



YEAR 13 2023-2024 Autumn TERM 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Units 6, 7, 8 PURE

Trig functions & Identities, Trig formulae & Modelling, Parametric Equations

Medium Term Planning – Unit 3 APPLIED

The Normal Distribution

Curriculum Intent

PURE UNIT 6: Trig functions & Identities

Skills/Assessment Objective Links

Chapter 6: Trigonometric functions

T P32 I can understand the definitions of secant, cosecant and cotangent and their relationship to cosine, sine and tangent

T P33 I can understand the graphs of secant, cosecant and cotangent and their domain and range

T P34 I can simplify expressions, prove simple identities and solve equations involving secant, cosecant and cotangent

T P35 I can prove and use the further trigonometric identities

T P36 I can understand and use inverse trigonometric functions and their domain and ranges

Prior knowledge

- Solve trigonometric equations (Y1 PURE Unit 10)
- Proof with trig identities (Y1 PURE Unit 10)
- Solve trig equations in radians (Y2 PURE Unit 5)

Learning further developed in the future in:

- Year 2 PURE Unit 7
- Year 2 PURE Unit 9

Skills/Assessment Objective Links

Prior Knowledge

Current learning to be developed in the future

PURE UNIT 7: Trig formulae and Modelling

Skills/Assessment Objective Links

Chapter 7: Trigonometry and modelling

T P37 I can prove and use the addition formulae

T P38 I can understand and use the double-angle formulae

T P39 I can solve trigonometric equations using the double-angle and addition formulae

T P40 I can write expressions of the form $a \cos x + b \sin x$ in the forms $R \cos(x + \alpha)$ etc

T P41 I can prove trigonometric identities using a variety of identities

T P42 I can use trigonometric functions to model real-life situations

Prior knowledge

- Exact trig values in radians (Y2 PURE Unit 5)
- Solve trig equations (Y1 PURE Unit 10)
- Solving trig equations with identities (Y2 PURE Unit 6)

Learning further developed in the future in:

- Year 2 PURE Unit 8

PURE UNIT 8: Parametric Equations

Skills/Assessment Objective Links

Chapter 8: Parametric equations
T P43 I can convert parametric equations into Cartesian form by substitution
T P44 I can convert parametric equations into Cartesian form using trigonometric identities
T P45 I can understand and use parametric equations of curves and sketch parametric curves
T P46 I can solve coordinate geometry problems involving parametric equations
T P47 I can use parametric equations in modelling in a variety of contexts

Prior knowledge

- Changing the subject (GCSE, Y1 PURE Unit 14)
- Addition/double formulae (Y2 PURE Unit 7)
- Ranges of functions (Y2 PURE Unit 2)
- Intersections between circles and lines (Y1 PURE Unit 6)

Learning further developed in the future in:

- Year 2 PURE Unit 9

APPLIED UNIT 3: The Normal Distribution

Skills/Assessment Objective Links

Chapter 3: The normal distribution
T S10 I understand the normal distribution and the characteristics of a normal distribution curve
T S11 I can find percentage points on a standard normal curve
T S12 I can calculate values on a standard normal curve
T S13 I can find unknown means and/or standard deviations for a normal distribution
T S14 I can approximate a binomial distribution using a normal distribution
T S15 I can select appropriate distributions and solve real-life problems in context
T S16 I can carry out a hypothesis test for the mean of a normal distribution

Prior knowledge

- Probabilities of multiple events (Y1 APPLIED Unit 5)
- Binomial distribution (Y1 APPLIED Unit 6)

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	<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	
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.