



SALESIAN COLLEGE FARNBOROUGH

MATHEMATICS DEPARTMENT 2012

The Mathematics Department at Salesian College has enjoyed consistently high success in public examinations. The reasons for the success are the commitment and enthusiasm of its teaching staff, who consider the following points to be helpful in developing good attitudes and work habits among their students:

- Mathematics is an enjoyable area of the curriculum.
- Mathematics continues to evolve as a subject, and the relevance of the subject to today's business, scientific and technological developments is communicated.
- Mathematics is culturally and historically important.
- Mathematics is part of the whole curriculum. It plays a part in other subjects, and mathematical thinking is needed in solving problems in the wider world.
- Students are helped to understand the importance of the subject.
- Students communicate Mathematics in a variety of ways.
- Problem solving skills are developed in all years and assessed.
- Mental calculation skills are encouraged and regularly assessed.
- Student maturity is encouraged. That is, students are expected to be pro-active in seeking help when they don't understand the work. To provide opportunities for students to access extra support, a daily Maths Workshop is held every lunchtime, run by the department on a rota basis.
- Students need to develop a good base of knowledge and skills for further study in Mathematics and related subjects.
- ICT is an important tool in Mathematics and its effective use is encouraged where appropriate.

Years 7 to 9

In Year 7 students are taught in forms, and then they are placed in sets for Year 8 onwards. The sets follow a differentiated course, and are assessed formally at Christmas and in June. Some of the assessments are split between topic tests and/or a formal examination. Students in year7 also engage in a cross-curriculum statistics project. Staff use a variety of methods of informal, formative assessment, such as wipe-clean boards. There is a mentoring system in place to support students who experience some difficulties with the subject with sixth formers helping in class.

Years 10 and 11

The students follow the Edexcel GCSE, with students in sets 4 and 5 benefiting from the modular course. There are five sets in each year, and the last set is smaller so that students can benefit from a greater proportion of teacher time per student.

SALESIAN COLLEGE MATHEMATICS RESULTS 2008– 2011

GCSE

YEAR	No. entries	A*-C	A*	A	B	C	D	E	F and below
2008	100	97	26	33	23	15	3	0	0
2009	88	88	24	36	18	10	0	0	0
2010	98	98	32	39	16	10	0	0	0
2011	100	100	40	39	17	4	0	0	0

Sixth Form

The Edexcel modular A-Level is followed. Mathematics is a popular choice at Salesian College, and some students in each year choose to study Further Mathematics. Note that A* grades are only possible since 2010.

Year 12

A/S LEVEL

YEAR	No. entries	A*	A	B	C	D	E	U
2008	25		19	2	3	1	0	0
2009	30(2)		15(2)	4	2	1	4	0
2010	16(5)	(1)	6(3)	4(2)	3	1	1	1
2011	30(6)		10(4)	3(2)	4	8	2	3

Full A-Level by Further Mathematicians shown in brackets

Year 13

A Level Mathematics

YEAR	No. entries	A*	A	B	C	D	E	U
2008	14		7	2	2	1	1	
2009	16		12	4				
2010	23	6	11	2	2	1	1	
2011	15	2	7	3	3			

A Level Further Mathematics

YEAR	NO. entries	A*	A	B	C	D	E	U
2008	1		1					
2009	6		4					
2010	2 (1)	1	(1)		1			
2011	2	2						

Further Maths AS shown in brackets

MATHEMATICS IN THE SIXTH FORM

An A Level in Mathematics consists of six modules taken over two years. All examination papers are of one and a half hour's duration, and there is one paper per module. There is no coursework to any of the modules. All students study modules C1, C2, C3 and C4.

C1, C2, C3 and C4

These are the Pure Mathematics modules. Most of the Mathematics contained in the GCSE Syllabus is Pure Mathematics, unless it is Statistics. These four modules are graded for difficulty, and so C1 is easier than C2, and so on. In C1, several key areas such as Algebra, Co-ordinate Geometry and Trigonometry are developed and calculus is introduced at a simple level. All these topics are then built on in the following modules so the students possess the "toolkit" required for the Mechanics and Statistics modules.

M1

Mechanics is the mathematical study of the physical world. The first Mechanics module, M1, is a broad introduction to the main methods and principles, in which students learn about forces and how to resolve them. The other two modules then utilise these skills to work on more diverse applications, such as Circular and Harmonic motions.

S1

Again, the first Statistics module is an introduction to the basic techniques and concepts. Statistics in GCSE Mathematics will already have covered most of the content of this module, but further insight into the field makes it a great deal more interesting! Data is distributed in different patterns, according to its origins, for example sets of measurements belong to a different model to the numbers on lottery balls. The study of these patterns, called distributions leads us to be able to make sensible estimates of probable outcomes in the face of uncertainty.

Candidates require the six above modules to make an A Level. Although there are other modules, an A Level in Mathematics must contain C1, C2, C3 and C4. Therefore the A Level consists of modules C1, C2, C3 and C4+ M1 + S1

The table below illustrates the probable provision and timetables:

Year	Modules Offered		
12	C1	C2	M1
Examined:	Jan of Y12	June of Y12	June of Y12
13	C3	C4	S1
Examined:	June of Y13	June of Y13	Jan of Y13

Under this model, candidates would take three modules in Year 12, giving an AS Mathematics, followed by three modules in Year 13.

Resits

These are only encouraged if we feel that students are likely to improve their overall grade in the subject. Re-sitting of modules has to be in line with general school policy.

The candidate's final mark is aggregated from their best marks for each module, and their best marks are "cashed in" for the award of A Level Mathematics, or AS in Year 12.

A Level Further Mathematics

This option is a more advanced A Level in Mathematics and is usually undertaken by stronger mathematicians who either wish to enhance their mathematical understanding and experience, or who wish to pursue the subject at University, or another related subject such as Engineering. Students complete a total of twelve modules, six of these in Year 12. This gives these students a full A-Level at the end of Year 12. They then continue with the more advanced modules in Year 13. The model for Further Mathematics is as follows:

Year	Modules					
12 Examined	C1 Jan Y12	C2 Jan Y12	C3 June Y12	C4 June Y12	S1 Jan Y12	M1 Jan Y12
13 Examined	FP1 Jan Y13	FP2 June Y13	S2 Jan Y13	S3 June Y13	M2 Jan Y13	M3or D1 June Y13

A/S Mathematics

An A/S may be formed by taking three modules, and these are C1, C2 and M1. It is possible to do the six module Mathematics A Level and combine this with an A/S Further Mathematics.

MATHEMATICS IS ENJOYABLE!

The introduction of the Mathletics package has been very popular and we have improved the relevance of its curriculum year. Students in years 7 to 11 can access the activities both within school, in the ICT suites and in the library, but also from home. At the outset, each student has to design their avatar with which to compete, and then with each successfully completed stage, they can choose further items for their avatar. Through Mathletics, students have competed against students in the whole of the English-speaking world, some of them gaining places on the UK and world-wide leader boards.

We enter the UK Maths Challenges at all levels, and the students have gained many honours over the years. We have had several students through to the subsequent rounds, and at the time of writing this, we are putting together a team for the Junior UK Maths Team Challenge. Past honours have included students reaching the British Mathematical Olympiad and the European Kangaroo rounds where they have achieved prizes, medals and certificates of Merit. James Astles in Year 10 was one of forty students selected for Maths summer school in July 2011. Students from year 8 and 9 and the sixth form have also competed in the regional finals Team Challenges. In Year 7, all students may enter the Junior UK Maths Challenge, and in Year 8 we encourage students in sets 1 and 2 to enter. In Years 9 to 11, the students from the top two sets are entered for the Intermediate Maths Challenge, and all the sixth form mathematicians enter the Senior Maths Challenge.

Several students have been mentioned in the termly PSJ magazine for their problem-solving prowess. Students in all years 7 to 13 have submitted entries.

This term, we have enjoyed the inaugural UN World Statistics Day, with posters and challenges around the school.

The librarian runs a daily puzzle, and many of the mathematical ones have given students thought and enjoyment.