Stage 1		Place Value	Calculations	Geometry	Fractions	Data
YEAR 7 Emerging	YEAR 8 Emerging					
Working towards		Read and write whole numbers in words and figures	Mental methods for addition and subtraction,	Name and describe (using appropriate vocabulary) common 2d and 3d shapes		
1	Working towards	Read and write decimals in words and figures	Mental methods for multiplication and division	Describe common 2d shapes using appropriate vocabulary- sides, angles, symmetry	Understand and name parts of a fraction (vincular, denominator and numerator)	Construct, read and interpret tally charts
2	1	Recognise the value of each digit in whole numbers and decimals	Written methods for addition and subtraction	Name common 3d shapes	Simplify fractions	Read and interpret bar and bar line charts
3	2	Multiply and divide by 10 and 100	Written methods for multiplication and division	Describe common 3d shapes using appropriate vocabulary- faces, vertices, edges etc.	Recognise and find equivalent fractions	Construct bar and bar line charts
Secure 4	3		Mental and written methods for addition, subtraction, multiplication and division **including decimals**			

Stage 2		Place Value, Addition and Subtraction	Multiplication & Division	Fractions, Decimals & Percentages	Algebra	Data
YEAR 7 Secure	YEAR 8 Emerging					
Emerging 3	Working towards	-understand and use place value for decimals, measures and integers of any size	-use the four operations, including formal written methods, applied to integers	-find equivalent fractions and give fractions in their simplest form	-work with coordinates in all four quadrants	
4	1	-order positive and negative integers; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ -use standard units of mass, length, time, money and other measures, including with decimal quantities -use the four operations, including formal written methods, applied to integers,	-use the four operations, including formal written methods, applied to decimals -use standard units of mass, length, time, money and other measures, including with decimal quantities -calculate the mean	-compare and order fractions and decimals -change between mixed numbers and improper fractions -find a fraction of a quantity -interpret fractions and percentages as operators	-use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals	-describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)
5	3	-order decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ -round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] -use the four operations, including formal written methods, applied to decimals, proper and improper fractions, and mixed numbers, all both positive and negative	-use the four operations, including formal written methods, applied to proper and improper fractions, and mixed numbers -use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property	-define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%	-use and interpret algebraic notation, including: ab in place of a × b 3y in place of y + y + y and 3 × y a2 in place of a × a, a3 in place of a × a × a; a2 b in place of a × a × b b a in place of a ÷ b coefficients written as fractions rather than as decimals brackets -substitute numerical values into formulae and expressions, including scientific formulae	-construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data
6	3	-recognise and use relationships between operations including inverse operations -calculate and solve problems involving: perimeters of 2-D shapes (including circles), and composite shapes	-recognise and use relationships between operations including inverse operations -calculate and solve problems involving: areas of circles and composite shapes		-understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors -simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms	
Advanced 7	Secure 4	-derive and apply formulae to calculate and solve problems involving: perimeter of triangles, parallelograms, trapezia	-derive and apply formulae to calculate and solve problems involving: area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)			

Stage 3		Number	Algebra	Geometry & Measure	Ratio, Proportion & rates of Change	Probability
YEAR 7 Advanced	YEAR 8 Secure					
Secure 6	Emerging 3		-simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms	-derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies		-record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale
7	4	-use a calculator and other technologies to calculate results accurately and then interpret them appropriately	-simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms multiplying a single term over a bracket taking out common factors expanding products of two or more binomials	-draw and measure line segments and angles in geometric figures, including interpreting scale drawings -apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles -understand and use the relationship between parallel lines and alternate and corresponding angles	-change freely between related standard units [for example time, length, area, volume/capacity, mass] -express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1	-understand that the probabilities of all possible outcomes sum to 1
7	5	-use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5	-understand and use standard mathematical formulae; rearrange formulae to change the subject -model situations or procedures by translating them into algebraic expressions or formulae and by using graphs	-derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons	-use ratio notation, including reduction to simplest form -divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio -understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction -relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions	-generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.
8	6	-distinguish between exact representations of roots and their decimal approximations	-use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) - interpret/represent on a numberline and solve inequalities	-derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line -describe and sketch using conventional terms and notations: points, lines, parallel lines,	-solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics	

				perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric		
9	Advanced 7	-appreciate the infinite nature of the sets of integers, real and rational numbers.		-draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric		

Stage 4	Graphs & proportion	Algebra	Geometry	Equations	Statistics
YEAR 8 Advanced					
Secure 6	-solve problems involving direct proportion,	-generate terms of a sequence from either a term-to-term or a position-to-term rule	-use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles		-enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams
7	-solve problems involving direct and inverse proportion, including graphical and algebraic representations -use compound units such as speed, unit pricing and density to solve problems. -use scale factors, scale diagrams and maps	-recognise arithmetic sequences and find the nth term recognise geometric sequences and appreciate other sequences that arise. -expand single and double sets of brackets	-apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' Theorem, and use known results to obtain simple proofs -identify properties of, and describe the results of, translations, rotations and reflections applied to given figures	-recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane -interpret mathematical relationships both algebraically and graphically	-describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs. -interpret and construct stem and leaf diagrams
8	- interpret and compare numbers in standard form A x 10n 1≤A<10, where n is a positive or negative integer or zero	-Factorisation of linear expressions	-use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles -use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D -identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids	-reduce a given linear equation in two variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically -use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate solutions of simultaneous linear equations	-find the mean and estimated mean from a frequency table -use box plots to compare 2 data sets
9	-use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation a<x≤b	-Factorisation of linear and quadratic expressions	-exploring trigonometry with a 30-60-90 triangle	-find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs	