Curriculum Map 2022 onwards

Year view Subject: Mathematics			For further information, please see the KS3 Curriculum Booklet	
Year 7	**Knowledge/Content**	**Skills**	**Assessments/Checkpoints**	**Comments***
Autumn Term 1	Numbers and the number system. Calculating. Checking, approximating and estimating.	Working with primes, factors multiples, powers, roots. Problem Solving with HCF/LCM. Formal written methods and BIDMAS. Rounding and estimating.	Classroom assessment based on new topics covered.	
Autumn Term 2	Counting and comparing Visualising and constructing. Investigating properties of shapes.	Using directed numbers and notation for ordering. Comparing fractions. Measuring angles, constructing triangles. Investigating 2D shapes, 3D solids and their nets, and drawing 3D.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Spring Term 1	Algebraic proficiency: tinkering. Exploring fractions, decimals, percentages. Proportional reasoning.	Algebraic notation, simplifying, expanding, and substituting values. Calculations involving fractions; problem solving with fractions, decimals and percentages. Problem solving with ratio.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Spring Term 2	Pattern sniffing. Measuring space. Investigating angles. Calculating with fractions, decimals and percentages.	Investigating linear sequences, term-to-term rules, and generating sequences. Drawing graphs. Measuring with metric units and prefixes. Timetables. Using angle facts. Arithmetic with mixed numbers and fractions and percentage change.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Solving equations and inequalities. Calculating Space.	Solving multi-step linear equations and inequalities. Perimeters and areas of 2D shapes. Volumes and surface areas of 3D shapes.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 2	Mathematical movement. Presentation of data. Measuring data.	Working with coordinates in all four quadrants and transformations: translations, reflections, & rotations. Construct/interpret tables charts and graphs. Finding mean/median/mode from data and frequency tables, comparing data sets.	End of year assessment.	

*(eg links to prior learning or other subjects, enrichment, rationale, exceptions to the rule etc)

Year view Subject: Mathematics			For further information, please see the KS3 Curriculum Booklet	
Year 8	**Knowledge/Content**	**Skills**	**Assessments/Checkpoints**	**Comments**
Autumn Term 1	Numbers and the number system. Calculating.	Types of numbers. Worded problems involving HCF & LCM. Standard form. Rounding to significant figures. Estimating. Proficiency with arithmetic and BIDMAS	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Autumn Term 2	Visualising and constructing Understanding risk I	Isometric drawings, transformations including enlargements. Scale drawings and solving problems involving bearings. Understanding experimental probability.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Spring Term 1	Algebraic proficiency: tinkering Exploring fractions, decimals and percentages. Investigating angles.	Algebra including indices, factorising and substitution. Revision of fractions and conversions to decimals and percentages. Reviewing angle facts and geometrical reasoning. Interior and exterior angles of regular polygons.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Spring Term 2	Proportional reasoning. Pattern sniffing. Calculating fractions, decimals, and percentages.	Applying ratio/fractions/proportion to real problems in context. Finding nth term rules for linear sequences. Percentage increase, reverse percentages, compound interest.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Solving equations and inequalities. Calculating space. Algebraic proficiency: visualising	Forming and solving linear equations and inequalities. Circles. Pythagoras. Compound shapes. Similar shapes and ratio. 3D: prisms and cylinders. Plotting straight line graphs, finding gradients and equations of straight line graphs. Interpreting travel graphs.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	UKMT Junior Maths Challenge (all students).
Summer Term 2	Understanding Risk II. Presenting Data. Measuring Data.	Constructing sample spaces for combined events. Probability with sets and Venn diagrams. Presenting discrete and continuous univariate data, and scatter graphs for bivariate data. Analysis and compare data sets, and estimate mean from a grouped frequency table.	End of year assessment.	

Year view Subject: Mathematics			For further information, please see the KS4 Curriculum Booklet	
Year 9	**Knowledge/Content**	**Skills**	**Assessments/Checkpoints**	**Comments**
Autumn Term 1	Calculating Visualising and constructing	Indices, calculating with standard form, percentages review and compound interest, error intervals, review of fractions, recurring decimals to fractions. Constructions, loci and 2D representation of 3D shapes.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Autumn Term 2	Algebraic Proficiency Proportional reasoning	Solving linear equations, factorising and solving quadratics, algebraic fractions, rearranging algebraic equations and substitution. Review of ratio, direct and inverse proportion	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Spring Term 1	Proportional reasoning Pattern Sniffing	Congruency and similarity, compound measures. Fibonacci sequence, nth term review, using nth term to generate a sequence, using term to term rules.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Spring Term 2	Solving equations and inequalities Calculating space	Solving linear inequalities and representing on a number line. Arcs and sectors, volume and surface area of prisms, Pythagoras, trigonometry	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Conjecturing Algebra: visualising	Geometric proof Review and development of straight lines, plotting quadratics, cubics and reciprocal graphs, drawing and interpreting distance time graphs.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 2	Solving equations and inequalities Understanding risk Presentation of data	Solving linear simultaneous equations Calculating probabilities of combined events, drawing tree diagrams, frequency polygons, stem and leaf diagrams and scatter graphs.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	

Curriculum Map 2022 onwards

Year view Subject: Mathematics			For further information, please see the KS4 Curriculum Booklet	
Year 10	**Knowledge/Content**	**Skills**	**Assessments/Checkpoints**	**Comments**
Autumn Term 1	Number Algebra Geometry	Number terminology, calculating HCF and LCM, review of standard form, trial and improvement, error intervals. Solving inequalities and representing on a number line, indices rules, expanding and factorising quadratics. Pythagoras, trigonometry.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	All sets sit the same Higher GCSE Maths. Sets 1 and 2 may cover content in extra depth.
Autumn Term 2	Geometry Algebra	Angles review, circle theorems, calculating area and volume of shapes. Solving quadratics graphically and by factorising, straight line graphs review.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Spring Term 1	Geometry Statistics Algebra	Trigonometry in 3D shapes, sine and cosine rule, area of a triangle. Cumulative frequency curves including finding the median and interquartile range, estimates for the mean from grouped data tables, drawing box plots. Plotting quadratics, factorising quadratics development, quadratic formula.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	UKMT Intermediate Maths Challenge (Sets 1 & 2).
Spring Term 2	Number Geometry	Working and calculating with surds, recurring decimals to fractions development Drawing and describing transformations, invariant points	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Statistics Probability	Drawing and interpreting histograms, sampling and questionnaires. Review of calculating probabilities, using Venn diagrams, tree diagrams and conditional probabilities.	Y10 exams.	
Summer Term 2	Algebra	Inequalities and regions, solving linear and quadratic simultaneous equations, distance time graphs, calculating the area under a curve and gradients.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	

Year view Subject: Mathematics			For further information, please see the KS4 Curriculum Booklet	
Year 11	**Knowledge/Content**	**Skills**	**Assessments/Checkpoints**	**Comments**
Autumn Term 1	Geometry Ratio Algebra Number	Review of arcs and sectors and sine and cosine rule, segments and chords, vectors. Ratio review, direct and indirect proportion development, rates of change. Area under curves development with velocity time graphs. Percentage review.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Autumn Term 2	Algebra	Plotting trigonometric and exponential curves and review of plotting quadratic, cubic and reciprocal curves, calculating the equation of a quadratic curve, completing the square, rearranging formulae review, transformation of graphs, equations of circles.	Formal mock exam.	
Spring Term 1	Geometry Algebra	Drawing constructions and loci. Solving quadratic inequalities, functions including inverse and composite, calculating tangents to circles, combined transformations review, gradients of curves using tangents.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	UKMT Intermediate Maths Challenge (selected students).
Spring Term 2	Probability Algebra Geometry	Venn diagram development. Review of sequences, sequence terminology, iteration, calculating the nth term of a quadratic sequence, algebraic fractions development, algebraic proof and reasoning. Calculating and using exact trigonometric ratios, geometric proof development, similarity and congruence review including links to area/volume.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Revision	Revision and exam preparation.	Classroom assessment focussing on recent topics and including a selection from all previous topics. External Exams.	
Summer Term 2	External Exams	External Exams	External Exams.	All pupils sit the same Higher GCSE Maths.

Year view Subject: Mathematics			For further information, please see the KS5 Curriculum Booklet	
Year 12	**Knowledge/Content**	**Skills**	**Assessments/ Checkpoints**	**Comments**
Autumn Term 1	Pure Applied	Quadratics: factorising, expanding, sketching, solving, indices and surds, simultaneous equations, logarithms and straight lines. Modelling in mechanics, units, distance and velocity time graphs, SUVAT formulae, forces and acceleration on an object, connected particles, pulleys	Classroom assessments focussing on recent topics.	
Autumn Term 2	Pure Applied	Solving inequalities, equations of circles and tangents, sketching graphs, graph transformations, factor theorem, algebraic proof. Vectors, measures of central tendency and spread, sampling methods	Classroom assessments focussing on recent topics and including a selection from all previous topics.	UKMT Senior Maths Challenge (all students).
Spring Term 1	Pure Applied	Differentiation from first principles, differentiation and using to find gradients, tangents and normal, binomial expansion, second derivatives and their uses, trigonometry review. Data representation: histograms, boxplots, cumulative frequency, data comparison and outliers, probability: Venn diagrams, tree diagrams, mutually exclusive and independent events	Classroom assessments focussing on recent topics and including a selection from all previous topics.	
Spring Term 2	Pure Applied	Solving trigonometric equations, sketching trigonometric graphs, trig identities, integration introduction and definite integrals, logarithms and exponentials, graphs and modelling. Hypothesis testing, probability distributions, variable acceleration.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Pure Applied	Arithmetic sequences and series, radians, arcs and sectors. Correlation and regression, and consolidation of year 1 work.	Year 12 exams.	
Summer Term 2	Pure Applied	Geometric sequences and series, functions: notation, composite, inverse, range and domain. Conditional probability, set notation, vectors (Y2 pure).	Classroom assessments focussing on recent topics and including a selection from all previous topics.	

Year view Subject: Mathematics			For further information, please see the KS5 Curriculum Booklet	
Year 13	**Knowledge/Content**	**Skills**	**Assessments/Checkpoints**	**Comments**
Autumn Term 1	Pure Applied	Algebraic fractions, partial fractions, development of binomial expansion, development of trigonometry: new functions, inverses, identities, trigonometric formulae. Moments and equilibrium, friction, forces on an inclined plane, projectiles.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	
Autumn Term 2	Pure Applied	Development of differentiation: trigonometry, exponentials and logarithms, differentiation rules. Applications of forces: static particles, further inclined planes and connected particles.	Mock exams.	
Spring Term 1	Pure Applied	Parametric equations including sketching curves and differentiating, implicit differentiation, Vectors in kinematics, calculus with vectors, Normal distribution: using to find probabilities, approximating binomial distributions, hypothesis testing.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	
Spring Term 2	Pure Applied	Development of integration: trigonometric functions, exponentials, different rules and methods. Proof by contradiction, rates of change. Numerical methods, consolidation, large data set analysis.	Classroom assessment focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Pure Applied	Consolidation. Consolidation.	Classroom assessment focussing on recent topics and including a selection from all previous topics. External exams.	
Summer Term 2			External exams.	

Year view Subject: Mathematics and Further Mathematics			For further information, please see the KS5 Curriculum Booklet	
Year 12	**Knowledge/ Content**	**Skills**	**Assessments/ Checkpoints**	**Comments**
Autumn Term 1	Pure Applied	Quadratics: factorising, expanding, sketching, solving, indices and surds, simultaneous equations, solving inequalities, equations of circles and tangents. Sketching graphs, graph transformations, factor theorem, algebraic proof, differentiation from first principles, differentiation and using to find gradients, tangents and normals. Modelling in mechanics, units, distance and velocity time graphs, SUVAT formulae, forces and acceleration on an object, connected particles, pulleys. Vectors, measures of central tendency and spread, sampling methods.	Classroom assessments focussing on recent topics.	Maths content taught first.
Autumn Term 2	Pure Applied	Binomial expansion, second derivatives and their uses, trigonometry review, solving trigonometric equations, sketching trigonometric graphs, trig identities. Integration introduction and definite integrals, trapezium rule, logarithms and exponentials. Data representation: histograms, boxplots, cumulative frequency, data comparison and outliers, probability: Venn diagrams, tree diagrams, mutually exclusive and independent events. Correlation in data sets, hypothesis testing.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	UKMT Senior Maths Challenge.
Spring Term 1	Pure Applied	Arithmetic sequences and series, modelling using logarithms. Geometric sequences and series, radians, arcs and sectors, functions: notation, composite, inverse, range & domain. Variable acceleration and consolidation of year 1 work. Conditional probability, set notation, regression lines, measuring correlation and correlation hypothesis testing.	As above.	
Spring Term 2	Pure Applied	Algebraic fractions, partial fractions, development of binomial expansion, development of trigonometry: new functions, inverses, identities, trigonometric formulae. Development of differentiation: trigonometry, exponentials and logarithms, differentiation rules. Parametric equations including sketching curves and differentiating. Moments and equilibrium, friction, forces on an inclined plane, projectiles. Applications of forces: static particles, further inclined planes and connected particles, vectors in kinematics, calculus with vectors.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	Pure Applied	Implicit differentiation, development of integration: trigonometric functions, exponentials. Development of integration: different rules and methods. Proof by contradiction, rates of change Normal distribution: using to find probabilities, approximating binomial distributions, hypothesis testing. Vectors in 3 dimensions, numerical methods.	Y12 exams.	
Summer Term 2	F Core Pure F Mechanics 1	Complex numbers. Argand diagrams. Series. Roots of polynomials. Momentum and impulse. Work, energy and power.	Classroom assessments focus on new topics.	Start of further maths.

Year view Subject: Mathematics and Further Mathematics			For further information, please see the KS5 Curriculum Booklet	
Year 13	**Knowledge/Content**	**Skills**	**Assessments/Checkpoints**	**Comments**
Autumn Term 1	F Core Pure F Mechanics 1	Volumes of revolution. Matrices. Linear transformations. Proof by induction. Vectors. Elastic strings and springs. Elastic collisions in one dimension.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	Maths consolidation ongoing throughout new further maths content, with some extra assessments in common with Y13 Maths students.
Autumn Term 2	F Core Pure F Mechanics 1 F Statistics 1	Complex numbers. Series. Methods in calculus. Volumes of revolution. Elastic collisions in two dimensions. Discrete random variables.	Mock exams.	MAT: Maths admissions tests. UKMT Senior Maths Challenge.
Spring Term 1	F Core Pure F Statistics 1	Polar Coordinates. Hyperbolic functions. Poisson distributions. Geometric and negative binomial distributions. Hypothesis testing. Central limit theorem.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	
Spring Term 2	F Core Pure F Statistics 1	Methods in differential equations. Modelling with differential equations. Chi-squared tests. Probability generating functions. Quality of tests.	Classroom assessments focussing on recent topics and including a selection from all previous topics.	
Summer Term 1	All	Consolidation, revision and exam preparation.	Classroom assessments to prepare for exams. External exams.	Maths and Further Maths A levels both examined at the end of Y13.
Summer Term 2			External exams.	