



Number	Geometry	Ratio & proportion	Algebra	Statistics
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Unit Number	Topic name	Term	Skills developed*	Link to NC subject content	Prior learning	Next link in curriculum
1	RATIO	Autumn	• Develop understanding of ratio notation. • Use ratios in the form 1:n and n:1 • Develop understanding of the links between ratio, fractions and multiplicative relationships.	• Use ratio notation, including reduction to simplest form. • Divide a given quantity into two parts in a given ratio • Understand that a multiplicative relationship between two quantities can be expressed as a ratio or fraction	• Y6 NC link - solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • Y6 NC link - solve problems involving similar shapes where the scale factor is known or can be found	• Year 8 Autumn – Proportion and Scale
2	PROPORTION AND SCALE	Autumn	• Understand and apply multiplicative relationships between quantities • Draw and interpret scale diagrams and maps	• Solve problems involving direct or inverse proportion, including graphical and algebraic representations • Extend and formalise knowledge of ratio and proportion in working with measures and geometry	• Y6 NC link - solve problems involving similar shapes where the scale factor is known or can be found	• Year 9 Summer - Solving ratio and proportion problems



				• Use proportional reasoning to solve problems involving measures and scaling	• Y6 NC link - compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • Y8 Autumn - Ratio	
3	ALGEBRAIC MANIPULATION	Autumn	• Develop algebraic fluency, including understanding and using algebraic notation	• Simplify and manipulate algebraic expressions to maintain equivalence by: - collecting like terms - multiplying a single term over a bracket - factorise algebraic expressions by taking out common factors - expanding products of two or more binomials - factorise quadratic expressions	• Y7 Autumn – Equality and Equivalence (forming expressions and understanding algebraic notation) and Substitution into expressions and simplifying expressions.	• Year 8 Spring – Equations and Inequalities
4	COORDINATES AND GRAPHS	Autumn	• Develop algebraic and graphical fluency, including understanding linear functions • Identify and draw graphs of the form	• Use and interpret coordinates in all four quadrants • Plot graphs of equations that correspond to straight-line graphs in the coordinate plane • Interpret mathematical relationships both algebraically and graphically	• Year 6 NC link – describe positions on the full coordinate grid (all four quadrants) • Year 7 – Sequences and representing	• Year 8 Summer – Graphs and Charts



			$y = x + a$, $y = x - a$, and $y = ax$	● Move freely between numerical, algebraic, graphical and diagrammatic representations ● Use linear graphs to model relationships between variables ● Identify and draw lines that are parallel to the axes	patterns numerically ● Year 7 – Equality and equivalence (forming algebraic relationships)	
5	MULTIPLYING AND DIVIDING FRACTIONS	Autumn	● Extend their understanding of the number system to include fractions and powers	● Find the product of any pair of fractions ● Understand and use the reciprocal ● Divide any pair of fractions ● Multiply and divide improper fractions and mixed numbers ● Strengthen understanding of equivalence and simplify answers where appropriate	● Y7 Spring – Fractions and percentages.	● Year 8 Spring - Fractions and Percentages
6	SYMMETRY AND REFLECTION	Autumn	● Identify properties of, and describe the results of, reflections in two dimensions	● Identify and describe line symmetry in two-dimensional shapes ● Reflect shapes in horizontal, vertical and diagonal mirror lines ● Derive and illustrate properties of shapes using appropriate language and conventions ● Apply transformational geometry knowledge to solve problems	● Year 6 NC link – identify, describe and represent the position of a shape following reflection	● Year 9 Autumn – Constructions and Congruency
7	AREA, VOLUME AND DENSITY	Autumn	● Solve problems involving area, volume and density while moving fluently between	● Calculate the area of 2D shapes including triangles, parallelograms and trapezia ● Calculate volume of 3D shapes including cubes and cuboids.	● Year 6 NC link – calculate and compare area of rectangles and estimate area of irregular shapes	● Year 8 Summer – Circles (area and circumference)



			different units of measurement.	• Understand and use the formula connecting mass, density and volume • Develop fluency with metric units and measurement conversions • Change freely between related standard units and compound units where appropriate	• Year 6 NC link – solve problems involving converting between units of measure • Year 7 – Perimeter and area of shapes	
8	EQUATIONS AND INEQUALITIES	Spring	• Develop algebraic fluency, including understanding and solving linear equations and inequalities	• Solve linear equations in one variable, including equations with unknowns on both sides where appropriate • Use algebraic methods to solve problems • Understand and use inequality notation and represent solutions appropriately	• Y7 Autumn – Equality and Equivalence (understanding balancing and solving simple equations) • Year 8 Autumn – Algebraic Manipulation (collecting like terms, expanding brackets and factorising)	• Year 9 Autumn - Forming and Solving Equations
9	PERCENTAGES	Spring	• Understand percentages as operators and as a proportion of a whole.	• Fluently convert between fractions, decimals and percentages. • Understand percentage increase and decrease. • Interpret percentages greater than 100% • Calculate percentages of amounts and represent one number as a percentage of another.	• Year 6 NC link – solve problems involving percentages and fractions of quantities • Year 7 Spring – Fractions and percentages of amounts • Year 7 – Equivalence	• Year 9 Spring – Using percentages



					between fractions, decimals and percentages	
10	INDICES	Spring	Develop understanding of integer and fractional powers as well as indices laws	- Use integer powers and associated real roots (square, cube and higher) - Interpret and compare numbers in standard and index form where appropriate - Make and test conjectures about patterns involving powers and roots	- Y7 Autumn – Place value, ordering and rounding. - Y7 Summer – Properties of number	Year 8 Spring - Numbers in standard form.
11	INTERPRET AND REPRESENT DATA	Spring	Develop their ability to interpret and compare data and select the best method to do so.	- Construct and interpret appropriate tables, charts and diagrams for categorical and numerical data - Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: - appropriate graphical representation involving discrete, continuous and grouped data. - using and interpreting measures of central tendency and spread where appropriate.	- Y7 Autumn – Averages and Range - Y7 Spring – Graphing Data	Year 8 Summer – Tables and Probability
12	ANGLES IN PARALLEL LINES AND POLYGONS	Summer	Identify and calculate with alternate, corresponding and co-interior angles in parallel lines.	Derive and apply angle facts, including angles at a point, angles on a straight line and vertically opposite angles	- Y7 Summer – Angles and Polygons - Year 6 NC link – compare and classify geometric shapes based on	Year 9 Autumn - Constructions and Congruency



				- Derive results concerning the sum of angles in triangles, quadrilaterals and polygons and apply these in calculations - Calculate missing interior and exterior angles in polygons	their properties and find unknown angles in triangles, quadrilaterals and regular polygons	
13	TABLES AND PROBABILITY	Summer	Develop knowledge of probability including correct vocabulary, calculating probabilities and constructing and interpreting sample spaces and two-way tables.	- Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale - Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams - Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes	Y8 Spring – Interpret and Represent Data	Year 9 Summer - Probability
14	CIRCLES	Summer	Develop their mathematical knowledge of circles including identifying key parts of a circle, finding area and perimeter of circles, and developing fluency in using π.	- Use geometrical properties and mathematical reasoning to solve problems - Derive and apply formulae to calculate and solve problems involving: - Perimeter and area of circles - Areas of composite shapes	- Year 7 Spring – Perimeter and area - Year 8 Spring – Area, Volume and Density (using formulae and compound measures)	Year 9 Autumn – Three-dimensional shapes.
15	GRAPHS AND CHARTS	Summer	Construct and interpret a variety of graphs and charts, including scatter graphs and time series graphs.	Interpret, analyse and compare distributions of data sets from univariate empirical distributions through appropriate graphical representations	- Year 7 Spring – Graphing Data - Year 8 Autumn – Coordinates and Graphs	Year 9 Autumn – Straight line graphs



				• Construct and interpret appropriate tables, charts and diagrams for categorical and numerical data. • Develop statistical fluency through analysing and comparing data representations	• Year 8 Spring – Interpret and Represent Data	
16	SEQUENCES	Summer	• Develop understanding of sequences, including identifying arithmetic and geometric sequences and finding the nth term of arithmetic sequences.	• Generate terms of a sequence from a rule • Recognise arithmetic sequences and find the nth term • Recognise geometric sequences and appreciate other sequences which may arise • Use algebra to generalise the structure of arithmetic and represent patterns algebraically	• Year 6 NC link – generate and describe linear number sequences • Y7 Autumn – Sequences	• Year 9 Autumn - Straight line graphs

* Throughout the entire curriculum, content and skills are revisited and reused continuously. The colour code refers to the main strand each topic falls under.