Curriculum Long Term Planning Overview	Key Stage 4	Subject Area: Maths	Academic Year: 2018-19

Year	Study Modules	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Year 9 Foundation	**Study Modules**	**Calculations I** Numbers in words/figures, ordering decimals, negatives Rounding to the nearest 10, 100, 1000 and decimal places Rounding to significant figures Adding and subtracting decimals Adding and subtracting positive and negative integers Multiplying and dividing positive and negative integers Multiplying 2 and 3 digit numbers Multiplying decimals Written division Dividing decimals Manipulation of decimals (using one calculation to find the answer to another) Order of operations (BIDMAS) **Expressions**	**Expressions** Form simple expressions from a sentence, understand the meaning of expression, equation and formula Substitution Simplify expressions by collecting like terms Index laws (addition, subtraction, multiplication) Expanding single brackets Factorising single brackets Expanding and factorising (with indices) Expand two single brackets and simplify **Angles and Polygons** Angles around a point and on a straight line Vertically opposite angles Angles in parallel lines (alternate, corresponding and co-interior angles)	**Handling Data I** Collecting data and using two-way tables Drawing and interpreting bar charts and pictograms Drawing and interpreting pie charts Finding the mean, mode and median Find the mean, mode and median from a frequency table Knowing the advantages and disadvantages of different averages Comparing distributions using averages and range **Fractions, Decimals and Percentages** Equivalent fractions Simplifying fractions Converting between improper fractions and mixed numbers Fractions of amounts Percentages of amounts	**Fractions, Decimals and Percentages** Equivalent fractions Simplifying fractions Converting between improper fractions and mixed numbers Fractions of amounts Percentages of amounts Adding and subtracting fractions and mixed numbers Multiplying fractions, including cancelling common factors Multiplying and dividing fractions and mixed numbers Converting between fractions and percentages Converting between fractions, decimals and percentages **Formulae and Functions** Writing formulae from sentences Substitution (positive	**Working in 2D** Scale drawings – finding distances on a map and in real life Bearings on a map Area of quadrilaterals and triangles Area of 2D compound shapes Translation and reflection Reflection in lines such as y = -2, y = x etc Rotation Enlargement Enlargement from a point (integer) Combinations of transformations **Probability** Probability experiments and relative frequency Expected frequency Theoretical probability Compare experimental to theoretical probability	**Probability** Probability experiments and relative frequency Expected frequency Theoretical probability Compare experimental to theoretical probability Mutually exclusive events Sample space diagrams **Estimation and Approximation** Estimating by rounding to a given degree of accuracy Estimating by rounding and estimating square roots Use estimations to check answers and adjust place values Using a calculator Conversions in metric units Compound measures (SDT, DMV)

		Form simple expressions from a sentence, understand the meaning of expression, equation and formula Substitution Simplify expressions by collecting like terms Index laws (addition, subtraction, multiplication) Expanding single brackets Factorising single brackets Expanding and factorising (with indices) Expand two single brackets and simplify	Identify special quadrilaterals and use their angle properties Derive the properties of special quadrilaterals Derive and use angles in triangles and quadrilaterals Angles in special triangles Angle problems (providing reasons) Understanding similarity and using scale factors Recognise and prove congruence (SSS, SAS, ASA, RHS) Find exterior angles in polygons Find interior angles in polygons (using angles on a straight line) Deduce the sum of interior angles of any polygon and use (n-2)*180 Solve problems involving angles in polygons	Adding and subtracting fractions and mixed numbers Multiplying fractions, including cancelling common factors Multiplying and dividing fractions and mixed numbers Converting between fractions and percentages Converting between fractions, decimals and percentages	and negative numbers) Using standard formulae (e.g. kinematics) Distinguishing between expressions, equations, inequalities, formulae and identities Expanding and factorising quadratics (no coefficient of x) Difference of two squares Distinguishing between and factorising $x^2 - 4$ and $x^2 - 4x$	Mutually exclusive events Sample space diagrams	
	Assessment	Open book end of topic assessment	Closed book end of term test	Open book end of topic assessment	Open book end of topic assessment	Open book end of topic assessment	Closed book end of term test

Year	Study Modules	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Year 10 Foundation	**Study Modules**	**Equations and Inequalities** Solving two step equations (including negative solution) Solving two step equations (including improper fractions as solutions) Solving equations by reading off graphs (provide graphs if unable to plot) Forming and solving equations Forming and solving equations with the unknown on both sides Solving quadratics without coefficient of x^2 by factorising Solving quadratic equations by reading off graphs (provide graphs if unable to plot) Simultaneous equations (elimination) Simultaneous equations (substitution) Forming solving simultaneous equations Solving inequalities and representing solutions on a number line	**Circles and Constructions** Circumference and area of circles and composite shapes involving parts of circles Arc length and area of sectors Problems involving sectors **Construction** Angle and line bisectors (of a line, from a point to a line, from a point on a line) Triangles and quadrilaterals, constructing an angle of 60 degrees Loci (from points, lines, around shapes etc) Loci (involving a change of radius or rolling shapes) **Ratio and Proportion** Proportion as part of whole Use percentages, fractions and decimals to describe proportions Reasoning and problem solving	**Graphs I** Drawing straight-line graphs Equations of a straight line Distance-time graphs **Working in 3D** Identify the numbers of faces, edges and vertices of 3D shapes Construct and interpret plans and elevations of 3D shapes Volume of cuboids, cylinders and other prisms Surface area of spheres, pyramids, cones and composite shapes	**Handling Data II** Interpret and construct tables, graphs and charts for discrete, continuous and grouped data Use mean, mode, median, modal class and range to compare distributions Use correlation to describe scatter graphs Draw lines of best fit and make predictions Interpret and construct line graphs for time series data **Calculations II** Calculating with roots and indices Calculate exactly with fractions and multiples of π Calculate with and interpret numbers written in standard form	**Year 10 Exam Revision** **Graphs II** Draw graphs to identify and interpret roots, intercepts and turning points of quadratic functions Solve quadratic equation by finding approximate solutions using graphs Recognise, sketch and interpret graphs of linear, quadratic, cubic and reciprocal functions Plot and interpret real-life graphs	**Graphs II** Draw graphs to identify and interpret roots, intercepts and turning points of quadratic functions Solve quadratic equation by finding approximate solutions using graphs Recognise, sketch and interpret graphs of linear, quadratic, cubic and reciprocal functions Plot and interpret real-life graphs

		Changing the subject of a formula	Simplifying ratio Dividing ratio Percentage of an amount Percentage increase **Factors, Powers and Roots** Use mathematical language to describe factors, multiples and primes Write HCF and LCM using product notation Prime factor decomposition Calculate positive integer powers and their roots				
	Assessment	Open book end of topic assessment	Closed book end of term test	Open book end of topic assessment	Open book end of topic assessment	Open book end of topic assessment	Closed book end of term test

Year	Study Modules	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Year 11 Foundation	**Study Modules**	**Pythagoras, Trigonometry and Vectors** Use Pythagoras' theorem Use and apply trigonometric ratios to find length and angles in right angled triangles Know the exact value of sinØ and cosØ for Ø = 0, 30, 45, 60 and 90 degrees Know the exact value of tanØ for Ø = 0, 30, 45 and 60 degrees Write column vectors and draw vector diagrams Add, subtract and find multiples of vectors **Combined Events** Use venn diagrams to record outcomes and calculate probabilities of events Construct possibility spaces and use these to calculate probabilities Use tree diagrams to show to frequency or probabilities of two events Use tree diagrams to calculate the probabilities of independent and dependent events	**Sequences** Find terms of a linear sequence using term to term or position to term rule Recognise special types of sequence Find terms if quadratic sequence using term to term or position to term rule **Units and Proportionality** Calculate with standard and compound units Compare lengths, areas and volumes of similar shapes Solve direct and inverse proportion Interpret the gradient of a straight-line graph as a rate of change Interpret graphs that illustrate direct and inverse proportion Set up, solve and interpret growth and decay problems	**Year 11 GCSE Exam Revision**	**Year 11 GCSE Exam Revision**	**Year 11 GCSE Exam Revision**	
	Assessment	Open book end of topic assessment	Closed book end of term test	Open book end of topic assessment	Open book end of topic assessment	Open book end of topic assessment	