



YEAR 13 FM Autumn TERM 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Core Pure 2: Ch 7 Methods in Differential Equations

Medium Term Planning – Core Pure 2: Ch 5, 6 Polar Coordinates, Hyperbolic Functions

Curriculum Intent

Core Pure 2: Ch 7 Methods of Differential Equations

Skills/Assessment Objective Links

Chapter 7: Methods in differential equations: **Chapter 7: Methods in differential equations**

FM30 I can solve first-order differential equations using an integrating factor			
FM31 I can solve second order homogeneous differential equations using the auxilliary equation			
FM32 I can solve second-order non-homogeneous differential equations using the complimentary function and the particular integral			
FM33 I can find particular solutions to differential equations using given boundary conditions			

Prior knowledge

- Differentiation (Pure Y2 Ch9)

Learning further developed in the future in:

- Integration (Pure Y2 Ch11)

Skills/Assessment Objective Links

Prior Knowledge

Current learning to be developed in the future

Core Pure 2: Ch 5 Polar Coordinates

Skills/Assessment Objective Links

Chapter 5: Polar coordinates: **Chapter 5: Polar coordinates**

FM20 I can understand and use polar coordinates			
FM21 I can convert between polar and Cartesian coordinates			
FM22 I can sketch curves with r given as a function of θ			
FM23 I can find the area enclosed by a polar curve			
FM24 I can find tangents parallel to, or at right angles to, the initial line			

Prior knowledge

- Differentiation (Pure Y2 Ch9)
- Integration (Pure Y2 Ch11)
- Argand Diagrams (Core Pure 1 Ch2)

Learning further developed in the future in:

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Core Pure 2: Ch 6 Hyperbolic Functions

Skills/Assessment Objective Links

	<p>Chapter 6: Hyperbolic functions: Chapter 6: Hyperbolic functions</p> <table><tr><td>FM25 I can understand the definitions of hyperbolic functions</td><td></td><td></td><td></td></tr><tr><td>FM26 I can sketch the graphs of hyperbolic functions</td><td></td><td></td><td></td></tr><tr><td>FM27 I can understand and use the inverse hyperbolic functions</td><td></td><td></td><td></td></tr><tr><td>FM28 I can prove identities and solve equations using hyperbolic functions</td><td></td><td></td><td></td></tr><tr><td>FM29 I can differentiate and interate hyperbolic functions</td><td></td><td></td><td></td></tr></table> <p>Prior knowledge</p> <ul style="list-style-type: none">• Integration (Pure Y2 Ch11)• Trigonometry (Pure Y2 Ch6)• Exponentials and Logs (Pure Y1 Ch14) <p>Learning further developed in the future in:</p> <ul style="list-style-type: none">•	FM25 I can understand the definitions of hyperbolic functions				FM26 I can sketch the graphs of hyperbolic functions				FM27 I can understand and use the inverse hyperbolic functions				FM28 I can prove identities and solve equations using hyperbolic functions				FM29 I can differentiate and interate hyperbolic functions			
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Spiritual, moral, social, and cultural development	<p>SMSC: Making choices, looking for patterns which may reflect the natural world, supporting and collaborating with each other, realisation that mathematics is an international language and making cultural links as we explore the history of mathematics.</p> <p>PSHE/British Values: Working collaboratively, being respectful during discussion and valuing contributions made by others</p> <p>Skills Builder: Key skills in numeracy used in all topic areas.</p>																				
Numeracy	Focus on key skills.																				
Literacy	<p>Vocabulary Tier 2: Command words displayed in the classroom and italicized/bold font used in shared resources/presentations. These are a constant focus in discussion and questioning,</p> <p>Vocabulary Tier 3: Title slide in all shared resource presentations show the key vocabulary for each topic.</p> <p>Reading: Underlining command words,</p> <p>Writing: Modelling solutions</p> <p>Oracy: Think, pair, share, discussion, verbal feedback (peer to peer), questioning, student modelling</p>																				
Becoming future ready	<p>Personal Skills: As a Mathematics student you will learn many skills: you will gain opportunities to listen to others supportively and to use questioning to develop your own understanding, you will learn how to cope with challenging questions and how to build up your resilience, you will get the chance to work on your own and with others. You will develop problem solving skills and you will learn how to break a problem down into smaller more manageable steps. You will learn how to collaborate with others when solving problems and you will learn how to articulate your solution to a problem.</p> <p>Employability: Mathematical skills are invaluable in the workplace. There are many transferable skills which are much valued by employers. Specific career paths for each topic are discussed at the beginning of each unit of work.</p>																				
Adaptation	<ul style="list-style-type: none">• By progressive questioning: exploring pupils’ understanding through interactive dialogue.• By outcome: different learners will produce different outcomes.• By resource: worksheets are clearly presented and accessible.• By intervention: by providing different levels of supervision and support.• By offering optional activities: In class or as homework, to extend learning.																				
QFT/SEND Provision																					
Implementation Curriculum Delivery	See curriculum intent																				
Learning Outcomes (Knowledge)																					

Assessment	Refer to assessment maps for formative and summative assessment opportunities.
Impact	Attainment and Progress – Refer to assessment results / data review documentation.