

Mathematics- GCSE 9 -1 Foundation Syllabus

	Does the subject set according to ability?	Yes
	Unit	Skills Covered
	Unit 1	I can ... <ul style="list-style-type: none"> • calculate with negative numbers. • calculate with brackets, powers and roots. • check a calculation using inverse operations. • multiply and divide decimal numbers. • simplify a calculation by cancelling. • estimate the answer to a calculation. • use one calculation to work out the answer to another. • understand index notation and use the rules of indices. • recall prime numbers. • find the LCM and HCF of two numbers, by listing or writing the numbers as products of their prime factors.
	Unit 2	I can ... <ul style="list-style-type: none"> • collect like terms and find common factors to simplify algebraic expressions. • write expressions and find their values. • expand brackets and factorise expressions completely. • understand and use correct mathematical vocabulary and notation. • substitute values into formulae.
	Unit 3	I can ... <ul style="list-style-type: none"> • complete and read information from tables and distance charts. • draw pie charts and read information from them. • draw and interpret data from bar charts and stem and leaf diagrams. • draw and interpret time series graphs and scatter graphs and draw a line of best fit. • design data collection sheets and two-way tables and use them to solve problems.
	Unit 4	I can ... <ul style="list-style-type: none"> • add and subtract fractions and mixed numbers. • multiply and divide fractions and mixed numbers. • convert fractions to percentages and percentages to fractions. • convert decimals to fractions and fractions to decimals. • write one number as a fraction or percentage of another number. • compare the size of decimals, fractions and percentages; arrange them in size order. • calculate fractions or percentages of amounts. • calculate percentage increase or decrease. • calculate simple interest and VAT.
	Unit 5	I can ... <ul style="list-style-type: none"> • solve one- and two-step equations. • solve more complex equations involving brackets and/or with the unknown on both sides. • substitute values into a formula and solve the resulting equation. • rearrange a formula to make a different letter the subject. • form and solve an equation. • represent and interpret inequalities on a number line. • identify integers that satisfy an inequality. • solve inequalities.

	<p>Unit 6</p> <p>Unit 7</p> <p>Unit 8</p> <p>Unit 9</p> <p>Unit 10</p> <p>Unit 11</p>	<ul style="list-style-type: none"> • generate terms of an arithmetic sequence and find the nth term. • generate terms of a geometric sequence. • decide whether a given value is a term in a sequence. <p>I can ...</p> <ul style="list-style-type: none"> • find missing angles in parallel lines, triangles and quadrilaterals, giving reasons for my answers. • • form and solve equations to find angles expressed algebraically. • find the size of the interior and exterior angles of polygons. • find the sum of the interior angles of a polygon and find the size of one interior angle. <p>I can ...</p> <ul style="list-style-type: none"> • calculate the mean, mode, median and range from a list. • • calculate the mean, mode, median and range from a frequency table. • calculate the mean, mode, median and range from a stem and leaf diagram. • estimate the mean and range of grouped data, and identify the class containing the median and the modal class. • compare two sets of data using an average and the range. • select the most appropriate average to represent a set of data. • describe how to select a fair sample and recognise bias in a sample. <p>I can ...</p> <ul style="list-style-type: none"> • find the perimeter and area of rectangles, triangles, parallelograms and trapeziums. • work backwards to find a missing length. • find the area of compound shapes made from rectangles and triangles. • find the surface area and volume of 3D solids. • convert between metric units of area, volume and capacity. <p>I can ...</p> <ul style="list-style-type: none"> • recognise and draw lines parallel to the axes and the lines $y = x$ and $y = -x$. • draw and read values from straight-line graphs. • find the midpoint of a line segment. • find the equation of a line and understand the meaning of m and c in $y = mx + c$. • interpret distance–time graphs and other real-life graphs. • use the line of best fit on a scatter graph to make predictions. <p>I can ...</p> <ul style="list-style-type: none"> • translate and reflect given shapes on a grid. • describe fully a translation or reflection. • enlarge an object by an integer or fractional scale factor. • find the area of an enlarged shape. • rotate an object about a given centre of rotation. • describe fully a rotation or enlargement; work out a scale factor. • combine transformations and describe the single equivalent transformation. <p>I can ...</p> <ul style="list-style-type: none"> • write a ratio in its simplest form and as a unit ratio. • use ratios to convert units and enlarge shapes. • divide a quantity in a given ratio. • solve word problems using ratios. • solve proportion problems. • use the unitary method to solve proportion problems and work out which product
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	Unit 12	<p>is better value.</p> <ul style="list-style-type: none"> • recognise and use direct proportion on a graph. • solve word problems involving direct and inverse proportion. <p>I can ...</p> <ul style="list-style-type: none"> • use Pythagoras' theorem to find the length of a side in a right-angled triangle. • use Pythagoras' theorem to find the length of a line segment, given the coordinates of the end-points. • use Pythagoras' theorem to prove whether a triangle contains a right angle. • use trigonometry to find the length of a side or the size of an angle in a right-angled triangle. • recall the exact values of the sine, cosine and tangent of some angles.
	Unit 13	<p>I can ...</p> <ul style="list-style-type: none"> • calculate probabilities from a single event or for simple combined events. • calculate experimental probabilities. • draw a sample space diagram and use it to calculate probabilities. • draw Venn diagrams; use Venn diagrams to work out probabilities. • draw tree diagrams for independent events and use them to calculate probabilities. • draw tree diagrams for dependent events and use them to calculate probabilities. • use two-way tables to calculate probabilities. • calculate probabilities from a given ratio.
	Unit 14	<p>I can ...</p> <ul style="list-style-type: none"> • calculate percentage increases and decreases and find the original amount before an increase or decrease. • calculate repeated percentage increases and decreases, including compound interest. • calculate with, and compare, compound measures, including rates of pay, speed, density and pressure. • write and use formulae connecting values that are in direct or inverse proportion.
	Unit 15	<p>I can ...</p> <ul style="list-style-type: none"> • identify faces, edges and vertices in 3D shapes; identify planes of symmetry. • draw a 3D shape in 2D view and in isometric form. • draw lines and angles accurately; bisect lines and angles by construction. • construct SAS and SSS triangles. • draw the locus of points from a point and from a line segment; • draw the locus of points equidistant from two given points. • use loci to identify regions. • construct the perpendicular from a point on a line / from a point to a line. • use scale drawings; convert between real distances and distances on the drawing. • draw and measure bearings between two points; read reciprocal bearings. • use bearings with Pythagoras' theorem and trigonometry to describe locations.
	Unit 16	<p>I can ...</p> <ul style="list-style-type: none"> • recognise quadratic functions in graphical or algebraic form. • plot quadratic graphs to find roots, turning points, lines of symmetry and y-intercepts. • solve quadratic equations from quadratic graphs (and their intercepts with linear graphs). • use quadratic equations and graphs to find information in real life contexts. • expand and simplify the product of two binomial expressions. • factorise quadratic expressions and equations.

	Unit 17	<ul style="list-style-type: none"> • solve quadratic equations, including the difference of two squares. <p>I can ...</p> <ul style="list-style-type: none"> • find maximum / minimum values of rounded numbers; show this as an inequality. • calculate the circumference in terms of π and to a given degree of accuracy. • calculate the radius or diameter of a circle from a given circumference. • calculate the area of a circle, in terms of π or as a decimal, given the radius or diameter. • calculate the radius or diameter of a circle from a given area. • calculate area and perimeter of composite shapes made using (parts of) circles. • work out the arc length, perimeter and area of sectors. • work out the volume and surface area of cylinders, cones and spheres. • work out the volume and surface area of pyramids.
	Unit 18	<p>I can ...</p> <ul style="list-style-type: none"> • find the reciprocal of an integer or decimal (and write it in standard form). • multiply and divide mixed numbers by fractions and mixed numbers. • use index laws to simplify and evaluate numbers and algebraic expressions. • convert numbers between ordinary numbers and standard form. • multiply and divide numbers in standard form. • add and subtract numbers in standard form. • use a calculator to work out answers using numbers in standard form. • order numbers written as decimals, single powers and in standard form.
	Unit 19	<p>I can ...</p> <ul style="list-style-type: none"> • work out the scale factor of an enlargement; find missing lengths in enlargements. • identify corresponding sides and angles in similar shapes and work out missing lengths. • identify congruent shapes and give conditions of congruence. • combine column vectors and represent the resultant as a single column vector. • add, subtract and multiply vectors. • work out column vectors given properties of length and direction.
	Unit 20	<p>I can ...</p> <ul style="list-style-type: none"> • draw cubic and reciprocal graphs. • interpret non-linear graphs representing real situations. • form and solve simultaneous equations graphically and algebraically. • change the subject of formulae. • prove results using algebra.