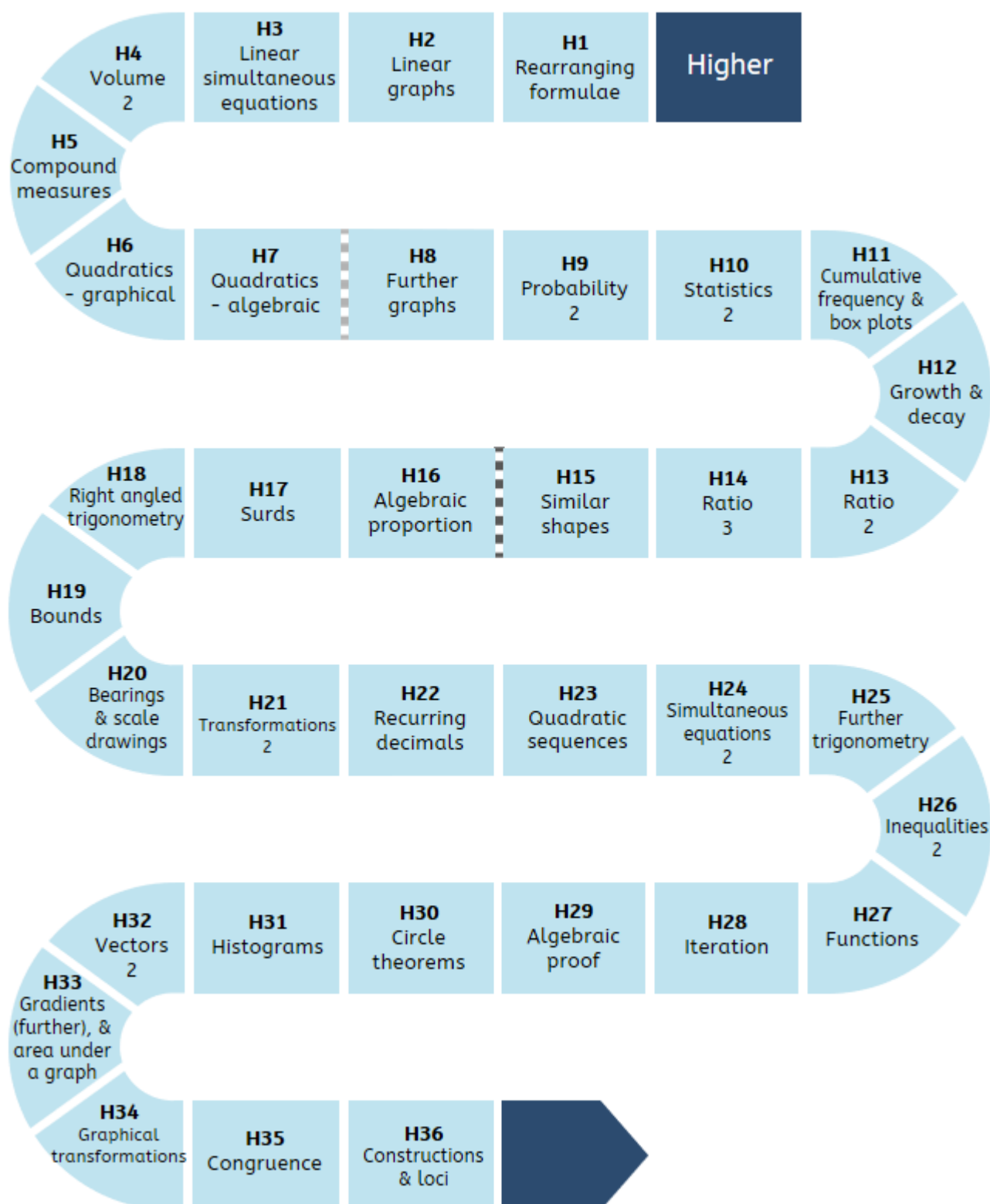


Holland Park School | *Maths Year 10 and 11 Higher 2024/2025*



Overview	GCSE Mathematics Higher Topics 2024/2025
Assessment	Edexcel Exam Board 3 Papers – Paper 1 Non-Calculator Paper 2 Calculator Paper 3 Calculator
Homework	Sparx Maths (set every Wednesday, due for following Wednesday)
Resources	Sparx Maths, Corbett Maths, Maths Genie
Key Terminology	Estimate, standard form, recurring decimal, ratio, reciprocal, upper and lower bound, percentage, compound interest, square and cube numbers, square and cube roots, surds, rationalising a denominator, sequences, error interval, truncation, significant figure, indices, prime factor decomposition, expand, factorise, gradient, intercept, expression, equation, term, identity, formula, coefficient, exponential, quadratic, iteration, root, inequality, trigonometry, exact value, sine, cosine, parallel, perpendicular, corresponding, alternate, co-interior, volume, surface area, isosceles, equilateral, scalene, parallelogram, rhombus, trapezium, kite, interior, exterior, transformation, translation, reflection, rotation, enlargement, congruent, radius, diameter, circumference, chord, sector, segment, arc, prism, bearing, average, mean, median, mode, range, frequency, outcome, probability, histogram, cumulative frequency, union, intersection, complement

Topics	Key content	Sparx Clips
H1 Rearranging formulae	Changing the subjects of formulae including complex formulae involving fractions, roots and powers and where the subject appears on both sides of the formula	U556, U221, U373
H2 Linear Graphs	Recognise, plot, and interpret straight-line graphs. Find approximate solutions from graphs including real life graphs. Identify and interpret gradients and y intercepts including from the form $y=mx+c$.	U789, U741, U933, U889, U638, U238, U669, U315, U377, U477, U848, U862, U898
H3 Linear Simultaneous Equations	Solve two simultaneous equations algebraically and graphically. Derive two simultaneous equations from a situation in context.	U760, U757, U836, U137
H4 Volume 2	Find and problem solve with volume of cubes, cuboids, prisms, cylinders, spheres, pyramids, cone and composite solids.	U786, U174, U915, U484, U116, U617, U426, U350, U543
H5 Compound Measures	Interpret distance-time graphs. Change between standard units of measure and compound units of measure.	U914, U462, U896, U902, U388, U248, U468, U151, U256, U403, U910, U527
H6 Quadratics - graphical	Recognise, sketch and interpret graphs of quadratic functions, including where rearranging is required. Find approximate solutions from graphs.	U989, U667, U601, U178, U963
H7 Quadratics - algebraic	Factorise quadratic expressions and solve quadratic equations by factorising where the coefficient of x^2 is ≥ 1 . Factorise by completing the square or using the quadratic formula. Deduce	U228

	turning points. Use factorisation to simplify algebraic fractions. Multiply, divide, add and subtract algebraic fractions.	
H8 Further graphs	Recognise and be able to sketch cubic, reciprocal, inverse, and direct proportion graphs. Expand triple brackets.	U980, U593, U238
H9 Probability 2	Work with experimental and theoretical probability, knowing that probability sums to 1. Use probability tree diagrams for independent and dependent events, including conditional probability and tree diagrams with algebraic expressions. Find probabilities from Venn diagrams.	U803, U408, U510, U280, U166, U683, U580, U476, U748, U104, U558, U729, U296, U369
H10 Statistics 2	Understand and draw types of charts, including bar charts, pictograms, stem and leaf diagrams and pie charts. Calculate and problem solve with averages and range. Plot, read and use scatter graphs.	U981, U363, U557, U508, U172, U653, U506, U200, U909, U291, U260, U456, U526, U569, U854, U877, U717, U322, U162, U590, U193, U199, U277, U128
H11 Cumulative Frequency and Box Plots	Calculate cumulative frequency. Draw and interpret cumulative frequency graphs. Draw, interpret and compare box plots. Find the range, quartiles and inter-quartile range.	U642, U182, U837, U879, U507
H12 Growth & Decay	Set up, solve and interpret the answer of growth and decay problems including compound interest. Compare simple and compound interest.	U332, U988
H13 Ratio 2	Convert between ratio, fractions, and percentages. Write, simplify, and combine ratios. Share amounts given a ratio. Problem solve with ratio.	U687, U577, U176, U753, U921, U676, U865
H14 Ratio 3	Solve complex multi-step problems involving algebraic terms.	U595
H15 Similar Shapes	Identify and use scale factors to find missing lengths in 2D and 3D shapes. Understand the effect of enlargement on angles, perimeter, area and volume of shapes and solids.	U551, U578, U630, U110, U350, U334
H16 Algebraic Proportion	Interpret equations and graphs that describe direct and inverse proportion. Construct equations for direct and inverse proportions including with word problems.	U640, U364, U238, U407, U138, U721, U357
H17 Surds	Simplify and manipulate surds. Simplify surd expressions with factors that are square. Expand and simplify brackets with surds. Rationalise the denominator.	U633, U872, U338, U499, U707, U281
H18 Right-Angled Trigonometry	Know the exact trig values. Find unknown lengths and angles using the sin, cos and tan.	U605, U283, U545, U627
H19 Bounds	Calculate upper and lower bounds of numbers and expressions using the four operations. Use bounds to find upper and lower bounds of perimeter, area and volume.	U657, U587
H20 Bearings and Scale Drawings	Measure and draw bearings. Calculate missing angles from bearings using angle facts. Draw and interpret scale diagrams.	U257, U525, U107
H21 Transformations 2	Enlargement with fractional and negative scale factors. Describe changes from combinations of transformations. Understand invariance.	U849, U696, U799, U196, U519

H22 Recurring Decimals	Change recurring decimals into fractions. Use PFD on denominator to decide if fraction is equivalent to recurring or terminating decimal.	U550, U689
H23 Quadratic Sequences	Generate a quadratic sequence through substitution. Find the n th term of a quadratic sequence.	U206
H24 Simultaneous Equations	Solve linear and quadratic simultaneous equations including those involving equations of circles via substitution and elimination.	
H25 Further Trigonometry	Use the sine and cosine rule to find missing lengths and angles (incl. application to bearings). Sketch and interpret sine, cosine and tangent graphs. Use the area of a triangle formula. Apply Pythagoras and right-angled trig to 3D shapes.	U952, U591, U592, U450, U164, U170
H26 Inequalities	Solve quadratic inequalities in one variable, by factorising and sketching the graph to find critical values. Represent the solution set for inequalities using set notation.	U989, U667, U769, U133
H27 Functions	Manipulate functions e.g. $f(x) + g(x)$ and $f(x) - g(x)$, $2f(x)$, $f(3x)$ etc., find inverse functions and composite functions.	U637, U895, U448, U996
H28 Iteration	Find approximate solutions to equations and simple converging sequences numerically using iteration	U434, U168
H29 Algebraic Proof	Solve 'Show that' and proof questions using consecutive integers, squares, even numbers, and odd numbers	U582
H30 Circle Theorems	Apply and prove the standard circle theorems.	U459, U251, U489, U130, U808, U807
H31 Histograms	Draw and interpret Histograms	U185, U814, U983, U267
H32 Vectors	Solve geometric problems where vectors are divided in a given ratio, geometric proof that points are collinear / vectors are parallel	Solving geometric problems using vectors (U781)
H33 Gradients and Area Under a Graph	Finding the equation of a tangent to a circle (with the centre at the origin), interpreting and estimating gradients including from non-linear graphs in curved distance–time and velocity–time graphs and estimating the distance travelled by finding the area under the graph.	U567, U882, U800
H34 Graphical Transformations	Translations and reflections of functions	U598, U487, U455
H35 Congruence	Understand congruence and the proofs for congruent triangles.	U790, U866
H36 Constructions and Loci	Use a pair of compasses to construct angle and line bisectors, triangles, and find loci of points from multi step problems	U678, U447, U787, U245, U187, U979, U820