



Blue Coat Church of England Academy

Year: 10

Subject: Mathematics

Overview

At Blue Coat Academy, the Mathematics department aims to promote a love of learning for the subject with applications to real-life to allow pupils to see its importance. Enrichment activities are used over the course of the year to reinforce this alongside a key focus on reasoning and problem-solving.

Pupils are set according to Year 9 data. The content for Year 10 builds on work covered in KS3 with a key focus on exam preparation and skills. Pupils are assessed each half-term on content covered to check their understanding and to embed exam style questions over the academic year. Pupils also complete a full GCSE mock (3 papers) during Y10. All pupils have access to the MathsWatch VLE site to assist with independent learning, homework and revision.

Content Covered

10st/Ma1	10st/Ma2	10st/Ma3 and 10st/Ma4	10st/Ma5	10st/Ma6
Calculating	Calculating	Calculating	Counting and comparing	Calculating
Investigating properties of shapes	Visualising and constructing	Numbers and the number system	Numbers and the number system	Numbers and the number system
Algebraic proficiency: tinkering	Algebraic proficiency: tinkering	Visualising and constructing	Calculating	Calculating: division
Solving equations and inequalities I	Pattern sniffing	Understanding risk I	Checking, approximating and estimating	Checking, approximating and estimating
Mathematical movement I	Solving equations and inequalities I	Algebraic proficiency: tinkering	Visualising and constructing	Visualising and constructing
Solving equations and inequalities II	Calculating space	Exploring fractions, decimals and percentages	Investigating properties of shapes	Investigating properties of shapes
Proportional reasoning	Algebraic proficiency: visualising	Proportional reasoning	Algebraic proficiency: tinkering	Algebraic proficiency: using formulae
Pattern sniffing	Solving equations and inequalities II	Pattern sniffing	Exploring fractions, decimals and percentages	Exploring fractions, decimals and percentages
Solving equations and inequalities III	Understanding risk	Investigating angles	Measuring space	Proportional reasoning
Calculating space	Presentation of data	Calculating fractions, decimals and percentages	Pattern sniffing	Pattern sniffing
Conjecturing	Proportional reasoning	Solving equations and inequalities	Proportional reasoning	Measuring space
Algebraic proficiency: visualising I	Conjecturing	Calculating space	Investigating angles	Investigating angles
Algebraic proficiency: visualising II		Algebraic proficiency: visualising	Calculating fractions, decimals and percentages	Calculating fractions, decimals and percentages
Exploring fractions, decimals and percentages		Understanding risk II	Solving equations and inequalities	Solving equations and inequalities
Understanding risk		Presentation of data	Calculating space	Calculating space
Analysing statistics		Measuring data	Mathematical movement	Mathematical movement
Mathematical movement II			Presentation of data	Presentation of data
			Measuring data	Measuring data

Key Assessment Areas

10st/Ma1	10st/Ma2	10st/Ma3	10st/Ma4 and 10st/Ma5	10st/Ma6
<ul style="list-style-type: none"> ▪ Manipulate fractional indices ▪ Solve problems involving direct and inverse proportion ▪ Convert between recurring decimals and fractions ▪ Solve equations using iterative methods ▪ Manipulate algebraic expressions by factorising a quadratic expression of the form $ax^2 + bx + c$ ▪ Solve quadratic equations by factorising ▪ Link graphs of quadratic functions to related equations ▪ Interpret a gradient as a rate of change ▪ Recognise and use the equation of a circle with centre at the origin ▪ Apply trigonometry in two dimensions ▪ Calculate volumes of spheres, cones and pyramids ▪ Understand and use vectors ▪ Analyse data through measures of central tendency, including quartiles 	<ul style="list-style-type: none"> ▪ Calculate with roots and integer indices ▪ Manipulate algebraic expressions by expanding the product of two binomials ▪ Manipulate algebraic expressions by factorising a quadratic expression of the form $x^2 + bx + c$ ▪ Understand and use the gradient of a straight line to solve problems ▪ Solve two linear simultaneous equations algebraically and graphically ▪ Plot and interpret graphs of quadratic functions ▪ Change freely between compound units ▪ Use ruler and compass methods to construct the perpendicular bisector of a line segment and to bisect an angle ▪ Solve problems involving similar shapes ▪ Calculate exactly with multiples of π ▪ Apply Pythagoras' theorem in two dimensions ▪ Use geometrical reasoning to construct simple proofs ▪ Use tree diagrams to list outcomes 	<ul style="list-style-type: none"> ▪ Apply the four operations with negative numbers ▪ Convert numbers into standard form and vice versa ▪ Apply the multiplication, division and power laws of indices ▪ Convert between terminating decimals and fractions ▪ Find a relevant multiplier when solving problems involving proportion ▪ Solve problems involving percentage change, including original value problems ▪ Factorise an expression by taking out common factors ▪ Change the subject of a formula when two steps are required ▪ Find and use the nth term for a linear sequence ▪ Solve linear equations with unknowns on both sides ▪ Plot and interpret graphs of linear functions ▪ Apply the formulae for circumference and area of a circle ▪ Calculate theoretical probabilities for single events 	<ul style="list-style-type: none"> ▪ Add, subtract, multiply and divide with fractions and mixed numbers ▪ Use positive integer powers and associated real roots ▪ Apply the four operations with decimal numbers ▪ Write a quantity as a fraction or percentage of another ▪ Use multiplicative reasoning to interpret percentage change ▪ Check calculations using approximation, estimation or inverse operations ▪ Simplify and manipulate expressions by collecting like terms ▪ Simplify and manipulate expressions by multiplying a single term over a bracket ▪ Substitute numbers into formulae ▪ Solve linear equations in one unknown ▪ Understand and use lines parallel to the axes, $y = x$ and $y = -x$ ▪ Calculate surface area of cubes and cuboids ▪ Understand and use geometric notation for labelling angles, lengths, equal lengths and parallel lines 	<ul style="list-style-type: none"> ▪ Multiply and divide numbers with up to three decimal places by 10, 100, and 1000 ▪ Use long division to divide numbers up to four digits by a two-digit number ▪ Use simple formulae expressed in words ▪ Generate and describe linear number sequences ▪ Use simple ratio to compare quantities ▪ Write a fraction in its lowest terms by cancelling common factors ▪ Add and subtract fractions and mixed numbers with different denominators ▪ Multiply pairs of fractions in simple cases ▪ Find percentages of quantities ▪ Solve missing angle problems involving triangles, quadrilaterals, angles at a point and angles on a straight line ▪ Calculate the volume of cubes and cuboids ▪ Use coordinates in all four quadrants ▪ Calculate and interpret the mean as an average of a set of discrete data