GCSE Maths Year 10 (Higher) Curriculum Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	**Similarity**						**Developing Algebra**					
	Congruence, similarity and enlargement			Trigonometry			Representing solutions of equations and inequalities			Simultaneous equations		
Spring	**Geometry**						**Proportions and Proportional Change**					
	Angles & bearings		Working with circles		Vectors		Ratios & fractions		Percentages and Interest		Probability	
Summer	**Delving into data**				**Using number**						**Expressions**	
	Collecting, representing and interpreting data				Non-calculator methods		Types of number and sequences		Indices and Roots		Manipulating expressions	

	Autumn		Spring		Summer	
	Learning Cycle 1	**Learning Cycle 2**	**Learning Cycle 3**	**Learning Cycle 4**	**Learning Cycle 5**	**Learning Cycle 6**
Topic	Similarity	Developing Algebra	Geometry	Proportions & proportional change	Delving into data Using Number	Using Numbers Expressions
Critical Prior Knowledge	Year 9 learning cycle 2 – explore congruency Year 8 learning cycle 2- work with scale factors Year 9 learning cycle 4 – Pythagoras' theorem **Year 9 learning cycle 5 – explore ratios in right-angled triangles**	Year 9 learning cycle 1 – form & solve equations & inequalities with unknowns on both sides, simplify & Year 9 learning cycle 6 – representing inequalities	Year 9 learning cycle 4 – chains of reasoning to find angles Year 10 learning cycle 1 – revisit shape names & properties Year 8 learning cycle 6 – angles in parallel lines, area of a circle Year 8 learning cycle 1 – circumference of a circle	Year 8 learning cycle 1 – understand & use ratio notation Year 9 learning cycle 2- fraction consolidation Year 9 learning cycle 3 – financial maths Year 9 learning cycle 6 – conversion graphs	Year 9 learning cycle 6 – consolidation of representing & interpreting data	Year 9 learning cycle 4 - revisit fraction arithmetic Year 8 learning cycle 4 – rounding Year 9 learning cycle 3 – HCF, LCM, Year 9 learning cycle 6 – standard form, prime factorisation
Overall Intent (Big ideas & key concepts)	Congruence, similarity & enlargement *Trigonometry*	Representing solutions of equations & inequalities	Angles & bearing *Working with circles* Vectors	Ratios & fractions *Percentages & interest* Probability	Collecting, representing & interpreting data *Non-calculator methods*	Types of number & sequence *Indices*

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		Simultaneous equations				Manipulating expressions
Essential Knowledge milestones (What students must master)	Enlarge a shape by a positive integer scale factor (R) Enlarge a shape by a fractional scale factor (R) Enlarge a shape by a negative scale factor (H) Identify similar shapes Work out missing sides & angles in a pair given similar shapes (R) Use parallel line rules to work out missing angles	Understand the meaning of a solution Form & solve one-step & two-step equations (R) Form & solve one-step & two-step inequalities (R) Show solutions to inequalities on a number line Interpret representations on number lines as inequalities Interpret representations on number lines as inequalities	Use cardinal directions & related angles (R) Draw & interpret scale diagrams (R) Understand & represent bearings Measure & read bearings Make scale drawings using bearings Calculate bearings using angles rules Solve bearings problems using Pythagoras & trigonometry	Compare quantities using ratio (R) Link ratios & fractions (R) Share in a ratio (given total or one part) (R) Using ratios & fractions to make comparisons Link ratios & graphs (R) Solve problems with currency conversion Link ratios & scales (R)	Understand populations & samples Construct a stratified sample (H) Primary & secondary data Construct & interpret frequency tables & frequency polygons Construct & interpret two-way tables (R) Construct & interpret line & bar charts (including composite bar charts)	Understand the difference between factors & multiples (R) Understand primes & express a number as a product of its prime factors (R) Find the HCF & LCM of a set of numbers (R) Describe & continue arithmetic & geometric sequences Explore other sequences

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	Establish a pair of triangles are similar Explore areas of similar shapes (H) Explore volumes of similar shapes (H) Solve mixed problems involving similar shapes (H) Understand the difference between congruence & similarity Understand the difference between congruence & similarity Understand & use conditions for congruent triangles	Represent solutions to inequalities using set notation (H) Draw straight line graphs (R) Find solutions to equations using straight line graphs Represent solutions to single inequalities on a graph (H) Represent solutions to multiple inequalities on a graph (H) Form & solve equations with unknowns on both sides (R)	Solve bearing problems using sine & cosine rules (H) *Recognise & label parts of a circle (R)* *Calculate fractional parts of a circle* *Calculate the length of an arc* *Calculate the area of a sector* *Circle theorem: Angles at the centre & circumference (H)* *Circle theorem: Angles in a semicircle (H)* *Circle theorem: Angles in the same segment (H)*	Use & interpret ratios of the form 1:n & n:1 Solve 'best buy' problems Combine a set of ratios Link ratio & algebra Ratio in area problems (H) Ratio in volume problems (H) Mixed ratio problems *Convert & compare fractions, decimals & percentages (R)* *Work out percentages of*	Construct & interpret pie charts (R) Criticise charts & graphs Construct histograms (H) Interpret histograms (H) Find & interpret averages from a list (R) Find & interpret averages from a table (R) Construct & interpret time series graphs (R)	Describe & continue sequence involving surds (H) Find the rule for the nth term of linear sequence (R) Find the rule for nth term of a quadratic sequence (H) *Square & cube numbers (R)* *Calculate higher powers & roots* *Powers of ten & standard form. (R)* *The addition & subtraction rules for indices (R)*

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	Prove a pair of triangles are congruent (H) *Explore ratio in similar right-angled triangles* *Work fluently with hypotenuse, opposite & adjacent sides* *Use the tangent ratio to find missing side lengths* *Use the since & cosine ratio to find missing side lengths* *Use sine, cosine & tangent to find missing side lengths*	Form & solve inequalities with unknown on both sides Form & solve more complex equations & inequalities Solve quadratic equations by factorisation (H – covered at F in Yr 11) Solve quadratic inequalities in one variable (H) *Understand that equations can have more than one solution* *Determine whether a given (x,y) is a*	*Circle theorem: Angles in a cyclic quadrilateral (H)* *Understand & use the volume of a cylinder & core* *Understand & use the volume of a sphere* *Understand & use the surface area of sphere* *Understand & use the surface area of a cylinder & cone* *Solve area & volume problems involving similar shapes (H)* Understand & represent vectors	*amounts (with & without a calculator (R)* *Increase & decrease by a given percentage (R)* *Express one number as a percentage of another (R)* *Calculate simple & compound interest* *Repeated percentage change* *Find the original value after a percentage change (R)* *Solve problems involving growth & decay*	Construct & interpret stem-and-leaf diagrams Construct & interpret cumulative frequency diagrams (H) Use cumulative frequency diagrams to find measures (H) Construct & interpret box plots (H) Compare distributions using charts & measures Compare distributions using complex charts & measures (H)	*Understand & use the power zero & negatives indices* *Work with powers of powers* *Understand & use fractional indices (H)* *Calculate with numbers in standard form (R)* Simplify algebraic expressions (R) Use identities Add & subtract simple algebraic fractions (H) Add & subtract complex algebraic fractions (H)

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	Use sine, cosine & tangent to find missing angles *Calculate sides in right-angled triangles using Pythagoras' Theorem (R)* *Select the appropriate method to solve right-angled triangle problems* *Work with key angles in right-angled triangles* *Use trigonometry in 3-D (H)* *Use formula 1/2absinC to find the area of a triangle (H)*	*solution to a pair of linear simultaneous equations* *Solve a pair of linear simultaneous equations by substituting a known variable* *Solve a pair of linear simultaneous equations by substituting an expression* *Solve a pair of linear simultaneous equations by using graphs* *Solve a pair of linear simultaneous equations by subtracting equations*	Use & read vector notation Draw & understand vectors multiplied by a scalar Draw & understand addition of vectors Draw & understand addition & subtraction of vectors Explore vector journeys in shapes (H) Explore quadrilaterals using vectors (H) Understand parallel vectors (H)	*Understand iterative processes (H)* *Solve problems involving percentages, ratio & fractions* Know how to add, subtract & multiply fractions (R) Find probabilities using equally likely outcomes (R) Use the property that probabilities sum to 1 (R) Using experimental data to estimate probabilities	Construct & interpret scatter graphs (R) Draw & use a line of best (R) Understand extrapolation *Mental/written methods of integer/decimal addition & subtraction (R)* *Mental/written methods of integer/decimal multiplication & division (R)* *The four rules of fractions arithmetic (R)*	Multiply & divide simple algebraic fractions (H) Multiply & divide complex algebraic fractions (H) Form & solve equations & inequalities with fractions Solve equations with algebraic fractions (H) Represent numbers algebraically Algebraic arguments & proof

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	Understand & use the sine rule to find missing lengths (H) *Understand & use the sine rule to find missing angles (H)* *Understand & use the cosine rule to find missing lengths (H)* *Understand & use the cosine rule to find missing angles (H)* *Choosing & using the sine & cosine rule (H)*	*Solve a pair of linear simultaneous equations by adding equations* *Use a given equation to derive related facts (R)* *Solve a pair of linear simultaneous equations by adjusting one equation* *Solve a pair of linear simultaneous equations by adjusting both equation* *Form a pair of linear simultaneous equations from given information*	Explore collinear points using vectors (H) Use vectors to construct geometric arguments & proofs (H)	Find probabilities from tables, Venn diagrams & frequency trees Construct & interpret samples spaces for more than one event (R) Use tree diagrams for independent events Use tree diagrams for dependent events Construct & interpret conditional probabilities (tree diagrams) (H) Construct & interpret conditional (Venn	*Exact answers* *Rational & irrational number (convert recurring decimals here) (H)* *Understand & use surds (H)* *Calculate with surds (H)* *Rounding to decimals places & significant figures (R)* *Estimating answers to calculations (R)* *Understand & use limits of accuracy* *Upper & lower bounds (H)* *Use number sense*	

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		Form & solve a pair of linear simultaneous equations from given information *Determine whether a given (x,y) is a solutions to both a linear & quadratic equation (H)* *Solve a pair of simultaneous equations (one linear, one quadratic) using graphs (H)* *Solve a pair of simultaneous equations (one linear, one quadratic) algebraically (H)*		diagrams & two-way tables) (H)	*Solve financial maths problems* *Break down & solve multi-step problems*	

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		Solve a pair of simultaneous equations involving a third unknown (H)				
Cultural Capital	Year 10 Enriching mathematics 1	Year 10 Enriching mathematics 2	Year 10 Enriching mathematics 3	Year 10 Enriching mathematics 4	Year 10 Enriching mathematics 5	Year 10 Enriching mathematics 6
Mode of Retrieval	Flashback starters Combined unit tests; knowledge & application covering the previous 2 units	Formal assessment of **Summer Term (Yr 9)** – application of knowledge	Flashback starters Combined unit tests; knowledge & application covering the previous 2 units	Formal assessment of **Autumn** Term – application of knowledge	Flashback starters Combined unit tests; knowledge & application covering the previous 2 units	Formal assessment of **Spring** Term – application of knowledge
ECC Student Characteristics	Always **endeavour** to show **resilience**. Be **aspirational**. Be knowledgeable & able to **deeply understand & recall** information easily & be skilled in **applying this knowledge** in a **range of circumstances**. Have **confidence** & communicate effectively Know how to behave well & **respect other members** of our community when sharing ideas remembering to be mutually **tolerant** & **empathetic**					
Connection to future learning (When is this developed / revisited)?	Year 11 learning cycle 2 Year 11 learning cycle 3	Year 11 learning cycle 2	Year 11 learning cycle 2 Year 11 learning cycle 4	Year 11 learning cycle 3 Year 11 learning cycle 2	Year 11 learning cycle 4	Year 11 learning cycle 2 Year 11 learning cycle 3

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	Year 11 learning cycle 4					Year 11 learning cycle 4