

*Department Title: Mathematics*

*Exam Boards: EDEXCEL*

*Department Vision:*

The **principal aim** of the Mathematics Department at Beths Grammar School is to maximise the development of the mathematical education of every pupil during their seven years with us, and realise that such learning and development is a partnership between parents, teachers and pupil.

Mathematics is creative as well as functional. The Department aims to teach in a meaningful context, whilst providing opportunities for the pupils to use their skills creatively through problem solving and investigation. Each teacher endeavours to provide a variety of experiences and activities within the programme of study and during a lesson where possible. The Department uses and supports the rewards system, records achievement and sets targets for each pupil which relate directly to their ability.

*Year 7: Term 1*

- Four Rules of numbers
- Statistical diagrams
- An introduction to Algebra
- Co-ordinates and equation of a line
- Metric measure

*Year 7: Term 2*

- Angles
- Solving simple equations
- Averages
- Percentages and fractions
- Graphical transformations

*Year 7: Term 3*

- Probability
- Mensuration including area and volume
- Construction
- Polygons
- Indices

*Year 8: Term 1*

- More complex Fractions and Percentages
- Solving linear equations
- Transformations
- Accuracy powers and roots

*Year 8: Term 2*

- Graphs of straight lines and conversion graphs
- Probability of more than 1 event
- Angle problems
- Ratio

*Year 8: Term 3*

- Trial and improvement to solve equations
- Complex mensuration
- Pythagoras
- Simultaneous equations
- Complex statistical diagrams

*Year 9: Term 1*

- Simple and compound interest
- Algebraic manipulation
- Quadratic equations
- Similar shapes
- Ratio and proportion
- Sequences

*Year 9: Term 2*

- Trigonometry
- Probability with tree diagrams
- Graphical solution to equations
- Loci
- Sectors and segments of circles
- Cumulative frequency

*Year 9: Term 3*

- We start the higher GCSE scheme of work.*
- Algebra inc Quadratics
  - SUVAT formulas
  - Compound measure
  - Direct and inverse proportion

*Year 10: Term 1*

- Re-arranging formulas
- Probability
- Spread of data including box plots
- Upper and lower bounds
- Graphs of equations
- Inequalities

*Year 10: Term 2*

- Congruent shapes and factors
- Prime factor form
- Complex mensuration
- Histograms
- Complex quadratics
- Circle theorems

*Year 10: Term 3*

- Algebraic sequences
- Rational and irrational numbers
- Vectors
- 3D Trigonometry
- Algebraic fractions

<p><i>Year 11: Term 1</i></p> <ul style="list-style-type: none"> <li>Hypothesis testing</li> <li>Transposition of graphs</li> <li>The equation of a circle</li> <li>Revision techniques</li> </ul>	<p><i>Year 11: Term 2</i></p> <p><i>This term is devoted to revision for the students GCSE higher examination.</i></p> <p><i>We look at exam questions on specific topics that students find difficult and practise past exam papers</i></p>	<p><i>Year 11: Term 3</i></p> <p><i>Students refine their exam techniques and continue to work through past papers. Sitting the three GCSE papers this term</i></p>
<p><i>Year 12: Term 1</i></p> <p><i>We start the Year 1 A level mathematics course covering the content of the year 1 pure section of the course</i></p> <p><i>Further mathematicians cover all of the A level maths content of year 1</i></p>	<p><i>Year 12: Term 2</i></p> <p><i>We complete the year 1 pure content and then cover the Statistics and mechanics sections of the year 1 course.</i></p> <p><i>Further mathematicians cover all of the A level maths content of year 2</i></p>	<p><i>Year 12: Term 3</i></p> <p><i>They are formally assessed on the year 1 course and then we begin the year 2 pure subject content.</i></p> <p><i>Further mathematicians start the year 1 Further maths pure content</i></p>
<p><i>Year 13: Term 1</i></p> <p><i>They cover the remainder of the year 2 pure mathematics content.</i></p> <p><i>Further mathematicians complete all the year 1 further content and start year 2</i></p>	<p><i>Year 13: Term 2</i></p> <p><i>They cover the year 2 Statistics and Mechanics content, and begin doing past papers.</i></p> <p><i>Further mathematicians finish the year 2 content and start going through past papers</i></p>	<p><i>Year 13: Term 3</i></p> <p><i>All students work through past papers for their A level mathematics and A level Further mathematics examinations.</i></p>
<p><b>Assessment:</b></p> <p><i>In Year 7 when students enter Bets they take a base line test to give us a clear idea of there starting level.</i></p> <p><i>They then have 3 formal tests each year in years 7 to 9. The first before the Christmas break the second before Easter and the third at the end of the academic year. These are all GCSE examinations and consist of a Non calculator and a calculator paper. Papers are marked using the exam boards mark schemes and GCSE grades given using Exam board grade boundaries. In years 8 and 9 group moves will also occur.( In year 7 students are taught in form groups and then set in year 8)</i></p> <p><i>We start the GCSE course after Easter in year 9 and assess students progress throughout the course at the end of year 9, At Christmas in year 10 and at the end of year 10 and then the Mock exams in October and February. These exams are all GCSE Higher examinations marked and graded using Exam board criteria.</i></p> <p><i>They take their GCSE exam in the summer of year 11.</i></p> <p><i>At A level students are tested throughout the two year course with formal assessments at the end of year 12 for both A level maths courses.</i></p> <p><i>Taking the final three exams at the end of year 13.</i></p>		
<p><b>Related Careers:</b></p> <p><i>Mathematics is a prized and valuable qualification. It provides the necessary support for many university courses, including medicine, human geography, biology, architecture, engineering, accounting, psychology, sociology, computer science and environmental studies.</i></p> <p><i>Further mathematics is required by a number of Universities for Science and Mathematics courses.</i></p>		
<p><b>Useful websites:</b> My Maths, Exam solutions, Mathscoach, Mathswatch, GCSE bitesize, Hegarty maths</p>		