

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	<ul style="list-style-type: none"> • I can carry out multiplications and divisions involving negative numbers • I can understand and use highest common factors • I can understand and use lowest common multiples • I can understand and use powers and roots • I can find the prime numbers of an integer • I can write one quantity as a percentage of another • I can use a multiplier to calculate a percentage change • I can work out a change in value as a percentage increase or decrease • I can multiply and divide by negative powers of 10 • I can round a specific number of significant figures • I can write a large number in standard form • I can multiply with numbers in standard form • I can add or subtract fractions and mixed numbers • I can multiply a fraction or a mixed number and an integer • I can divide a fraction or a mixed number by an integer • I can divide an integer or a mixed number by a fraction • I can multiply with combinations of large and small numbers mentally • I can divide combinations of large or small numbers mentally 	<p>I can:</p> <ul style="list-style-type: none"> • accurately recall facts, terminology and definitions • use and interpret notation correctly • accurately carry out routine procedures or set tasks requiring multi-step solutions 	<p>I can:</p> <ul style="list-style-type: none"> • 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 	<p>I can:</p> <ul style="list-style-type: none"> • 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		Algebra	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			8	<ul style="list-style-type: none"> • I can simplify algebraic expressions involving the four basic operations • I can simplify algebraic expressions by combining like terms • I can remove brackets from an expression • I can manipulate algebraic expressions • I can identify algebraic expressions • I can write algebraic expressions involving powers • I can solve equations involving brackets • I can solve equations where the answers are fractions or negative numbers • I can solve equations with the variable on both sides • I can solve equations with brackets and fractional coefficients • I can solve simple equations involving squares • I can change the subject of a formula • I can change the subject of a formula involving squares • I can extend the range of graphs of linear equations • I can work out the gradient in a graph from a linear equation • I can work out an equation of the form $y = mx + c$ from its graph • I can recognise and draw the graph from a quadratic equation • I can solve a quadratic equation from a graph 	<p>I can:</p> <ul style="list-style-type: none"> • accurately recall facts, terminology and definitions • use and interpret notation correctly • accurately carry out routine procedures or set tasks requiring multi-step solutions
		Remember, Recall of information, discovery, observation, listing/ locating, naming				
	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			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	<ul style="list-style-type: none"> • I can calculate angles in parallel lines • I know the geometric properties of quadrilaterals • I understand how to translate a shape • I can enlarge a 2D shape by a scale factor • I can construct the mid-point and the perpendicular bisector of a line • I can construct an angle bisector • I can construct a perpendicular to a line from or at a given point • I can construct a right-angled triangle • I can recognise congruent shapes • I know the conditions for recognising congruent triangles • I can solve geometrical problems using congruent triangles • I can convert metric units for area and volume • I can calculate the surface area of a prism • I can calculate the volume of a prism • I know the definition of a circle and the names of its parts • I can work out the relationship between the circumference and diameter of a circle • I can calculate the circumference of a circle • I can calculate the area of a circle 	I can: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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		Year Group	Statistics	Skills and understanding		
Communication			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	<ul style="list-style-type: none"> • I can recognise mutually exclusive and exhaustive events • I can use a probability scale to represent a chance • I can use sample spaces to calculate probabilities • I can use relative frequency to estimate probabilities • I can draw pie charts relative to data size • I can read scatter graphs • I understand correlation • I can create scatter graphs and use a line of best fit • I can create a grouped frequency table from raw data • I can draw a frequency diagram from a grouped frequency table 	I can: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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		Year Group	Ratio and proportion	Skills and understanding		
Communication				Knowledge	AO1: Use and apply standard techniques	AO2: Reason, interpret and communicate mathematically
Across all year groups	Understanding knowledge	Comprehension, translation, summarising, demonstrating, discussion, describe	<ul style="list-style-type: none"> • I can use ratio to compare lengths, areas and volumes of 2D and 3D shapes • I can enlarge a 2D shape by a scale factor • I understand how to use map scales • I understand the meaning of direct proportion • I can find missing values in problems involving proportion • I can represent direct proportion graphically and algebraically • I understand what inverse proportion is • I can use graphical and algebraic representations of inverse proportion • I can recognise direct and inverse proportion and work out missing values 	I can: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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)					