Year: 11
Subject: Further Pure Mathematics

Term	Week	Focus	Summary	Learning Outcomes	Learning skills
Term 2.1	1	Surds and Log functions	Surds	Write a number exactly using Surds, rationalise the denominator of a Surd.	• Automaticity • Meta-cognition • Resilience
	2	Surds and Log functions	Logarithms and exponentials	Be familiar with the functions a^x and $\log_b x$ and recognize the shapes of their graphs. Be familiar with functions including ex and similar terms, and use them in graphs. Use graphs of functions to solve equations	• Critical and logical thinking • Precision • Intellectual playfulness
	3	Surds and Log functions	Logarithms and exponentials	Rewrite expressions including powers using logarithms instead. Understand and use the laws of logarithms. Change the base of a logarithm. Solve equations of the form $a^x = b$	• Speed and accuracy • Automaticity • Flexible thinking
	4	Scalar and Vector Quantities	Notation	Use vector notation and draw vector diagrams.	• Originality • Fluent thinking • Generalisation
	5	Scalar and Vector Quantities	Vectors	Perform simple vector arithmetic and understand the definition of a unit vector.	• Strategy planning • Connection finding • Self regulation
	6	Scalar and Vector Quantities	Vectors in two dimensions	Use vectors to describe the position of a point in two dimensions.	• Critical and logical thinking • Precision • Intellectual playfulness

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Term 2.2	**1**	Scalar and Vector Quantities	Vectors in two dimensions	Write down and use the Cartesian components of a vector in two dimensions.	• Problem solving • Fluent thinking • Generalisation
	2	Scalar and Vector Quantities	Vectors in two dimensions	Use vectors to demonstrate simple properties of geometrical figures.	• Strategy planning • Connection finding • Self regulation
	3	Differentiation	Standard Derivatives	Differentiate e^{ax}, sinax and cosax.	• Big picture thinking • Hard working • Self regulation
	4	Differentiation	Further Differentiation	Use the Chain rule to differentiate more complicated functions.	• Problem solving • Strategy planning • Meta-cognition
	5	Differentiation	Gradients at points of Curves	Find the equation of the tangent and normal to the curve $y = f(x)$.	• Abstraction • Problem solving • Generalisation