Year 8	Curriculum Checkpoints: What do students know and what can they do?			
Mathematics	**Developing**	**Securing**	**Flourishing**	**Excelling**
Fractions and ratio	Understanding and using ratio notation to represent relationships between quantities.	Dividing quantities in a given ratio, understanding how to distribute quantities according to a given ratio.	Comparing ratios and fractions, understanding their similarities and differences, and recognising equivalent ratios and fractions.	Understanding gradient as a ratio, recognising its role in representing the steepness or slope of a line.
	Solving problems involving ratios of the form m:n and 1:n, where m and n are integers.	Expressing ratios in their simplest integer form by dividing both parts by their greatest common divisor.	Understanding pi (π) as a ratio, recognising its relationship to the circumference and diameter of a circle.	Expressing ratios in the form 1:n, understanding the significance of the ratio of one part to the total quantity.
Transformations	Reflecting a shape in a horizontal or vertical line, understanding how to create the mirror image of a shape by flipping it across a horizontal or vertical axis.	Applying the principles of reflection to accurately reflect shapes in horizontal or vertical lines, understanding the concept of symmetry and how it relates to reflections.	Accurately describe a reflection, rotation, translaion or enlargement on a coordinate plane using correct terminology	Make advance generalisations about coordinates under refection, rotation, translation and enlargement.
	Reflecting a shape in a diagonal line, understanding how to create the mirror image of a shape by flipping it across a diagonal line.	Applying the principles of reflection to accurately reflect shapes in diagonal lines, understanding the properties and characteristics of diagonal reflections.		
	Rotate a shape about a point	Rotate a shape around a given coordinate		
	Translate a shape given colloquial instructions	Translate a shape with a given vector, understanding vector notation.		
	Enlarge a shape using a positive scale factor	Enlarge a shape from a point, or coordinate with a positive scale factor	Enlarge a shape from a point or coordinate with a fractional scale factor	Enlarge a shape from a point or a coordinate using a negative scale factor
Estimation and Rounding	Rounding numbers to a given number of decimal Estimating the answer to a calculation, using approximation techniques to find an approximate value without performing detailed calculations	Performing calculations using the order of operations, understanding the rules and conventions for carrying out calculations involving multiple operations.	Understanding and using error interval notation, recognising its importance in representing the range of possible values for a measurement or calculation.	Interpret standard form A x 10n, where $1 \leq A < 10$ and n is a positive and negative integer
Solving linear equations	Form and solve simple one step and two step equations, knowing the importance of the balance method.	Forming and solving equations with brackets, understanding how to set up equations based on given information and simplifying expressions to find solutions.	Forming and solving equations and inequalities with unknowns on both sides, understanding the steps and techniques to isolate the variable and determine the solution.	Applying advanced techniques and strategies to solve complex equations including manipulating expressions, applying inverse operations, and interpreting the solutions in the context of the problem.
Sequences	Recognise, generate and describe linear number sequences	Generate terms of a sequence from a term-to-term rule or a position-to-term rule	Recognise sequence types such as linear/arithmetic, geometric, fibonacci type and quadratic, and special types of sequences such as triangle numbers	Applying advanced mathematical concepts and techniques to generate sequences with non-linear or recursive rules.
	Generating sequences given a rule described in words, understanding how to follow verbal instructions to create a sequence of numbers.	Generating sequences given a complex algebraic rule, understanding how to apply advanced mathematical operations or formulas to create a sequence.	Applying advanced techniques and mathematical reasoning to generate sequences with complex rules involving variables or powers.	
	Generating sequences given a simple algebraic rule, understanding how to use basic mathematical operations to generate a sequence	Finding the rule for the nth term of a linear sequence, understanding how to identify the pattern or relationship between the terms and express it algebraically.	Investigating and analysing linear sequences to determine the rule for the nth term, understanding how to generalise the pattern and express it using algebraic notation.	Applying advanced algebraic reasoning to derive and prove the rule for the nth term of complex sequences, including quadratic or geometric sequences.
Linear Graphs	Recognising and using lines of the form y=kx, understanding that these lines represent direct proportion relationships between variables.	Recognising and using lines of the form y=x+a, understanding that these lines have a constant positive or negative intercept on the y-axis.	Exploring non-linear graphs, understanding that not all graphs can be represented by straight lines and recognising the characteristics of non-linear graphs.	Exploring the gradient of the line y=kx, understanding how the value of k affects the slope and steepness of the line.
	Linking the equation y=kx to direct proportion problems, understanding how to apply the equation to solve problems involving proportional relationships.	Plotting graphs of the form y=mx+c, understanding the role of the slope (m) and the y-intercept (c) in determining the characteristics of the graph.		Applying advanced techniques and mathematical reasoning to analyse and interpret graphs, including identifying key features and understanding the relationship between equations and their graphical