



YEAR 13 2023-2024 Autumn TERM 1

'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Units 1, 2, 5 PURE Algebraic Methods, Functions & Graphs, Radians

Medium Term Planning – Units 1, 2 APPLIED Regression, Correlation & Hypothesis testing, Conditional Probability

Curriculum Intent

PURE UNIT 1: Algebraic Methods

Skills/Assessment Objective Links

Chapter 1: Algebraic methods

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|---|
| T P1 I can use proof by contradiction to prove true statements |
| T P2 I can multiply and divide two or more algebraic fractions |
| T P3 I can add or subtract two or more algebraic fractions |
| T P4 I can convert an expression with linear factors in the denominator into partial fractions |
| T P5 I can convert an expression with repeated linear factors in the denominator into partial fractions |
| T P6 I can divide algebraic expressions |
| T P7 I can convert an improper fraction into partial fraction form |

Prior knowledge

- Factorising polynomials (Y1 PURE Unit 1)
- Algebraic Fractions (Y1 PURE Unit 7)
- Proof (Y1 PURE Unit 7)

Learning further developed in the future in:

- Year 2 PURE Unit 4
- Year 2 PURE Unit 11

Skills/Assessment Objective Links

Prior Knowledge

Current learning to be developed in the future

PURE UNIT 2: Functions & Graphs

Skills/Assessment Objective Links

Chapter 2: Functions and graphs

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| T P8 I can understand and use the modulus function |
| T P9 I can understand mappings and functions, and use domain and range |
| T P10 I can combine two or more functions to make a composite function |
| T P11 I know how to find the inverse of a function graphically and algebraically |
| T P12 I can sketch the graphs of the modulus functions |
| T P13 I can apply a combination of two (or more) transformations to the same curve |
| T P14 I can transform the modulus function |

Prior knowledge

- Changing the subject of the formula (GCSE)
- Sketching graphs (Y1 PURE Unit 4)
- Functions (Y1 PURE Unit 4)

Learning further developed in the future in:

- Year 2 PURE Unit 8

PURE UNIT 5: Radians

Skills/Assessment Objective Links

| Chapter 5: Radians |
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| T P26 I can convert between degrees and radians and apply this to trigonometric graphs and their transformations |
| T P27 I know exact values of angles measured in radians |
| T P28 I can find an arc length using radians |
| T P29 I can find areas of sectors and segments using radians |
| T P30 I can solve trigonometric equations in radians |
| T P31 I can use approximate trigonometric values when the angle is small |

Prior knowledge

- Exact trig values (Y1 PURE Unit 10)
- Using trig identities (Y1 PURE Unit 10)
- Solving trig equations (Y1 PURE Unit 10)

Learning further developed in the future in:

- Year 2 PURE Unit 6
- Year 2 PURE Unit 7
- Year 2 PURE Unit 10
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APPLIED UNIT 1: Regression, Correlation and Hypothesis Testing

Skills/Assessment Objective Links

| Chapter 1: Regression, correlation and hypothesis testing. |
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| T S1 I understand exponential models in bivariate data |
| T S2 I can use a change of variable to estimate coefficients in an exponential model |
| T S3 I understand and can calculate the product moment correlation coefficient |
| T S4 I can carry out a hypothesis test for zero correlation |

Prior knowledge

- Logarithms (Y1 PURE Unit 12)
- Interpreting equations of straight lines (Y1 APPLIED Unit 4)
- Hypothesis testing (Y1 APPLIED Unit 7)

APPLIED UNIT 2: Conditional probability

Skills/Assessment Objective Links

| Chapter 2: Conditional probability |
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| T S5 I can understand set notation in probability |
| T S6 I can understand conditional probability |
| T S7 I can solve conditional probability problems using two-way tables and Venn diagrams |
| T S8 I can use probability formulae to solve problems |
| T S9 I can solve conditional probability using tree diagrams |

Prior knowledge

| | |
|---|---|
| | <ul style="list-style-type: none"> • Probability (Y1 APPLIED Unit 5) • Venn notation (Y1 APPLIED Unit 5) • Conditional Probability (Y1 APPLIED Unit 5) |
| 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.