



KINGSTON GRAMMAR SCHOOL

FOUNDED 1561

$$P(r) = \binom{r}{n} p^r (1-p)^{n-r}$$

0.05



MATHEMATICS DEPARTMENT

AIMS OF THE DEPARTMENT

The strength of Mathematics at KGS has been established over a long period of time. However, we take nothing for granted and aim to build on our successes by meeting the needs of each student.

We are particularly keen to develop a firm foundation in basic numerical techniques, while naturally offering more stretching problems to the more able students. We also introduce ideas of algebra, shape and space, and data handling, following on from work already done at primary school. Mathematics provides many of the building blocks on which our modern, technological society is based. It is therefore essential that we give all of our students a solid grounding in the subject, preparing them to meet the many challenges which lie ahead. Mathematics is essentially hierarchical in nature, and so we need to allow students to develop at a rate with which they can cope, ensuring that foundations are properly laid.

LOWER SCHOOL

First and Second Year

At the end of the Autumn term in the First Year, after careful testing and assessment in the classroom, students are placed in sets, enabling each individual to work in the most helpful environment for their particular needs. We believe flexibility to be vital, allowing appropriate changes between these teaching groups as students develop.

The number of sets increases as students move towards IGCSE. This allows us to reduce the size of groups significantly and give even more individual attention.

IGCSE

Third, Fourth and Fifth Year

All Fifth Year students are entered for the Edexcel International GCSE (IGCSE) which we believe is pitched at the right level for our students. The top sets also study



the challenging OCR Additional Mathematics course.

A LEVEL

Lower and Upper Sixth

Mathematics is consistently the most popular option in the Sixth Form, both in its own right, and as a vital support for scientists, economists and geographers. Students are entered for the Edexcel Maths A Level. This popular board is well supported with extensive study material and resources.

Currently we have 130 students in 16 groups studying A Level Mathematics. We offer three courses:

1. A Level (Pure & Applied) Mathematics
2. A Level Mathematics with an AS in Further Mathematics
3. A Level Mathematics plus A Level Further Mathematics

Additional classes are run to support applications that require a Maths Admissions exam to be taken, such as at Oxbridge, Imperial and Durham. Support is also provided to those applying for courses other than Maths, but which have a Maths paper as part of the admissions process, i.e. Computer Science, Physics, Engineering and Economics.



PROBLEM SOLVING

Throughout the curriculum, we ask students to undertake investigations and open-ended exercises, helping them to understand and apply mathematics in its broader context and to develop logical thought and communication skills. Problem-solving techniques are encouraged through the regular use of puzzles and lesson starters such as:

A palindromic number is a number that reads the same when the order of its digits is reversed. What is the difference between the largest and smallest five-digit palindromic numbers that are both multiples of 45?

EXTRA SUPPORT

Staff are always available to assist students with work during break or lunch. We also run a twice-weekly Maths Clinic for all age groups, at which we offer more extended help and support for any pupils who feel it would be beneficial.

Older students take part in a very successful mentoring scheme as part

of the Community Service in which they offer help to younger students in the lessons or on a one-to-one basis at lunchtimes.

The Department occupies six classrooms in the QEII building. Interactive displays and internet access in each room enable us to develop still further the integration of ICT into our teaching. We use our ICT suites for lessons involving software such as AUTOGRAPH and internet sites such as AB Maths, My Maths and Integral. Class sets of iPads are used in lessons when appropriate.

COMPETITIONS

KGS takes part in the London-based Hans Woyda Maths Competition (named after a former Head of Maths at KGS) competing against teams from other local schools.

Students from a variety of sets are entered for local and national competitions including The UK Schools Maths Challenges (Junior, Intermediate and Senior) and the British Maths Olympiads. We also enter team challenges for the UKMT Team Challenges with older students helping to train younger teams.

EXAM RESULTS 2018

	%A*	%A	%B
A Level Mathematics	40	37	14
A Level Further Maths		80	20
IGCSE Mathematics	76	19	4

EXCELLENT TEACHING

We are most fortunate to have a team of highly qualified mathematicians who enjoy communicating their love for, and appreciation of, the elegance and applicability of mathematics. The subject is taught using a careful blend of the best of both modern and traditional approaches tailored to the needs of each student. We do, of course, adhere to the National Curriculum as a minimum syllabus and our own scheme of work reflects this approach. However, we feel it is important that it is seen not as a straitjacket, but as a helpful guide to good practice.

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