



# Department/subject: Mathematics

Through the study of Mathematics the central aim of the department is to develop numeracy and logical reasoning skills, and to teach students to apply these to solve real-world problems.

## Exam board

Edexcel GCSE Mathematics 1MA1

## Key Stage 3

In Years 7 to 9 students largely follow the CIMT Mathematics Enhancement Programme, covering all the major topic areas in Number, Algebra, Shape & Space and Data Handling.

We aim to develop their visual understanding of the concepts studied, drawing links between different strands of the curriculum. We want our students to see the subject this way rather than as a list of separate and independent rules to be memorised.

Students are encouraged to be independent and ambitious in lessons if they are able to - picking their own starting point, working through at their own pace, and pushing forward onto the next skill level when they are ready.

## Key Stage 4

At GCSE, we follow the Edexcel course. Students take either the Foundation tier (which covers grades 1 to 5), or the Higher tier (which covers grades 4 to 9). An approximate spread of topics in each tier is shown in the table below.

The exam consists of three 1 hour 30 minute papers, usually set a week apart. Paper 1 is the non-calculator paper, and in Papers 2 and 3 students are allowed to use calculators. Each paper consists of 80 marks and counts equally towards the final grade. There is no official difference between Papers 2 and 3, but some question types tend to appear in the same paper from one year to the next.

Number	Algebra	Ratio, Proportion and Rates of Change	Geometry and Measures	Statistics and Probability
Calculations involving different forms of number, including applied to real life problems.	Using lettered notation to solve problems, and describe relationships between different changing values.	Using known relationships to calculate different values, follow recipes, and calculate changing values over time, such as speed.	Spatial awareness, the ability to describe and use properties of different shapes, and calculations of exact sizes in real life problems.	The practice of summarising and finding patterns in sets of real-world information, and making calculated predictions based on the information available.
Foundation Tier (Grades 5-1): 25% of final grade	20% of final grade	25% of final grade	15% of final grade	15% of final grade
Higher Tier (Grades 9-4): 15% of final grade	30% of final grade	20% of final grade	20% of final grade	15% of final grade

## Curriculum Enrichment Opportunities

- UKMT Junior Mathematics Challenge (Years 7 and 8, in April) .
- UKMT Intermediate Mathematics Challenge (Years 9 to 11, in February) .
- UKMT Team Mathematics Challenge (four students from Years 8 and 9, in March) .
- An Inter-House School Mathematics Relay .
- There will also be other competitions run by the department, and opportunities to attend masterclasses and conference days at various times through the year.

## Careers

Careers can include: in Finance, Science and Engineering, Design, Medicine, Computing, Computer Modelling, Logistics and Project Management, Data Management, Market Research - the list goes on! Any industry you can think of will have opportunities requiring strong mathematical skills.

## Online resources

### Key Stage 3:

IXL, for revision and homework - <https://uk.ixl.com/>

CIMT Mathematics Enhancement Programme (on which our Key Stage 3 curriculum is based) - <https://www.cimt.org.uk/projects/mep/index.htm>

### Key Stage 4:

Maths Kitchen, for personalised revision and homework (used mainly by Key Stage 4, but suitable for many Key Stage 3 pupils) - <https://mathskitchen.com/>

### GCSE Maths Formulae

- [https://qualifications.pearson.com/content/dam/pdf/GCSE/mathematics/2015/misc/U219\\_GCSE\\_Maths\\_Poster.pdf](https://qualifications.pearson.com/content/dam/pdf/GCSE/mathematics/2015/misc/U219_GCSE_Maths_Poster.pdf)

### General:

UKMT for the Mathematics Challenges and other enrichment opportunities

- <https://www.ukmt.org.uk/>

The Parallel Maths Project by Simon Singh - enrichment and extension problems for all secondary students - <https://parallel.org.uk/>

The Royal Institution Mathematics Masterclass Network - not just events but problems that can be worked through at home

- <https://www.rigb.org/education/masterclasses/our-networks/secondary-network>