



Mathematics @ KS4

Assessment Objectives:

AO1 Demonstrate knowledge and understanding of mathematical techniques
 AO2 Reason, interpret and communicate mathematically when solving problems

Assessment in mathematics will be ongoing and based on the Assessment Objectives.

Exams (From 2025):

Core assessment

Core candidates take Paper 1 and Paper 3. The questions are based on the Core subject content of

Paper 1: Non-calculator (Core)

1 hour 30 minutes
 80 marks 50%
 Structured and unstructured questions
 Use of a calculator is **not** allowed
 Externally assessed

Paper 3: Calculator (Core)

1 hour 30 minutes
 80 marks
 Structured and unstructured questions
 A scientific calculator is required
 Externally assessed

Extended assessment

Extended candidates take Paper 2 and Paper 4. The questions are based on the Extended subject only:

Paper 2: Non-calculator (Extended)

2 hours
 100 marks 50%
 Structured and unstructured questions
 Use of a calculator is **not** allowed
 Externally assessed

Paper 4: Calculator (Extended)

2 hours
 100 marks
 Structured and unstructured questions
 A scientific calculator is required
 Externally assessed

Domains and Concepts:

The subject content is organised by topic: number, algebra, shape and space, and probability and statistics. The content is not presented in a teaching order

Number: Number

Algebra: Algebra and graphs, Coordinate geometry

Shape and Space: Geometry, Mensuration, Trigonometry, Vectors and transformations

Probability and Statistics: Probability, Statistics

Application of 5Cs in Mathematics:

Mathematics provides a rich context for teaching and cultivating values such as **community, compassion, creativity, confidence, and challenge**. In a maths classroom, students can engage in collaborative problem-solving activities, fostering a sense of **community** as they work together, share ideas, and learn from one another. The exploration of mathematical concepts and real-world applications encourages students to develop **compassion** by understanding how maths can be used to address societal issues and make a positive impact. Mathematics also nurtures creativity by encouraging students to think critically, explore different problem-solving strategies, and discover innovative solutions. As students tackle **challenging** mathematical problems, they develop **confidence** in their abilities to analyse, reason, and persevere. The inherent nature of mathematics, with its logical structures and puzzles, presents a continuous **challenge** that pushes students to think deeply, expand their skills, and embrace new mathematical frontiers. Through the study of mathematics, students not only gain mathematical knowledge but also acquire valuable life skills and attitudes that contribute to their growth and success.

Support and Opportunities: Maths Support Club, Maths Challenge Club, UKMT Maths Challenges	Recommended Sites: Dr Frost Maths, Myi Math, MylMaths
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	Year 10		Year 11	
Term 1	Extended Students	Core Students	Extended Students	Core Students
Topic and Content	Topic 1: Number (10N1, 10N2, 10N3) Topic 2: Algebra (10A1)	Topic 1: Number (10N1, 10N2, 10N3)	Algebra: 11EA7, 11EA2	Topic 1: Algebra (11CA1, 11CA2, 11CA3)
Skills	<p>Number: factors, multiples, primes, finding HCF and LCM; using indices, converting to/from standard form; converting between fractions, decimals and percentages, calculating with all four operations using fractions and decimals</p> <p>Algebra: simplifying, rearranging, factorising and expanding algebraic brackets; solving linear equations from 1- to 3-step, solving linear simultaneous equations</p>	<p>Number: factors, multiples, primes, finding HCF and LCM; using indices, converting to/from standard form; converting between fractions, decimals and percentages, calculating with all four operations using fractions and decimals</p>	<p>Recap: factorising and expanding algebraic brackets; solving linear simultaneous equations; rearranging formulae; indices in algebra</p> <p>Algebra: Simplify algebraic fractions and complete the four operations with algebraic fractions</p> <p>Functions: function notation, finding composite and inverse functions, sketching functions</p>	<p>Recap: factorising and expanding algebraic brackets; solving linear simultaneous equations; rearranging formulae; indices in algebra</p> <p>Algebra: Represent and interpret inequalities, including on a number line. Construct tables of values for linear and quadratic functions, draw and interpret these graphs, solve linear and quadratic equations approximately, including by graphical methods, recognise, sketch and interpret graphs</p>
Methods of Assess.	Tests (baseline and end of term) and Home Learning tasks (combination of Dr Frost and worksheets)		Baseline test, End of Term Test (cumulative) and Home Learning tasks (exam question worksheets)	

Year 10			Year 11	
Term 2	Extended Students	Core Students	Extended Students	Core Students
Topic and Content	<p>Topic 1: Algebra (10A1, 10A2, 10A3, 10A4)</p> <p>Topic 2: Geometry (10G1/2, EG3, EG4)</p>	<p>Topic 1: Algebra (10A1, 10A2, 10A3, 10A4)</p>	<p>Topic 1: Algebra (11EA3)</p> <p>Topic 2: Data (11ED1, 11ED2)</p> <p>Topic 3: Number (11EN1)</p>	<p>Topic 1 : Data (11CD1, CD2, CD3)</p>
Skills	<p>Algebra: substituting into algebraic expression, expanding brackets up to triple, solving simultaneous equations by elimination and substitution, recognising, continuing and finding the nth term of linear/quadratic/geometric sequences; plot coordinates and simple straight lines, identifying and use $y = mx + c$, find the equations of lines given conditions</p> <p>Geometry: convert between metric units, use compound measures (speed/density); find the area and perimeter of common shapes; find the volume and surface area of common shapes; find the volume and surface area of complex compound shapes and complete reverse volume questions; similar triangles, linear, area and volume scale factors in mathematically similar shapes.</p>	<p>Algebra: forming and substituting into algebraic expressions, expanding double brackets, solving simultaneous equations by elimination, recognising, continuing and finding the nth term of a linear sequences; plot coordinates and simple straight lines, identifying and use $y = mx + c$, find the equations of lines given conditions</p>	<p>Algebra: draw graphs, draw tangents to estimate gradients, solve equations graphically, recognise asymptotes; differentiate terms of the form ax^n, use differentiation to find turning points, local minima/maxima, find the vertex by completing the square.</p> <p>Algebra: draw graphs, draw tangents to estimate gradients, solve equations graphically, recognise asymptotes; differentiate terms of the form ax^n, use differentiation to find turning points, local minima/maxima, find the vertex by completing the square</p> <p>Data: calculate the mean, median, mode and range; compare data sets, find the average of grouped and continuous data, find quartiles; compare data using charts, construct and interpret histograms, stem and leaf, pie charts, scatter graphs, cumulative frequency curves and box plots.</p> <p>Number: sort information into sets, interpret Venn diagrams,</p>	<p>Data: find the probability of a simple event, find probabilities from sample spaces and two-way tables, use and interpret tree diagrams to find combined probabilities, use relative frequency and makes inferences from experimental data; collect data, read and make a tally chart, calculate the mean, median, mode and range of data, read and interpret tabulated data; compare data using pictographs, pie charts and bar charts, construct bar charts, histograms, stem and leaf diagrams, pie charts and scatter graphs</p>

			understand notation of Venn diagrams, interpret set theory language	
Methods of Assess.	End of Term Test (cumulative, including Term 1 topics) and Home Learning tasks (combination of Dr Frost and worksheets)		End of Term Test (cumulative) and Home Learning tasks (exam question worksheets)	
Year 10			Year 11	
Term 3	Extended Students	Core Students	Extended Students	Core Students
Topic and Content	Topic 1: Geometry (EG5) Topic 2: Number (EN4, EN5, EN6) Topic 3: Algebra (EA5, EA6)	Topic 1: Algebra (10A4) Topic 2: Geometry (10G1, 10G2, 10G3) Topic 3: Number (10CN5, 10CN6)	Topic 1: Data (11ED4) Topic 2: Geometry (111EG2)	Topic 1: Data (11CD4) Topic 2: Number (11CN1)
Skills	<p>Geometry: know and use basic angle rules, identify and find angles in parallel lines, find interior and exterior angles in polygons; know and use circle theorems to solve complex problems.</p> <p>Number: use upper and lower bounds for the accuracy of measurements, apply upper and lower bounds to find maximum and minimum values in calculations, including division.</p> <p>Algebra: using inequalities, solving linear inequalities, representing inequalities on graphs; sketching quadratic graphs, simplifying quadratic expressions, solving quadratic equations by factoring, using the quadratic formula, completing</p>	<p>Algebra: plot straight line graphs, find the equation of horizontal, vertical and slant lines from their graphs, interpret the equation of a straight line graph, obtain the equation of a line graph, know and use the rules for parallel line graphs</p> <p>Geometry: convert between metric units, carry out calculations involving the perimeter and area of rectilinear shapes, including compound shapes, complete calculations involving the area and perimeter of a circle, carry out calculations involving the volume and surface area of cuboids and cylinders.</p> <p>Number: rounding and estimating, finding bounds,; simplify and use ratio, solve</p>	<p>Data: find probabilities of events, use relative frequency and interpret experimental results, use sample space, use and interpret tree diagrams, use venn diagrams to find probabilities</p> <p>Geometry: know a vector has magnitude and direction and use various vector representations, find resultant vectors, use position vectors, find the magnitude of a vector, be able to show vectors are parallel, apply knowledge of shape and pathways to solve vector problems, prove vector geometry</p>	

	the square, putting quadratics in vertex form	problems on sharing in ratios, use unitary methods, work with direct/indirect proportion algebraically; find percentages, increase and decrease in percentages, solve % problems		
Methods of Assess.	End of Term Test (cumulative, including Term 1 and 2 topics) and Home Learning tasks (combination of Dr Frost and worksheets)		Mock Exams (cumulative across Y10 and Y11) and Home Learning tasks (exam question worksheets)	
Year 10			Year 11	
Term 4	Extended Students	Core Students	Extended Students	Core Students
Topic and Content	Topic 1: Geometry (10EG6, 10EG7)	Topic 1: Geometry (10CG6, 10CG7)	Revision and Exam Practice	
Skills	Geometry: solve problems involving right-angle triangles, including angles of elevation and depression and 3D problems, apply the rules of trigonometry to non-right triangles, know and use the exact values of key values, solve simple trigonometric equations using graphs; carry out transformations of shapes including translations, reflections, rotations and enlargements.	Geometry: use and interpret geometrical terms, know and use the properties of angles in parallel lines, calculate interior and exterior angles of regular polygons; use Pythagoras' Theorem, apply the rules of trigonometry to right-angle triangles using sine, cosine and tangent ratios.	Revision: of all content (see syllabus and above) Exam Skills: time management, presentation of solutions, solving problems, recognising key words, remembering algorithms, use of mark schemes	
Methods of Assess.	End of Year Test (cumulative, including Term 1, 2 and 3 topics) and Home Learning tasks (combination of Dr Frost and worksheets)		iGCSE Public Examinations Paper 2 (non-calculator): 2 hours Paper 4(calculator required): 2	iGCSE Public Examinations Paper 2 (non-calculator): 1h 30m Paper 4(calculator required): 1h 30

