



YEAR 12 2023-2024 Summer TERM 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Unit 13-14 PURE Integration, Exponentials and Logarithms

Medium Term Planning – Unit 11 APPLIED Variable Acceleration

Curriculum Intent

Y1 PURE UNIT 13: *Integration*

Skills/Assessment Objective Links

Chapter 13: Integration

- T P76 I can find y given dy/dx for simple powers of x
- T P77 I can integrate polynomials
- T P78 I can find $f(x)$ given the derivative of $f(x)$ and a point on the curve
- T P79 I can evaluate a definite integral
- T P80 I can find the area bounded by a curve and the x -axis
- T P81 I can find areas bounded by curves and straight lines

Prior knowledge

- Simplifying expressions (Y1 Pure Unit 1)
- Differentiation (Y1 Pure Unit 12)
- Sketching curves (Y1 Pure Unit 4)

Learning further developed in the future in:

- Year 1 Applied Unit 11
- Year 2 Pure Unit 11

Skills/Assessment Objective Links

Prior Knowledge

Current learning to be developed in the future

Y1 PURE UNIT 14: *Exponentials and Logarithms*

Skills/Assessment Objective Links

Chapter 14: Exponentials and logarithms

- T P82 I can sketch graphs of the form and transformations of these graphs
- T P83 I can differentiate and understand why this result is important
- T P84 I can use and interpret models that use exponential functions
- T P85 I can recognize the relationship between exponents and logarithms
- T P86 I can recall and apply the laws of logarithms
- T P87 I can solve equations of the form
- T P88 I can describe and use the natural logarithm function
- T P89 I can use logarithms to estimate the values of constants in non-linear models

Prior knowledge

- Writing as single powers (Y1 Pure Unit 1)
- Scatter graphs (GCSE)

Learning further developed in the future in:

- Year 2 Pure Unit 3
- Year 2 Pure Unit 8

APPLIED UNIT 11: *Variable Acceleration*

Skills/Assessment Objective Links

	Chapter 11: Variable acceleration T S47 I understand that displacement, velocity and acceleration may be given as functions of time T S48 I can use differentiation to solve kinematics problems T S49 I can use calculus to solve problems involving maxima and minima T S50 I can use integration to solve kinematics problems T S51 I can use calculus to derive constant acceleration formulae
	Prior knowledge <ul style="list-style-type: none"> Differentiation (Y1 Pure Unit 12) Finding turning points (Y1 Pure Unit 12) Integration (Y1 Pure Unit 13)
	Learning further developed in the future in: <ul style="list-style-type: none"> Year 2 Applied Unit 8
Spiritual, moral, social, and cultural development	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. PSHE/British Values: Working collaboratively, being respectful during discussion and valuing contributions made by others Skills Builder: Key skills in numeracy used in all topic areas.
Numeracy	Focus on key skills.
Literacy	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, Vocabulary Tier 3: Title slide in all shared resource presentations show the key vocabulary for each topic. Reading: Underlining command words, Writing: Modelling solutions Oracy: Think, pair, share, discussion, verbal feedback (peer to peer), questioning, student modelling
Becoming future ready	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. 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.
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	
Learning Outcomes (Knowledge)	
	See curriculum intent

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