

Subject: Mathematics

Teachers: Mr Heighway
Mrs Wallace
Mrs Roberts
Mrs Patel

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 the lower set containing fewer students to be able to give more individual support.		
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 year 8 are developed further in the GCSE course. In year 7 the 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		
<ul style="list-style-type: none">• Standard classroom stationery• Mathematical calculator• Geometrical instruments		
Curriculum Implementation – Areas of Focus Year 9		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none">• Number – calculations, properties• Algebra – expressions, formulae• Angles• Linear equations• Decimals/fractions• Sequences• Ratio and proportion	<ul style="list-style-type: none">• Transformations• Simultaneous equations• Percentages• Pythagoras' Theorem• Trigonometry – right angled triangles• Construction, loci and bearings	<ul style="list-style-type: none">• Indices• Standard form• Surds• Straight line graphs• Problem solving activities
Curriculum Implementation – Areas of Focus Year 10		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none">• Probability• Volume and surface area• Quadratic equations• Congruence and similarity• Graphs – real world, distance/time• 3D shapes• Circle theorems	<ul style="list-style-type: none">• Vectors• Rounding - bounds• Trigonometry – sine/cosine rule• Non-linear simultaneous equations• Graphs – special types, sketching• Equations of circles and tangents	<ul style="list-style-type: none">• Exponential functions• Inequalities• Data• Circle mensuration• Units and measures• Problem solving activities

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Curriculum Implementation – Areas of Focus Year 11		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none"> • Numerical methods • Proofs • Algebraic fractions • Graph transformations • Functions • Some students (mainly set a and b) will now follow the level 2 further mathematics qualification once they have finished the course 	<ul style="list-style-type: none"> • Revision • Further algebra* • Geometry* • Trigonometry* • Further Trigonometry* • Matrices* • Calculus* <p>*further mathematics topics</p>	<ul style="list-style-type: none"> • Revision
Impact / Outcomes		
<p>Learning will be assessed throughout the course by:</p> <ul style="list-style-type: none"> • 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.		
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		
<ul style="list-style-type: none"> • 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