

## Further Mathematics A level

### Curriculum Content

Half term	Year 12	Year 13
<b>Autumn 1</b>	Unit 1: Complex numbers (part 1) Unit 2a-b: Matrices Unit 1: Poisson and binomial distributions (part 1) Unit 1: Momentum and impulse (part 1)	Unit 2: Hyperbolic functions Unit 3a: Polar coordinates Unit 6: Hypothesis testing Unit 7: The Central Limit theorem Unit 5a: Elastic strings and springs and elastic energy
<b>Autumn 2</b>	Unit 2c-d: Matrices Unit 3: Complex numbers (part 2) Unit 2: Discrete probability distributions Unit 2a-b: Work, energy and power	Unit 3b: Polar coordinates Unit 4: Further algebra and functions (series) Unit 8: Chi squared tests (part 2) Unit 9a: Probability generating functions Unit 5b: Elastic strings and springs and elastic energy
<b>Spring 1</b>	Unit 4: Series Unit 5: Algebra and functions Unit 6: Proof Unit 3a-b: Poisson and binomial distributions (part 2) Unit 2c: Work, energy and power	Unit 5a-c: Further calculus Unit 9b-c: Probability generating functions Unit 6a(i): Elastic collisions in two dimensions
<b>Spring 2</b>	Unit 7: Vectors Unit 3c: Poisson and binomial distributions (part 2) Unit 4a(i). Chi squared tests (part 1) Unit 3a: Elastic collisions in one dimension	Unit 5d-e: Further calculus Unit 6a. Differential equations Unit 10a-b: Quality of tests and estimators Unit 6a(ii): Elastic collisions in two dimensions Unit 6b(i): Elastic collisions in two dimensions
<b>Summer 1</b>	Unit 8: Calculus Unit 4a (ii). Chi squared tests (part 1) Unit 3b: Elastic collisions in one dimension	Unit 6b-c: Differential equations Unit 10c: Quality of tests and estimators Unit 6b(ii): Elastic collisions in two dimensions
<b>Summer 2</b>	Unit 1: Complex numbers Unit 5: Geometric and negative binomial distributions Unit 4: Momentum and impulse (part 2)	

## Skills

The aims and objectives of this qualification are to enable students to:

- understand mathematics and mathematical processes in a way that promotes confidence, fosters enjoyment and provides a strong foundation for progress to further study
- extend their range of mathematical skills and techniques
- understand coherence and progression in mathematics and how different areas of mathematics are connected
- apply mathematics in other fields of study and be aware of the relevance of mathematics to the world of work and to situations in society in general
- use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts, and communicate the mathematical rationale for these decisions clearly
- reason logically and recognise incorrect reasoning
- generalise mathematically
- construct mathematical proofs
- use their mathematical skills and techniques to solve challenging problems that require them to decide on the solution strategy
- recognise when mathematics can be used to analyse and solve a problem in context
- represent situations mathematically and understand the relationship between problems in context and mathematical models that may be applied to solve them
- draw diagrams and sketch graphs to help explore mathematical situations and interpret solutions
- make deductions and inferences and draw conclusions by using mathematical reasoning
- interpret solutions and communicate their interpretation effectively in the context of the problem
- read and comprehend mathematical arguments, including justifications of methods and formulae, and communicate their understanding
- read and comprehend articles concerning applications of mathematics and communicate their understanding
- use technology such as calculators and computers effectively and recognise when their use may be inappropriate
- take increasing responsibility for their own learning and the evaluation of their own mathematical development.

## Assessment

This linear A level course from Edexcel is examined entirely by examination at the end of Year 13. It is however broken down into smaller sub-units which you can see based on the long-term curriculum content, and which are assessed by the end of each half term. These unit assessments inform whole-school progress key-ins and also help inform departmental intervention.

Further details can be found at <https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/mathematics-2017.html#tab-AlevelFurtherMathematics>