



Subject Information Guide

Subject Name and Level: Mathematics GCSE

Syllabus: AQA (8300) <https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300/subject-content>

Assessment: Students sit the Mathematics GCSE examinations in the summer of Y11. There are 3 papers, 1 without a calculator and 2 with a calculator, each worth 33.3% of the overall grade. Each paper has 80 marks in total, and takes 1 ½ hours. There is a mixture of topics and skills in each paper. The weighting given to the different topic areas in the final examinations is shown below:

Topic Area	Foundation Tier (%)	Higher Tier (%)
Number	25	15
Algebra	20	30
Ratio	25	20
Geometry	15	20
Probability and statistics (combined)	15	15

What topics will we cover?

The five Key areas assessed on the GCSE Course are:

- Algebra – including representing variables, solving linear and quadratic equations, changing the subject of a formula and completing the square
- Geometry and Measure – including angle laws, area and volume of 2D and 3D shapes, trigonometry and Pythagoras' theorem
- Statistics and Probability– including averages of grouped and ungrouped data, representation of data, charts diagrams and graphs, and calculating the probability of events occurring.
- Ratio, Proportion and rates of change – including problem solving
- Number – basic operations, order of operations, calculation with fractions, decimals and percentages.

Future Pathways: An understanding of GCSE mathematics is essential for all students, regardless of their future career. In most cases further education and career prospects will be dependent on achieving a good grasp of mathematics. For those wishing to study mathematics or sciences at A level, a GCSE mathematics grade of at least grade 7 is desirable to ensure that students have the necessary foundation of knowledge.



The route maps below are intended as a guide only. Each set will work at its own pace.

Y10 Higher Tier

September				October				November				
Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11		
Induction & Baselines	Statistical measures	Collecting and representing data	Scatter graphs	Basic number, factors and multiples		Core Mock	Fractions and decimals	Holiday	Basic percentages	Indices	Surds	Standard form
November			December				January					
Wk 12	Wk 13	Wk 14	Wk 15	Wk 16	Wk 17	Wk 18	Wk 19	Wk 20	Wk 21	Wk 22		
Basic algebra review	Equations	Sequences	Coordinates and linear graphs	Holiday		Perimeter and area	Circumference and area	Volume	Rounding	Ratio and proportion		
February			March				April					
Wk 23	Wk 24	Wk 25	Wk 26	Wk 27	Wk 28	Wk 29	Wk 30	Wk 31	Wk 32	Wk 33		
Examinations and revision	Algebra: quadratics, rearranging formulae and identities	Holiday	Algebra: quadratics, rearranging formulae and identities	Simultaneous equations	2D representations of 3D shapes	Pythagoras theorem and basic trigonometry		Sine and cosine rules	Holiday			
April		May			June				July			
Wk 34	Wk 35	Wk 36	Wk 37	Wk 38	Wk 39	Wk 40	Wk 41	Wk 42	Wk 43	Wk 44		
Sine and Cosine Rules	Measures	Data Handling - recap & extension		Angles, scale diagrams and bearings	Holiday	Properties of polygons	Circle theorems	Constructions and loci	Summer examinations and revision	Real life graphs		
July												
Wk 45	Wk 46	Wk 47	Wk 48									
Gradients and rate of change	Inequalities	w/b 22/7 w/e 28/7 +	w/b 29/7 w/e 4/8 +									

Y10 Foundation Tier

September				October				November				
Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11		
Induction and Baselines	Statistical measures	Collecting and representing data	Scatter graphs	Basic number	Factors and multiples	Core Mock	Basic fractions	Holiday	Basic decimals	Basic percentages	Indices	Standard form
November			December				January					
Wk 12	Wk 13	Wk 14	Wk 15	Wk 16	Wk 17	Wk 18	Wk 19	Wk 20	Wk 21	Wk 22		
Basic algebra	Equations	Sequences	Coordinates and linear graphs	Perimeter and area	Holiday		Circumference and area	Volume	Rounding	Ratio and proportion		
February			March				April					
Wk 23	Wk 24	Wk 25	Wk 26	Wk 27	Wk 28	Wk 29	Wk 30	Wk 31	Wk 32	Wk 33		
Examinations and Revision	Holiday	Algebra: quadratics, rearranging formulae and identities		Simultaneous equations	2D representations of 3D shapes	Pythagoras' theorem	Trigonometry		Holiday			
April		May			June				July			
Wk 34	Wk 35	Wk 36	Wk 37	Wk 38	Wk 39	Wk 40	Wk 41	Wk 42	Wk 43	Wk 44		
Measures	Data Handling - recap and extension		Angles	Properties of polygons	Holiday	Scale diagrams and bearings	Constructions and loci	Real life graphs	Summer Examinations and Revision	Inequalities		
July												
Wk 45	Wk 46	Wk 47	Wk 48									
Algebra and graphs (1)	Algebra and graphs (2)	w/b 22/7 w/e 28/7 +	w/b 29/7 w/e 4/8 +									



Y11 Higher Tier

September				October				November			
Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	
Sketching graphs	Equation of a circle	Congruence and similarity	Transformations	Transforming functions	Pre-calculus and area under a curve Core Mock	Calculating with percentages	Holiday	Growth and decay	Direct and inverse proportion	Numerical methods	Algebraic fractions
November		December					January				
Wk 12	Wk 13	Wk 14	Wk 15	Wk 16	Wk 17	Wk 18	Wk 19	Wk 20	Wk 21	Wk 22	
Algebraic fractions	Basic probability	Mock Exams	Probability	Vectors	Holiday	Revision plan to be finalised according to class needs from mock assessments				Revision and Mock week	
February			March					April			
Wk 23	Wk 24	Wk 25	Wk 26	Wk 27	Wk 28	Wk 29	Wk 30	Wk 31	Wk 32	Wk 33	
Revision and Mock week	Holiday	Revision plan to be finalised according to class needs from mock assessments					Holiday		Revision plan to be finalised according to class needs from mock assessments		

Y11 Foundation Tier

September				October				November			
Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	
Solving quadratic equations	Quadratic graphs	Sketching graphs	Congruence and similarity	Transformations	Core Mock	Calculating with percentages	Holiday	Growth and decay	Direct and inverse proportion	Basic probability	
November		December					January				
Wk 12	Wk 13	Wk 14	Wk 15	Wk 16	Wk 17	Wk 18	Wk 19	Wk 20	Wk 21	Wk 22	
Probability	Mock Exams	Probability - Venn & Tree Diagrams	Vectors	Holiday		Revision plan to be finalised according to class needs from mock assessments				Mock Examinations and Revision	
February			March					April			
Wk 23	Wk 24	Wk 25	Wk 26	Wk 27	Wk 28	Wk 29	Wk 30	Wk 31	Wk 32	Wk 33	
Mock Examinations and Revision	Holiday	Revision plan to be finalised according to class needs from mock assessments					Holiday		Revision and June Examinations		



Course Title: A Level Mathematics	Exam Board: Pearson Edexcel (9MAO)
<p>New A levels in Mathematics and Further Mathematics were introduced in England for first teaching from September 2017. The changes include:</p> <ul style="list-style-type: none"> • New linear structure: AS will be decoupled from A level, and all assessment will take place at the end of the course. Exam questions may draw on the content of the whole A level. • New emphasis: There will be more emphasis on problem solving, reasoning and modelling, and a requirement for the use of technology to permeate teaching and learning. • New content: The content of A level Mathematics will be fixed. It will include pure mathematics, mechanics and statistics (including analysis of large data sets). 	
Paper 1: Pure Mathematics 33%, 2 hours, 100 marks	Any A level pure mathematics content can be assessed on either paper
Paper 2: Pure Mathematics 33%, 2 hours, 100 marks	
Paper 3: Statistics and Mechanics 33%, 2 hours, 100 marks	Any A level applied content assessed Section A: Statistics (50 marks) Section B: Mechanics (50 marks)

Course Content (this is a guide only)

Year 12

Unit	Strand
Autumn half term 1	
Unit 1: Algebra and functions	Pure (AS)
Unit 2: Coordinate geometry in the (x, y) plane	Pure (AS)
Unit 3: Probability	Stats (AS)
Unit 1: Statistical sampling	Stats (AS)
Autumn half term 2	
Unit 3: Further algebra	Pure (AS)
Unit 4: Trigonometry	Pure (AS)
Unit 2a: Data presentation and interpretation	Stats (AS)
Spring half term 1	
Unit 5: Vectors (2D)	Pure (AS)
Unit 6: Differentiation	Pure (AS)



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Unit 7: Integration	Pure (AS)
Unit 2b: Data presentation and interpretation	Stats (AS)
Spring half term 2	
Unit 8: Exponentials and logarithms	Pure (AS)
Unit 4: Statistical distributions	Stats (AS)
Unit 5a: Statistical hypothesis testing	Stats (AS)
Unit 5b: Statistical hypothesis testing	Stats (AS)
Summer half term 1	
Unit 6: Quantities and units in mechanics	Mech (AS)
Unit 7a: Kinematics 1 (constant acceleration)	Mech (AS)
Unit 7b: Kinematics 1 (constant acceleration)	Mech (AS)
Unit 8a: Forces & Newton's laws	Mech (AS)
Summer half term 2	
Unit 8b: Forces & Newton's laws	Mech (AS)
Unit 9: Kinematics 2 (variable acceleration)	Mech (AS)
Revision	Revision
Internal examinations	Exams
Unit 1: Proof	Pure
Unit 2: Algebraic and partial fractions	Pure
Unit 3: Functions and modelling	Pure

Year 13

Unit	Strand
Autumn half term 1	
Unit 4: Series and sequences	Pure
Unit 5: The binomial theorem	Pure
Unit 6: Trigonometry	Pure
Unit 2: Probability	Stats
Autumn half term 2	
Unit 7: Parametric equations	Pure
Unit 8: Differentiation	Pure
Unit 9: Numerical methods - see Integration (part 2) for the trapezium rule	Pure
Unit 10: Integration (part 1)	Pure
Unit 1: Regression and correlation	Stats



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Spring half term 1	
Unit 11: Integration (part 2)	Pure
Unit 12: Vectors (3D)	Pure
Unit 3a: The Normal distribution	Stats
Unit 3b: The Normal distribution	Stats
Unit 3c: The Normal distribution	Stats
Spring half term 2	
Unit 4: Moments	Mech
Unit 5: Forces at any angle	Mech
Unit 6: Applications of kinematics	Mech
Unit 7: Applications of forces	Mech
Unit 8: Further kinematics	Mech
Summer half term 1	
Revision (A level)	Revision
Summer half term 2	
Formal examination (A level)	Exams