Kimberley
School

A Level
MATHS

SIXTHFORM
MATHS

East Midlands
Education Trust

SUBJECT BOOKLET
2024-2026

What is Mathematics?

Over 5,000 years ago Mathematics evolved from basic numeracy into a new language to precisely describe the universe around us and as a tool for man-kind to make its mark on the planet. From the Great Pyramids of Giza to the Apollo Space Program, Mathematics has been at the heart of humanities most impressive achievements. In our modern society it plays an essential role in Economics, Engineering, Science & Technology. In the past 500 years, Mathematics has extended past the confines of physical reality and now represents an exciting frontier for the realms of human thought.

Mathematics at A-Level is both challenging and interesting as it builds on the topics you have met at GCSE and develops the ideas further. It is a highly sought after qualification in the workplace and in Higher Education.

Higher Education courses or careers that list A-Level Mathematics as essential or highly desirable include:

- Computing
- Economics
- Architecture
- Accountancy
- Psychology
- Biology

- Finance
- Medicine
- Engineering
- Actuary
- Chemistry
- Physics

and of course, Pure Mathematics itself.

Who is it for?

A-level Mathematics is for anyone who has a proven track record in the subject at GCSE. Minimum entry is GCSE grade 6, though ideally you would have gained a grade 7, 8 or 9. It is particularly suited to people who enjoy problem solving, computation and logical reasoning including proof. Importantly, anyone taking the course must have a comprehensive understanding of GCSE Algebra topics and be willing to spend considerable time independently improving their mathematical fluency and reasoning.

What will I study?

As of 2017 the specification of content and methods of assessment have changed for all exam boards across England. Consequently, all exam boards have identical content (excluding the large data set) and similar methods of assessment. The Kimberley Mathematics Department enters students for the AQA A-Level Mathematics (7357) course, please see AQA.org.uk for more information and updates.

The course is made up of:

First Year

First year specifications in Mathematics must require students to demonstrate the overarching knowledge and skills contained in sections **OT1**, **OT2** and **OT3**. These must be applied, along with associated mathematical thinking and understanding, across the whole of the detailed content in sections **A** to **R.**

- OT1: Mathematical argument, language and proof
- OT2: Mathematical problem solving
- OT3: Mathematical Modelling
- A: Proof
- B: Algebra and functions
- C: Coordinate geometry in the (x,y) plane
- D: Sequences and series
- E: Trigonometry
- F: Exponentials and logarithms
- G: Differentiation
- H: Integration
- J: Vectors
- K: Statistical sampling
- L: Data presentation and interpretation
- M: Probability
- N: Statistical distributions
- O: Statistical hypothesis testing
- P: Quantities and units in mechanics
- Q: Kinematics
- R: Forces and Newton's laws

For more details about first year Mathematics content please speak to a member of our KS5 team or visit AQA.org.uk

A-Level: Second Year

A-level specifications in Mathematics require that students meet the first year specifications and content detailed above and to a more advanced level. Additional content for the A-level is the following sections;

- I: Numerical methods
- S: Moments

For more details about A-Level Mathematics content please speak to a member of our KS5 team or visit AQA.org.uk.

How will I be assessed?

Changes in A-level assessment have meant that all courses are now linear meaning that students will sit all examinations at the end of the A2 course. To prepare students for this we have a rigorous scheme of assessment which allows us to provide effective and individual support for every student. Assessment takes the following forms;

- Assessed homework at the end of each content section
- In-class testing on all covered content at the end of each half term
- A mock exam during 6th Form Mock Exam Week (see school calendar)
- End of year examinations (see details below)

For the end of first year examination, students will be expected to pass Paper 1 & Paper 2 detailed as follows;

Paper 1	Paper 2
Content: Sections A, B, C, D, E, F, G, H, J, P, Q, R.	Content: Sections A, B, C, D, E, F, G, H, K, L, M, N, O.
Duration: 1 hour 30 minutes	Duration: 1 hour 30 minutes
Weighting: 50% of first year grade	Weighting: 50% of first year grade
Questions: A mix of questions from short, single-mark questions to multi-step problems.	Questions: A mix of questions from short, single-mark questions to multi-step problems.

For the A-level Mathematics qualification in June 2024 students will sit Paper 1, Paper 2 & Paper 3 detailed as follows;

Paper 1	Paper 2	Paper 3
Content: Sections A, B, C, D, E, F, G, H, I.	Content: Any content from Paper 1 and from sections J, P, Q, R, S.	Content: Any content from Paper 1 and from sections K, L, M, N, O.
Duration: 2 hours	Duration: 2 hours	Duration: 2 hours
Weighting: 33⅓ % of A-Level	Weighting: 33⅓ % of A-Level	Weighting: 33⅓ % of A-Level
Questions: A mix of questions from short, single-mark questions to multi-step problems.	Questions: A mix of questions from short, single-mark questions to multi-step problems.	Questions: A mix of questions from short, single-mark questions to multi-step problems.

In accordance with the DfE 's *Mathematics: AS and A-level content* document, students on both courses will have to become familiar with one or more large data set(s) in advance of the final assessments. This requirement is common to all exam boards.

For more information please see Mr R. Jolly