

Curriculum Intent, Implementation and Impact

Subject: A Level Mathematics – Edexcel 8MA0

Year group: 12

Lessons per fortnight: 8

Intent:

The A Level Maths curriculum is intended to provide students with a broad range of skills across Pure Maths and Applied Maths which covers Statistics and Mechanics. These skills are then pulled together to work on problem solving questions that are modelled on real life scenarios. Students are able to see how the study of mathematical skills are used across a range of subjects and in real life scenarios.

The Buckingham school virtues are emphasised throughout the A level programme.

Ambition - Students are encouraged to aim high and be ambitious with their goals.

Confidence - Students build their confidence along the way through questioning and challenging ideas.

Respect - Students understand that respect for peers and all members of the school community is fundamental to our daily routines.

Empathy - Giving time to listen to each other and allowing every student to work at their own pace and style of learning.

Resilience - Students build their resilience and work through failures as part of their journey. Students are taught to value mistakes and reflect on how best to improve their work.

Integrity - Students are encouraged to work together and to have trust in each other.

Curiosity - Students are encouraged to question key theorems and concepts and how these are used throughout the course. Independent work is encouraged to deepen their understanding in areas of interest to them.

IMPLEMENTATION:

Note: Unit numbers are as per Edexcel specification

The list numbers for each topic are as per the corresponding textbook chapters.

Term	Topics studied.	Extended learning opportunities (homework, controlled assessments, field work, trips etc.)	How parents could support students
Term 1	<p>Unit 1:</p> <ol style="list-style-type: none"> 1. Algebraic expressions 2. Quadratics 3. Equations and Inequalities 4. Graphs and Transformations <p>Note: These are bridging units between GCSE and A Levels.</p> <p>All these topics have been covered in GCSE and are now extended to cover further details.</p>	<p>Complete all corresponding exercises from the textbook to build confidence.</p> <p>MEI worksheets to further extend learning. Teacher or peer marked.</p> <p>Use key websites with videos to help strengthen areas of concern. Dr Frost Physics and maths tutor TL Maths - video support on all topics</p> <p>Create index cards to help with recall.</p> <p>Go through topic based past paper questions to familiarise with exam techniques.</p>	<p>Discuss the learning at home. A lot of A Level maths is based on modelling situations. Discussing and talking through these ideas helps embed Maths concepts in real life.</p> <p>Support with independent work at home. Students are encouraged to set aside the same amount of time at home for every</p>

	<p>There will be a baseline test done to confirm suitability for A Level maths.</p> <p><u>Baseline assessment date:</u> <u>Term 1 - week 3/4</u></p>	<p>End of topic/ unit tests that are teacher marked with feedback.</p> <p>Post assessment support for Unit test and homework: Thursdays P6.</p>	<p>taught hour in school. 1 Hour lesson = 1 hour independent work at home.</p> <p>Supporting this from the start is key to long term success in this course.</p>
Term 2	<p>Unit 2:</p> <ol style="list-style-type: none"> 5. Straight Line graphs 6. Circles <p>Unit 3:</p> <ol style="list-style-type: none"> 7. Algebraic methods. 8. The binomial expansion <p><u>Assessment 1: On topics covered to date.</u> <u>Term 2: week 6</u></p>	<p>There will be opportunities for hands-on experiments to understand the concept of forces and kinematics.</p> <p>In Statistics, students will be encouraged to use the large data set to understand how data is used in the world of work. There will be opportunities to use technology to manipulate the data and produce useful statistical diagrams and distribution analysis.</p>	<p>Set aside time to support during key dates in the term, e.g. end of unit assessments.</p> <p>Ensure fully equipped: Folders, calculator, lined paper for independent work.</p>
Term 3	<p>Unit 4:</p> <ol style="list-style-type: none"> 9. Trigonometric Ratios 10. Trigonometric identities and equations. <p>Unit 6:</p> <ol style="list-style-type: none"> 12. Differentiation <p>Unit 7:</p> <ol style="list-style-type: none"> 13. Integration 		
Term 4	<p>Unit 5:</p> <ol style="list-style-type: none"> 11. Vectors <p>Unit 8:</p> <ol style="list-style-type: none"> 14. Exponentials and Logarithms 		
Term 5	<p>Applied Maths modules.</p> <p>Statistics 1:</p> <ol style="list-style-type: none"> 1. Statistical sampling 2. Data presentation and interpretation 3. Probability 4. Statistical distribution 5. Hypothesis testing <p>Mechanics 1:</p> <ol style="list-style-type: none"> 1. SI Units 2. Kinematics (constant acceleration) 3. Forces and Newton's Laws 4. Kinematics 2 (variable acceleration) 		
Term 6	<p>Review of Pure 1, Stats 1 and Mech 1 to prepare for end of year assessment.</p>		

	<p><u>Assessment 2:</u> Full AS Paper: Paper 1: Pure 2 hours Paper 2: Applied 1 hour 15 min. <u>Term 6: Week 2</u></p> <p>The rest of the term will be used to start work on Year 2 work. This will be done after a full post exam review.</p> <p>Pure 2: Unit 1: 1. Proof Unit 2: 1.2 and 1.3 Partial fractions</p>		
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