SUBJECT: A Level Further Mathematics **YEAR:** 12 and 13

HEAD OF DEPARTMENT: Mr Pugh

GROUPING POLICY: Years 12 and 13 are taught separately

SPECIFICATION: https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/mathematics-2017.html#%2Ftab-AlevelFurtherMathematics

COURSE CONTENT:

The Further Mathematics course consists of the following areas: Core Pure Mathematics, Further Statistics and Decision Mathematics. Some students may choose to only do AS Further Mathematics in Year 12 and not continue in Year 13.

Core Pure 1 Mathematics (Year 12) 9 Topics:

1. Complex Numbers
2. Argand Diagram
3. Series
4. Roots of Polynomials
5. Volumes of Revolution
6. Matrices
7. Linear Transformation
8. Proof by Induction
9. Vectors

Core Pure 2 Mathematics (Year 13) 8 Topics:

1. Complex Numbers
2. Series
3. Methods in Calculus
4. Volumes of Revolution
5. Polar Coordinates
6. Hyperbolic Functions
7. Methods in Differential Equations
8. Modelling with Differential Equations

Further Statistics 8 Topics:

1. Discrete Random Variables
2. Poisson Distributions
3. Geometric and Negative Binomial Distributions
4. Hypothesis Testing
5. Central Limit Theorem
6. Chi Squared Tests

7. Probability Generating Functions (Year 13)
8. Quality of Tests (Year 13)

Decision Mathematics 8 Topics:

1. Algorithms
2. Graphs and Networks
3. Algorithms on Graphs
4. Critical Path Analysis
5. Linear Programming
6. Route Inspection
7. The Travelling Salesman Problem
8. The Simplex Algorithm (Year 13)

What will homework look like?

Homework will be most frequently related to the assessment of the current topic or a recent topic being studied. This may take the form of set learning tasks, questions from the digital textbook, tasks from Integral website or questions from previous examination papers. Students will be encouraged to explore and evaluate different methods for revision to identify their preferred learning style.

ASSESSMENT

Students will set written examinations. Calculators can be used on each paper.
We recommend the Casio CG-50 Graphic Calculator. They will be able to use this in their A level Maths exam.

Examinations:

There will be 4 one hour and 30-minute examinations at the end of Year 13:

- Paper 1 assesses content from Core Pure Mathematics
- Paper 2 assesses content from Core Pure Mathematics
- Paper 3 assesses content from Further Statistics
- Paper 4 assesses content from Decision Mathematics

For AS there will be 2 one hour and 40 minutes exams at the end of Year 12:

-Paper 1 assess content of Core Pure 1 Mathematics
-Paper 2 assesses Year 12 content of Further Statistics and Decision Mathematics

ADDITIONAL INFORMATION

How can I support my child in this subject?
It is important that your child is doing work outside the classroom and practising all the topics. If a student misses a lesson, they should make sure that they have caught up with the missed work and practised the exercises before the next lesson.

How can I support my child with exams?

Students have access to a wide range of resources both electronic and also paper versions. Examination practice is essential to succeed at A level and students need to structure their revision so that they have time to practise their skills. In this subject students need to regularly work on

practice questions so any revision timetable must be well planned and adhered to. Independent study is very important but students should also be encouraged to seek help whenever necessary.