



YEAR 13 Summer TERM 1

'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Units 3, 10, 12 PURE Sequences & Series, Numerical Methods, Vectors

Medium Term Planning – Unit 8 APPLIED Further Kinematics

Curriculum Intent

PURE UNIT 3: Sequences & Series

Skills/Assessment Objective Links

Chapter 3: Sequences and series

- T** P15 I can find the n th term of an arithmetic sequence
- T** P16 I can prove and use the formula for the sum of the first n terms of an arithmetic series
- T** P17 I can find the n th term of a geometric sequence
- T** P18 I can prove and use the formula for the sum of a finite geometric series
- T** P19 I can prove and use the formula for the sum to infinity of a convergent geometric series
- T** P20 I can use sigma notation to describe series
- T** P21 I can generate sequences from recurrence relations
- T** P22 I can model real-life situations with sequences and series

Prior knowledge

- Continuing Sequences (GCSE)
- Logs (Y1 PURE Unit 14)

Learning further developed in the future in:

- Year 2 PURE Unit 10

Skills/Assessment Objective Links

Prior Knowledge

Current learning to be developed in the future

PURE UNIT 10: Numerical Methods

Skills/Assessment Objective Links

Chapter 10: Numerical methods

- T** P55 I can locate roots of $f(x) = 0$ by considering changes of sign
- T** P56 I can use iteration to find an approximation to the root of the equation $f(x) = 0$
- T** P57 I can use the Newton-Raphson procedure to find approximations to the solutions of equations of the form $f(x) = 0$
- T** P58 I can use numerical methods to solve problems in context

Prior knowledge

- Functions (GCSE)
- Differentiation (Y1 PURE Unit 12, Y2 PURE Unit 9)
- Sequences (Y2 PURE Unit 3)

PURE UNIT 12: Vectors

Skills/Assessment Objective Links

Chapter 12: Vectors

- T** P66 I can understand 3D Cartesian coordinates
- T** P67 I can use vectors in three dimensions
- T** P68 I can use vectors to solve geometric problems
- T** P69 I can model 3D motion in mechanics with vectors

Prior knowledge

- Vectors (Y1 PURE Unit 11)

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| | <p>Learning further developed in the future in:</p> <ul style="list-style-type: none">• Year 2 APPLIED Unit 8 <p><u>APPLIED UNIT 8: Further Kinematics</u></p> <p>Skills/Assessment Objective Links</p> <table><tr><td>Chapter 8: Further kinematics</td></tr><tr><td>T S36 I can work with vectors for displacement, velocity and acceleration when using the vector equations of motion</td></tr><tr><td>T S37 I can use calculus with harder functions of time involving variable acceleration</td></tr><tr><td>T S38 I can differentiate and integrate vectors with respect to time</td></tr></table> <p>Prior knowledge</p> <ul style="list-style-type: none">• Vectors (Y1 PURE Unit 11)• SUVAT (Y1 APPLIED Unit 9)• Differentiation (Y2 PURE Unit 9)• Integration (Y2 PURE Unit 11) | Chapter 8: Further kinematics | T S36 I can work with vectors for displacement, velocity and acceleration when using the vector equations of motion | T S37 I can use calculus with harder functions of time involving variable acceleration | T S38 I can differentiate and integrate vectors with respect to time |
| Chapter 8: Further kinematics | | | | | |
| T S36 I can work with vectors for displacement, velocity and acceleration when using the vector equations of motion | | | | | |
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| T S38 I can differentiate and integrate vectors with respect to time | | | | | |
| 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 | | | | |

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| 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. |