



PARK HIGH SCHOOL

Further Mathematics

Exam Board: Edexcel

Course Specification: 9FMO

Qualification obtained: Pearson Edexcel Level 3 Advanced GCE in Mathematics

Lead Teacher: Mrs Dassanayake
Mr Golding

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Subject Overview:

Students will study the Pearson Edexcel Level 3 Advanced GCE in Further Mathematics.

It is split into two components, 2 compulsory units and 2 optional units, further details of which are below.

Assessments are designed to reward students for demonstrating the ability to provide responses that draw together different areas of their knowledge, skills and understanding from across the full course.

Mathematical problem solving, argument, modelling language and proof are the overarching themes which should be applied along with associated mathematical thinking and understanding, across the whole of the detailed content. These overarching themes are inherent throughout the content and students are required to develop skills in working scientifically over the course of these qualifications.

Assessment percentage Exam: 100%

Progression Routes:

A-Level Mathematics allows students to develop various skills such as problem solving, analysing data, the ability to think logically and using and interpreting graphs. Mathematics can open many doors in terms of future opportunities and is a sought-after subject by many employers. As such, students can progress from this qualification into any further studies in Mathematics or a Mathematics-related subject such as Statistics, Physics, Engineering, Computer science, Economics, or Accounting and Finance.

GCSE Subject Exam results minimum requirements:

- A Grade 8 in *Mathematics*
- At least 6 other GCSE subjects with Grade 4s. This **MUST** include English Language.

Complementary learning:

The subject is very diverse and therefore compliments many subjects.

Student Quotes:

“The way in which the mathematics department help me understand topics are by letting me prove an equation rather than it being given to me.”

“The mathematics department provide a wide range of difficult questions such as STEP which helps to understand the topics in more depth.”

Year 12

Topics covered:

The normal A-Level Mathematics course is covered in its entirety in year 12 (see Mathematics page for further details)

Year 13

Topics covered:

The full Further A-Level Mathematics course is covered in its entirety in year 13. Please note that optional units may be subject to change.

Compulsory

Core Pure 1:

- Complex Numbers
- Argand Diagrams
- Series
- Roots of Polynomials
- Volumes of Revolution
- Matrices
- Linear Transformations
- Proof by Induction

Core Pure 2:

- Complex Numbers
- Series
- Methods in Calculus
- Volumes of Revolution
- Polar Coordinates
- Hyperbolic Functions
- Methods in Differential Equations

Optional

Further Pure 1:

- Vectors
- Conic Sections 1
- Conic Sections 2
- Inequalities
- The t-formulae
- Taylor Series
- Methods in Calculus
- Numerical Methods
- Reducible Differential Equations

Further Statistics 1:

- Discrete Random Variables
- Poisson Distributions
- Geometric and Negative Binomial Distributions
- Hypothesis Testing
- Central Limit Theorem
- Chi-squared Tests
- Probability Generating Functions
- Quality of Tests

Assessment

Is 100% Exam.

Unit Code	Unit Title	Guided Learning Hours	Assessment Details	Weighting
9FM0/01	Core Pure Mathematics 1	3hr per week	Written Examination: 80 marks, 1.5hr	25%
9FM0/02	Core Pure Mathematics 2	3hr per week	Written Examination: 80 marks, 1.5hr	25%
9FM0/3A	Further Mathematics Option 1	3hr per week	Written Examination: 80 marks, 1.5hr	25%
9FM0/4A	Further Mathematics Option 2	3hr per week	Written Examination: 80 marks, 1.5hr	25%

Additional information

Course specific equipment:

FX-991EX advanced scientific calculator

FX-CG50 graphic calculator

Essential Reading Material:

Edexcel AS and A level Further Mathematics Core Pure Mathematics Book 1/AS Textbook	ISBN: 978-1292183336
Edexcel A level Further Mathematics Core Pure Mathematics Book 2 Textbook	ISBN: 978-1292183343
Edexcel AS and A level Further Mathematics Further Statistics 1	ISBN: 978-1292183374
Edexcel AS and A level Further Mathematics Further Pure 1	ISBN: 978-1292183350

Recommended resources:

<https://www.mymaths.co.uk/>

<https://undergroundmathematics.org/>

<https://www.stem.org.uk/alevel-maths>

<http://www.thechalkface.net/resources/alevel/>

http://furthermaths.org.uk/alevel_resources

<http://mathsbank.co.uk/>

<https://integralmaths.org/>

<https://mrbartonmaths.com/students/a-level/>

<https://www.khanacademy.org/>

<https://www.legendsoflearning.com>

Enrichment:

Exploring Mathematics at Royal Holloway University - no cost

Mathematics in Action: informative, engaging, and interactive sessions, designed to complement the mathematics curriculum and inspire the students - costs approximately £23.50

UKMT Senior Challenge