

Curriculum Overview - Year 9 - Foundation



Year 9: Module 1: Number Skills

Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> ▪ I can order negative numbers in real life problems ▪ I can use a number line to represent negative numbers ▪ I can use inequalities with negative numbers ▪ I can round to the nearest whole number. ▪ I can round decimal numbers to a given accuracy. ▪ I can round numbers to a given number of significant figures ▪ I can round a calculation at the end of a problem, to give what is considered a sensible answer. ▪ 	<ul style="list-style-type: none"> ▪ I can add and subtract negatives ▪ I can use BIDMAS to work out the answers to problems with more than one mathematical operation. ▪ I can use the four rules of arithmetic with integers and decimals. ▪ I can use approximation to estimate answers and check calculations ▪ I can estimate the answers to calculations by rounding to 1 significant figure. ▪ 	<ul style="list-style-type: none"> ▪ I can add, subtract whole, decimal and negative numbers in worded problems ▪ I can solve problems set in a real-life context. ▪ I can find the upper and lower bounds of measurements. ▪ I can use inequality notation to state error intervals and interpret limits of accuracy.

Year 9: Module 2: Percentages

Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> • I can convert percentages to fractions and decimals and vice versa. • I can calculate a percentage of a quantity • I can calculate simple interest 	<ul style="list-style-type: none"> • I can increase and decrease quantities by a percentage. • I can express one quantity as a percentage of another • I can work out percentage change. • I can convert between fractions, decimals and percentages (covered again in module 4) • I can calculate compound interest • I can calculate depreciation • I can solve worded problems involving simple and compound interest. • I can calculate percentage profit and loss 	<ul style="list-style-type: none"> • I can calculate the original amount, given the final amount, after a known percentage increase or decrease. • I can solve worded reverse percentage problems • I can solve problems involving repeated percentage change. • I can find original amounts after compound interest/depreciation. • I can solve worded fraction, decimal and percentage problems (covered again in module 4)

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Year 9: Module 3: Statistics		
Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> ▪ I can use tally charts and frequency tables to collect and represent data ▪ I can draw pictograms to represent statistical data ▪ I understand the data handling cycle. ▪ I can draw bar charts and vertical line charts to represent statistical data. ▪ I can work out the mode, median, mean and range of small sets of data. 	<ul style="list-style-type: none"> ▪ I can draw and interpret dual bar charts ▪ I can use grouped frequency tables to collect and represent data. ▪ I can calculate the mode, median, mean and range from frequency tables. ▪ I can work out the mode, median, mean and range from diagrams such as stem and leaf diagrams and two-way tables. ▪ I can find missing values when given different averages 	<ul style="list-style-type: none"> ▪ I can draw a line graph to show trends in data. ▪ I can decide which is the best average to use to represent a data set. ▪ I can interpret averages in context. ▪ I can compare sets of data by calculating the averages and comparing them in context.

Year 9: Module 4: Angles		
Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> • I can calculate missing angles on a straight line • I can calculate missing angles around a point • I can use vertically opposite angles. • I can measure and draw angles to the nearest degree • I can calculate the size of angles in special quadrilaterals using their geometric properties. • I can recognise and calculate the angles in different sorts of triangle. 	<ul style="list-style-type: none"> • I can calculate the exterior angles and the interior angles of a regular polygon. • I can calculate the sum of the interior angles in a polygon. • I can calculate missing angles in parallel lines. • I can use a bearing to specify a direction. • I can solve problems involving alternate, corresponding, allied and opposite angles. • 	<ul style="list-style-type: none"> ▪ I can solve bearings problems ▪ I can solve angle problems using algebra ▪ I understand the proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices ▪ I can find interior and exterior angles in more complex diagrams.

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Year 9: Module 5: Number Properties

Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none">• I can find multiples of whole numbers• I can recognise multiples of numbers.• I can identify the factors of a number.• I can identify square numbers• I can use a calculator to find the square of a number.• I can recognise the square roots of square numbers up to 225• I can use a calculator to find the square roots of any number.• I can identify prime numbers.•	<ul style="list-style-type: none">• I can write any number as the product of its prime factors• I can identify the lowest common multiple (LCM) of two numbers• I can identify the highest common factor (HCF) of two numbers.• I can find the HCF and LCM using the Venn diagram method.• I can use some of the important keys when working on a calculator.• I can recognise different types of numbers including square, cube and triangular numbers.	<ul style="list-style-type: none">• I can solve worded HCF and LCM problems and involving algebra.• I can use the index laws (not negative or fractional yet)

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Year 9: Module 6: Decimals and Fractions		
Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> ▪ I can multiply and divide with decimals. ▪ I can add and subtract fractions with different denominators. ▪ I can multiply proper fractions ▪ I can multiply mixed numbers ▪ I can divide by fractions. ▪ I know what is meant by the word 'reciprocal' ▪ I can order fractions, decimals and percentages. 	<ul style="list-style-type: none"> ▪ I can recognise different types of fraction, reciprocal, terminating decimal and recurring decimal ▪ I can add, subtract, multiply and divide mixed numbers. ▪ I can convert fractions to decimals ▪ I can convert terminating decimals to fractions ▪ I can work out a fraction of a quantity ▪ I can find one quantity as a fraction of another. 	<ul style="list-style-type: none"> ▪ I can find reciprocals of numbers or fractions. ▪ I can use a calculator to add and subtract fractions ▪ I can use a calculator to multiply and divide fractions.

Year 9: Module 7: Linear Graphs		
Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> ▪ I can work out the equations of horizontal and vertical lines. ▪ I can draw linear graphs without using flow diagrams. ▪ I can plot and label coordinates in the four quadrants. ▪ I can substitute into expressions. 	<ul style="list-style-type: none"> ▪ I can draw graphs using the gradient-intercept method ▪ I can draw graphs using a table of values. ▪ I can work out the gradient of a straight line ▪ I can work out the equation of a line, using its gradient and y-intercept ▪ I can convert from one unit to another unit by using a conversion graph. ▪ I can plot and interpret real-life graphs ▪ I can use straight-line graphs to work out formulae. 	<ul style="list-style-type: none"> ▪ I can draw a line with a certain gradient. ▪ I can work out the equation of a line given two points on the line. ▪ I can work out the equation of a linear graph that is parallel to another line and passes through a specific point. ▪ I can solve simultaneous linear equations using graphs.

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Year 9: Module 8: Expressions and Formulae

Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> ▪ I can write an algebraic expression from words ▪ I can recognise terms, expressions, equations, formulae and identities. ▪ I can substitute into, simplify and use algebraic expressions. ▪ I can form expressions from words ▪ I can expand brackets such as $2(x - 3)$ 	<ul style="list-style-type: none"> ▪ I can create formulae from words. ▪ I can use substitution to solve worded problems. ▪ I can simplify expressions in area and perimeter problems. ▪ I can factorise single brackets. ▪ I can expand and simplify two linear brackets to obtain a quadratic expression. ▪ I can change the subject of a formula. 	<ul style="list-style-type: none"> ▪ I can factorise a quadratic expression of the form $x^2 + ax + b$ into two linear brackets. ▪ I can solve quadratic equations by factorisation.

Year 9: Module 9: Ratio, Speed and Proportion

Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> ▪ I can simplify a ratio ▪ I can express a ratio as a fraction ▪ I can divide amounts into given ratios ▪ I can complete calculations from a given ratio and partial information. 	<ul style="list-style-type: none"> ▪ I can solve direct proportion problems using the unitary method ▪ I can recognise the relationship between speed, distance and time ▪ I can calculate average speed from distance and time ▪ I can calculate distance travelled from the speed and the time taken ▪ I can calculate the time taken on a journey from the speed and the distance. ▪ I can plot and interpret time-distance graphs 	<ul style="list-style-type: none"> ▪ I can find the cost per unit mass ▪ I can find the mass per unit cost ▪ I can use the above to find which product is better value. ▪ I can calculate density.

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Year 9: Module 10: Perimeter and Area		
Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> ▪ I can calculate the perimeter and area of a square and a rectangle. ▪ I can calculate the perimeter and area of a triangle ▪ I can use the formula for the area of a triangle. ▪ I can calculate the area of a parallelogram. 	<ul style="list-style-type: none"> ▪ I can calculate the area of a trapezium ▪ I can recognise the key parts of a circle. ▪ I can find the area of compound shapes. ▪ I can solve compound shape problems in context. ▪ I understand the meaning of pi. ▪ I can calculate the circumference of a circle. ▪ I can calculate the area of a circle. 	<ul style="list-style-type: none"> ▪ I can give answers for circle calculations in terms of π. ▪ I can solve circumference and area of circles functional problems. ▪ I can calculate the perimeter of sectors. ▪ I can calculate the area of sectors. ▪ I can find arc lengths.

Year 9: Module 11: Transformations and Vectors		
Support (Prior knowledge)	Core	Extension
<ul style="list-style-type: none"> • I can work out the order of rotational symmetry for a 2D shape • I can recognise shapes with rotational symmetry. • I can find the line symmetry of 2D shapes • I can identify the equations of horizontal and vertical lines. 	<ul style="list-style-type: none"> • I can translate a 2D shape using column vectors • I can reflect a 2D shape in a mirror line. • I can rotate a 2D shape about a centre of rotation • I can enlarge a 2D shape by a scale factor (integer) and a centre of enlargement. • I can fully describe transformations. • I can enlarge shapes using fractional scale factors. 	<ul style="list-style-type: none"> • I can use more than one transformation at a time. • I can describe more than one transformation having taken place. • I understand what vectors are • I can represent vectors using the correct notation. • I can add and subtract vectors. • I can solve geometric problems using vectors (no proof at foundation)

New GCSE 3 Year Scheme of Work - Year 9 - Foundation