

Subject:	Mathematics
-----------------	-------------

Teachers:	Mr Heighway Mrs Petford Mrs Wallace Mrs Roberts Mrs Patel
------------------	---

Exam Board:	OCR
--------------------	-----

NEWPORT GIRLS' HIGH SCHOOL

KS5 CURRICULUM OVERVIEW

Curriculum Intent & Organisation	
Studying the OCR mathematics A level will extend their range of mathematical skills and techniques but will also encourage students to use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts. Their ability to interpret solutions and communicate their interpretation effectively will also be improved.	
Examination Information	Facilitating Subject?
Mathematics examinations compile of three two hour papers taken at the end of the two year course, with no coursework. They are Paper 1: Pure mathematics, Paper 2: Pure mathematics and statistics and Paper 3: Pure mathematics and mechanics	Yes

Impact of Prior Learning from KS4
The development of algebra skills and reasoning feature heavily throughout the GCSE course which help build the foundations for the A level mathematics course. There is a crossover of topics at the beginning of the A level course, which help bridge the gap. Also students who complete the further mathematics level 2 qualification are well equipped to handle the more complex algebra/concepts that they face during the first year as they are more familiar with them. The summer work involves making sure their algebra skills are of the standard required and it helps identify areas that the teachers can support the students with early on.
Equipment Required for this course
<ul style="list-style-type: none"> • Standard classroom stationery • Calculator that has an iterative function and statistical distributions for example the Casio Classwiz FX-991EX • Own lined/squared paper

Subject: Mathematics

Teachers: Mr Heighway
Mrs Petford
Mrs Wallace
Mrs Roberts
Mrs Patel

Exam Board: OCR

Curriculum Implementation – Areas of Focus Year 12		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none"> • Preliminaries and proof • Surds and Indices • Quadratic functions • Equations and inequalities • Polynomials • Trigonometry • Differentiation • Co-ordinate geometry • Integration • Vectors • Binomial expansion • Exponentials and logarithms 	<ul style="list-style-type: none"> • Probability • Binomial distribution • Data collection • Data processing, presentation and interpretation • Hypothesis testing • Kinematics • Forces and Newton’s laws of motion • Variable acceleration • Graphs and transformations 	<ul style="list-style-type: none"> • Functions • Algebra • Sequences and series • Differentiation • Trigonometry

Curriculum Implementation – Areas of Focus Year 13		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none"> • Further differentiation • Trigonometric functions • Trigonometric identities • Integration • Parametric equations • Vectors • Differential equations • Numerical methods • Proof 	<ul style="list-style-type: none"> • Probability • Probability distributions • Hypothesis testing • Force and motion • Friction • Kinematics • Projectiles • Moments 	<ul style="list-style-type: none"> • Revision and exam practice

Subject:	Mathematics
-----------------	-------------

Teachers:	Mr Heighway Mrs Petford Mrs Wallace Mrs Roberts Mrs Patel
------------------	---

Exam Board:	OCR
--------------------	-----

Impact / Outcomes

Learning will be assessed throughout the course by:

- Homework tasks marked using the NGHS marking policy
- Regular unit assessments
- Mock examinations during the spring term in year 12, the summer term in year 12 and the spring term in year 13.

Homework / Self Study

Homework comprises of a variety of exercise sheets, questions from text books, past examination questions and online worksheets completed on the 'integralmaths' website. Students are expected spend their self-study time completing tasks from in lesson, working through the tasks on 'integralmaths' and make use of the online tutorials.

Ways to support learning

To support the delivery of the course we currently have access to the websites 'integralmaths' and 'mymaths', these allow students to independently work through tutorials on all the topics as well as copious amounts of practice questions with complete solutions to assess themselves. There are weekly lunchtime support sessions with teachers.

Field Work / Extension / Enrichment Opportunities

In the first term they are entered into the senior mathematics challenge, plus there is also the opportunity to take part in the team mathematics challenge, where they get to compete against other schools. Over the last few years during the summer term students have been taken to mathematics courses run at the University of Warwick to help provide insight beyond the curriculum. Students are also provided with support with their mathematics university entrance tests such as TMUA, MAT and STEP.

Next Steps

A mathematics A level will provide a good foundation for mathematical related courses such as mathematics, economics, finance, engineering, and accounting. The A level also improves the students' ability to solve complex problems and communicate with logical reasoning which are skills looked on favourably by universities and employers.

For more information, contact Mr A Heighway on a.heighway@nghs.org.uk