Barr Beacon School
Curriculum Overview (2023 – 2024)

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	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 Probability Calculator skills	Mathematical project
8	Fractions Four operations Standard form Ordering and comparing numbers BIDMAS, powers and roots Factors, multiples and primes Algebraic manipulations Percentages	Angles Ratio and proportion 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 Mathematical project
9	HCF and LCM Algebraic manipulations Expand and factorising brackets Fractions Pythagoras and trigonometry Similar shapes Angles	Ratio and proportion Graphs Four operations Standard form Ordering and comparing numbers	Solving equations Rounding and estimation Probability Transformations	Transformations Constructions, plans and elevations Sequences Area, perimeter and volume	Area, perimeter and volume Percentages Measures and scale Surds Representing data	Simple proofs Calculator skills Mathematical project

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	Ratio and proportion					
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	Tables, charts and graphs Pie charts Scatter graphs Fractions, decimals and percentages Percentages	Transformations Sequences Properties of shapes, parallel lines Angle facts	Angles in polygons Sampling methods Perimeter, area and volume	Real life graphs Straight line graphs Right angles triangles Ratio	Proportion Equations and inequalities
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 Fractions Percentages Ratio and proportion	Probability Linear graphs and co-ordinate geometry	Inequalities Transformations Constructions, loci and bearings Perimeter, area and circles	Volume Bounds Solving quadratic and simultaneous equations Pythagoras theorem Trigonometry	Real life graphs Quadratic and cubic graphs
11F	Probability Pythagoras Trigonometry Multiplicative reasoning	Expanding and factorising brackets Quadratic graphs Perimeter, area and volume	Constructions, loci and bearings Plans and elevations Fractions and Reciprocals Indices and standard form	Similarity and congruency Vectors Changing the subject Simultaneous equations	Exam preparation	Exam preparation
11H	Probability Multiplicative reasoning Similarity and congruency	Graphs of trig functions Further trigonometry Collecting data Cumulative frequency, box plots and histograms	Expanding brackets Sketching graphs Circle theorems Circle geometry	Changing the subjects Surds Proof Graphs Proportion	Exam preparation	Exam preparation

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12 Maths	Algebra and functions Statistical sampling Data presentation Data intepretation Quantities and units in mechanics Kinematics	Coordinate geometry Further algebra Data presentation Data interpretation Kinematics	Trigonometry Vectors (2D) Probability Statistical distributions Forces and Newton's laws	Differentiation Integration Statistical hypothesis testing Forces and Newton's laws	Exponentials and logarithms Statistical hypothesis testing Kinematics	Proof Algebraic and partial fractions Functions and modelling Series and sequences
12 Stats	Foundation of statistics Numerical measures Probability Theory Data representation and interpretation	Discrete random variables Bivariate data The binomial distribution The normal distribution Estimation and approximation Introduction to hypothesis test	Estimation and approximation Methods of hypothesis testing Data collection	Non-parametric hypothesis testing Contingency tables	Experimental design	The Poisson distribution Combinations of independent random variables
13 Maths	Proof Algebraic and partial fractions Functions and modelling Series and sequences Regression and correlation	The binomial theorem Parametric equations Regression and correlation Probability Moments Forces at any angle	Trigonometry Differentiation Applications of kinematics	Numerical methods Integration Applications of forces	Integration Vectors (3D) The normal distribution Applications of forces Further kinematics 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	Exam preparation	Exam preparation	Exam preparation