

Tear 12	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Topic/Theme/ Focus	<p>In this unit students will deepen their understanding of algebraic techniques and methods used for solving equations</p> <p>They will cover fundamental skills such as: Use different methods of proof. Use and manipulate index laws. Manipulating surds and rationalising denominators. Understand and use coordinate geometry, including working with lines and circles. Understand and solve simultaneous equations and inequalities Factorise and solve polynomials and sketch graphs. Use the factor theorem and divide polynomials</p>	<p>In this unit students will deepen their understanding of trigonometric ratios and functions.</p> <p>They will cover fundamental skills such as: Find values of sine, cosine and tangent for any angle. Use trigonometric identities. Sketch and describe trigonometric functions. Solve trigonometric equations. Use the sine and cosine rules and the area formula for a triangle.</p>	<p>In this unit students will be introduced to calculus</p> <p>They will learn fundamental skills such as: Differentiation from first principles. Differentiate terms of the form ax^n. Calculate rates of change. Work out and interpret equations, tangents, normal, turning points and second derivatives. Work out the integral of a function. Calculate the area under a curve using definite integrals.</p>	<p>In this unit students will be introduced to exponential and logarithmic functions</p> <p>They will learn fundamental skills such as: Convert between logarithmic and exponential form. Manipulate and solve equations involving powers and logarithms. Use exponential functions and their graphs. Verify and use mathematical models and consider the limitations of these models.</p>	<p>In this unit students will be introduced to concepts in mechanics.</p> <p>They will cover fundamental skill such as: Use vectors to solve geometric problems. Use vectors to solve problems with forces. Derive and use equations for motion with constant acceleration. Use calculus to solve problems involving variable acceleration. Resolve forces in perpendicular directions and find the magnitude and direction of a set of forces. Work with forces causing constant acceleration of particles, including those connected by strings.</p>	<p>In this unit students will deepen their understanding of analysing data and be introduced to new concepts in probability.</p> <p>They will learn fundamental skills such as: Identify and use sampling techniques. Read discrete and continuous data from a variety of diagrams. Solve problems involving mutually exclusive and independent events. Use probability functions in probability distributions. Recognise and solve problems related to the binomial distribution. Understand the language of a hypothesis test. Calculate critical regions and p-values</p>
Key vocabulary	Rationalise Discriminant Gradient Polynomial Factorial	Sine Cosine Tangent Periodic Identity	Differentiate Rate Gradient Tangent Normal Integrate	Exponential Logarithm Linear Constant	Magnitude Direction Resultant Equilibrium	Bias Independent Binomial Hypothesis Critical Significance