



Number	Geometry	Ratio & proportion	Algebra	Statistics
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Topic name	Term	Skills developed*	Link to NC subject content	Prior learning	Next link in curriculum
STRAIGHT LINE GRAPHS	Autumn	<ul style="list-style-type: none"> Develop algebraic and graphical fluency, including understanding linear and simple quadratic functions 	<ul style="list-style-type: none"> Reduce a given linear equation to the form $y=mx+c$ Calculate and interpret gradients and intercepts of graphs Use linear and quadratic graphs to find values of y for given values of x 	<ul style="list-style-type: none"> Y8 Autumn – Working in the Cartesian Plane 	<ul style="list-style-type: none"> KS4/GCSE
FORMING AND SOLVING EQUATIONS	Autumn	<ul style="list-style-type: none"> Move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs] 	<ul style="list-style-type: none"> Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) Rearrange formulae to change the subject Model situations or procedures by translating them into algebraic expressions, or formulae and graphs 	<ul style="list-style-type: none"> Y8 Spring – Brackets, Equations and Inequalities 	<ul style="list-style-type: none"> KS4/GCSE
THE DATA HANDLING CYCLE	Autumn	<ul style="list-style-type: none"> Explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally 	<ul style="list-style-type: none"> Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data 	<ul style="list-style-type: none"> Y8 Autumn – Representing Data 	<ul style="list-style-type: none"> KS4/GCSE
MEASURES OF LOCATION	Autumn	<ul style="list-style-type: none"> Explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally 	<ul style="list-style-type: none"> Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers) 	<ul style="list-style-type: none"> Y8 Autumn – Representing Data 	<ul style="list-style-type: none"> KS4/GCSE



THREE DIMENSIONAL SHAPES	Autumn	<ul style="list-style-type: none"> Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders) 	<ul style="list-style-type: none"> Find the surface area of cubes, cuboids, triangular prisms and cylinders Find the volume of cubes, cuboids, prisms and cylinders 	<ul style="list-style-type: none"> Y8 Summer – Area of Trapezia and Circles 	<ul style="list-style-type: none"> KS4/GCSE
CONSTRUCTIONS AND CONGRUENCY	Autumn	<ul style="list-style-type: none"> Begin to reason deductively in geometry, number and algebra, including using geometrical constructions 	<ul style="list-style-type: none"> Construct and interpret scale drawings Construct angle and line bisectors, as well as locus Identify and explore congruent figures 	<ul style="list-style-type: none"> Y8 Autumn – Ratio and Scale Y8 Summer – Line Symmetry and Reflection 	<ul style="list-style-type: none"> KS4/GCSE
FRACTIONS AND PERCENTAGES	Spring	<ul style="list-style-type: none"> Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics 	<ul style="list-style-type: none"> Calculate percentage increase and decrease using a multiplier Work with percentage change Choose the most appropriate method to solve problems 	<ul style="list-style-type: none"> Y8 Spring – Fractions and Percentages 	<ul style="list-style-type: none"> Year 9 Spring - Using Percentages
NUMBER	Spring	<ul style="list-style-type: none"> Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems 	<ul style="list-style-type: none"> Solve problems with integers, decimals, fractions and standard form 	<ul style="list-style-type: none"> Y8 Spring – Number Sense 	<ul style="list-style-type: none"> KS4/GCSE
USING PERCENTAGES	Spring	<ul style="list-style-type: none"> Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics 	<ul style="list-style-type: none"> Solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics 	<ul style="list-style-type: none"> Y9 Spring – Fractions and Percentages 	<ul style="list-style-type: none"> KS4/GCSE



STANDARD INDEX FORM	Spring	<ul style="list-style-type: none"> Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems 	<ul style="list-style-type: none"> Interpret and compare numbers in standard form $A \times 10^n$ $1 \leq A < 10$, where n is a positive or negative integer or zero 	<ul style="list-style-type: none"> Y8 Spring – Standard Index Form 	<ul style="list-style-type: none"> Year 9 Spring - Numbers
MATHS AND MONEY	Spring	<ul style="list-style-type: none"> Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics 	<ul style="list-style-type: none"> Calculate with simple and compound interest Solve problems with Value Added Tax Solve problems with exchange rates 	<ul style="list-style-type: none"> Y9 Spring – Using Percentages Y8 Autumn – Ratio and Scale 	<ul style="list-style-type: none"> KS4/GCSE
AREA OF TRAPEZIA AND CIRCLES	Spring	<ul style="list-style-type: none"> Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics 	<ul style="list-style-type: none"> Calculate the area of a trapezium Investigate the area of a circle Calculate the area of a circle and parts of a circle with/without a calculator 	<ul style="list-style-type: none"> Y7 Summer – Geometric Reasoning 	<ul style="list-style-type: none"> Year 9 Autumn - Three dimensional shapes
DEDUCTION	Spring	<ul style="list-style-type: none"> Begin to reason deductively in geometry, number and algebra, including using geometrical constructions 	<ul style="list-style-type: none"> Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles Interpret mathematical relationships both algebraically and geometrically 	<ul style="list-style-type: none"> Y8 Summer – Angles in Parallel Lines and Polygons 	<ul style="list-style-type: none"> KS4/GCSE
LINE SYMMETRY AND REFLECTION	Spring	<ul style="list-style-type: none"> Use language and properties precisely to analyse numbers, algebraic expressions, 2-D and 3-D shapes, probability and statistics 	<ul style="list-style-type: none"> describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric 	<ul style="list-style-type: none"> Y7 Summer – Geometric Reasoning 	<ul style="list-style-type: none"> Year 9 Spring - Rotation and Translation



ROTATION AND TRANSLATION	Spring	<ul style="list-style-type: none">● Begin to reason deductively in geometry, number and algebra, including using geometrical construction	<ul style="list-style-type: none">● Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures● Find the results of a series of transformations	<ul style="list-style-type: none">● Y7 Summer – Geometric Reasoning	<ul style="list-style-type: none">● KS4/GCSE
PYTHAGORAS THEOREM	Spring	<ul style="list-style-type: none">● Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems	<ul style="list-style-type: none">● Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' Theorem, and use known results to obtain simple proofs	<ul style="list-style-type: none">● Y7 Summer – Geometric Reasoning	<ul style="list-style-type: none">● KS4/GCSE
ENLARGEMENT AND SIMILARITY	Summer	<ul style="list-style-type: none">● Select appropriate concepts, methods and techniques to apply to unfamiliar and nonroutine problems.	<ul style="list-style-type: none">● Construct similar shapes by enlargement, with and without coordinate grid● Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, including Pythagoras' Theorem, and use known results to obtain simple proofs	<ul style="list-style-type: none">● Y9 Spring – Rotation and Translation● Y7 Summer – Geometric Reasoning	<ul style="list-style-type: none">● KS4/GCSE
SOLVING RATIO AND PROPORTION PROBLEMS	Summer	<ul style="list-style-type: none">● Select appropriate concepts, methods and techniques to apply to unfamiliar and nonroutine problems.	<ul style="list-style-type: none">● Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction● Solve problems involving direct and inverse proportion, including graphical and algebraic representations● Use compound units such as speed, unit pricing and density to solve problems	<ul style="list-style-type: none">● Y8 Autumn – Ratio and Scale	<ul style="list-style-type: none">● KS4/GCSE



RATES	Summer	<ul style="list-style-type: none"> • Select appropriate concepts, methods and techniques to apply to unfamiliar and nonroutine problems 	<ul style="list-style-type: none"> • Use compound units such as speed, unit pricing and density to solve problems • change freely between related standard units [for example time, length, area, volume/capacity, mass] 	<ul style="list-style-type: none"> • Y8 Spring – Number Sense 	<ul style="list-style-type: none"> • KS4/GCSE
PROBABILITY	Summer	<ul style="list-style-type: none"> • Explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally 	<ul style="list-style-type: none"> • 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 and use these to calculate theoretical probabilities 	<ul style="list-style-type: none"> • Y8 Autumn – Sets and Probability • Y8 Autumn – Tables and Probability 	<ul style="list-style-type: none"> • KS4/GCSE
ALGEBRAIC REPRESENTATION	Summer	<ul style="list-style-type: none"> • Identify variables and express relations between variables algebraically and graphically 	<ul style="list-style-type: none"> • Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane • Find approximate solutions to contextual problems from given graphs of a variety of functions, including piecewise linear, exponential and reciprocal graphs 	<ul style="list-style-type: none"> • Y9 Autumn – Forming and Solving Equations 	<ul style="list-style-type: none"> • KS4/GCSE

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