** Work energy power Hooks Law Momentum Collisions Impulses **Further Statistics 1 cont…** Chi-squared Quality of tests	**Revision**	**Exam period**

		Mathematics Curriculum Impact KS5		
		FORMATIVE; *The instructional guidance that identifies central points of learning and plans for the progression of individual students.*	**SUMMATIVE;** *This describes individuals learning at the end of an instructional unit by comparing it against a standard or benchmark. (High Stakes Assessment)*	**EVALUATIVE;** *This is about institutional accountability and comes after terminal exams. External agencies.*
TIMESCALE	**Annually**		**Year 12:** (Maths/FMaths) - End of Year assessment (June) - based upon all topics taught in year 12. - 2 Papers are sat for the Pure and applied sections of the course/ A2 Pure paper 2+ Further Core Maths - 2 Hours for Pure paper and 1 hour 15 mins for applied paper minutes for each paper - Pure A2 paper is 2 hours and the FMaths Core is 1 hour 45 mins **Year 13:** - Mock Examinations (September, December and February) - based upon all topics taught to this point. - 2 Papers are set for the two halves of the course. - 105 minutes for each paper - Paper 3 mock to be sat after Easter - 150 minutes.	Nationally standardised summative assessment takes the form of A-levels and vocational qualifications at the end of Key Stage 5. **A-level exam board**: Edexcel Pearson **Exam structure:** Paper 1 : 2hr (33%) Paper 2 : 2hr (33%) Paper 3 : 2hr (33%) *Paper 1 1 hr 30 mins(* *Paper 2 1 hr 30 mins* *Paper 3 1 hr 30 mins* *Paper 4 1 hr 30 mins*

	Interim (termly or half-termly)		**Cumulative Testing:** ● Each half term- yr 12 , yr13 students will sit cumulative tests covering all topics covered to date. ● The exam will use questions taken from the exam board which have previously been in real exams. ● The assessments will be approximately 50 minutes. ● Exams are marked and moderated in-house. ● ● Grade boundaries from the most recent exam series are used where possible and fine grades used to identify those needing intervention/ additional support **End of topic exams** End of topic test continuing practice questions for the cumulative tests are provided to students to complete in 10th period time. This does not apply to Core maths students Students complete this test under exam conditions and then will be provided with feedback based on how to improve their performance. **Folder checks** Folders are collected half termly to ensure students are managing their notes and time well. Feedback is provided by monitoring sheets	
	Weekly	**Teachers role:** - Identify how students are performing and use this to provide support, evaluate student learning and plan future lessons. - Provide oral and/or written feedback.		

		- Keep track of student progress using department internal and school wide data systems. - Scaffold feedback to students for effective self/peer assessment. - Exam questions set weekly according to retrieval rota of work - students submit for marking and feedback given and marking used to develop starter activities for subsequent lessons **Students role:** - Engage in self assessment of additional homework/classwork - . - Be proactive in ReACT taks. - Revise content. - Redraft and submit work which is completed to the best of their abilities. - Identify their own strengths and weaknesses and ask for support from their subject teachers. .	
	Hourly	*Every Lesson Every Day'* techniques are embedded in lessons formative assessment takes place using the following strategies: - Questioning - Low stakes testing - Oral feedback - Whole-class feedback - Retrieval starter tasks	