Curriculum Map

Subject: Pure Maths **Year Group: 13 Pure**

	Autumn 1/Autumn 2	Autumn 2	Autumn 2/Spring 1	Spring 2	Summer
Content	**Unit 1: Proof, Algebra & Partial Fractions.** **Unit 2: Functions and Modelling.**	**Unit 3: Series and sequences.** **Unit 4: The Binomial Expansion.** **Unit 5: Radians.**	**Unit 6: Trigonometric Functions.** **Unit 7: Trigonometric Modelling.** **Unit 8: Parametric Equations.** **Unit 9: Differentiation.**	**Unit 9: Differentiation.** **Unit 10: Numerical Methods** **Unit 11: Integration**	**Unit 12: Vectors (3D)** **Public Exams**
Skills	Students will… **Unit 1:** Proof by Contradiction. Simplifying algebraic fractions. Covert expression into partial fractions Covert expression with repeated factors into partial fractions. Divide algebraic expressions. **Unit 2:** Modulus function. The modulus functions. Composite and inverse functions. Functions and mappings. $y = \|f(x)\|$ and $y = f(\|x\|)$. Transformations.	Students will… **Unit 3:** Arithmetic and geometric progressions. Geometric series. Sums to infinity. Sigma notation. Recurrence and iterations. **Unit 4:** Expanding $(a + bx)^n$ for rational n Expanding $(1 + x)^n$ and $(a + bx)^n$. Expansion of functions - using partial fractions. **Unit 5:** Radian measure. Arc length.	Students will… **Unit 6:** Secant, Cosecant and cotangent. Secant, cosecant and cotangent. Graphs of sec x, cosec x and cot x. Using sec, cosec and cot. Trigonometric identities. Using inverse trigonometric functions. **Unit 7:** Addition formulae. Using the angle addition formulae. Double angle formulae.	Students will… **Unit 9:** Differentiating sine and cosine from first principles. Differentiating exponentials and logarithms. Differentiating products, quotients, implicit and parametric functions. Second derivatives. Rates of change problems. **Unit 10:** Location of roots. Solving by iterative methods. Newton-Raphson method.	Students will… **Unit 12:** 3D Coordinates. Vectors in 3D. Solving geometric problems. Applications to mechanics.

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	Combining transformations. Solving modulus problems.	Areas of sectors and segments. Solving trigonometric equations. Small angle approximations	Solving trigonometric equations. Simplifying acos x + bsin x. Proving trigonometric identities. Solving problems in context. **Unit 8:** Parametric equations. Using trigonometric identities. Curve Sketching. Points of intersection. Modelling with parametric equations.	Problem Solving. **Unit 11:** Integrating xn, exponentials, trigonometric and parametric functions. Using the reverse of differentiation and trig identities to manipulate integrals. Integration by substitution. Integration by parts.Use of partial fractions. Areas under graphs.The trapezium rule. Differential equations.	
Key questions	Edexcel A-level Book Mixed Exercise 1, Page 19 Mixed Exercise 2, Page 53	Edexcel A-level Book Mixed Exercise 3, Page 86 Mixed Exercise 4, Page 104 Mixed Exercise 5, Page 135	Edexcel A-level Book Mixed Exercise 6, Page 162 Mixed Exercise7, Page 192 Mixed Exercise 8 , Page 220	Edexcel A-level Book Mixed Exercise 9 , Page 265 Mixed Exercise 10 , Page 289 Mixed Exercise 11, Page 320	Edexcel A-level Book Mixed Exercise 12 , Page 349
Assessment	AS paper PPE1 Unit 1 and 2	Unit 3, 4 and 5	Unit 6, 7 and 8	Unit 9, 10 and 11 PPE 2	Unit 12
Literacy/ Numeracy/ SMSC/ Character	Understanding and interpreting calculations used in mathematical modelling problems set in real-life contexts. Carrying out algebraic proofs of mathematical identities or formulae used in solving problems. Aspiration, Resilience, Initiative, Confidence				