



	LVI th form – Edexcel A level			UVI th form – Edexcel A level		
	Pure and Statistics	Pure and Mechanics		Pure and Statistics	Pure and Mechanics	
MICHAELMAS TERM A	Pure(AS) Unit 1: Algebra and functions Chapters 1 to 3 (Induction Booklet) - algebraic manipulation - quadratic equations - simultaneous equations (linear and quadratic) - inequalities (linear and quadratic) - algebraic fractions - polynomials - problem-solving <i>Career link:</i> An electrical engineer uses algebra to model and analyse circuit behaviour.	Pure(AS) Unit 1: Algebra and functions Chapters 1 to 3 (Induction Booklet) - algebraic manipulation - quadratic equations - simultaneous equations (linear and quadratic) - inequalities (linear and quadratic) - algebraic fractions - polynomials - problem-solving <i>Career link:</i> An electrical engineer uses algebra to model and analyse circuit behaviour.	Diagnostic task 1	Stats (A2) Unit 1: Regression and correlation Chapter - exponential models - PMCC and hypothesis testing <i>Career link:</i> An economist uses regression to analyse the relationship between economic variables.	Mech (A2) Unit 4: Moments Chapter - moment of a force (including angled forces) - equilibrium and tilting <i>Career link:</i> A mechanical engineer uses moments to design stable structures and tools.	RAT 3
	<i>Book recommendation:</i> Proof: The Great Ideas of Mathematics by C. Plumptre, E. Shipton & R.L. Perry		MICE	Pure (A2) Unit 5: Binomial Theorem Chapter expansion for $n \in \mathbb{Q}$ (inc. use of partial fractions) <i>Career link:</i> A research scientist uses the binomial theorem to model probability in a large sample.	Pure (A2) Unit 6: Further Trigonometry Chapter - radians, arcs and sectors - small angle approximations - reciprocal trig - compound angle formulae and harmonic form - identities and equations <i>Career link:</i> A surveyor uses trigonometry to calculate land boundaries.	
MICHAELMAS TERM B	Pure(AS) Unit 1: Algebra and functions (graphs) Chapter 4 - cubic graphs - reciprocal graphs - intersection points - transformations of graphs <i>Career link:</i> A financial analyst uses graphs to interpret trends in the stock market.	Pure(AS) Unit 2: Coordinate geometry Chapter 5 - straight lines - gradient, distance, midpoint - parallel and perpendicular lines <i>Career link:</i> A drone programmer uses coordinate geometry to define a flight path.	Diagnostic task 2	Pure (A2) Unit 7: Parametric equations Chapter - parametric equations - using trigonometry - curve sketching - intersections - modelling <i>Career link:</i> A video game developer uses parametric equations to define character movement.	Mech (A2) Unit 5: Forces at an angle Chapter - resolving forces - inclined planes and friction <i>Career link:</i> A civil engineer uses knowledge of forces to design bridges and buildings.	Diagnostic task 8
	Stats(AS) Unit 1: Sampling and data presentation Chapters 1 – 4 - sampling methods - measures of location - measures of spread - graphical representation - comparing distributions - correlation <i>Career link:</i> A market researcher uses sampling and data presentation to inform business strategy.	Mech(AS) Unit 6: Quantities and units in mechanics Chapters 8 quantities, units and definitions <i>Career link:</i> A physicist uses quantities and units to ensure accuracy in their experiments.	RAT 1	Pure (A2) Unit 8: Differentiation Chapter - trig functions (including first principles) - exponentials and logs - chain rule, product rule, quotient rule - parametric and implicit differentiation - rates of change <i>Career link:</i> A financial analyst uses differentiation to calculate the rate of change of stock prices.	Mech (A2) Unit 6: Application of kinematics Chapter - horizontal projection and projection at an angle - projectile motion formulae <i>Career link:</i> A physicist uses kinematics to analyse the motion of a projectile.	Diagnostic task 9
LENT TERM A	Pure(AS) Unit 3: Algebra Chapter 7 and 8 - the Factor Theorem - deduction, exhaustion, counter-example - Pascal's triangle and factorial notation - binomial expansions and approximations <i>Career link:</i> A cryptographer uses algebra to create secure codes.	Pure(AS) Unit 2: Coordinate geometry Chapter 6 - midpoints, perp. bisectors - intersecting lines - circles and triangles <i>Career link:</i> A civil engineer uses coordinate geometry to design roads and railway lines.	Diagnostic task 3	Stats (A2) Unit 3: Normal Distribution Chapter - normal probabilities - inverse normal function - standard normal - finding μ and σ - binomial approximation - hypothesis testing <i>Career link:</i> A medical researcher uses normal distribution to analyse data from clinical trials.	Pure (A2) Unit 12: 3D Vectors Chapter 3D coordinates - vectors in 3D - geometric problems - applications to mechanics <i>Career link:</i> A pilot uses 3D vectors to navigate aircraft and plan flight paths.	TRIAL EXAMS
	Pure(AS) Unit 6: Differentiation Chapter 12 - definition, first principles - polynomials - tangents and normals - stationary points - increasing and decreasing functions - rates of change <i>Career link:</i> A chemist uses differentiation to calculate the rate of a chemical reaction.	Pure(AS) Unit 4: Trigonometry a Chapter 9 - Sine and Cosine rules - area of triangles - triangle problems - graphs and transformations <i>Career link:</i> A surveyor uses trigonometry to calculate land boundaries.	MINI RAT A		<i>Book recommendation:</i> Introducing Logic: A Graphic Guide by Dan Cryan, Sharron Shatil, and Bill Mayblin	Diagnostic task 10
LENT TERM B	Pure(AS) Unit 7: Integration Chapter 13 - reverse of differentiation - indefinite and definite integrals - areas under curves - areas between curves and lines <i>Career link:</i> An actuary uses integration to calculate total profit from a rate of change.	Pure(AS) Unit 4: Trigonometry b Chapter 10 - exact values - identities - solving equations <i>Career link:</i> A musician uses trigonometry to understand and synthesise sound waves.	Diagnostic task 4	Pure (A2) Unit 10 and 11: Integration Chapter - standard functions - trig identities - reverse chain rule - integration by substitution - integration by parts - trapezium rule - differential equations - parametric equations - integration as a limit <i>Career link:</i> An actuary uses integration to calculate total profit from a rate of change.	Mech (A2) Unit 7: Applications of forces Chapter - static particles - friction - rigid bodies - inclined planes - connected particles <i>Career link:</i> An automotive engineer uses forces and friction to design safe braking systems.	Diagnostic task 11
	Stats (AS) Unit 3: Probability Chapter 5 - set notation - Venn diagrams - tree diagrams <i>Career link:</i> A statistician uses probability to predict outcomes of events.	Pure(AS) Unit 5: Vectors Chapter 11 - magnitude, direction - scalar multiplication - position vectors, geometry <i>Career link:</i> A video game developer uses vectors to define the position and movement of objects.	MINI RAT B	<i>Book recommendation:</i> Gödel, Escher, Bach: An Eternal Golden Braid by Douglas R. Hofstadter	<i>Book recommendation:</i> From Calculus to Chaos: An Introduction to Dynamics by D. Acheson	
TRINITY TERM A	Stats (AS) Unit 4: Statistical distribution Chapter 6 - probability distributions - binomial distribution <i>Career link:</i> A data scientist uses statistical distribution to find patterns in large datasets.	Pure(AS) Unit 8: Exponentials and logarithms Chapter 14 - exponential functions and laws of logarithms (e and ln) - solving equations - fitting an exponential model <i>Career link:</i> A biologist uses exponentials and logarithms to model population growth.	Diagnostic task 5			
	Stats (AS) Unit 5: Statistical hypothesis testing Chapter 7 hypothesis testing <i>Career link:</i> A medical researcher uses hypothesis testing to determine if a new drug is effective.	Mech(AS) Unit 9: Kinematics II (variable acceleration) Chapter 11 using differentiation and integration <i>Career link:</i> A physicist uses kinematics to analyse the motion of a projectile.	RAT 2			
TRINITY TERM B	Pure (A2) Unit 1: Proof Chapter 1b proof by contradiction <i>Career link:</i> A lawyer uses proof to build a logical argument for their case.	Pure(AS) Unit 2: Algebraic and partial fractions Chapter 1b - algebraic fractions - partial fractions - algebraic division <i>Career link:</i> An engineer uses algebraic fractions to simplify complex equations.	Diagnostic task 6			
	Pure (A2) Unit 3: Functions and modelling Chapter 2 - the modulus function - mappings - composite and inverse functions <i>Career link:</i> A systems analyst uses functions and modelling to design computer systems.	Pure (A2) Unit 4: Sequences and Series Chapter 3 - arithmetic and geometric - sum to infinity - sigma notation - recurrence relations <i>Career link:</i> A financial advisor uses sequences and series to model investment growth.				
	Stats (A2) Unit 1a: Regression and correlation Chapter 1 - exponential models - measuring correlation - PMCC, hypothesis testing <i>Career link:</i> An economist uses regression to analyse the relationship between economic variables.	Mech (A2) Unit 4: Moments Chapter 4 - moment of a force (including forces at an angle) - resultant moments - equilibrium and tilting <i>Career link:</i> A mechanical engineer uses moments to design stable structures and tools.	Diagnostic task 7			