

Mathematics Year 11 Higher

Term	1	2	3	4	5	6					
Topic	Geometry 1	Algebra 1	Geometry 2	Algebra 2	Algebra 3	Statistics	Algebra 4	Geometry 3	Revision and Exam Practise	Revision and Exam Practise	Revision and Exam Practise
Detail	Applying Pythagoras' Theorem and Trigonometry in 2D. Know and apply the sine and cosine rules in context. Recall and apply the area of any triangle using sine.	Simplify and express using involving squares and positive denominators. Solve quadratic equations by completing the square and quadratic formula. Deduce turning points of quadratic functions by completing the square. Deduce roots of quadratic functions algebraically. Use general iterative processes.	Identify, describe and construct similar shapes, including similar solids, by considering including negative scale factors.	Solve problems involving functions, inverse functions, direct variation and linear functions. Recognise and use simple geometric progressions (r is a rational number > 0 and $r \neq 1$). Solve quadratic inequalities in one variable. Solve two simultaneous equations in two variables where one is quadratic algebraically.	Recognise, sketch and interpret graphs of exponential and trigonometric functions. Sketch translations and reflections of a given function.	Construct and interpret graphs for grouped discrete data and continuous data (i.e. histograms with equal and unequal class intervals) and know their appropriate use.	Apply the concepts of average and instantaneous rate of change in numerical, algebraic and graphical context.	Use vectors to describe geometric arguments and proofs.	Revision and exam practise to fill any knowledge gaps.	Revision and exam practise to fill any knowledge gaps.	Revision and exam practise to fill any knowledge gaps.
Grade 8-9	Know and use the rules of surds. Simplify surds by decomposition. Solve problems involving the simplification of surds. Multiply binomials.	Solve quadratic equations by completing the square. Deduce the roots of a quadratic function by using the completed square form.	Understand the meaning of a function. Know and use the notation and solve problems for composite functions. Find the inverse of a function and solve problems involving inverse functions.			Apply the concept of average rate of change and instantaneous rate of change in numerical.	Understand how to create and present a proof involving vectors. Make deductions about situations.	Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	
Grade 6-7	Know and apply right-angled trigonometry in 3D in context. Recall the formulae for the sine and cosine rule and apply these in a variety of	Recall and solve quadratic equations by using the quadratic formula.	Describe and enlarge shapes with a positive integer/fractional scale factor. Including a centre of enlargement.	Recognise and use the notation and solve problems with positive values of k. Plot and use the	Construct, interpret, analyse and solve problems with histograms.			Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	
Grade 5	Know and apply Pythagoras' Theorem in 2D. Recall and apply right-angled trigonometry in 2D (including exact values).	Deduce the roots of a quadratic function by factorising.	Describe and enlarge shapes with a negative integer/fractional scale factor. Including a centre of enlargement.	Recognise and use geometric progressions, when r is a fraction > 0 or a surd. Solve problems involving geometric sequences. Recognise and use non-standard sequences.			Perform vector addition, subtraction and multiplication by a scalar quantity.	Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	
Grade 4	Know and apply Pythagoras' Theorem in 2D.							Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	Revision and exam practise of appropriate topics	
Grade 2-3											

Keywords	diagonal, face diagonal, space diagonal, plane, opposite, adjacent,	power, root, index, indices, surd, simplify, rationalise	quadratic (equation), factorise, rearrange, complete the square, unknown, manipulate, maximum, minimum, parabola, recurrence	scale factor, similar, transformation, enlargement	mapping, function, inverse function, composite function, direct proportion, inverse proportion, multiplier, term, nth	exponential, similar, equation, linear, non-linear,	continuous data, grouped data, table, frequency table,	function, complete the square, deduce, root, turning	vector, scalar, constant, magnitude, collinear			
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Resource Links	EM: Investigate Euler bricks	Standards Unit 11 - Manipulating Surds	NRICH Prof. order - quadratic equation	EM: Enlargement	EM: Functions Introduction	NRICH: What's that graph?	EM: Stick on the Maths Wall: Working with grouped data	ADA Maths: Further Revision and Exits	ADA Maths: Bridges: Revision: Vectors	Various Revision Tasks	Various Revision Tasks	Various Revision Tasks
	NRICH: Finding the Roof	NRICH: Surds	NRICH: Geometric probability	NRICH: Transformation tasks	GLOWMaths/JusMaths: Sample Questions Higher Tiers	ADA Maths: Calculating Graphs	ADA Maths: Calculating and interpreting data	ADA Maths: Sketching Graphs	ADA Maths: Vectors	Exam Papers	Exam Papers	Exam Papers
	NRICH: Cube Machines	EM: 11M1 BAA Task	EM: 11M2 BAA Task	ADWMaths/JusMaths: The Sample Questions Higher Tiers	NRICH: Triangles and Fitness	ADA Maths: Further Sketching Graphs	GLOWMaths/JusMaths: The Sample Questions Higher Tiers	ADA Maths: Sketching Graphs and Rate of Change	GLOWMaths/JusMaths: Sample Questions Higher Tiers	Past Drive for Five booklet provided by class teacher		
	NRICH: Conics Rules	GLOWMaths/JusMaths: Sample Questions Higher Tiers	11M1 BAA Task		ADA Maths: Vector Element - Inverse Expansion	NRICH: Parabolic Paths		Non-linear: Quadratics		UNPACK booklet provided by class teacher		
	EM: 11M7 BAA Task		GLOWMaths/JusMaths: Sample Questions Higher Tiers		ADA Maths: Ratio, Proportion and Change	NRICH: Tangled Tree Graphs		Non-linear: Functions and Area				
	GLOWMaths/JusMaths: Sample Questions Higher Tiers				GLOWMaths/JusMaths: Sample Questions Higher Tiers	Don Stewart: Graph Transformations		EM: 11M2 BAA Task				
					EM: Kangoona Problem	GLOWMaths/JusMaths: The Sample Questions Higher Tiers		GLOWMaths/JusMaths: The Sample Questions Higher Tiers				
					NRICH: Summing Geometric Progressions							
					ADA Maths: Sequences							
					ResourceMaths: Sequences							

Career Opportunities	Why Math is Important 3	Charge Nurses in ICU	Supersonic Car Design	Research Meteorologists	Assessing Risk in Banks	Structural Engineers	Bomb Disposal	What engineers can achieve	Financial Advisor	Economic Cartographer	Maths in Special Effects/Video Gaming	Actuary
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