

YEAR 9 - STUDENT CORE KNOWLEDGE

TERM	TOPIC	DETAIL	SPARX
1	Decimal Manipulation	Apply all four operations using non calculator methods when working with decimals, this includes both dividing a decimal by an integer and dividing a number by a decimal.	U417, U478, M462, U735, U127, U293, U453, U868, U976
	Estimation and Limits of accuracy	Use rounding in order to complete estimations (rounding to both one significant figure and applying sensible rounding), using inequality notation to write error intervals from both rounding and truncation.	U480, U298, U731, U965, U225, U657, U587, U108, U301
	Related Calculations	Recognise and use relationships between operations in order to write down the answer to a related calculation from a given calculation.	U735
	HCF & LCM of large numbers	Use prime factor decomposition and Venn diagrams in order to find the HCF and LCM of large values.	U211, U751, U529, U236, U739, U250
	Fraction Calculations	Apply all four operations using non calculator methods when working fractions and mixed numbers involving different denominators, finding the fraction of an amount, writing one number as a fraction of another and to find the reciprocal of an integer, decimal or fraction.	U736, U692, U793, U475, U224, U544, U538, U881, U916, U163
	Algebraic Manipulation	Collecting like terms and simplifying expressions involving all four operations, the identity symbol, adding fractions with algebraic numerators, multiplying and dividing simple algebraic fractions.	M795, U613, M830
	Index Laws	Working with the laws of indices, this includes negative and fractional indices, using index notation for integer powers of 10, including negative powers.	U105, U622, U103, U437, U685, U457, U824
	Standard Form	Converting between ordinary numbers and standard form. Calculating with standard form including multiplication, division, addition and subtraction.	U330, U534, U264, U290, U161
	Expanding & Factorising 2	Expanding double brackets, factorising quadratics (where the coefficient of x^2 is 1), difference of two squares.	U179, U365, U768, U178, U963
2	Forming expressions & substitution	Substitution into algebraic formulae, basic functions - inputs and outputs, use algebra to show expressions are equivalence, know the difference between an equation and an identity.	M175, M428, U201, U585, U144
	Direct and Inverse Proportion	Use proportion to answer problems involving exchange rates and best buys. Introduction to inverse proportion, interpret conversion graphs.	U721, U610, U357, U640, U407, U364, U138, U238, U369
	Probability 1	Describe probability using the probability scale, calculate expected outcomes, mutually exclusive outcomes, experimental probabilities, probability from two way tables, sample spaces, samples, set notation and Venn diagrams. Product rule for counting.	U408, U510, U683, U166, U104, U476, U748, U296, U280, U580
	Solving equations 2	Solve linear equations which contain brackets, fractional coefficients, negative signs, negative solutions. Solving linear equations in one unknown with unknowns on both sides, solving equations that require fraction manipulation.	U755, U325, U585, U144, U870, U599, U505
	Inequalities 1	Solve linear inequalities in one variable, represent and interpret solutions sets on a number line, solve two inequalities in one variable and compare to see which value(s) satisfy both.	U759, U509, U738, U145
	Sequences	Recognise and use the sequence of triangular, square and cube numbers. Generate terms of a term-to-term sequence. Find the nth term of a linear sequence, use the nth term of a linear sequence to determine whether a given number is in that sequence.	U213, U530, M381, M241, U498, U978, U680, U958
3	Pythagoras	Use Pythagoras' Theorem to find missing sides in a right-angled triangle and to find the distance between two points. Justify whether a triangle with three given sides in right-angled or not.	U851, U385, U541
	Interior and Exterior Angles	To calculate interior and exterior angles of (regular) polygons, find the total angle sum of a given polygon.	U447, U390, U730, U628, U732, U329, M985, U427
	Vectors 1	To use column vectors, addition and subtraction of column vectors and interpretation of diagrammatic vectors. To identify whether a pair of column vectors are equal or not.	U196, U903, U564, U632, U660
	Transformations 1	Reflection and rotational symmetry, understand all 4 Transformations - rotation, reflection, translation, enlargement (with a positive scale factor), identify the equation of a line of symmetry	U196, U799, U696, U519
	Plans and Elevations	Construct plans and elevations of 3D shapes, draw sketches of 3D solids from plans and elevations.	U743
	Arcs and Sectors	Define all parts of a circle and know key definitions including, tangent, arc, sector and segment. Use the formula for area and circumference of a circle to find the area of circle and sectors and calculate the circumference and arc lengths of circles.	U767, U604, U950, U221, U373
	Surface Area	Sketch the nets of cuboids and prisms. Find the surface areas of cuboids, pyramids, spheres, cones and composite solids.	U929, U259, U464, U761, U781, U523, U893, U334, U561