Further Mathematics	Year 12

Plan Of Learning For The Year	
Half Term 1 **Core Pure Mathematics:** **Further Pure Mathematics:** **Half Term 2** **Core Pure mathematics:** **Further Pure Mathematics:**	**Half Term 3** **Core Pure Mathematics:** **Further Pure Mathematics:** **Half Term 4** **Further Pure Mathematics:** **Half term 5** **Half term 6**

Feedback, Retrieval & Assessment	Super curriculum opportunities / extra-curricular activities	Cultural Capital, SMSC, Careers and Futures
• Self and peer assessment in class and independently • On-going formative assessment during lessons by teacher • Student/teacher one-to-one discussions • Retrieval starters or feedback every lesson • Dr Frost maths weekly independent work on skills and exam questions provides instant feedback to the work you do and highlights gaps to close • (Approximately) Termly formal assessments • Exit Ticket every two weeks resit opportunities provided during maths support at lunchtimes • Throughout, a focus on closing gaps after each assessment with the focus being on understanding the gap, rather than copying worked solutions	• https://plus.maths.org/content/ • https://www.newscientist.com/ • https://nrich.maths.org/post-16 • http://www.undergroundmathematics.org super curriculum problems, often from entry exams from the prestigious universities Cambridge and Oxford • www.cambridgemaths.org • http://desmos.com/ online graphing software • http://geogebra.org online graphing software • www.amsp.org.uk hub for maths resources and links to future career options • www.Drfrostmaths.com (has resources linked to Further Maths curriculum or "just because" maths) • https://www.youtube.com/c/BicenMaths/videos a great resource for online lessons in case you miss any content	• Teamwork within the class. • Regular independent problem-solving opportunities • Understanding the real-life situations that mechanics can be used for. • Opportunities to discuss with teachers about careers linked to mathematics or engineering • Use of technology and how it is used in science and technological sectors • Development of strong independent learning and organisational skills, preparing you for further study at university level • Recommended Wider Reading: ❖ *Alcock, How to Think About Analysis* ❖ *Penrose, The Emperor's New Mind: Concerning Computers, Minds, and the Laws of Physics* ❖ *Singh, Fermat's Last Theorem* ❖ *Dunham, Euler: the Master of Us All*

Common misconceptions	Connecting New Knowledge	Challenge for all

• **When to apply particular methods and knowing key formulae that are not in the formula book** • **Applying differentiation techniques such as implicit differentiation to conics** • **Abstract reasoning with further vectors in 3-D**	• **Understand why the formulas are used.** • **Regular opportunities to use proof** • **Opportunities to explore theories and issues in further depth are signposted in lessons.** • **Developing an appreciation of how different areas of mathematics link together e.g. equations and graphs; differentiation and optimisation problems** • **Using technology to enhance learning**	• **Proof used throughout the course to underpin why particular statements or approaches are true** • **Knowledge Organisers and printed Lesson Notes used to give an overview of the learning that will take place and a chance to review the learning that has taken place prior to assessments** • **A focus on quality of presentation of solutions rather than getting the correct answer** • **Model solutions made available after assessments** • **Regular use of scaffolds and structured practice** • **Clearly defined success criteria and use of clear feedback model to show next steps to improve** • **Stretch activities built into each lesson**