Subject:	Mathematics	Teachers:	Mr Heighway Mrs Wallace Mrs Roberts Mrs Patel Mrs Petford	Exam Board:	OCR

NEWPORT GIRLS' HIGH SCHOOL

KS4 Curriculum Overview

Curriculum Intent & Organisation

Completing the OCR GCSE mathematics course will allow students to develop their knowledge, skills and understanding of mathematical methods and concepts. They will also improve their mathematical reasoning, making deductions and being able to select and apply techniques to solve problems. The students are placed in sets following their performance in assessments throughout year 8, with a set A and two parallel set Bs.

Examination Information	EBACC?	P8 Bucket
Examined end of Year 11 with three 1.5 hour papers, with no controlled assessment.	Yes	Maths

Impact of Prior Learning from KS3

All of the topics covered in Key Stage 3 are developed further in the GCSE course. The KS3 curriculum has a strong focus on discovery and problem solving, which helps develop mathematical reasoning; a key component to success at GCSE, plus there is an emphasis on developing algebra skills.

Equipment Required for this course

- Standard classroom stationery
- Mathematical calculator
- Geometrical instruments

Curriculum Implementation – Areas of Focus Year 9

Autumn Term	Spring Term	Summer Term
• Number – calculations, properties • Algebra – expressions, formulae • Angles • Linear equations • Decimals/fractions • Sequences • Ratio and proportion	• Transformations • Straight line graphs • Percentages • Pythagoras' Theorem • Trigonometry – right angled triangles	• Simultaneous equations • Indices • Surds • Standard form • Construction and loci • Units and measures

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Curriculum Implementation – Areas of Focus Year 10

Autumn Term	Spring Term	Summer Term
• Probability • Area and perimeter • 3D shapes • Volume and surface area • Quadratic equations • Congruence and similarity • Graphs – real world, distance/time • Circle theorems	• Vectors • Data • Rounding - bounds • Trigonometry – sine/cosine rule • Algebraic fractions • Circle mensuration • Graphs – special types, sketching • Equations of circles and tangents	• Exponential functions • Inequalities • Non-linear simultaneous equations • Functions • Graph transformations

Curriculum Implementation – Areas of Focus Year 11

Autumn Term	Spring Term	Summer Term
• Numerical methods • Proofs • Graphs – real world, distance/time • Some students (mainly set a and b) will now follow the level 2 further mathematics qualification once they have finished the course	• Revision • Further algebra* • Geometry* • Trigonometry* • Further Trigonometry* • Matrices* • Calculus* *further mathematics topics	• Revision

Impact / Outcomes

Learning will be assessed throughout the course by:
- Half termly assessments
- Mock examinations during the summer term in year 9, summer term in year 10 and autumn term in year 11
- Weekly homework tasks marked following the NGHS marking policy
- Peer/self-assessed work in class

Homework

Homework comprises of a variety of exercise sheets, questions from text books, past examination questions and online worksheets completed on the 'mymaths' website.

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Ways to support learning

Students have access to the website 'mymaths', where they can work through tutorials independently as well complete the practice questions, which give instant feedback. They also have weekly lunchtime support sessions from teachers that they can take advantage of.

Field Work / Extension / Enrichment Opportunities

- Students have the opportunity to participate in the intermediate mathematics challenge in year 9, 10 and 11.
- In year 10 students have the opportunity to compete in a national team competition run by the AMSP where they compete against other schools
- In year 11 students have the opportunity to work through the level 2 further mathematics course – to extend their skills and prepare them better for the requirements at A level

Next Steps

The development of algebra skills and reasoning feature heavily throughout the course which help build the foundations for the A level mathematics course. The first section of A level is recap and extension of GCSE topics – this extends further with the further mathematics content considered.

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