THE MATHEMATICS DEPARTMENT AT SOLIHULL

The Mathematics Department at Solihull School consists of ten well-qualified, experienced and highly successful teachers who work together very well as a team and pass on their enthusiasm for the subject to the pupils they teach. All of the classrooms, which are clustered together, are equipped with interactive whiteboards or Clevertouch machines and each member of the department has their own room. The department meets regularly to share ideas and discuss issues. We are a social bunch and go out as a department at least twice a year.

Resources

The Department is very well resourced. A generous departmental budget allows textbooks for all year groups to be regularly renewed and updated. The School's ICT resources, and departmental maths resources, are outstanding and teaching and learning throughout the curriculum benefits from the use of ICT software and Internet applications. We have also just moved into a very spacious a new Maths Office.

Curriculum

In Years 7 - 9 the pupils all follow the same core curriculum of arithmetic, algebra, geometry, trigonometry and statistics, although the more able students are stretched with more complex examples. From Year 8 onwards the students are placed into sets in mathematics. The basic core curriculum we follow is the Mathematics Enhancement Programme (MEP) and this can be accessed online via the CIMT website. We also supplement the core curriculum with the Alpha, Beta and Gamma Extension Books. All pupils study iGCSE Edexcel Higher Level Mathematics and the top sets in Year 10 and Year 11 also study OCR Additional Maths. All pupils sit their iGCSE examination at the end of Year 11.

At A Level we have been following the MEI structured scheme for many years, and it has proved very satisfactory (although we have recently changed to Edexcel for the new A Level curriculum). We enter candidates for A Level Mathematics and A Level Further Mathematics, and occasionally A Level Further Mathematics (Additional). We have taught almost all the components of Core, Statistics, Mechanics, Decision and Numerical Methods. In addition we regularly prepare candidates for the Oxford Entrance Examination (MAT) and STEP papers in mathematics and have had many successful Oxbridge candidates for mathematics, engineering, or allied subjects.

Maths Support

To help those who find mathematics a difficult subject to grasp we run a Maths Clinic twice a week at lunchtime. Any pupil, in any year group, may come to this, and we provide individual help with whatever problems they may have. We also operate a Sixth Form Mentoring Scheme where a Sixth Form maths student is assigned to a pupil in Year 7 or Year 8 who has found elements of the course difficult. The mentor will sit with the pupil for 40 minutes once a week at lunchtime to give support.

Maths Enrichment

One of the ways in which we challenge the more able pupils is by taking part in the UK Mathematical Challenges and Olympiads. All those in the Thirds (Year 7) and the Shells (Year 8) take part in the Junior Mathematical Challenge in April, and a large number of them are awarded certificates. Those who do very well are invited to take part in the Junior Mathematical Olympiad. Some of the Fourth Form (Year 9) and Middle School (Year 10 and Year 11) pupils undertake the more demanding Intermediate Mathematical Challenge and a few of those go on to compete in the Intermediate Mathematical Olympiad. Some of the very able pupils in the School might be asked to join the Department's Junior Maths Olympiad Group (Maths Puzzle Club). This is a group of students from Years 7 - 9 which meet regularly to look at creative maths. We also run a monthly Puzzle Competition where prizes are awarded to the pupils with the best solutions. The school has been regional champions of the UKMT Team Maths Challenge for the past two years and has also won the UKMT Year 10 Maths Feast for the past two years.

All Further Mathematicians, and the top sets in Year 10 and Year 11, are entered for the Senior Maths Challenge and every year some students qualify for the British Maths Olympiad. Some of the very able students in the school might be asked to join the Department's British Maths Olympiad Group. This is a group of students from Years 10 - 13 which meets regularly to solve off-curriculum problems involving number theory, geometry and combinatorics. The School has been regional champions of the UKMT Senior Team Maths Challenge four times in the past six years.

Pupils are also invited to attend internal maths lectures that are given by the department and also by visiting lecturers (and sometimes by members of the Sixth Form). Recent lectures have included:

"What Computers Cannot Do" (Dr Alan Slomson, Leeds University)
"Fractals" (Mr Cureton, Maths Dept.)
"Proof of Goedel's First Theorem" (Mr Worrall, Maths Dept.)
"Nongentillions and other big numbers" (Mr Worrall, Maths Dept.)
"Geometry – Ancient and Modern" (Prof Sylvester, Kings College, London)

"Infinities" (Sixth Form student)

"Square Numbers" (Mr Cureton, Maths Dept.)

Statistical Paradoxes (Mr Carter, Maths Dept.)

"Relativity" (Mr Worrall, Maths Dept.)

The Further Mathematicians are also taken to maths conferences and maths lectures at university and are strongly encouraged to read around the subject. We have close links with both Oxford and Birmingham Universities and take keen students to several popular lectures each term. We also suggest that the students visit the mathematics section of the School Library which is extremely well stocked with a wealth of interesting maths-related books.

External Examinations

All pupils take iGCSE Higher Level Mathematics at the end of Year 11 - we follow the Edexcel Linear Course. Mathematics is the most popular subject in the Sixth Form and we currently have four sets in the Lower Sixth and five sets in the Upper Sixth. There are also a healthy number studying Further Mathematics – currently one set in the Lower Sixth and two sets in the Upper Sixth. We also offer Further Maths AS for students in the Upper Sixth. A significant number of students go on to Oxbridge, or other highly rated Russell Group universities, each year to pursue degrees which are directly related to mathematics. External examination results have been consistently strong and in the past five years are as follows:

Maths A Level	A*	A	B	C	D	E	U	% A* to B
2017	20	18	10	13	4			**74**
2016	13	13	14	4	5	1		**80**
2015	10	14	9	1	5			**85**
2014	17	18	12	7	2			**84**
2013	14	27	13	10	2			**82**

Further Maths A Level	A*	A	B	C	D	E	U	% A* to B
2017	4	5	1					**100**
2016	3	1	2					**100**
2015	3	1	3					**100**
2014	5	1	4					**100**
2013	8	2						**100**

Maths GCSE	A*	A	B	C	D	E	% A* to C	% A* to A
2017	42	43	21	1			100	**79**
2016	30	49	24	2			100	**75**
2015	39	50	30	5			100	**72**
2014	37	37	28	3			100	**70**
2013	35	47	21	1			100	**79**