Year: 13
Subject: A-level Maths

Spring Term

What has come before and what comes later:	*Before Year 2 Chapters 2-7 (see above)* *Above chapter 12 vectors*		
	Pure	*Statistics*	*Mechanics*
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	*Chapters 8, 9, 11, 10. Complete chapters in this order* • *Can you solve parametric equations?* • *Can you apply the trigonometric identities to parametric equations?* • *Can you sketch curves using parametric equations?* • *Can you differentiate sinx and cosx?* • *Can you differentiate exponentials and logarithms?* • *Can you use the chain, product and quotient rule to differentiate?* • *Can you differentiate trigonometric functions?* • *Can you differentiate parametric equations?* • *Can you perform implicit differentiation?* • *Can you calculate and use second derivatives?* • *Can you use differentiation to solve problems involving rates of change?* • *Can integrate standard functions?* • *Can you integrate f(ax + b)?* • *Can you integrate using trigonometric identities?* • *Can you use the chain rule in reverse?* • *Can you integrate by substitution?* • *Can you integrate by parts?* • *Can you integrate partial fractions?* • *Can you use integration to calculate areas?* • *Can you use the trapezium rule?* • *Can you solve differential equations?* • *Can you locate roots using numerical methods?* • *Can you use iteration to solve equations?* • *Can you use the Newton-Raphson method?*	• *Are you able to understand set notation in probability?* • *Do you understand what conditional probability is?* • *Are you able to solve conditional probability problems using two-way tables and venn diagrams?* • *Can you use probability formulae to solve problems?* • *Can you solve conditional probability problems using tree diagrams?*	• *Can you model motion under gravity for an object project horizontally?* • *Can you resolve velocity into components?* • *Can you solve problems involving particles projected at an angle?* • *Can you derive the formulae for the tie of flight, range and greatest height?* • *Can you find an unknown force when a system is in equilibrium?* • *Can you solve statics problems involving weight, tension and pulleys?* • *Do you understand and can you solve problems involving limiting equilibrium?* • *Can you solve problems involving motion on rough or smooth inclined planes?* • *Can you solve problems involving connected particles that require the resolution of forces?*

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