Years 12 & 13 Curriculum
A Level: Mathematics

	Pure Mathematics				
Topic	**Proof**	**Coordinate Geometry in x-y plane**	**Sequences & Series**	**Trigonometry**	**Exponentials & Logarithms**
Key Concepts	• Nature of proof • Proof by deduction • Proof by exhaustion • Proof by contradiction	• Equations of lines and circles • Plotting of curves • Midpoints and lengths of line segments	• Geometric and arithmetic sequences • Convergence and divergence • Recurrence relationships	• Sine and cosine rule • Trigonometric identities • Trigonometric equations	• Definitions and rules of manipulation • Graphs of exp and logs • Solving equations using logs

Topic	**Differentiation**	**Integration**	**Numerical Methods**	**Vectors**	**Algebra & Function**
Key Concepts	• First principles • Standard functions • Chain, product and quotient rules	• Reverse of differentiation • Standard functions and patterns • By substitution • By parts	• Location of roots • Fixed point iteration • Newton Raphson method	• 2D and 3D • Geometric use of vectors • Magnitude and direction • Position vectors	• Function notation • Domain and range • Algebraic techniques

	Statistics				
Topic	**Data Representation & Interpretation**	**Statistical Sampling**	**Probability**	**Statistical Distributions**	**Statistical Hypothesis Testing**
Key Concepts	• Histograms • Stem and leaf • Data set analysis • Cumulative frequency curves • Correlation	• Types of sampling • Sampling errors • Uses of sampling	• Nature of probability • Venn diagrams • Conditional probability • Decision trees	• Binomial distribution • Normal distribution • Discrete distributions	• One tailed and two tailed tests • Confidence intervals • Test for binomial fit • Test of correlation

	Mechanics			
Topic	**Quantities and units in mechanics**	**Kinematics**	**Forces & Newton's laws**	**Moments**
Key Concepts	• Definitions of key units • Dimension analysis	• Constant acceleration • SUVAT • Projectiles • Vector analysis • Variable acceleration	• F=ma • Resolving of forces into components • Friction • Static particles • Inclined planes • Pulleys	• Turning forces • Stable systems

Years 12 & 13 Assessment
A Level: Mathematics

All students will sit an assessment and a mock examination in Year 12 and two mock examinations in Year 13.

	Year 12		Year 13		
	Assessment	**Mock Exam**	**Mock Exam**	**Mock Exam**	**Revision Resources**
	Autumn Term	**Summer Term**	**Autumn Term**	**Spring Term**	
Style of Assessment	**Paper 1:** Pure **Paper 2:** Applied	**Paper 1:** Pure **Paper 2:** Applied	**Paper 1:** Pure **Paper 2:** Applied **Paper 3:** A Level Pure Topics	**Paper 1:** Pure **Paper 2:** Pure **Paper 3:** Applied	*Kennet Resources* • Core Questions • Knowledge Organisers • Learning Habits *External Resources* • www.mymaths.co.uk • www.amsp.org.uk • www.integralmaths.org You can also find additional revision material on Frog
Topics Assessed	**Paper 1:** *Pure:* Pure content *(taught up to this point in the year)* **Paper 2:** *Applied:* All statistics topics *(taught up to this point in the year)*	**Paper 1:** *Pure:* Pure content *(all topics covered during Year 12)* **Paper 2:** *Applied:* Statistics & Mechanics *(all topics covered during Year 12)*	**Papers 1 & 2:** All Pure topics *(all topics covered during Year 12* **Paper 3:** • Algebraic & partial fractions • Sequences and series: arithmetic and geometric, sums of series, recurrence relations and iterations • Functions: Modulus; composite and inverse; transformations and modelling • Proof: including proof by deduction and contradiction • Trigonometry: Radians, arc and sector; small angle approximations; secant, cosecant & cotangent definitions & graphs & inverse trigonometric functions; compound angle formulae & double angle rules with proof; binomial theorem with negative and fractional powers and link to partial fractions; vectors in 3 dimensions including unit vectors	**Papers 1 & 2:** All pure topics taught *(since the start of Year 12)* **Paper 3:** Applied - All Statistics & Mechanics topics taught *(since the start of Year 12)*	

Exam Board: edexcel

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