Mathematics Progression Map Knowledge and Skill Breakdown				Number	Skills and understanding		
Communication			Year Group	Knowledge	AO1: Use and apply standard techniques	AO2: Reason, interpret and communicate mathematically	AO3: Solve problems within mathematics and in other contexts
Across all year groups	Understanding knowledge	Comprehension, translation, summarising, demonstrating, discussion, describe	7	• I can carry out calculations from information given in tables and charts • I can understand and use financial language • I can understand and use the symbols < (less than) and > (greater than) • I can use a number line to order positive and negative numbers, including decimals • I can carry out additions and subtractions involving negative numbers • I can use a number line to calculate with negative numbers • I can carry out subtractions involving negative numbers • I can carry out multiplications involving negative numbers • I can multiply and divide decimal numbers by 10, 100, 1000 and 10 000 • I can order decimal numbers according to size • I can estimate calculations in order to spot possible errors • I can round up or down, to one decimal place • I can add and subtract with decimal numbers • I can multiply decimal numbers • I can divide with decimals • I can recognise and use square numbers up to 225 (15 x 15) and the corresponding square roots • I can round numbers to more than one decimal place (dp)	**I can:** **• accurately recall facts, terminology and definitions** **• use and interpret notation correctly** **• accurately carry out routine procedures or set tasks requiring multi-step solutions**	**I can:** **• make deductions, inferences and draw conclusions from mathematical information** **• construct chains of reasoning to achieve a given result** **• interpret and communicate information accurately** **• present arguments and proofs** **• assess the validity of an argument and critically evaluate a given way of presenting information**	**I can:** **• translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes** **• make and use connections between different parts of mathematics** **• interpret results in the context of the given problem** **• evaluate methods used and results obtained** **• evaluate solutions to identify how they may have been affected by assumptions made**
		Remember, Recall of information, discovery, observation, listing/ locating, naming					
	Analysis and linking	Identifying and analysing patterns, organisation of ideas, recognising trends, conclude. Beginning to establish a Line of Argument (LOA)					
		Using the core, solving problems using methods, manipulating, designing, experimenting, explain, compare					
	Evaluate application	Using concepts to create ideas, design and invention, composing, predicting, combining, justify. Beginning to establish a clear Line of Argument (LOA)					

				• I can round numbers to one or two significant figures (sf) • I can use the conventions of BIDMAS to carry out calculations • I can use written methods to carry out multiplications involving decimals accurately • I can use written methods to carry out divisions involving decimals accurately • I can convert between common metric units • I can use measurements in calculations • I can recognise and use appropriate metric units • I can understand the equivalence between a fraction, a decimal and a percentage • I can understand and use percentages greater than 100% • I can work out a fraction of a quantity without using a calculator • I can work out a percentage of a quantity without using a calculator • I can use a calculator to work out a percentage of a quantity • I know when it is appropriate to use a calculator • I can work out the result of a percentage change			

Mathematics Progression Map Knowledge and Skill Breakdown				Algebra Knowledge	Skills and understanding		
Communication			Year Group		AO1: Use and apply standard techniques	AO2: Reason, interpret and communicate mathematically	AO3: Solve problems within mathematics and in other contexts
Across all year groups	Understanding knowledge	Comprehension, translation, summarising, demonstrating, discussion, describe	7	• I can use algebra to write simple expressions and recognise equivalent expressions • I can find missing numbers in simple calculations • I can use algebra to write simple expressions • I can write formulae • I can substitute numbers into expressions to work out their value • I can simplify expressions • I can use formulae • I can use function machines to generate inputs and outputs • I can use given inputs and outputs to work out a function • I can solve equations involving one operation • I can solve equations involving two operations • I can use algebra to set up and solve equations • I can recognise, describe and generate sequences that follow a simple rule • I can work out missing terms in a sequence • I can work out the nth term • I can use the nth term to work out any term in a sequence • I know and understand the square and triangular number sequences, the Fibonacci sequence and Pascal's triangle • I understand what an equation is • I can solve equations involving one operation • I can solve equations involving two operations • I can use algebra to set up and solve equations	**I can:** **• accurately recall facts, terminology and definitions** **• use and interpret notation correctly** **• accurately carry out routine procedures or set tasks requiring multi-step solutions**	**I can:** **• make deductions, inferences and draw conclusions from mathematical information** **• construct chains of reasoning to achieve a given result** **• interpret and communicate information accurately** **• present arguments and proofs** **• assess the validity of an argument and critically evaluate a given way of presenting information**	**I can:** **• translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes** **• make and use connections between different parts of mathematics** **• interpret results in the context of the given problem** **• evaluate methods used and results obtained** **• evaluate solutions to identify how they may have been affected by assumptions made**
		Remember, Recall of information, discovery, observation, listing/ locating, naming					
	Analysis and linking	Identifying and analysing patterns, organisation of ideas, recognising trends, conclude. Beginning to establish a Line of Argument (LOA)					
		Using the core, solving problems using methods, manipulating, designing, experimenting, explain, compare					
	Evaluate application	Using concepts to create ideas, design and invention, composing, predicting, combining, justify. Beginning to establish a clear Line of Argument (LOA)					

				• I understand and use coordinates to locate points in all four quadrants • I can draw a graph for a simple relationship • I understand the connection between pairs of coordinates and the relationship shown in an equation and a graph • I can recognise and draw line graphs with fixed values of x and y • I can recognise and draw graphs of y = x and y = –x • I can recognise and draw graphs of the form x + y = a • I can draw and use real-life graphs • I can see how graphs can be used to represent real-life situations			

Mathematics Progression Map Knowledge and Skill Breakdown				Geometry	Skills and understanding		
Communication			Year Group	Knowledge	AO1: Use and apply standard techniques	AO2: Reason, interpret and communicate mathematically	AO3: Solve problems within mathematics and in other contexts
Across all year groups	Understanding knowledge	Comprehension, translation, summarising, demonstrating, discussion, describe	7	• I can use a simple formula to work out the perimeter of a rectangle • I can use a simple formula to work out the area of a rectangle • I can work out the perimeter and the area of a compound shape • I can work out the area of a triangle • I can work out the area of a parallelogram • I can work out the area of a trapezium • I can work out the surface area of cubes and cuboids • I can work out the volume of cubes and cuboids • I can use a protractor to measure an angle • I can use a protractor to draw an angle • I understand the properties of parallel, intersecting and perpendicular lines • I can calculate angles around a point • I can calculate angles on a straight line • I can calculate vertically opposite angles • I can calculate angles in parallel lines • I know that the sum of the angles in a triangle is 180° • I know that the sum of the angles in a quadrilateral is 360° • I can recognise shapes that have reflective symmetry and draw their lines of symmetry • I can recognise shapes that have rotational symmetry and find the order of rotational symmetry • I understand how to reflect a shape • I can use coordinates to reflect shapes in all four quadrants • I understand how to rotate a shape • I understand how to tessellate shapes	**I can:** **• accurately recall facts, terminology and definitions** **• use and interpret notation correctly** **• accurately carry out routine procedures or set tasks requiring multi-step solutions**	**I can:** **• make deductions, inferences and draw conclusions from mathematical information** **• construct chains of reasoning to achieve a given result** **• interpret and communicate information accurately** **• present arguments and proofs** **• assess the validity of an argument and critically evaluate a given way of presenting information**	**I can:** **• translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes** **• make and use connections between different parts of mathematics** **• interpret results in the context of the given problem** **• evaluate methods used and results obtained** **• evaluate solutions to identify how they may have been affected by assumptions made** • I can solve problems involving 3D shapes
		Remember, Recall of information, discovery, observation, listing/ locating, naming					
	Analysis and linking	Identifying and analysing patterns, organisation of ideas, recognising trends, conclude. Beginning to establish a Line of Argument (LOA)					
		Using the core, solving problems using methods, manipulating, designing, experimenting, explain, compare					
	Evaluate application	Using concepts to create ideas, design and invention, composing, predicting, combining, justify. Beginning to establish a clear Line of Argument (LOA)					

				• I am familiar with the names of 3D shapes and their properties • I can use isometric paper to draw shapes made from cubes • I can draw nets of 3D shapes • I can construct 3D shapes from nets including more complex shapes • I understand the relationship between faces, edges and vertices for 3D shapes			

Mathematics Progression Map Knowledge and Skill Breakdown				Statistics	Skills and understanding		
Communication			Year Group	Knowledge	AO1: Use and apply standard techniques	AO2: Reason, interpret and communicate mathematically	AO3: Solve problems within mathematics and in other contexts
Across all year groups	Understanding knowledge	Comprehension, translation, summarising, demonstrating, discussion, describe	7	• I can understand and calculate the mode, median and range of data • I can understand and calculate the mean average of data • I can create and use a tally chart • I can understand continuous data and use grouped frequency • I have developed greater understanding of data collection • I can use sample space diagrams to work out the probability of a combined event • I understand experimental probability • I can use a scaling method to draw a pie chart • I can read and interpret data from pie charts • I can use averages and range to compare data • I can carry out a statistical survey • I can read and interpret different statistical diagrams • I can use the correct words about probability • I understand the difference between theoretical probability and experimental probability • I understand the difference between theoretical probability and experimental probability	**I can:** **• accurately recall facts, terminology and definitions** **• use and interpret notation correctly** **• accurately carry out routine procedures or set tasks requiring multi-step solutions**	**I can:** **• make deductions, inferences and draw conclusions from mathematical information** **• construct chains of reasoning to achieve a given result** **• interpret and communicate information accurately** **• present arguments and proofs** **• assess the validity of an argument and critically evaluate a given way of presenting information** • I can read and interpret different statistical diagrams • I can use the correct words about probability • I can read and interpret data from pie charts • I can use averages and range to compare data • I can make sensible decisions by comparing averages and ranges of two sets of data • I can use charts and diagrams to interpret data and then write a report	**I can:** **• translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes** **• make and use connections between different parts of mathematics** **• interpret results in the context of the given problem** **• evaluate methods used and results obtained** **• evaluate solutions to identify how they may have been affected by assumptions made**
		Remember, Recall of information, discovery, observation, listing/ locating, naming					
	Analysis and linking	Identifying and analysing patterns, organisation of ideas, recognising trends, conclude. Beginning to establish a Line of Argument (LOA)					
		Using the core, solving problems using methods, manipulating, designing, experimenting, explain, compare					
	Evaluate application	Using concepts to create ideas, design and invention, composing, predicting, combining, justify. Beginning to establish a clear Line of Argument (LOA)					

Mathematics Progression Map Knowledge and Skill Breakdown				Ratio and Proportion	Skills and understanding		
Communication			Year Group	Knowledge	AO1: Use and apply standard techniques	AO2: Reason, interpret and communicate mathematically	AO3: Solve problems within mathematics and in other contexts
Across all year groups	Understanding knowledge	Comprehension, translation, summarising, demonstrating, discussion, describe	7	• I can use ratio notation • I can use ratio to compare quantities • I can write a ratio as simply as possible with whole numbers • I can write ratios in the form 1 : *x* where *x* could be a decimal. • I can use ratios to find totals or missing quantities • I can write ratios to compare more than two items • I understand the connections between fractions and ratios • I understand how ratios can be useful in everyday life • I understand how ratios can be useful in everyday life • I understand the connections between fractions and ratios	**I can:** **• accurately recall facts, terminology and definitions** **• use and interpret notation correctly** **• accurately carry out routine procedures or set tasks requiring multi-step solutions**	**I can:** **• make deductions, inferences and draw conclusions from mathematical information** **• construct chains of reasoning to achieve a given result** **• interpret and communicate information accurately** **• present arguments and proofs** **• assess the validity of an argument and critically evaluate a given way of presenting information**	**I can:** **• translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes** **• make and use connections between different parts of mathematics** **• interpret results in the context of the given problem** **• evaluate methods used and results obtained** **• evaluate solutions to identify how they may have been affected by assumptions made**
		Remember, Recall of information, discovery, observation, listing/ locating, naming					
	Analysis and linking	Identifying and analysing patterns, organisation of ideas, recognising trends, conclude. Beginning to establish a Line of Argument (LOA)					
		Using the core, solving problems using methods, manipulating, designing, experimenting, explain, compare					
	Evaluate application	Using concepts to create ideas, design and invention, composing, predicting, combining, justify. Beginning to establish a clear Line of Argument (LOA)					