Year 9 Curriculum Grid
Mathematics

Year/Term	Unit	Intent			
		Foundation	Foundation Plus	Higher	Higher Plus
Overall					
Autumn 1	Number	HCF and LCM of two numbers. Prime decomposition. Calculate with positive integer indices. Multiply and divide numbers written in standard form.	HCF and LCM of two numbers. Prime decomposition. Calculate with positive integer indices. Multiply and divide numbers written in standard form.	Reciprocals of numbers. Calculate with negative indices. Expand brackets involving surds.	Calculate with fractional indices. Expand brackets involving surds.
	Sequences	Generate terms of linear sequence using nth term. Find nth term of a linear sequence. Identify if a term appears in a sequence.	Generate terms of linear sequence using nth term. Find nth term of a linear sequence. Identify if a term appears in a sequence.	Recognise and continue simple geometric and quadratic sequences. Classify different types of sequences. Generate terms of a quadratic sequence using position-term rule.	Recognise and continue simple geometric and quadratic sequences. Classify different types of sequences. Generate terms of a quadratic sequence using position-term rule.
	Algebra Skills	Form expressions from context. Expand single brackets. Factorise expressions by taking out a common factor.	Form expressions from context. Expand single brackets. Factorise expressions by taking out a common factor.	Differentiate between expressions, equations, formulae, identities and inequalities. Expand two brackets with no x-coefficients. Factorise a quadratic expression of the form $x^2 + bx + c$. Simplify expressions involving negative indices.	Differentiate between expressions, equations, formulae, identities and inequalities. Expand two brackets with no x-coefficients. Factorise a quadratic expression of the form $x^2 + bx + c$. Simplify expressions involving negative indices.
	Ratio & Proportion	Proportion in real context including inverse. Share a quantity in a ratio. Apply ratio	Proportion in real context including inverse. Apply ratio to real contexts and	Direct and inverse proportion graphs. Linear equations that describe direct and inverse	Direct and inverse proportion graphs. Linear equations that describe direct and inverse proportions. Solve ratio

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		to real contexts and problems.	problems. Use equivalent ratios.	proportions. Use equivalent ratios. Solve ratio problems.	problems including those involving multiple ratios.
Autumn 2	Measures & Estimation	Error intervals using inequality notation. Calculate upper and lower bounds. Density, mass, volume calculations. Circumference of a circle. Perimeter of semi-circles and quadrants.	Error intervals using inequality notation. Calculate upper and lower bounds. Density, mass, volume calculations. Circumference of a circle. Perimeter of semi-circles and quadrants.	Upper and lower bounds, including of calculations. Pressure, force, area calculations. Arc length. Perimeter of sectors.	Upper and lower bounds, including of calculations. Pressure, force, area calculations. Arc length. Perimeter of sectors.
	Functions & Equations	Solve multi-step linear equations. Solve two linear simple simultaneous equations algebraically.	Solve multi-step linear equations. Solve two linear simple simultaneous equations algebraically.	Use function notation. Find the inverse function. Derive linear equations from a situation. Solve linear equation with unknowns on both sides. Find roots of quadratic equations by factorising. Solve two linear simultaneous equations algebraically and derive them from a situation.	Use function notation. Find the inverse function. Solve linear equation with unknowns on both sides. Find roots of quadratic equations by factorising. Solve two linear simultaneous equations algebraically and derive them from a situation.
	Translations & Vectors		Represent column vectors graphically. Multiply column vectors by a scalar.	Add and subtract two column vectors. Find resultant of two given vectors. Relationship between parallel vectors.	Add and subtract two column vectors. Find resultant of two or more given vectors. Relationship between parallel vectors.
	Angles	Interior and exterior angles of polygons including problem solving. Angles in a triangle. Measure and draw bearings.	Interior and exterior angles of polygons including problem solving. Angles in parallel lines. Measure and draw bearings.	Angles in parallel lines. Parts of a circle. Circle theorems that do not involve tangents. Find return bearings. Solve bearing problems using accurate drawings.	Solve problems use all angle and parallel line rules. Parts of a circle. Circle theorems that do not involve tangents. Find return bearings. Solve bearing problems using accurate drawings.

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Spring 1	Graphs & Tables	Find missing coordinates and midpoints. Plot and recognise vertical and horizontal lines on a coordinate grid.	Plot linear graphs of the form $y = mx + c$ by generating coordinates.	Find equation of linear graph using a point and the gradient, and using two points. Plot quadratic graphs and identify roots, intercept and turning points. Velocity-time graphs, understanding what the gradient and area represent.	Find equation of linear graph using a point and the gradient, and using two points. Plot quadratic graphs and identify roots, intercept and turning points. Velocity-time graphs, understanding what the gradient and area represent.
	Statistics	Averages and range from discrete data in a table. Mean and median for simple grouped data. Stem-and-leaf diagrams.	Averages and range from discrete data in a table. Mean and median for grouped data. Compare data. Stem-and-leaf diagrams. Frequency polygons.	Consider outliers in data. Scatter graphs and line of best fit. Interpolate and extrapolate apparent trends.	Consider outliers in data. Scatter graphs and line of best fit. Interpolate and extrapolate apparent trends.
	Decimals	Multiply and divide a decimal by a whole number.	Multiply and divide a decimal by a whole number.	Use one decimal calculation to find the answer to another.	Use one decimal calculation to find the answer to another.
Spring 2	Fractions	Numbers as a fraction of another. Convert between mixed numbers and improper fractions.	Numbers as a fraction of another. Convert between mixed numbers and improper fractions. Multiply and divide integers by simple fractions.	Add, subtract, multiply and divide fractions and mixed numbers.	Add, subtract, multiply and divide fractions and mixed numbers.
	Construction & Loci	Construct perpendicular bisectors and angle bisectors.	Construct perpendicular bisectors and angle bisectors.	Construct perpendicular of a line at a point and from a point. Use constructions to construct simple loci.	Construct perpendicular of a line at a point and from a point. Use constructions to construct simple loci.
	Probability	Simple probabilities using fractions and decimals. Link between probability of events occurring and not occurring.	Probabilities using fractions and decimals. Link between probability of events occurring and not occurring.	Expected outcomes. Compare experimental data and theoretical probabilities. Relative frequency.	Expected outcomes. Compare experimental data and theoretical probabilities. Relative frequency.
Summer 1	Further Algebra Skills	Substitute +/- integer values into formulae and expressions	Substitute +/- integer values into formulae and expressions	Rearrange formulae where subject appears only once. Solve linear inequalities in	Rearrange formulae where subject appears more than once. Solve linear inequalities

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		including those with brackets and indices.	including those with brackets and indices.	one variable with unknowns on both sides and with two inequality signs.	in one variable with unknowns on both sides and with two inequality signs.
	Trigonometry	Pythagoras' Theorem in 2D.	Pythagoras' Theorem in 2D including real life problems.	Pythagoras' Theorem in 3D.	Pythagoras' Theorem in 3D including real life problems.
	Shapes & Transformations	Nets of 3D shapes. Find missing sides or angles in congruent shapes. Describe reflections of 2D shapes on a coordinate grid. Transform simple 2D shapes using a combination of translations, rotations and reflections.	Nets of 3D shapes. Find missing sides or angles in congruent shapes. Transform simple 2D shapes using a combination of translations, rotations and reflections.		
Summer 2	Area & Volume	Area of parallelograms and trapeziums. Volume of a prism.	Area of a circle, semi-circle, quadrant and composite circle shapes. Surface area of a cylinder. Volume of a cylinder.	Area of a sector. Find angle of sector given its area. Surface area of a sphere, hemisphere and frustum. Volume of cones, pyramids, spheres, hemispheres and frustums.	Area of a sector. Find angle of sector given its area. Surface area of a sphere, hemisphere and frustum. Volume of cones, pyramids, spheres, hemispheres and frustums.
	Percentages	Number as a percentage of another. FDP conversions.	Number as a percentage of another. FDP conversions.	Use multipliers to calculate percentage increase and decrease. Simple interest.	Use multipliers to calculate percentage increase and decrease. Simple interest.
	Enlargement & Similarity	Enlarge a simple 2D shape by positive scale factor on a coordinate grid. Describe a simple positive scale factor enlargement.	Enlarge 2D shape by positive scale factor on a coordinate grid. Describe a positive scale factor enlargement.	Enlarge a simple 2D shape by negative scale factor on a coordinate grid. Describe a simple negative scale factor enlargement.	Enlarge 2D shape by negative scale factor on a coordinate grid. Describe a negative scale factor enlargement.