Curriculum Overview Year 9 - Higher

Year 9: Module 1: Number Skills

Support (Prior knowledge)	Core	Extension
• 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 round a calculation to give a reasonable answer. • I can round to a given number of significant figures. • I can understand equivalent fractions and simplify fractions to their lowest terms • I can add, subtract, multiply and divide proper fractions.	• I can solve problems set in a real-life context. • I can estimate before calculating. • I can recognise that measurements given to the nearest whole unit may be inaccurate by up to one half in either direction. • I can increase and decrease quantities by a percentage. • I can work out percentage change • I can express one quantity as a percentage of another. • I can add, subtract, multiply and divide mixed numbers.	• I can use a calculator to accurately solve problems involving fractions. • I can solve worded problems involving the four operations with fractions and mixed numbers.

Year 9: Module 2: Statistical Diagrams and Averages

Support (Prior knowledge)	Core	Extension
▪ I can draw and interpret bar charts and pie charts. ▪ I can draw and interpret line graphs. ▪ I can calculate the mode, the median, range and the mean from a frequency table ▪ I can identify the modal group. ▪ I can decide whether data is qualitative, discrete or continuous and use this decision to make sound judgements in choosing suitable diagrams for the data	▪ I can identify the advantages and disadvantages of each type of average and learn which one to use in different situations. ▪ I can estimate the mean from a grouped frequency table. ▪ I can draw, interpret and use scatter diagrams. ▪ I can recognise and name positive, negative or no correlation as types of correlation ▪ I can recognise and name strong, moderate or weak correlation as strengths of correlation ▪ I can draw and use a line of best fit by eye. ▪ I can understand outliers and make decisions whether or not to include them when drawing a line of best fit ▪ I can use a line of best fit to estimate unknown	▪ I can use averages to solve more complex problems. ▪ I can compare sets of data using averages ▪ I understand that just because a correlation exists, it does not necessarily mean that causality is present* ▪

Curriculum Overview Year 9 - Higher

Year 9: Module 3: Sequences		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can recognise patterns in number sequences. ▪ I can generate sequences, given the *n*th term. ▪ I can describe how a sequence continues. ▪ I can find the *n*th term of a linear sequence. ▪ I can recognise and continue some special number sequences such as square, cube and triangular numbers.	▪ I can find the *n*th term of a sequence form a diagram or practical problem. ▪ I can generate the terms of a quadratic sequence from the *n*th term.* ▪ I can work out the *n*th term of a quadratic sequence.* ▪ I can solve simple problems involving arithmetic progressions* ▪ I can work with Fibonacci-type sequences (rule will be given)*	▪ I can generate sequences derived from diagrams and complete a table of results that describes the pattern shown by the diagrams ▪ I can continue the terms of a quadratic sequence ▪ I can work out the value of a term in a geometrical progression of the form r^n where n is an integer > 0

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Year 9: Module 4: Ratio and Proportion

Support (Prior knowledge)	Core	Extension
▪ I can simplify a ratio. ▪ I can express a ratio as a fraction. ▪ I can divide amounts in given ratios. ▪ I can complete calculations from a given ratio ▪ I can use ratio to solve word problems using informal strategies or using the unitary method of solution ▪ I can solve best-buy problems using informal strategies or using the unitary method of solution. ▪ I can convert between metric units. ▪ I understand units in common usage such as miles per hour or metres per second.	▪ I can solve problems using direct proportion and represent them graphically. ▪ I understand that a line divided in the ratio 1 : 3 means that the smaller part is one-quarter of the whole ▪ I understand speed and know the relationship between speed, distance and time ▪ I can recognise and solve worded problems involving the compound measures of rates of pay, speed, density and pressure ▪ I can convert between standard units of measure involving area and volume.	▪ I can work out one quantity as a fraction or decimal of another quantity ▪ I can use a fraction of a quantity to compare proportions. ▪ I can relate ratios to fractions and use linear equations to solve problems. ▪ I can write a ratio in the form 1 : *n* or *n* : 1

Curriculum Overview Year 9 - Higher

Year 9: Module 5: Percentages		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can find percentages of amounts ▪ I can increase/decrease amounts by a given percentage ▪ I can solve simple interest problems. ▪ I can convert values between percentages, fractions and decimals in order to compare them. ▪ I can use percentages, decimals or fractions to calculate proportions ▪ ▪	▪ I can calculate compound interest ▪ I can calculate depreciation ▪ I can solve problems involving repeated percentage change. ▪ I can use percentages in real-life situations ▪ I can work out one quantity as a percentage of another quantity ▪ I can calculate the original amount after a known percentage change. ▪ I understand what is meant by the multiplier.	▪ I can calculate reverse percentages ▪ I can find original amounts after compound interest/depreciation. ▪ I can solve worded percentage problems involving percentage change and reverse percentages. ▪ I can solve worded problems that combine fractions and percentages of amounts.

Curriculum Overview Year 9 - Higher

Year 9: Module 6: Angles and Transformations		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can solve problems involving alternate, corresponding, allied and opposite angles. ▪ I can calculate the size of angles in special quadrilaterals using their geometric properties. ▪ I can recognise rotational symmetry of 2D shapes ▪ I can identify and draw lines of symmetry on a Cartesian grid ▪ I can find the order of rotational symmetry for a 2D shape. ▪ I can measure and draw angles to the nearest degree	▪ I can read, interpret and draw bearings diagrams. ▪ I can work out the sum of the interior angles in a polygon. ▪ I can calculate the size of the interior and exterior angles of any regular polygon. ▪ I can use the angle sum of irregular polygons ▪ I can solve angle problems using algebra ▪ I can translate, reflect, rotate and enlarge a 2D shape. ▪ I can use column vector notation for translations. ▪ I can describe fully transformations	▪ I can construct enlargements with fractional and negative scale factors. ▪ I can combine transformations* ▪ I understand and use the term 'invariance' for points, lines and shapes ▪ I can map a point on a shape under a combination of transformations* ▪ 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.

Curriculum Overview Year 9 - Higher

Year 9: Module 7 Constructions and Loci		
Support (Prior knowledge)	**Core**	**Extension**
• I can measure and draw lines to the nearest mm • I can measure and draw angles to the nearest degree • I can make accurate drawings of triangles and other 2D shapes using a ruler and a protractor • I can draw circles or part circles given the radius or diameter • I can use standard units of measure.	• I can construct the bisectors of lines and angles. • I can construct an angle of 60° • I can construct and interpret plans and elevations of 3D shapes. • I can convert measurements to calculate actual distances. • I can construct a region, for example, bounded by a circle and an intersecting line • I can draw a locus for a given rule. • I can use and interpret maps and scale drawings • I can construct scale drawings • I can use scale to estimate a length, for example use the height of a man to estimate the height of a building where both are shown in a scale drawing	• I can describe regions satisfying several conditions. • I can solve practical problems using loci. • I can construct a hexagon using a compass and a ruler.

Curriculum Overview Year 9 - Higher

Year 9: Module 8: Algebraic Manipulation		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can recognise expressions, equations, formulae and identities. ▪ I can substitute into, manipulate and simplify algebraic expressions. ▪ I can expand and factorise single brackets. ▪ I can simplify algebraic expressions. ▪ I can multiply negative numbers.	▪ I can expand two binomials to obtain a quadratic expression. ▪ I can factorise an algebraic expression. ▪ I can expand the square of a binomial. ▪ I can factorise a quadratic expression of the form $x^2 + ax + b$ into two linear brackets. ▪ I can factorise a quadratic expression of the form $ax^2 + bx + c$ into two linear brackets. ▪ I can change the subject of a formula.	▪ I can expand more than two binomials.* ▪ I can expand and factorise in worded problems.

Year 9: Module 9: Length, Area and Volume		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can calculate the area of a parallelogram. ▪ I can calculate the area of a trapezium. ▪ I can calculate the volume and surface area of a cube and cuboid. ▪ I can find the area of a triangle. ▪ I can find the area of compound shapes. ▪ I can find the area of compound shapes in worded problems.	▪ I can calculate the circumference and area of a circle. ▪ I can calculate the length of an arc. ▪ I can calculate the area and angle of a sector. ▪ I can calculate the volume of a prism. ▪ I can calculate the volume and surface area of a cylinder. ▪ I can show two triangles are similar. ▪ I can work out the scale factor between similar triangles.	▪ I can calculate the volume of a pyramid. ▪ I can calculate the volume and surface area of a cone. ▪ I can calculate the volume and surface area of a sphere. ▪ I can solve problems involving the area and volume of similar shapes. ▪ I understand and use conditions for congruent triangles: SSS, SAS, ASA and RHS

Curriculum Overview Year 9 - Higher

Year 9: Module 10: Linear Graphs		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can substitute into expressions/formulae. ▪ I can label coordinates. ▪ I can draw linear graphs by finding coordinates.	▪ I can find the gradient of a straight line. ▪ I can draw a line with a certain gradient. ▪ I can draw graphs using the gradient-intercept method. ▪ I can find the equation of a line, using its gradient and intercept. ▪ I can plot and interpret real-life graphs ▪ I can convert from one unit to another unit by using a conversion graph. ▪ I can solve simultaneous linear equations using graphs.	▪ I can find the equation of a line given two points on the line. ▪ I can use straight-line graphs to find formulae. ▪ I can draw linear graphs parallel or perpendicular to other lines and passing through a specific point.

Year 9: Module 11: Right-Angled Triangles		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can calculate the length of the hypotenuse in a right-angled triangle using Pythagoras' Theorem. ▪ I can calculate the length of a shorter side in a right-angled triangle using Pythagoras' Theorem.	▪ I can solve practical problems involving Pythagoras' theorem. ▪ I can use Pythagoras' theorem to solve problems involving three dimensions. ▪ I can use the three trigonometric ratios. ▪ I can find lengths of sides and angles in right-angled triangles using the sine and cosine and tangent functions. ▪ I can solve bearing problems using trigonometry.	▪ I can solve practical problems using trigonometry. ▪ I can work out and remember trigonometric values for angles of 30°, 45°, 60° and 90°. ▪ I can solve problems using an angle of elevation or an angle of depression. ▪ I can find the length x in this isosceles triangle. ▪ I can calculate the area of the triangle using Pythagoras/trigonometry.

Curriculum Overview Year 9 - Higher

Year 9: Module 12: Probability		
Support (Prior knowledge)	**Core**	**Extension**
▪ I can calculate experimental probabilities and relative frequencies. ▪ I can estimate probabilities from experiments. ▪ I can use different methods to estimate probabilities. ▪ I can read two-way tables and use them to work out probabilities. ▪ I understand that probabilities need to be written as fractions, decimals or percentages. ▪ I understand that probabilities sum to 1. ▪ I can simplify fractions.	▪ I can recognise mutually exclusive, complementary and exhaustive events. ▪ I can predict the likely number of successful events, given the number of trials and the probability of any one outcome. ▪ I understand what is meant by relative frequency. ▪ I can calculate expected frequencies. ▪ I understand what is meant by theoretical probability. ▪ I can identify all permutations and combinations and represent them in a variety of formats. ▪ I know and understand why if there are x ways to do task 1 and y ways to do task 2, then there are xy ways to do both tasks in sequence.	▪ I can use Venn diagrams to solve probability questions (seen again in module 17) ▪ I can solve more difficult probability questions in context.