

A-LEVEL MATHEMATICS

An outstanding A-level Mathematics student combines strong analytical thinking with genuine curiosity for problem-solving. They approach complex concepts with persistence, breaking challenges into manageable steps and seeking to understand the underlying principles rather than memorising methods. Such a student is highly organised, practices regularly to build fluency, and reflects on mistakes to deepen their understanding. They also communicate their reasoning clearly, demonstrate resilience when faced with difficult questions, and consistently look for ways to extend their learning beyond the syllabus.

Summary of course content

The Mathematics A-Level syllabus is split into three areas:

Paper 1	Paper 2	Paper 3
<u>Pure Maths</u> A: Proof B: Algebra and functions C: Coordinate geometry D: Sequences and series E: Trigonometry F: Exponentials and logarithms G: Differentiation H: Integration I: Numerical methods	<u>Pure Maths</u> Any content from Paper 1 <u>Mechanics</u> J: Vectors P: Quantities and units in mechanics Q: Kinematics R: Forces and Newton's laws S: Moments	<u>Pure Maths</u> Any content from Paper 1 <u>Statistics</u> K: Statistical sampling L: Data presentation and interpretation M: Probability N: Statistical distributions O: Statistical hypothesis testing

- Each exam paper is $33\frac{1}{3}\%$ of the course, 2hrs long and worth 100 marks.
- Each paper includes a mix of question styles, from short, single-mark questions to multi-step problems.

What you should be doing as an independent learner in your four hours of independent study per week?

Weekly:	Independent practice: You will be guided by your teacher on which exercises should be completed from the textbook. You are recommended to complete every question – both in the <u>fluency exercise</u> and the <u>reasoning exercise</u>. All independent practice should be attached to Teams (photo/pdf) so your teacher can check your understanding.
Fortnightly:	Challenge questions: In the textbook, these problems will stretch you with questions at the highest level of demand. Independent Study Folder (ISF): this will be checked fortnightly by your tutor and logged.
Half termly:	Revision: As well as completing all questions from the textbook, redo knowledge quizzes and end of unit assessments for each topic. Review recent lessons, learn key processes and produce revision resources, e.g., flashcards, mind maps, posters, etc. Complete past exam papers (here).

Resources

In addition to those provided for specific tasks by your teacher, resources include:

- AQA A level Maths student textbook (Hodder Education)
- Casio FX-991 EX CLASSWIZ calculator
- www.examsolutions.net: to access videos to support current learning
- www.physicsandmathstutor.com: to access past exam papers
- www.plus.maths.org: to access further reading

Independent learning overview

Two hours directed by each of your teachers (subject to change):

For each textbook exercise, please **complete all questions from both sections** A (fluency) and B (reasoning)

Y12	Teacher 1	Teacher 2
07.09.26	Enrolment week	Enrolment week
14.09.26	Surds and Indices: index laws Ex1.2	Quadratic functions: Ex1.4
21.09.26	Surds and Indices: surds Ex1.3	
28.09.26	Polynomials: expansions and factorisation Ex2.1	
05.10.26	Polynomials: factor theorem Ex2.3	Equations and Inequalities: simultaneous Ex1.5
12.10.26	Coordinate geometry: Ex1.6	Equations and Inequalities: regions Ex1.7
19.10.26		
26.10.26	Half term	
02.11.26		Binomial Expansion: Ex2.2
09.11.26	Differentiation: rules Ex4.2	Graph transformations: Ex2.4
16.11.26	Differentiation: rates of change Ex4.3	
23.11.26	Differentiation: tangents and normals Ex4.4	Trigonometry: trig graphs Ex3.1
30.11.26	Differentiation: stationary points Ex4.5	Trigonometry: equations Ex3.2
07.12.26	Differentiation: first principles Ex4.1	
14.12.26		
21.12.26	Christmas holidays	
28.12.26	Christmas holidays	
04.01.27	Integration: rules Ex4.6	Exponentials: Ex5.2
11.01.27		Logarithms: Ex5.1
18.01.27	Integration: definite Ex4.67	Exponentials and logarithms: modelling Ex5.3
25.01.27		Exponentials and logarithms: linear form Ex5.4
01.02.27	Work experience	
08.02.27	Vectors: Ex6.1 – 6.2	
15.02.27	Half term	
22.02.27	Kinematics: quantities Ex7.1	Data collection: Ex9.1
01.03.27	Kinematics: graphs Ex7.2	Data presentation: averages and spread Ex9.2
08.03.27	Kinematics: suvat Ex7.3	Data presentation: single variable data Ex9.3
15.03.27	Newton's laws: Ex8.1	Data presentation: bivariate data Ex9.4
22.03.27	Newton's laws: Ex8.2	Probability: Ex10.1
29.03.27	Easter holidays	
05.04.27	Easter holidays	
12.04.27	Forces: motion under gravity Ex8.3	Binomial distribution: discrete variables Ex10.1
19.04.27	Forces: systems of forces Ex8.4	Binomial distribution: Ex10.2
26.04.27	Variable acceleration: Ex7.4	
03.05.27		Hypothesis testing: formulating a test Ex11.1
10.05.27		Hypothesis testing: critical regions Ex11.2
17.05.27		
24.05.27		
31.05.27	Half term	
07.06.27	Sequences and series: sequences Ex13.2	Functions: Ex12.2
14.06.27	Sequences and series: arithmetic Ex13.3	
21.06.27	Sequences and series: geometric Ex13.4	
28.06.27		
05.07.27		
12.07.27		
19.07.27		

Y13	Teacher 1	Teacher 2
07.09.26	Enrolment week	Enrolment week
14.09.26	Proof: Ex1.1, Ex12.1	Trigonometry: Ex14.1
21.09.26	Differentiation: shapes of functions Ex15.1	
28.09.26	Differentiation: functions Ex15.2 – 15.3	Trigonometric functions: inverse/reciprocal Ex14.2
05.10.26	Differentiation: rules Ex15.4 – 15.5	Trigonometric functions: identities Ex14.3
12.10.26	Differentiation: inverse functions Ex15.6	Trigonometric functions: harmonic Ex14.4
19.10.26	Differentiation: implicit Ex15.7	
26.10.26	Half term	
02.11.26	Parametric equations: Ex12.3	Algebra: Ex12.4
09.11.26	Parametric differentiation: Ex15.8	Binomial expansion: Ex13.1
16.11.26	Integration: standard integrals Ex16.1	Numerical methods: sign-change rule Ex17.1
23.11.26	Integration: by substitution Ex16.2	Numerical methods: iteration Ex17.2
30.11.26	Integration: by parts Ex16.3	Numerical methods: Newton Raphson Ex17.3
07.12.26	Integration: rational functions Ex16.4	Numerical methods: trapezium rule Ex17.4
14.12.26	Differential equations: Ex16.5	Vectors: Ex19.1
21.12.26	Christmas holidays	
28.12.26	Christmas holidays	
04.01.27	Kinematics: suvat Ex18.1	Probability: Ex20.1
11.01.27	Kinematics: variable acceleration Ex18.2	Probability distributions: mean and variance Ex20.2
18.01.27	Projectiles: Ex18.3	Probability distributions: normal Ex20.3
25.01.27		Probability distributions: approximations Ex20.4
01.02.27	Work experience	
08.02.27		
15.02.27	Half term	
22.02.27	Forces and motion: Ex18.4	Hypothesis testing: correlation Ex21.1
01.03.27	Forces and motion: Ex19.3	Hypothesis testing: Normal distribution Ex21.2
08.03.27	Friction: Ex19.2	
15.03.27	Moments: Ex19.4	
22.03.27		
29.03.27	Easter holidays	
05.04.27	Easter holidays	
12.04.27		
19.04.27		
26.04.27		
03.05.27		
10.05.27		
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24.05.27		
31.05.27	Half term	
07.06.27		
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