THE MATHEMATICS DEPARTMENT AT SOLIHULL

The Mathematics Department at Solihull School consists of twelve 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 Clevertouch machines and each member of the department has their own room. Collaboration is a key ingredient to our success as a department and we meet regularly to share ideas and discuss issues. We are a sociable bunch and try to go out as a department at least twice a year. Further insight into mathematics at Solihull School can be found on our Twitter feed here: https://twitter.com/solschmaths?lang=en

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 new Maths Office.

Curriculum

In Years 7 – 9 pupils 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. We follow the Mathematics Enhancement Programme (MEP) and this can be accessed online via the CIMT website https://www.cimt.org.uk/projects/mep/index.htm. 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 also study for the AQA Certificate in Further Maths. All pupils sit their iGCSE examination at the end of Year 11.

In the Sixth Form we follow the Edexcel specification for Maths A Level, Further Maths A Level and Further Maths AS Level. 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 pupils 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 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 several go on to compete in the Intermediate Mathematical Olympiad. The more gifted and enthusiastic pupils in the School are invited to join the Department's Pi Club (Maths Puzzle Club). This is a group of pupils from Years 7 – 9 that meet regularly to discuss and tackle interesting and challenging problems. 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 several times and has gone on to compete with credit in the National Final in London.

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. Very able students in the school are invited 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 many times and has also competed well in the National Final in London.

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

"The Powers of Two" (Mr Macarthur, Maths Dept.)
"The Number Mysteries" (Prof Marcus du Sautoy, Oxford University)
"Fractals" (Mr Cureton, Maths Dept.)
"Proof of Goedel's First Incompleteness 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.)

"What Computers Cannot Do" (Dr Alan Slomson, Leeds University)

 "Relativity" (Mr Worrall, Maths Dept.)

The Further Mathematicians are taken to maths conferences and maths lectures at universities 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 recommend that students visit the mathematics section of the School Library which is extremely well stocked with a wealth of interesting books.

External Examinations

All pupils take iGCSE Higher Level Mathematics at the end of Year 11 – we follow the Edexcel Linear Course (4MA1). Mathematics is the most popular subject in the Sixth Form and we currently have four sets in the Lower Sixth and four sets in the Upper Sixth. There are also a healthy number studying Further Mathematics – currently two sets in the Lower Sixth and one set 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 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 iGCSE	9	8	7	6	5	4	% A* to C	% A* to A
2020	29	30	37	14	9	3	100	**79**
2019	26	22	36	10	10	3	100	**79**
2018	22	30	29	18	8	1	100	**75**
	A*	A	B	C	D	E		
2017	42	43	21	1			100	**79**
2016	30	49	24	2			100	**75**

Maths A Level	A*	A	B	C	D	E	U	% A* to B
2020	15	15	10	6	4			**80**
2019	7	15	10	7	1	3		**74**
2018	18	16	11	3	1	2	1	**87**
2017	20	18	10	13	4			**74**
2016	13	13	14	4	5	1		**80**

Further Maths A Level	A*	A	B	C	D	E	U	% A* to B
2020	3	3						**100**
2019	2	3		1				**83**
2018	1	3		1				**80**
2017	4	5	1					**100**
2016	3	1	2					**100**