Stage 7	Acquiring	Developing	Secure	Excelling
	NUMBER AND THE NUMBER SYSTEM			
Factors and Multiples	Find common factors of 2 numbers. Find common multiples of 2 numbers	Find the Highest Common Factor (HCF) of 2 or more numbers. Find the Lowest Common Multiple (LCM) of 2 or more numbers	Solve word problems involving HCF/LCM	Recognise/justify whether a problem is HCF or LCM
Primes	Recall prime numbers under 20	Recall prime numbers under 50 and test up to 100	Recall prime numbers under 100 and test up to 200	Investigate/explain pat terns with prime numbers
Special numbers	Recall and use the first 15 square numbers	Recall and use the first 5 cube numbers	Recall and use the first 10 triangular numbers	Investigate/explain pat terns and connections with special types of number
Powers and roots	Understand/recognise power and root notation	Use a scientific calculator to find powers and roots	Describe the connection between squares and square roots	Calculate any power or 2 or 10 without a calculator, explaining your methods
	CALCULATING			
Addition and Subtraction	Add and Subtract numbers up to 6 digits or same number of decimal places	Add numbers with different amount of digits/decimal places	Subtract numbers with different amount of digits/decimal places	Solve missing number problems in addition/subtraction calculations
Powers of 10	Multiply a positive integer by a power of 10	Multiply a decimal by a power of 10	Divide positive integer and decimals by a power of 10	Calculate the power of 10 multiplier or divisor when answers are given
Multiplication	Multiply up to 4-digit numbers by 1/2-digit numbers	Investigate extended fact families including powers of 10 and decimals	Transform a decimal multiplication to a corresponding integer multiplication to solve	Explore and evaluate alternative methods of multiplication
Division	Divide up to 4-digit numbers by 1/2-digit numbers (no remainder)	Divide up to 4-digit numbers by 1/2-digit numbers (express remainder as decimal or fraction)	Divide a decimal by an integer >1	Transform a decimal-by-decimal division into an integer calculation
Order of Operations	Recognise and use that addition & subtraction have	Recall and use the order of operations in	Use the correct order of operations for	Apply the order of operations to multi

	equal priority as do multiplication and division	simple 2 step calculations	calculations involving powers and roots	step calculations
	CHECKING, APPROXIMATING AND ESTIMATING			
Decimal places	Round a number to the nearest 10/100/1000	Round a number to the nearest whole number or 1 decimal place	Round a number to any amount of decimal places	Investigate what numbers could round to a certain value
Significant figures	Identify the 1st significant figure in a number	Round a number to 1 significant figure	Round a number to any amount of significant figures	Investigate what numbers could round to a certain value
Estimating	Understand that an estimate is a way to find a rough answer to a calculation	Make an estimate by rounding values in a calculation	Make an estimate by rounding values to 1 significant figure	Use estimation to predict/evaluate the order of magnitude for the solution to a calculation
	COUNTING AND COMPARING			
Negative numbers	Know that negative numbers are less than zero	Use negative numbers in context. Order a list of negative numbers	Order a mix of positive and negative numbers	Order a mix of integers, decimals, an d fractions
Inequalities	Understand the inequality symbols < > ≤ ≥	Use = and ≠ correctly	Use inequality symbols to compare 2 or more numbers	Interpret and evaluate inequality statements
Ordering	Order decimals with the same amount of decimal places	Order decimals with different decimal places and simple fractions	Order any fractions	Order a mix of integers, decimals, and fractions
	VISUALISING AND CONSTRUCTING			
Notation	Recognise and use notation for lines – parallel and equal sides	Label a diagram given a list of properties	Recognise and use notation for labelling angles	Identify shapes and properties of those shapes by interpreting geometric notation
Symmetry	Identify line symmetry in polygons	Identify rotational symmetry in polygons	Construct shapes to meet given symmetry properties	Investigate orders of symmetry in regular polygons
Construct triangles	Use a ruler and protractor to construct angles <180°	Use a ruler and protractor to construct angles >180°	Use a ruler and compasses to construct triangles when all 3 sides are known	Consider what other sets of information you could be given to accurately construct a triangle

	INVESTIGATING PROPERTIES OF SHAPES			
3D Shapes	Recall the names of 3D shapes	Identify faces, edges and vertices in 3D shapes	Recognise and use nets of 3D shapes	Know the connection between faces, edges and vertices in 3D shapes
Quadrilaterals	Recall the names of special quadrilaterals	Solve problems involving properties of special quadrilaterals	Solve problems involving properties of special quadrilaterals including diagonals	Solve problems using properties of other plane figures
Triangles	Recall the names of special triangles	Understand and use notation related for equal sides, equal angles and right angles	Solve problems involving angles in special triangles	Solve problems involving properties and definitions of special triangles

	ALEGBRAIC PROFICIENCY: TINKERING			
vocabulary and notation of algebra	Know the meaning of expression, term, formula, equation, function	Know the meaning of expression, term, formula, equation, function	Know and use basic algebraic notation (the ‘rules’ of algebra)	Know and use basic algebraic notation (the ‘rules’ of algebra)
algebraic expressions	Simplify a simple expression by collecting like terms with one variable	Manipulate expressions by multiplying an integer over a bracket	Manipulate expressions by multiplying a single term over a bracket	Simplify more complex expressions by collecting like terms
Functions	Substitute positive numbers into expressions and formulae	Substitute positive numbers into more complex expressions and formulae	Given a function, establish outputs from given inputs	Given a function, establish outputs from given inputs and inputs from given outputs

	Exploring fractions, decimals and percentages and proportional reasoning.			
Percentages	Convert between recognised fractions and percentages e.g. 25%,50%	Convert between all fractions and percentages e.g. 7%,92%	Write a quantity as a percentage of another if both in the same units	Write a quantity as a percentage of another if in different units.
Ratio	Describe a comparison of measurements or objects using ratio notation a:b	Simplifying a ratio in two parts	Simplifying a ratio in three parts	Simplifying a ratio in different units
Diving into a ratio	Solve problems involving division in a ratio with two parts	Solve problems involving division in a ratio with two or more parts	Solve simple problems involving division into a ratio with two or more parts	Solve more complex problems involving a ratio a:b and one known value
	PATTERN SNIFFING			
Sequences and patterns	Find the next term in a liner sequence	Find the missing term in a linear sequence	Use a term-to-term rule to generate a linear sequence	Use a term-to-term rule to generate a non-linear sequence
	MEASURING SPACE AND INVESTIGATING ANGLES			
Measure	Use a ruler to measure line segments accurately.	Use a ruler to draw lines accurately.	Use a protractor accurately to measure angles	Use a ruler to draw angles accurately
Converting units	Convert between measures of money	Convert between measures of time	Convert between measures of length.	Convert between measures of mass and volume.
Angles	Recognise and solve problems using angles at a point on a line	Recognise and solve problems using angles at a point	Recognise and solve problems using vertically opposite angles	Solve problems involving angles on a line, around a point and vertically opposite.
	CALCULATING FRACTIONS, DECIMALS AND PERCENTAGES			
Fractions – adding and subtracting	Add and subtract fractions (same denominators)	Add and subtract fractions (different denominators)	Add mixed numbers	Subtract mixed numbers
Fractions – multiplying and dividing	Multiply and divide fractions	Multiply and divide fractions and convert answers to a mixed number	Multiply and divide mixed numbers	Solve problems involving multiplying and dividing fractions

Percentages	Use non calculator methods to find percentages of amounts and increase/decrease by a percentage	Identify the multiplier for a percentage increase or decrease	Use calculators to increase and decrease an amount by a percentage using multiplicative methods	Calculate the percentage change in a given situation, including percentage increase / decrease
	SOLVING EQUATIONS AND INEQUALITIES			
Equations	Solve one step equations where the answer is an integer or fraction	Solve two step equations where the answer is a fraction or integer	Solve three step equations where the answer is a fraction or integer	Solve multi-step equations including the use of brackets when the solution is a positive integer or fraction
	CALCULATING SPACE			
Perimeter	Understand the meaning of perimeter	Find the perimeter of squares, rectangles and triangles	Find the perimeter of 2D shapes	
Area	Understand the meaning of area	Find the area of a square, rectangle and triangle.	Find the area of parallelograms and trapezia's	Find the surface area of cubes and cuboids
Volume	Understand the meaning of volume	Find the volume of a cube	Find the volume of a cuboid	
	MATHEMATICAL MOVEMENT			
Reflections and Translations	Carry out a reflection in a given vertical or horizontal mirror line	Describe a translation as a 2D vector Write the equation of a line parallel to the x-axis or the y-axis	Construct and describe reflections in horizontal, vertical and diagonal mirror lines (45° from horizontal)	Solve problems involving reflections and translations
Rotations	Work with coordinates in all four quadrants	Construct rotations using a given angle, direction and centre of rotation	Describe rotations using a given angle, direction and centre of rotation	Solve problems involving rotations
	PRESENTATION OF DATA			
Frequency tables	Interpret frequency tables	Construct frequency tables		
Charts	Interpret and construct a bar chart/line graphs	Interpret and construct a pictogram	Understand that pie charts are used to show proportions	Construct a pie chart

	MEASURING DATA			
Mode	Find the mode of set of data	Find the mode from a frequency table	Analyse and compare sets of data, appreciating the limitations of different statistics	
Median	Find the median of a set of data when there are an odd number of numbers in the data set	Find the median of a set of data including when there are an even number of numbers in the data set	Analyse and compare sets of data, appreciating the limitations of different statistics	Find the median from a frequency table
Mean and range	Calculate and understand the range as a measure of spread (or consistency	Calculate the mean of a set of data	Analyse and compare sets of data, appreciating the limitations of different statistics	Calculate the mean from a frequency table