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

2023-2024 Key Stage 3 Curriculum Map – Maths

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 the 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 national curriculum programme of study. We are currently working towards a three-year spiral curriculum based upon the White Rose Maths scheme 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 – 9 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 missing knowledge.

Year 7 Curriculum Map 2023-24		**Halfterm1**	**Halfterm2**	**Halfterm3**	**Halfterm4**	**Halfterm5**	**Halfterm6**
Mathematics	Curriculum Content inc Knowledge, Skills & Cultural Capital	• *Sequences - describe and continue sequences, predict and check next terms, sequences in a table and graphically, linear and non-linear sequences, explain term to term rules* • *Understand and use algebraic notation – function machines and substitution* • *Equality and equivalence – one step equations and simplifying*	• *Place Value, Ordering Integers and Decimals – Understanding place value in all numbers, ordering integers and decimals, understanding powers of 10, using standard form (H)* • *Fractions, Decimals, and Percentages Equivalence – Converting fluently between fractions, decimals, and percentages, using pie charts and proportion* • *Solving Problems with addition and subtraction – formal methods of + and - for both integers and decimals, use order of operations*	• *Solving Problems with multiplication and division – formal methods of x and ÷ for both integers and decimals, use order of operations, area of rectangles, triangles, and parallelograms, converting metric units, area of trapezium (H) and multiplication and division with algebra (H)* • *Fractions and percentages of amount – Calculate with fractions and percentages of amounts*	• *Operations with directed numbers – use all operations with directed numbers, place and order directed numbers, solve 2 step equations, calculate with powers and roots* • *Addition and Subtraction of Fractions – Adding and subtracting fractions, adding and subtracting mixed numbers, add fractions in algebraic contexts, add decimals and fractions*	• *Constructing, measuring, and using geometric notation - measure and draw angles, construct triangles of SAS, ASA and SSS, draw and interpret pie charts* • *Developing geometric reasoning – understanding angle facts, using angle facts to find missing angles on straight lines, triangles and quadrilaterals, investigate the angle sum of polygons (H), investigate angles in parallel lines (H)*	• *Developing Number sense – use mental and formal strategies to solve problems with integers and decimals, estimation, use know number and algebraic facts to derive other facts* • *Sets and Probability – draw and use Venn diagrams, know and identify sections of a Venn diagram, use and understand the probability scale, find the probability for single events, know probability sums to 1* • *Prime numbers and proof – know and identify different types of number, write numbers as a product of its prime factors, use Venn diagrams to find HCF and LCM, make and test conjectures*
8 hrs per fortnight	Assessment	Induction assessment Algebraic Notation SMP	Place Value SMP Autumn Milestone assessment	Fractions, Decimals, and Percentages Equivalence SMP	Operations with directed number SMP Spring Milestone assessment	Constructing, measuring and using geometric notation SMP	Developing number sense SMP Summer EOY Milestone assessment
	Literacy Links	• Speaking and listening in Maths lessons is used to support the development of mathematical concepts. Pupils are given regular opportunities to describe, explain and justify their understanding, with constant encouragement to use Maths specific key words which are identified on the learning intentions at the start of each lesson. • Reading and comprehension skills are developed through effective teacher modelling of problem-solving questions, underlining key words and breaking down the problem. • Pupils writing skills are developed in Maths through answering reasoning questions, again with effective teacher modelling and emphasis on the use of mathematical terms.					

		• Mathematical vocabulary is used throughout every Maths lesson, led by teacher demonstration and demanded in pupils' responses. Key words are identified each lesson in the right-hand margin of exercise books and definitions checked or introduced as appropriate.					
	Curriculum Links	• Formulae in Data Management in Year 7 Computer Science • Formulae in Forces in Year 7 Science	• Budgeting in Year 7 French • Budgeting in Year 7 Spanish • Currency conversion in Year 9 Geography	• Data collection and analysis in Data Management in Year 7 Computer Science • Using percentages in Energy in Year 7 Science • Analysing, graphing and critiquing data in Genes and in Earth in Year 8 Science	• Flowcharts in Algorithms in Year 7 Computer Science • Recipes in Years 7, 8 and 9 Food • Cost comparison in Year 9 Hospitality & Catering • Using and manipulating an equation in Forces in Year 8 Science	• Repeating patterns in Year 8 Art	
	Outside of the Curriculum	• Black History Month activities	• Visualising the Climate Crisis end of Autumn term activity	• WCA College Maths Competition for NSPCC Number Day February 2nd	• Pi Day activities March 14th • World Maths Day activities March 23rd	• UKMT Junior Maths Challenge April 25th • Where Maths meets the world of work	• My Money Week activities June 10th to 14th
	How can I support my child?	• Being positive about Maths as a subject is a key way to support your child – try not to pass on your own reservations to them. Taking an active interest in what your child is doing in their Maths lessons is great support – taking a look at their exercise book on a weekly basis and encouraging them to talk to you about what they have learnt in lessons that week. • Reinforcing our message that to improve in Maths, we need to do Maths – encouraging further practice outside of lessons of the skills learnt e.g., finishing off classwork, making use of Maths Watch (see below) or requesting additional resources from the class teacher. • Ensuring that the weekly homework task in Maths is attempted. This is usually set on Sparx on a Friday, with a completion date of the following Friday when feedback will be offered in lessons. Encourage a good routine rather than a last-minute approach. • Supporting your child to make use of their personal login to the Maths Watch website – https://vle.mathswatch.co.uk/vle/ - when needing help outside of the classroom. There are videos, interactive questions and worksheets to download. • Talking to your child's Maths teacher if you or they have any concerns – good communication is key to progress. • Pointing out everyday examples of when Maths is useful to you – for example, budgeting and finance, building and measuring.					

Year 8 Curriculum Map 2023-24		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
Mathematics	Curriculum Content inc Knowledge, Skills & Cultural Capital	• *Ratio and Scale – understand and use ratio, solve problems, divide in a given ratio, compare ratio and fractions* • *Multiplicative Change – solve problems with direct proportion, conversion graphs, currency conversion, draw and interpret scale diagrams and maps* • *Multiplying and dividing fractions – multiply and divide an integer by a fraction, multiply and divide two fractions, including mixed numbers and algebraic fractions, understand reciprocal*	• *Working in the Cartesian Plane – coordinates in all four quadrants, lines parallel to the axes, link graphs with sequences, plot graphs of the form y = mx + c, explore non-linear graphs, find the midpoint of a line segment* • *Representing Data – draw and interpret scatter graphs including correlation and lines of best fit, identify types of data, read and interpret ungrouped and grouped frequency tables, construct and interpret two-way tables* • *Tables and Probability – construct sample space diagrams, find probabilities from sample space and Venn diagrams and two-way tables, use the product rule*	• *Brackets, Equations and Inequalities – expanding and factorising with a single bracket, expanding two binomials (H), solving equations including with brackets and unknown on both sides (H), solve inequalities* • *Sequences - more complex algebraic rules, finding the nth term of a linear sequence (H)* • *Indices - simplifying with indices, finding powers of powers (H)*	• *Fractions and Percentages – equivalence to decimals, use of decimal multiplier for percentage increase/decrease, one number as a fraction/percentage of another, financial maths e.g. profit, loss, interest, reverse percentages (H)* • *Standard Index Form – interpret and compare numbers in standard form, basic negative and fractional indices (H)*	• *Number Sense – estimation, mental strategies, solving time and calendar problems, converting metric units, conversion of area and volume units (H)* • *Angles in parallel lines and polygons – solve angle problems including parallel lines, geometric proof (H), constructions with ruler and compass* • *Area of Trapezia and Circles – area of a trapezium, area of a circle* • *Line Symmetry and Reflection – working with shapes and lines in different orientations*	• *The Data Handling Cycle – using charts to compare distributions, misleading graphs, design and criticise questionnaires* • *Measures of location – median, mean, mode, when/why to use each average, outliers, mean from ungrouped and grouped tables (H)*
8 hrs per fortnight	Assessment	Ratio and Scale SMP	Working in the Cartesian Plane SMP Autumn Milestone assessment	Brackets, Equations and Inequalities SMP	Spring Milestone assessment	Angles in parallel lines SMP	Summer EOY Milestone assessment
	Literacy Links	• Speaking and listening in Maths lessons is used to support the development of mathematical concepts. Pupils are given regular opportunities to describe, explain and justify their understanding, with constant encouragement to use Maths specific key words which are identified on the learning intentions at the start of each lesson. • Reading and comprehension skills are developed through effective teacher modelling of problem-solving questions, underlining key words and breaking down the problem. • Pupils writing skills are developed in Maths through answering reasoning questions, again with effective teacher modelling and emphasis on the use of mathematical terms. • Mathematical vocabulary is used throughout every Maths lesson, led by teacher demonstration and demanded in pupils' responses. Key words are identified each lesson in the right-hand margin of exercise books and definitions checked or introduced as appropriate.					
	Curriculum Links		• Flowcharts in Algorithms in Year 7 Computer Science • Data presentation in Data Management in Year 8 Computer Science	• Flowcharts in Algorithms in Year 7 Computer Science • Using and manipulating an equation in Forces in Year 8 Science	• Composition & Symmetry in Year 8 & 9 Art • Symmetrical design in Year 7 Resistant Materials	• Line and Shape in Year 8 Art • Scale drawing in Year 7 Resistant Materials and Year 9 Design Technology	

			• Using and manipulating an equation in Forces in Year 8 Science • Analysing, graphing and critiquing data in Genes and in Earth in Year 8 Science		• Using percentages in Energy in Year 7 Science		
	Outside of the Curriculum	• Black History Month activities	• Visualising the Climate Crisis end of Autumn term activity	• WCA College Maths Competition for NSPCC Number Day February 2nd	• Pi Day activities March 14th • World Maths Day activities March 23rd	• UKMT Junior Maths Challenge April 25th • Where Maths meets the world of work	• My Money Week activities June 10th to 14th
	How can I support my child?	• Being positive about Maths as a subject is a key way to support your child – try not to pass on your own reservations to them. Taking an active interest in what your child is doing in their Maths lessons is great support – taking a look at their exercise book on a weekly basis and encouraging them to talk to you about what they have learnt in lessons that week. • Reinforcing our message that to improve in Maths, we need to do Maths – encouraging further practice outside of lessons of the skills learnt e.g., finishing off classwork, making use of Maths Watch (see below) or requesting additional resources from the class teacher. • Ensuring that the weekly homework task in Maths is attempted. This is usually set on Sparx on a Friday, with a completion date of the following Friday when feedback will be offered in lessons. • Supporting your child to make use of their personal login to the Maths Watch website - https://vle.mathswatch.co.uk/vle/ - when needing help outside of the classroom. There are videos, interactive questions and worksheets to download. • Talking to your child's Maths teacher if you or they have any concerns – good communication is key to progress. • Pointing out everyday examples of when Maths is useful to you - for example, budgeting and finance, building and measuring					

Year 9 Curriculum Map 2023-24		**Halfterm1**	**Halfterm2**	**Halfterm3**	**Halfterm4**	**Halfterm5**	**Halfterm6**
Mathematics	Curriculum Content inc Knowledge,	• *Number – prime factor trees, HCF and LCM, indices (including*	• *Collecting and Analysing Data – calculating*	• *Fractions, Decimals, Ratio, and Percentages – converting FDP, fraction*	• *Algebra: Equations and Inequalities – solving equations in any format,*	• *Angles and Trigonometry – angles on a straight*	• *Straight Line Graphs – plotting straight line graphs, using y = mx + c,*

	Skills & Cultural Capital	• *fraction and negative), simplifying and rationalising simple surds, standard form (including calculating)* • *Algebra: Expressions – work with indices and algebra, substitution, expand and factorise linear and quadratic brackets, sequences and non-linear sequences*	*averages from lists and tables, comparing datasets, bar charts, pie charts, scatter graphs and interpreting relationships, two-way tables, time series graphs, stem and leaf diagrams.* • *Fractions, Decimals, Ratio, and Percentages – converting FDP, fraction and percentage of amount, sharing and simplifying ratio, reoccurring decimals to fractions, reverse percentages*	*and percentage of amount, sharing and simplifying ratio, reoccurring decimals to fractions, reverse percentages (cont)* • *Algebra: Equations and Inequalities – solving equations in any format, including with x on both sides, solve quadratic equations when a = 1(H), use inequality notation and solve inequalities*	*including with x on both sides, solve quadratic equations when a = 1(H), use inequality notation and solve inequalities (cont)* • *Angles and Trigonometry – angles on a straight line/around a point, interior angles of polygons (incl. triangles and quadrilaterals), forming and solving equations with angles, Pythagoras theorem, introduction to trigonometry finding missing angles and sides*	*line/around a point, interior angles of polygons (incl. triangles and quadrilaterals), forming and solving equations with angles, Pythagoras theorem, introduction to trigonometry finding missing angles and sides (cont)* • *Straight Line Graphs – plotting straight line graphs, using y = mx + c, Finding the equation of straight-line graphs, finding parallel and perpendicular lines, and real-life graphs.*	*Finding the equation of straight-line graphs, finding parallel and perpendicular lines, and real-life graphs.(cont)* • *Further Statistics – averages from tables and stem and leaf diagrams, comparing data, sampling, Capture/Recapture, quartiles, cumulative frequency graphs, box plots, histograms*
8 hrs per fortnight	Assessment	SMP - Number mini assessment SMP - Algebra: expressions mini assessment	Autumn Milestone assessment	SMP - Fractions, Decimals, Ratio and Percentages mini assessment	SMP – Equations and inequalities Spring Milestone assessment	SMP – Angles and Trigonometry	SMP – Straight Line Graphs mini assessment Summer EOY Milestone assessment
	Literacy Links	• Speaking and listening in Maths lessons is used to support the development of mathematical concepts. Pupils are given regular opportunities to describe, explain and justify their understanding, with constant encouragement to use Maths specific key words which are identified on the learning intentions at the start of each lesson. • Reading and comprehension skills are developed through effective teacher modelling of problem-solving questions, underlining key words and breaking down the problem. • Pupils writing skills are developed in Maths through answering reasoning questions, again with effective teacher modelling and emphasis on the use of mathematical terms. • Mathematical vocabulary is used throughout every Maths lesson, led by teacher demonstration and demanded in pupils' responses. Key words are identified each lesson in the right-hand margin of exercise books and definitions checked or introduced as appropriate.					
	Curriculum Links		• Data collection and analysis in Data Management in Year 7 Computer Science • Recipes in Years 7, 8 and 9 Food • Using percentages in Energy in Year 7 Science • Analysing, graphing and critiquing data in Genes and in Earth in Year 8 Science	• Recipes in Years 7, 8 and 9 Food • Using and manipulating an equation in Forces in Year 8 Science		• Distance-time graphs in Forces in Year 7 Science	
	Outside of the Curriculum	• Black History Month activities	• Visualising the Climate Crisis end of Autumn term activity	• UKMT Intermediate Maths Challenge January 31st • WCA College Maths Competition for	• Pi Day activities March 14th • World Maths Day activities March 23rd	• Where Maths meets the world of work	• My Money Week activities June 10th to 14th

				NSPCC Number Day February 2nd			
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