Revision 'Must Know' Checklist: Y11 Maths Foundation Tier (Upper)

Below is a checklist of everything you must know to be successful by the end of this year.

Number	Algebra	Geometry and Measures	Ratio and Proportion	Statistics and Probability
• Can recognise multiples, factors, and prime numbers from a list. • Find the lowest common multiple and highest common factor of two numbers by listing. • Evaluate expressions involving squares, cubes, and roots. • Find the prime factor decomposition of positive integers. • Round numbers to a given number of significant figures. • Estimate simple numerical calculations by rounding numbers to 1 significant figure. • Use laws of indices to multiply and divide numbers written in index notation. • Convert between ordinary numbers and standard	• Identify expression/ equation/ formula/ identity from a list. • Manipulate and simplify algebraic expressions by collecting 'like' terms. • Multiply together two simple algebraic expressions and simplify by cancelling. • Expand a single bracket. • Substitute numbers into simple algebraic expressions. • Factorise algebraic expressions by taking out common factors of a single bracket. • Argue mathematically to show algebraic expressions are equivalent. • Use index notation and laws when multiplying or dividing algebraic terms.	• Find missing angles in triangles. • Find missing angles in quadrilaterals. • Show step-by-step deduction when solving multi-step angle problems with triangles/quadrilaterals. • Find missing angles in parallel and intersecting lines. • Find the perimeter and area of compound shapes. • Find the perimeter and area of trapeziums. • Find the surface area of a cube and a cuboid. • Find the volume of triangular prisms. • Reflect shapes on non-coordinate grids.	• Solve direct proportion problems using the unitary method. • Work out which product is the better buy. • Scale up recipes and decide if there is enough of each ingredient. • Simplify ratios. • Write a ratio as a fraction. • Share a quantity in a given two-part or three-part ratio. • Upscale a ratio to find one quantity when the other is known. • Solve problems involving Speed, Distance, Time. • Solve problems involving Density, Mass, Volume.	• Calculate the mean, mode, median and range for discrete data. • Produce and interpret a pictogram. • Produce and interpret dual/comparative bar chart. • Produce and interpret a composite bar chart. • Use information provided to complete a two-way table. • Construct a stem and leaf diagram. • Construct pie charts for categorical data and discrete/continuous numerical data. • Draw a scatter graph and identify outliers. • Find mean from a discrete/ungrouped frequency table.

form. • Compare and order fractions by using a common denominator. • Add and subtract fractions. • Multiply and divide fractions by fractions. • Convert between simple fractions, decimals and percentages. • Order simple fractions, decimals and percentages. • Find a percentage of a quantity/measurement using a multiplier. • Calculate a percentage increase/decrease of a quantity/measurement using a multiplier. • Calculate percentage change – (Profit/loss). • Evaluate numbers raised to the power of; zero; simple fractions and powers of a power. • Add and subtract numbers in standard	• Substitute positive numbers into expressions involving brackets and powers. • Use function machines to find outputs and inputs. • Solve simple two-step linear equations with the unknown on one side. • Solve linear equations with unknowns on both sides. • Show and write inequalities to and from number lines. • Solve simple linear inequalities in one variable. • Write the term-to-term definition of an arithmetic sequence in words. • Find the next term in a sequence - including negative values. • Find the nth term of an arithmetic sequence. • Use the Nth term of an arithmetic sequence to generate terms.	• Translate a given shape by a vector. • Rotate a shape about the origin or any other point on a coordinate grid. • Enlarge a shape on a grid without a centre specified - Include fractional scale factors. • Use the formulae to find the area and circumference of a circle. • Find the area and perimeter of quarter-circles and semi-circles. • Find the volume of a cylinder. • Use Pythagoras' Theorem to find the hypotenuse in a right-angled triangle. • Use Pythagoras' Theorem to find the shorter side in a right-angled triangle. • Use the trigonometric ratios to find missing sides of right-angles triangles. • Use the trigonometric ratios to find missing		• Find mean from a continuous/grouped frequency table. • Find a missing probability from a list or table using mutually exclusive outcomes. • Work out probabilities from frequency trees which have been partially completed. • Work out probabilities from two-way tables which have been partially completed. • List outcomes of combined events. • Use and draw sample space diagrams.

form, with and without a calculator.	• Find and plot coordinates in all four quadrants including those needed to complete geometrical shapes • Use function machines to find coordinates. • Plot and draw graphs of y = a, x = a, y = x and y = –x, where a is a constant. • Plot and draw graphs of straight lines of the form y = mx + c using a table of values. • Find the equation of a straight line from a graph. • Draw straight line graphs for real-life situations. • Find the gradient of a straight line from real-life graphs. • Draw and interpret simple distance–time graphs. • Define a 'quadratic' expression. Expand simple double brackets. • Factorise quadratic expressions of the form $x^2 + bx + c$.	angles of right-angles triangles. • Understand and draw front and side elevations and plans of simple 3D shapes. • Use a compass to complete constructions. • Use a compass and protractor to complete constructions. • Use a straight edge, protractor, and a pair of compasses to construct SSS, SAS, ASA and RHS triangles. • Identify congruent triangles using criteria (SSS, SAS, ASA and RHS). • Identify the scale factor of an enlargement of a shape as the ratio or multiple of the lengths of two corresponding sides. • Find missing lengths in similar shapes where the shapes are drawn separately. • Calculations involving simple column vectors		

	• Solve simple simultaneous equations (linear/linear) algebraically. Multiplying one.	and representing them graphically.		