Barr Beacon School
Curriculum Overview (2024-2025)

Mathematics and Statistics

Curriculum intent: Pupils will gain the understanding and knowledge that is required to inspire a passion in problem-solving and mathematics, enabling them to enter the workplace with resilience and transferrable skills.

Curriculum rationale: The key strands of mathematics run through each year group, Number, Ratio and Proportion Shape and Space, Geometry and Statistics and Probability in order to create a rounded mathematician. Pupil's knowledge is built upon their prior learning during each academic year, allowing previous concepts to be recalled and applied to a new concept. Pupils can continue their studies into Key Stage 5 by studying either A-level Mathematics or A-level Statistics.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7	Four Operations Negative Numbers Ordering positive and negative integers Decimals and money Ordering fractions, decimals and percentages Factors, multiples and primes Algebraic manipulation Expanding and factorising brackets	Algebraic manipulation Expanding and factorising brackets Representing data Order of operations, powers and roots Properties of shapes Constructions and congruency Angles	Fractions Solving equations Measures Area, perimeter and volume	Coordinates and lines Rounding and estimation Percentages Transformations	Averages and the range Sequences Ratio and proportion	Ratio and proportion Probability Calculator skills
8	Four operations Standard form Ordering and comparing numbers BIDMAS, powers and roots Factors, multiples and primes Algebraic manipulations Fractions	Percentages Angles Ratio and proportion Measures and scales	Measures and scales Transformations Solving equations Constructions, plans and elevations	Representing data Analysing data Graphs	Probability Rounding and estimation Area, perimeter and volume	Sequences Similarity and right angled triangles Calculator skills
9	HCF and LCM Algebraic manipulations Expand and factorising brackets Fractions Pythagoras and trigonometry	Similar shapes Angles Ratio and proportion Ratio and proportion Graphs	Four operations Standard form Ordering and comparing numbers Solving equations Rounding and estimation	Probability Transformations Constructions, plans and elevations Sequences	Analysing data Area, perimeter and volume Percentages Surds	Simple proofs Measures and scale Surds Representing data Calculator skills

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10F	Integers and place value Decimals Indices, powers and roots Factors, multiples and primers Algebra introduction Expressions and substitution into formulae	Tables, charts and graphs Pie charts Scatter graphs Fractions, decimals and percentages Percentages	Equations and inequalities Transformations Sequences Properties of shapes, parallel lines	Angle facts Angles in polygons Sampling methods Perimeter, area and volume Real life graphs	Straight line graphs Ratio Proportion	Right angles triangles, Pythagoras and trigonometry
10H	Calculations, checking and rounding Indices, roots, reciprocals, BIDMAS Factors, multiples and primes Standard form Surds Algebra introduction Sequences Averages and the range	Representing data Interpreting data Angles in polygons Pythagoras and trigonometry Fractions Percentages	Ratio and proportion Probability Real life graphs Linear graphs and co-ordinate geometry	Solving quadratic and simultaneous equations Inequalities Transformations Perimeter, area and circles	Volume Bounds	Constructions, loci and bearings Quadratic and cubic graphs
11F	Probability Perimeter, area and volume Right angled triangles, Pythagoras and trigonometry Plans and elevations	Fractions and reciprocals Indices and standard form Changing the subject Simultaneous equations	Multiplicative reasoning Similarity and congruency Vectors	Quadratic equations, expanding and factorising Quadratic graphs Constructions, loci and bearings	Exam preparation	Exam preparation
11H	Circle theorems Circle geometry Expanding brackets Sketching graphs Further trigonometry	Multiplicative reasoning Changing the subjects Graphs of trig functions	Probability Collecting data Cumulative frequency, box plots and histograms Similarity and congruency	Reciprocals Exponentials Gradient and area under a graph Proportion Vectors and geometric proof	Exam preparation	Exam preparation
12 Maths	Algebra and functions Coordinate geometry Statistical sampling Data presentation Data intepretation Quantities and units in mechanics Kinematics	Coordinate geometry Further algebra Data presentation Data interpretation	Trigonometry Vectors (2D) Probability Statistical distributions Forces and Newton's laws	Differentiation Integration Statistical hypothesis testing Forces and Newton's laws	Exponentials and logarithms Kinematics	Proof Algebraic and partial fractions Functions and modelling Series and sequences

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13 Maths	Functions The binomial theorem Trigonometry Moments Forces at any angle	Trigonometry Differentiation Regression and correlation Probability Moments Forces at any angle	Trigonometry Differentiation Numerical methods Integration Probability Applications of kinematics	Integration Vectors (3D) The normal distribution Applications of forces Further kinematics	Statistical hypothesis testing Exam preparation	Exam preparation
13 Stats	Further probability theory Confidence intervals and central limit theorem The Poisson distribution Combinations of independent random variables	Concepts in hypothesis testing The exponential distribution Hypothesis tests between two parameters	Goodness of fit Further experimental design Cohen's d Analysis of variance	Cohen's d Analysis of variance Exam preparation	Exam preparation	Exam preparation