KING EDWARD VI
HANDSWORTH GRAMMAR
SCHOOL FOR BOYS

KING EDWARD VI
ACADEMY TRUST
BIRMINGHAM

HGS MATHS

SIXTH FORM OPEN EVENING

www.hgsmaths.com

Curriculum

We are proud to say that we have created and fully resourced our own curriculum. Knowing the needs and aspirations of our students, we felt that a standard textbook alone does not best meet the needs of our talented mathematicians. We have carefully sequenced and resourced our own offering, which is delivered through student booklets we provide to all students, all of which can be accessed on hgsmaths.com.

As well as offering A Level Further Maths, we also enrich our offering by promoting the prestigious UKMT Maths Senior Challenge and offering STEP/TMUA/MAT support.

HGS's top students leave here with A*s in both Maths and Further Maths, making their way to the country's, indeed the world's, most prestigious Mathematics, Computer Science, and Engineering departments. We are proud to support students on this path by providing dedicated assistance to the growing number of students who sit entrance exams for Oxbridge and other top universities. We are one of the very few schools that provide such support within the curriculum.

Mathematics is the largest A Level subject in our school and a popular choice for university studies, showcasing our success.

Entry Requirements

To the side is an outline of the possible **routes** you can take at HGS which involve some form of mathematics.

- **We follow the Edexcel specification for both A levels.**
- **We subscribe and give you access to Pearson textbooks.**

Option	GCSE grade required	Timetabled lessons	Considerations	Exams	Qualification	University
A level maths	Grade 7, 8, or 9 at GCSE *Students with grade 6 will find A level maths particularly challenging	11 per fortnight	High level of challenge New, linear course – no resit opportunities	3 two hour exams at the end of Year 13 (4 hours pure maths, one hour statistics and one hour mechanics)	A level mathematics	Good on all degree applications – 'a facilitating subject' Essential for engineering, science, computing, economics and mathematics
A level maths + A level further maths	Grade 9 at GCSE *Students with grade 7 will find further maths challenging	22 per fortnight	Maths takes up two A level options (typical combination: Maths, Further Maths, Physics and other) Only for maths lovers wishing to study a related discipline at university Very high level of challenge	3 two hour exams at the end of Year 13 Plus a further 3 two hour exams at the end of Year 13	A level mathematics A level further mathematics	Will enhance applications for top universities for engineering, physics, computing and mathematics

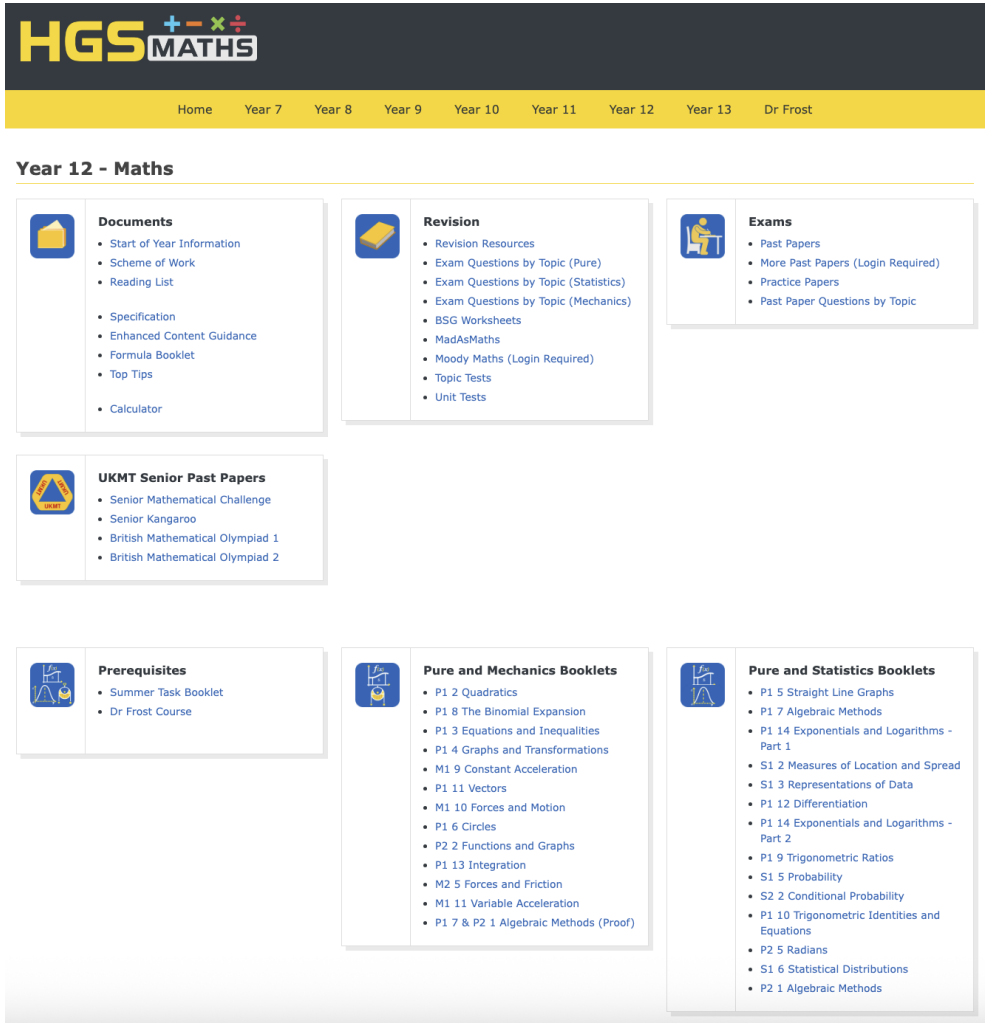
Online Resources

HGS Maths

- We have created our own website, exclusively designed to host all our booklets, revision resources, and past papers.

Dr Frost

- We are also a Dr Frost school and utilise this website extensively for classwork and homework.
- All our curriculum is mapped to Dr Frost via the courses page, providing students with the opportunity to consolidate their learning and revise at home.



Enrichment and Support

There are two break time clubs running for Mathematics.

Enrichment

Prepare for the Junior, Intermediate, or Senior UKMT Challenges by:

- Practising questions from the challenges
- Tackling other advanced problem-solving tasks

Support

Get help with:

- Dr Frost retrieval homework
- Past paper questions
- Any maths topic you don't understand

You can also use this time and space to just do maths.

University and Careers

A good grade in A Level Mathematics is essential if you wish to pursue the following subjects at university:

- Mathematics
- Physics
- Engineering
- Computer Science
- Economics

For subjects like medicine, chemistry, biology, psychology, and finance, A Level Mathematics is advantageous.

Careers that involve mathematics include:

Mathematician	Data Scientist
Civil Engineer	Actuary
Astronomer	Meteorologist
Physicist	Pilot
Chemical Engineer	Investment Banker

Reasons to choose A Level Mathematics

Good reasons to choose A Level Mathematics

"I really enjoy maths"

"Maths is challenging, and I like a challenge"

"I like the idea of spending lots of time practising maths outside of school"

"I'm really good at maths and I have strong algebra skills"

"I'm really interested in learning advanced topics like calculus"

"Maths is a vital part of my chosen pathway"
(e.g. engineering, economics, physics, mathematics)

Bad reasons to choose A Level mathematics

"My parents told me to"

"I like the maths teachers"

"My friends are doing it"

"I don't like maths, but I think it's a sensible thing to choose"

"It's a facilitating subject so it will help me get on to any university course."

"I'm not great at algebra, but I get enough marks on other topics to do well in maths exams"

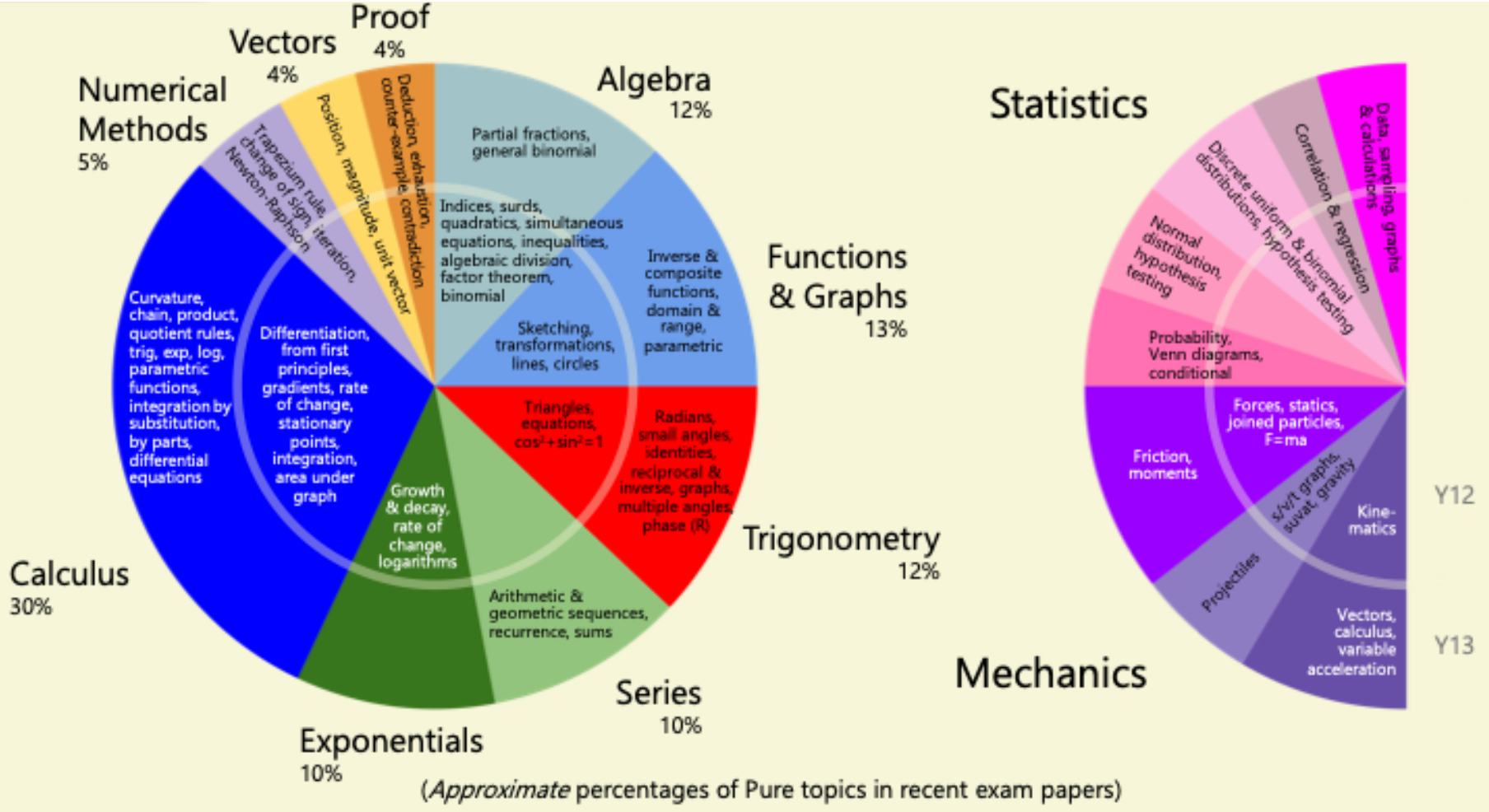
GCSE Grade vs A Level Grade (all Edexcel candidates in 2019)

		A level grade				
GCSE Grade	**Percentage of A level entrants**	**A***	**A**	**B**	**C**	**D or below**
9	25%	45%	37%	11%	5%	2%
8	39%	7%	29%	25%	21%	17%
7	27%	1%	9%	15%	26%	49%

Modal grades are highlighted.

Only 7% of students taking A level got a Grade 6 at GCSE Maths, and of those students 94% ended up with a D or below. This is why we don't allow students to do A level maths without a GCSE Grade 7 or above.

A Level Mathematics Syllabus



2025 A Level Results

- 53% — Grade A* – A
- 69% — Grade A* – B
- 88% — Grade A* – C
- 100% — Grade A* – E

Problems

1) Solve this… it should only take a minute!

$$\frac{20x^4y^2z^3}{7xy^5} \times \frac{14y^3}{40x^2z^3}$$
$$= 5$$

2) Work out the value… it should only take a minute!

$$5\left(\frac{5\left(\frac{\sqrt{5}+5}{5}\right)}{5^{5^{5-5}}}\right)-\sqrt{5}$$

If you looked at these problems and really wanted to have a go, and you enjoyed solving it, please consider doing maths at A level.

If you looked at these problems and thought ‘I can’t be bothered’ or ‘No thanks’ or ‘I don’t know where to start’, A level maths might not be the right course for you.