Maths – KS3 Curriculum Summary (2023-2024)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	**Number** - Integers and place value, written methods of +,-,x,/, order of operations, decimals and rounding, using a calculator. **Algebra** - Using function machines, collecting like terms, expanding single brackets, substitution with positive numbers. **Stretch and challenge** - Rounding to significant figures, using trigonometric functions on a calculator, substitution with negative numbers.	**Algebra** - Solving 1 and 2 step equations, solving equations involving brackets. **Data** – Bar charts, pictograms, pie charts, two-way tables, averages (MMMR). **Geometry** – Time, measurement, convert metric units, perimeters and areas of basic shapes. **Stretch and challenge** – Solving equations with fractions negatives and unknowns on both sides, dual bar charts, perimeters and areas of compound shapes.	**Number** – Fractions; shading, simplifying, equivalence, common denominators, arithmetic (+,-,x,/). **Data** – Probability; language of probability, probability scale, summing to 1, experimental probabilities. **Geometry** – Using a protractor, using basic angle rules (triangles, around points, straight lines). **Stretch and challenge** – Estimating outcomes, alternate and corresponding angles using parallel lines.	**Number** – Number properties (primes, squares), factors, multiples, prime factor decomposition, HCF, LCM. **Ratio** – Understanding ratio notation, simplifying, sharing into parts, recipe style questions, direct proportions. **Algebra** – Recognising arithmetic sequences, generating sequences using the nth term, finding the nth term. **Stretch and challenge** – Sharing between ratio when one side is given, proving if a term is in a given sequence.	**Number** – Percentages of amounts, both calculator and numerical methods, increasing/decreasing by a percentage. Fraction, decimal and percentage conversions, representing graphically. Comparing and ordering FDP. **Geometry** – Nets and properties of 3D shapes, understand units of volume, calculate volumes of cubes and cuboids. **Stretch and challenge** – Work with percentages greater than 1, recurring decimals, volumes of prisms.	**Algebra** – Reading coordinates, plot lines parallel to the x and y axes, find midpoints of line segments graphically, plot lines in the form y = mx + c. **Geometry** – Identify and apply, translations, reflections, rotations and enlargements, construct angle and perpendicular bisectors. **Stretch and challenge** – Find the midpoints of line segments given their coordinates.
Year 8	**Algebra** – Generate sequences given worded information or diagrams, find a term given the position, expand and factorise single brackets, equations with unknowns on both sides. **Data** – Scatter graphs, understand correlation, calculate the mean from a frequency table. **Stretch and challenge** - Explore geometric sequences and the common ratio, expand binomials, means from grouped frequency tables.	**Algebra** – Plot inequalities on number lines, solve 2 step inequalities. **Geometry** – Know and use circle formulae for area and circumference. **Ratio** – Write ratios in the form 1:n, currency conversions, scale diagrams. **Stretch and challenge** – Solve questions involving portions of circles, combining ratios.	**Number** – Decimal calculations, and ordering decimals. **Algebra** – Know and use the four basic indices rules. **Data** – Use probability alongside two-way tables and Venn diagrams, relative frequency. **Stretch and challenge** – Explore Pythagoras' theorem for right angled triangles, use probability tree diagrams for independent events.	**Geometry** – Identify and name polygons, regular and irregular polygons, name quadrilaterals, find interior and exterior angles of regular polygons. **Number** – Review percentages of amounts and increasing/decreasing by a percentage, percentage change. **Stretch and challenge** – Convert numbers between ordinary and standard form, standard form calculations, compound and simple interest.	**Geometry** – Convert metric units, including areas and volumes, calculate the volumes of cylinders and other prisms. **Number** – Review assorted fraction skills, operations, comparisons, equivalence, and mixed numbers. **Algebra** – Plot lines in the form y = mx + c, identify parallel lines graphically, explore the shape of quadratic graphs. **Stretch and challenge** – Calculate and interpret gradients of lines, both parallel and perpendicular.	**Number** – Rounding to significant figures, fluently convert recurring decimals. **Geometry** – Identify congruent shapes, apply and interpret combined transformations, identify and draw a locus from a given point, line or shape. **Stretch and challenge** – Explore algebraic proofs for recurring decimals.

Year 9	Number – Converting between ordinary numbers and standard forms, review of BIDMAS, HCF, LCM, rounding and powers. Algebra – Review of all areas of algebra, expressions, equations, expansion, index laws. Stretch and challenge – Introduction to surds, factorising quadratic expressions including the difference of two squares.	Algebra – Changing the subject of a formula, solving more complex equations, substitution into formulae. Data – Frequency tables with grouped data, stem and leaf diagrams. Stretch and challenge – Continuing and finding the nth term of quadratic sequences, calculating and comparing averages from tables and diagrams.	Data – Review of scatter graphs, understanding the difference between correlation and causation. Number – Review of all fraction skills, recurring decimals into fractions, percentages review, reverse percentages, compound interest. Stretch and challenge – Working with fractions and reciprocals.	Ratio - Writing ratios as fractions, writing ratios as linear functions. Geometry – Formulae for polygons, both interior and exterior angles, parallel line angle rules, Pythagoras' theorem. Stretch and challenge – Identify direct proportion from a table of values, Pythagoras' theorem involving surds.	Geometry – Trigonometry for right angled triangles, finding side lengths and angles. Algebra – Construct and interpret compound inequalities, solve linear inequalities, continue both geometric and quadratic sequences. Stretch and challenge – Explore linear graphs in the form ax + by = c, plot using a table of values quadratic, cubic and reciprocal graphs.	Data – Calculate averages from graphs and charts. Geometry – Arc lengths and sectors, solve problems involving portions of circles and compound shapes, metric conversions, surface areas of simple shapes. Stretch and challenge – Use formulae for surface areas and volumes of more complex shapes, and frustums.