National 5 Mathematics Course Specification

(**U** indicates minimum competency and will be tested in the unit assessments)

Expressions and Formulae

Level **U**nit/**E**xam	**Topic**	**Completed** **(✓ / ×)**
U	Significant figures and Rounding	
U	Volume - Cube/Cuboid, *including working backwards* (**E**)	
U	Volume - Cylinder	
U	Volume - Sphere	
U	Volume - Cone	
E	Volume - Pyramid	
U	Algebra - Multiplying out brackets and simplifying	
U	Algebra – Factorising using a common factor	
U	Algebra – Factorising using difference of 2 squares.	
U	Algebra – Factorising trinomials, with unitary x^2 coefficient	
E	Algebra – Factorising trinomials, with non- unitary x^2 coefficient	
U	Algebra - Completing the square - unitary x^2 coefficient	
U	Gradient – Calculating the gradient of a straight line using the formula	
U	Circle - Length of an arc	
U	Circle - Area of a sector	
E	Circle - Finding the angle	
U	Surds - Simplify	
E	Surds - Add/Subtract including multiplying out brackets	
E	Surds - Rationalise the denominator	
U	Indices – Multiplying, dividing and raising to power.	
E	Indices – Negative and fractional powers	
E	Indices – Multiplying out brackets including $a^0 \text{and } a^1$	
U	Indices – Using Scientific notation	
U	Algebraic Operations – Simplifying fractions	
E	Algebraic Operations – Factorising and simplifying fractions	
U	Algebraic Operations – Add and subtract fractions	
U	Algebraic Operations – Multiply and divide fractions	

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Relationships

Level **U**nit/**E**xam	**Topic**	**Completed** **(✓ / ×)**
E	Straight Line – $y = mx + c$, Drawing and identifying m and c from graph.	
E	Straight Line – rearranging and identifying m and c from equation	
U	Straight Line – $y - b = m(x - a)$ forming equation.	
U	Linear equations/inequations – Solving in form $ax + b = c \; and \; ax + b = cx + d$	
E	Linear equations/inequations – Solving in form $ax + b = c \; and \; ax + b = cx + d$ and including brackets and fractions	
E	Simultaneous Equations - Graphically	
U	Simultaneous Equations - Substitution	
U	Simultaneous Equations – Elimination, no scaling	
U	Simultaneous Equations – Elimination, scaling one equation	
E	Simultaneous Equations – Elimination, scaling both equations	
U	Change the subject- basic operations	
E	Change the subject – involving brackets and indices	
U	Quadratics - Determine equation of a quadratic from graphs	
U	Quadratics - Identifying max/min T.P, roots and line of symmetry from graphs	
U	Quadratics - Solving quadratic equations *through factorisation* (**E**)	
U	Quadratics - Solving quadratic equations through quadratic formula	
U	Quadratics – sketching and annotating quadratic graphs	
U	Quadratics - Using the discriminant	
U	Pythagoras - Mixed examples & Converse of Pythagoras	
E	Pythagoras – 3D and distance between two points	
U	Properties of shape - Triangles	
U	Properties of shape - Quadrilaterals	
U	Properties of shape – Polygons: interior and exterior angles	
U	Properties of shape - Circle properties including triangles, angles in semi-circle and tangents.	
E	Properties of shape - Circle properties including perpendicular bisector	
U	Similarity - Similar figures and lengths	
E	Similarity - Similar triangles	
U	Similarity – Area Scale Factor	
U	Similarity – Volume Scale Factor	
U	Trigonometric graphs - curve sketching & identifying key features of graphs Scaling amplitude eg y = 2sinx and multiple angles y= sin2x	
E	Trigonometric graphs - curve sketching & identifying key features of graphs Vertical translation y = sinx + 2 and phase angles y=sin(x – a)	
U	Trigonometric Functions – CAST diagram	
U	Trigonometric Functions - Solving	
E	Trigonometric Functions - Identities	

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Applications

Level **U**nit/**E**xam	**Topic**	**Completed** **(✓ / ×)**
U	Trigonometry - Area of a triangle	
U	Trigonometry - Sine rule to find side	
U	Trigonometry - Sine rule to find angle	
U	Trigonometry - Cosine rule to find side	
E	Trigonometry - Cosine rule to find angle	
U	Trigonometry - All questions involving bearings	
U	2D Vectors/3D Coordinates - Vector notation(components) - directed line segment/*equal vectors/vectors in opposite directions* (**E**)	
U	2D Vectors/3D Coordinates - Multiplying a vector by a scalar	
U	2D Vectors/3D Coordinates - Magnitude of a Vector	
U	2D Vectors/3D Coordinates - Vector addition/subtraction & *diagrams (vector journeys)* (**E**)	
U	2D Vectors/3D Coordinates - 3D Coordinates	
U	Percentages - Reverse percentages	
E	Percentages - Simple interest	
U	Percentages - Compound interest	
U	Percentages - Appreciation/Depreciation	
U	Fractions - Add/Subtract	
U	Fractions – Multiply/ Divide, BIDMAS	
U	Statistics - Mean, median, mode and range	
E	Statistics - Five figure summary with Boxplot & SIQR	
U	Statistics - Standard deviation	
E	Statistics - Standard deviation (2^{nd} formula?)	
U	Statistics - Standard deviation including comparing distributions	
U	Statistics - Scatter graphs and correlation	
U	Statistics - Scatter graphs - line of best fit	

National 5 Mathematics Course Requirements

Candidates will sit three unit assessments. Only **one** re-sit is allowed per assessment.

All three unit assessments must be passed as well as the final exam to be awarded a National 5 Maths qualification.

Candidates will sit a prelim examination in January. Those candidates who attain **less than 30%** will be given a second opportunity, by way of an additional prelim in March, to demonstrate that they have the ability to be successful in the final exam. If a candidate does not achieve a **minimum of 40%** in this exam then he/she will be withdrawn from the final SQA exam in May and we will focus on ensuring that he/she achieves a National 4 award and potentially National 5 Numeracy.