Newent Community School & Sixth Form Centre

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Theme/Big Idea	Understanding relationships and structure in Mathematics through graphs, number properties and measurement	Developing fluency and reasoning through patterns, proportions and Mathematical thinking	Building accuracy, algebraic confidence and analytical thinking for real-world problem solving	Building precision, confidence and depth through proportional reasoning and accurate calculation	Strengthening proportional reasoning and algebraic thinking for confident real-world problem solvers	Developing analytical thinking and spatial reasoning through data and geometry
Content What are they learning? (including keywords)	<u>Unit 1:</u> **Straight line graphs** Students will develop understanding of linear relationships by plotting and interpreting straight-line graphs, using tables of values, exploring gradients, y-intercepts and equations in the form $y = mx + c$ and drawing functions using substitution and rearranging. <u>Unit 2:</u> **Multiples, factors, primes, powers and roots** Students will build strong number skills by identifying primes, factors, multiples, and using these to calculate highest common factors, lowest common multiples, and working with powers and roots. <u>Unit 3 (part):</u>	<u>Unit 3 (part):</u> **Units, length, area and volume** Students will begin to apply mathematical knowledge to real-life contexts, including unit conversions, and calculating area, surface area, and volume, strengthening problem-solving, accuracy, and confidence across a range of mathematical concepts. <u>Unit 4:</u> **Fractions, decimals and percentages** Students will deepen their understanding of fractions, decimals, and percentages, applying these to solve problems involving increases, decreases, and reverse percentages. They will develop fluency in multiplying and dividing	<u>Unit 5 (part):</u> **Sequences** Students will explore patterns in sequences, using rules and formulas to generate and describe terms, including finding nth terms. They will also reason mathematically by testing whether values belong in sequences, strengthening problem-solving, logical thinking, and their ability to generalise patterns. <u>Unit 6:</u> **Probability** Students will develop understanding of probability by listing outcomes, calculating probabilities, and comparing theoretical and experimental results, including relative frequency. <u>Unit 7:</u>	<u>Unit 8 (part):</u> **Rounding, estimating, order of operations, x/÷ decimals** Students will build confidence in numerical accuracy by rounding, estimating, and applying order of operations. They will also develop skills in multiplying and dividing decimals efficiently, supporting precise calculation, logical reasoning, and problem solving across a wide range of mathematical contexts and everyday applications. <u>Unit 9 (part):</u> **Ratio, proportion, scales and speed** Students will develop a strong understanding of ratio and proportion by simplifying, comparing, and applying ratios to real-life contexts such as scaling, maps, and speed	<u>Unit 9 (part):</u> **Ratio, proportion, scales and speed** Students will develop a strong understanding of ratio and proportion by simplifying, comparing, and applying ratios to real-life contexts such as scaling, maps, and speed problems. They will solve increasingly complex problems using bar models and proportional reasoning. <u>Unit 10:</u> **Substitution, solving equations** Students will build algebraic skills by substituting into formulas and solving multi-step equations, including those with brackets. Through rich problems, students will connect algebra to real-world situations, improving logical	<u>Unit 11:</u> **Representing and reading from charts and diagrams, averages and range** Students will develop skills in handling data by constructing and interpreting histograms, scatter graphs, and stem-and-leaf diagrams, and comparing datasets using averages and range. <u>Unit 12:</u> **Angles in triangles and quadrilaterals, construction, bearings and scale drawing** Students will apply geometric knowledge to angles in triangles and quadrilaterals, including algebraic reasoning. They will construct accurate triangles and use bearings and map scales to create and interpret diagrams.

	Units, length, area and volume Students will begin to apply mathematical knowledge to real-life contexts, including unit conversions, and calculating area, surface area, and volume, strengthening problem-solving, accuracy, and confidence across a range of mathematical concepts. **Key vocabulary listed in Y8 Appendix 1**	fractions, including mixed numbers. <u>Unit 5 (part):</u> **Sequences** Students will explore patterns in sequences, using rules and formulas to generate and describe terms, including finding nth terms. They will also reason mathematically by testing whether values belong in sequences, strengthening problem-solving, logical thinking, and their ability to generalise patterns. **Key vocabulary listed in Y8 Appendix 1**	**Indices, expanding, simplifying** Students will strengthen algebraic fluency through work with indices, index laws, expanding brackets, and simplifying expressions. <u>Unit 8 (part):</u> **Rounding, estimating, order of operations, x/÷decimals** Students will build confidence in numerical accuracy by rounding, estimating, and applying order of operations. They will also develop skills in multiplying and dividing decimals efficiently, supporting precise calculation, logical reasoning, and problem solving across a wide range of mathematical contexts and everyday applications. **Key vocabulary listed in Y8 Appendix 1**	problems. They will solve increasingly complex problems using bar models and proportional reasoning. **Key vocabulary listed in Y8 Appendix 1**	thinking, fluency, and confidence in mathematical reasoning and problem solving. **Key vocabulary listed in Y8 Appendix 1**	**Key vocabulary listed in Y8 Appendix 1**
Skills How are they learning it?	Apply mathematical thinking by recognising structure and generalising relationships across algebra, number and geometry. Use mathematical reasoning to explain patterns. Use accurate diagrammatical	Apply mathematical thinking to recognise structure in sequences and generalise rules, including forming and using the nth term. Use mathematical reasoning to explain, justify and determine patterns, changes and methods.	Apply mathematical thinking to recognise structure, form general rules and connect algebraic processes across different contexts. Use mathematical reasoning to justify patterns in sequences, explain probability outcomes and interpret results.	Apply mathematical thinking to recognise proportional relationships and connect ideas across number, ratio and measures. Use mathematical reasoning to interpret ratios, justify proportional methods	Apply mathematical thinking to recognise structure, linking ratios, formulas and equations while forming general methods for problem solving. Use mathematical reasoning to explain proportional relationships, justify	Apply mathematical thinking to recognise structure in data sets and geometric figures and make connections within statistical analysis. Use mathematical reasoning to interpret trends in graphs, justify conclusions from data, and explain angle relationships using

	representations to make connections between different mathematical ideas.	Represent and communicate mathematical ideas clearly using bar models, diagrams and symbolic formulas.	Support understanding and communication using a range of representations including lists, probability scales and algebraic expressions.	and explain solutions in real-life contexts. Communicate mathematical ideas and understanding using supporting diagrams, bar models and scale drawings.	methods and interpret solutions. Use a range of representations including bar models, ratio diagrams, algebraic expressions and formal structures to support understanding and communication.	algebra and geometric properties. Use a range of representations including graphs, tables, diagrams and precise constructions to support understanding and communication.
Key Questions	**What** is gradient (*m*) and y-intercept (*c*), and **how** does changing it in the equation $y = mx + c$ affect the shape and position of a straight-line graph? **Why** is it important to use tables of values and substitution when drawing and interpreting linear graphs, and **what** do they help students understand about the relationship between variables? **What** is the relationship between powers and roots, and **why** are they important when working with numbers in mathematical problems? **How** do unit conversions and calculations of area, surface area, and volume help when solving real-life mathematical problems?	**How** do unit conversions and calculations of area, surface area, and volume help when solving real-life mathematical problems? **How** are fractions, decimals, and percentages connected, and **what** strategies can be used to convert between them when solving problems? **How** can identifying patterns and using rules help to find the nth term of a sequence, and **what** does this reveal about the structure of the sequence? **Why** is it important to test whether values belong to a sequence, and **how** does this support logical thinking and the ability to generalise patterns?	**How** can identifying patterns and using rules help to find the nth term of a sequence, and **what** does this reveal about the structure of the sequence? **Why** is it important to test whether values belong to a sequence, and **how** does this support logical thinking and the ability to generalise patterns? **How** can listing all possible outcomes help in accurately calculating probabilities, and **what** does this show about the likelihood of events? **Why** is it important to compare theoretical probability with experimental results, and **how** does relative frequency help in understanding real-life situations? **How** do index laws help simplify expressions, and	**How** do rounding, estimating, and applying the correct order of operations work together to improve accuracy in calculations? **How** does understanding ratio and proportion help solve real-life problems such as scaling, maps, and speed calculations, and **what** methods (like bar models) support this?	**How** does understanding ratio and proportion help solve real-life problems such as scaling, maps, and speed calculations, and **what** methods (like bar models) support this? **How** does substituting values into formulas help reveal the relationship between variables? **What** steps are needed to solve multi-step equations accurately? **Why** is it important to connect algebraic skills like substitution and equation solving to real-world problems, and **how** does this improve logical thinking and confidence in problem solving?	**How** do different charts and diagrams (such as histograms, scatter graphs, and stem-and-leaf diagrams) represent data, and **what** can they reveal about patterns or relationships within a dataset? **Why** is it important to use averages and range when comparing datasets, and **how** do these measures help in drawing meaningful conclusions from data? **How** can knowledge of angles in triangles and quadrilaterals be applied to solve problems involving algebra and geometric reasoning, and **what** rules must be considered? **Why** is it important to construct accurate diagrams using bearings and scale drawings, and **how** do these skills support understanding in

			what patterns can be observed when working with powers? **Why** is it important to be able to expand brackets and simplify algebraic expressions, and **how** does this support solving more complex mathematical problems? **How** do rounding, estimating, and applying the correct order of operations work together to improve accuracy in calculations?			real-life contexts such as maps and navigation?
Assessment (specific assessed piece(s); milestone(s))	Unit 1 Learning Review. Unit 2 Learning Review. Assessment 1, covering unit 1 and 2. QLA sheets provided from this.	Unit 3 Learning Review. Unit 4 Learning Review. Assessment 2, covering unit 3 and 4. QLA sheets provided from this. Possibly Unit 5 Learning Review.	Unit 5 Learning Review. Unit 6 Learning Review. Assessment 3, covering units 5 and 6. QLA sheets provided from this. Unit 7 Learning Review.	Unit 8 Learning Review. Assessment 4, covering units 7 and 8. QLA sheets provided Possibly Unit 9 Learning Review.	Unit 9 Learning Review. Unit 10 Learning Review.	End of year Assessments, covering content from Units 1 – 10. Unit 11 Learning Review. Unit 12 Learning Review.