

YEAR 10 HIGHER - STUDENT CORE KNOWLEDGE

TERM	TOPIC	DETAIL	SPARX
1	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
	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
	Linear Simultaneous Equations	Solve two simultaneous equations algebraically and graphically. Derive two simultaneous equations from a situation in context.	U760, U757, U836, U137
	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
	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
	Quadratics - graphical	Recognise, sketch and interpret graphs of quadratic functions, including where rearranging is needed. Find approximate solutions from graphs.	U989, U667, U601, U178, U963
	Quadratics - algebraic	Factorise quadratic expressions and solve quadratic equations by factorising where the coefficient of $x^2 > 1$ Factorise by completing the square or using the quadratic formula. Deduce turning points. Use factorisation to simplify algebraic fractions. Multiply, divide, add and subtract algebraic fractions.	U228
	Further graphs	Recognise and be able to sketch cubic, reciprocal, inverse, and direct proportion graphs. Expand triple brackets.	U980, U593, U238
2	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
	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
	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
	Growth & Decay	Set up, solve and interpret the answer of growth and decay problems including compound interest. Compare simple and compound interest.	U332, U988
	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
	Ratio 3	Solve complex multi-step problems involving algebraic terms.	U595
	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
3	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
	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
	Right angled Trigonometry	Know the exact trig values. Find unknown lengths and angles using the sin, cos and tan.	U605, U283, U545, U627
	Bounds	Finding error intervals. Finding error intervals for calculations. Upper and lower bounds for calculations, particularly when working with measurements	U657, U587
	Bearings and scale drawings	Measure and draw bearings. Draw and interpret scale diagrams. Calculate bearings using angles rules.	U257, U525, U107
	Transformations 2	Enlargements with a fractional scale factor. Enlargements with a negative scale factor. Describe the changes and invariance achieved by combinations of rotations, reflections and translations.	U849, U696, U799, U196, U519