West Coventry Academy
Respectful | Responsible | Resilient | Ready to Learn

WCA Maths Department

WCA Maths Department Curriculum Vision – The Maths Department at WCA aims to provide all students with a consistent and enjoyable experience of Mathematics, where they learn to appreciate the beauty of our subject. We will achieve this through our commitment to excellent teaching of our well-designed curriculum which builds on prior knowledge, responds to prior understanding and consolidates previous work in order to improve long term recall. Our curriculum will make our students think through challenging content and making connections between topics, as well as developing resilience in their approach, through an emphasis on problem solving approaches once required skills have been taught. We aim to prepare our students to become confident, numerate individuals who take away the mathematical tools that they need for their chosen career and in all aspects of their adult life.

WCA Maths Department Curriculum Sequencing – Our WCA Maths curriculum covers the six key strands in the KS3 and KS4 national curriculum programmes of study. We are currently working towards a five-year spiral curriculum where our revisiting, interleaving and stretch and challenge will be clearly laid out. The WCA Maths Curriculum Map is a living document which responds to the needs of each individual cohort. However, the fundamental principles of our sequencing remain the same. We aim to vary the stand content that students experience, whilst ensuring that the pre-requisite knowledge for any topic has been taught at some point prior to this topic starting. For each of years 7 – 10 the sequencing of the topics is based on all students being taught the same content at the same time so that when set changes do occur, students are not disadvantaged by having any missing knowledge. In light of the lockdown and periods of remote learning last academic year, we have had to adapt and rebuild the Curriculum Map for 2021-22 in order to revisit key topics that had been taught during periods of remote or blended learning, and teach the topics that we had been forced to miss out due to the restrictions of remote teaching. This has resulted in an increased focus on aspects of geometry and statistics in this curriculum map. However, we have built in topics of algebra, number and ratio to give students the desired varied diet of learning.

KS4 Curriculum Map on next page

Key Stage 4 Curriculum Map - Maths

Year 10 Curriculum Map 2021-22		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
Mathematics 10 hrs per fortnight	Curriculum Content inc Knowledge, Skills & Cultural Capital	• *Collect, represent, interpret data – calculating averages from lists & tables, bar charts, pie charts, two-way tables, time series graphs, scatter graphs, comparing data sets, stem and leaf (Higher only: stratified sampling, histograms, cumulative frequency, box plots)* • *Probability – probability of mutually exclusive events, probability from two-way tables (revisit two-way tables), experimental probability, Venn diagrams, tree diagrams, (Higher only: conditional probability)* • *Congruence, similarity and enlargement – enlargement of shapes (include on coordinate grid), revisit angles in parallel lines, identify similar shapes, find missing lengths in similar shapes, congruent shapes (Higher only: similarity with area and volume, proof of congruent shapes, enlargement by negative scale factor)*	• *Congruence, similarity and enlargement – enlargement of shapes (include on coordinate grid), revisit angles in parallel lines, identify similar shapes, find missing lengths in similar shapes, congruent shapes (Higher only: similarity with area and volume, proof of congruent shapes, enlargement by negative scale factor)* • *Circles, cylinders, cones and spheres – area and circumference of circles, parts of circles, volume and surface area of cones, pyramids, spheres, (Higher only: volume of shapes with algebra, revisiting algebraic manipulation)*	• *Multiplicative Reasoning – sharing and simplifying ratio, direct and inverse proportion, percentage profit and loss, repeated percentage change, compound measures (Higher only: direct and inverse proportionality)* • *Quadratics – expanding and factorising quadratic expressions and solving quadratic equations (Higher only: factorising and solving where a >0)* • *Graphs – plotting straight line graphs (include parallel to the axis), finding the equation of straight-line graphs, identifying parallel and perpendicular lines, using y = mx + x, quadratic graphs, graphs of a cubic and reciprocals, (Higher only: finding the equation of parallel and perpendicular lines, graphs of circles)*	• *Graphs – plotting straight line graphs (include parallel to the axis), finding the equation of straight-line graphs, identifying parallel and perpendicular lines, using y = mx + x, quadratic graphs, graphs of a cubic and reciprocals, (Higher only: finding the equation of parallel and perpendicular lines, graphs of circles)* • *Plans and Elevations – properties of 3D shapes, plans and elevations of 3D shapes* • *Constructions – perpendicular and angle bisectors, constructing triangles*	• *Loci and Bearings – loci from a point and a line, scale drawings, bearings, shading regions* • *HIGHER: Accuracy and bounds – upper and lower bounds, calculating with bounds, suitable degree of accuracy* • *FOUNDATION: Indices and Standard form – revisit laws of indices, negative and fractional indices, standard form (include calculating)* • *Transformations – reflection, rotation, translation, revisit enlargement and plotting coordinates, combined transformations*	• *Vectors – revisit column vectors and translation, resultant vectors (higher only: vectors with ratio)* • *Exam revision period* • *HIGHER: Geometric Proof – proof with vectors, revisit proof of congruent shapes* • *FOUNDATION: Fractions and reciprocals – reciprocals of numbers, calculating with mixed numbers, revisit converting FDP, fraction and percentage of amount*
	Assessment	Mini assessments on collect, represent and interpret data, probability	Mini assessments congruence, similarity, enlargement and circles, cylinders, cones and spheres DDI assessment	Mini assessments on multiplicative reasoning, quadratics	Mini assessment graphs Exams	Mini assessments on constructions and loci, accuracy and bounds/indices and standard form	Mini assessment on geometric proof/fractions and reciprocals Exams
	Outside of the Curriculum						

Year 11F Curriculum Map 2021-22		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
Mathematics 10 hrs per fortnight	Curriculum Content inc Knowledge, Skills & Cultural Capital	• *Constructions, Loci and Bearings -perpendicular and angle bisectors, constructing triangles, properties of 3D shapes, plans and elevations of 3D shapes, loci from a point and a line, scale drawings, bearings, shading regions* • *Congruence, Similarity and enlargement – enlargement of shapes (include on coordinate grid), revisit angles in parallel lines, identify similar shapes, find missing lengths in similar shapes, congruent shapes (Higher only: similarity with area and volume, proof of congruent shapes, enlargement by negative and fractional scale factor)* • *DDI reteach and mock preparation*	• *Congruence, Similarity and enlargement – enlargement of shapes (include on coordinate grid), revisit angles in parallel lines, identify similar shapes, find missing lengths in similar shapes, congruent shapes (Higher only: similarity with area and volume, proof of congruent shapes, enlargement by negative and fractional scale factor)* • *More Algebra – draw and interpret cubic and reciprocal graphs, solve simultaneous equations graphically and algebraically, change the subject of formulae*	• *Specific target reteach SOW based on mock set 1 analysis*	• *Specific target reteach SOW based on mock set 1 analysis* • *Specific target reteach SOW based on mock set 2 analysis when complete*	• *Specific target reteach SOW based on mock set 2 analysis*	
	Assessment	Mini assessment on constructions, loci and bearings Mock Set 1 exams	Mini assessment congruency and similarity, more algebra	Mini assessments regularly to check understanding	Mock Set 2 exams	GCSE exams	GCSE Exams
	Outside of the Curriculum						

Year 11H Curriculum Map 2021-22		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
Mathematics 10 hrs per fortnight	Curriculum Content inc Knowledge, Skills & Cultural Capital	• *Circle Theorems – identify, use and solve problems with all circle theorems* • *More algebra – changing the subject of a formula, algebraic fractions (calculating, simplifying and solving), expanding and rationalising surds, functions, algebraic proof* • *DDI reteach and mock preparation*	• *More algebra – changing the subject of a formula, algebraic fractions (calculating, simplifying and solving), expanding and rationalising surds, functions, algebraic proof* • *Vectors and geometric proof –revisit column vectors and translation, resultant vectors, vectors with ratio, proof with vectors* • *Proportion and Graphs – solve problems with direct and inverse proportionality, gradient of a tangent, area under a curve, translation of graphs*	• *Specific target reteach SOW based on mock set 1 analysis*	• *Specific target reteach SOW based on mock set 1 analysis* • *Specific target reteach SOW based on mock set 2 analysis when complete*	• *Specific target reteach SOW based on mock set 2 analysis*	
	Assessment	Mini assessment on circle theorems Mock Set 1 exams	Mini assessments on more algebra, vectors and geometric proof	Mini assessments regularly to check understanding	Mock Set 2 exams	GCSE exams	GCSE Exams
	Outside of the Curriculum						