



Mathematics

It is the aim of the Mathematics Department at Newent Community School and Sixth Form Centre to ensure that all students leave our school equipped with the knowledge, skills and methods they will need in employment and further education, alongside the ability to understand and use number in their everyday lives.

Mathematics forms part of the Core Curriculum for Key Stages 3 and 4. At Key Stage 5, students can study Mathematics at AS or A2 Level, with the extra option of Further Mathematics at AS or A2 Level for those who wish.

Mathematics is comprised of five main areas:

- Number
- Calculation
- Algebra
- Shape and Space
- Handling Data

Across and through these runs Using and Applying Mathematics, where students apply their knowledge, methods and skills to solve both structured and unstructured problems.

There are eight members of staff in the Department along with two other teachers who also teach in other departments.

Key Stage 3

Students are set on entry to Year 7, into set 1, 2, 3 or 4, using KS2 assessment data. This enables us to target the curriculum most effectively for students, with the aim of maximising progress through appropriate support and challenge for all. The sets are reviewed regularly to ensure that students are correctly placed.

The course is divided into units that take 2 to 3 weeks each. Formal assessment is carried out at the end of every three units in Years 7 and 8, and at the end of every two units in Year 9. The results of these assessments are used, in conjunction with Teacher Assessment, to inform setting of students.

Year 7 students have nine Mathematics lessons each fortnight, and Year 8 and 9 students have eight Mathematics lessons each fortnight.

Key Stage 4

At Key Stage 4 students are placed in ability sets from 1 to 8 right across the year group and have eight Mathematics lessons each fortnight. We follow a course leading to the Edexcel GCSE 2012 Maths A (Linear) exam. There are no controlled assessments throughout the course, and all assessment is from two papers in the summer of Year 12. Both papers cover material from the full syllabus. Paper 1 is answered using mental and written methods, and Paper 2 is designed specifically to be answered using a calculator. For this reason it is vital that all students have their own scientific calculator at the start of Year 10 so that they are familiar with using it accurately and efficiently.

For students going into Year 10 in September 2015 there will be a new GCSE course. We are currently reviewing the courses on offer to ensure we choose the one most suitable for our students. It is common



to all of the examination boards that students will be assessed with three examinations, each 1 hour 30 minutes long, one of which will be a non-calculator paper.

Throughout the course we assess the students using formal written assessments that allow us to measure progress and understanding but do not contribute to the final grade. These assessments take place after every three or four topics, and are roughly every seven or eight weeks.

Key Stage 5

At Key Stage 5 we are able to offer AS and A2 Level in both Mathematics and Further Mathematics, as well as support those students sitting STEP and MAT papers for university entrance to Mathematics courses. For Mathematics students have ten lessons each fortnight, split as 7 Pure and 3 Applied. For Further Mathematics students have eight lessons each fortnight, split as 4 Pure and 4 Applied.

Mathematics

Our course, AQA Mathematics 6360, allows students to start with the AS course in Year 12 and progress to the A2 course in Year 13 if they wish.

AS Mathematics comprises of three modules, split as two Pure modules and one Applied module. Pure Mathematics covers many skills, including algebraic methods, calculus, trigonometry, etc, and aims to develop skills which students may then use in the Applied modules. Applied Mathematics is the student's choice of either Statistics, comprising probability and data handling, and Mechanics, the Mathematics behind Physics and Engineering. As a rough guide, students studying Physics would be advised to study Mechanics, and students studying Biology, Geography, Economics or Psychology would be advised to study Statistics. All modules are assessed as separate written papers.

Students progressing to the full A Level course will study a further 3 modules in year 13, again split as two Pure and one Applied, following on from their choice for AS.

Further Mathematics

Any student wishing to take Further Mathematics would also have to take Mathematics as another option. Students thinking about studying a degree at university with a significant mathematical content are advised to consider this course. As well as developing an even greater range of skills in the core modules, it also allows students to experience a greater range of applied modules.

As with Mathematics, students are able to study AQA Further Mathematics 6360 for an AS qualification in Year 12, and continue this course in Year 13 to gain an A2 qualification.

AS Further Mathematics comprises of three modules; Further Pure 1, Decision 1 and Statistics 1. Further Pure 1 includes extra ideas, skills and techniques that are not covered in AS Mathematics, for example, matrices and complex numbers. Decision 1 is a self-study module, supported by staff where required. It covers optimising solutions to network problems, for example, what is the best route for a driver to take to deliver all his parcels in the minimum distance or time. Statistics 1 is the same unit as for the Mathematics AS and covers probability and data handling. All of these modules are assessed as separate written papers.

Students progressing to the full A Level course will study a further 3 modules in year 13; Further Pure 2, Statistics 2 and either Mechanics 3 or Decision 2. In these modules new mathematical skills and techniques are introduced and further developed. All of these modules are assessed as separate written papers.



Competitions

In all year groups, the most able students are invited to take part in the annual UKMT, United Kingdom Mathematics Trust, individual and team challenges. These are split into the age categories of Junior (Years 7 and 8), Intermediate (Years 9 & 10) and Senior (Years 11, 12 and 13). The individual challenges comprise 25 problem solving and mathematical puzzles. High scoring students are awarded bronze, silver or gold certificates, with the highest scoring students in the country going through into the next round. For team challenges we make up a group of 4 students who attend the local competition, with the winning team going forward to the next round.

Extending the most able

From Key Stage 4 onwards, for those students who are mathematical high fliers, or who wish to study or make a career in Mathematics or a related subject, we take part in activities hosted by the Further Mathematics Schools Project, FMSP. These events range from talks, interactive workshops and university visits to competitions and STEP/MAT paper support sessions.

Should you like to receive any additional information on this subject please contact Mrs J Wells, Head of Department via email admin@newent.gloucs.sch.uk.