GCSE Maths Year 11 (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	**Graphs**						**Algebra**					
	Gradients & lines		Non-linear graphs		Using graphs		Expanding & factorising		Changing the subject		Functions	
Spring	**Reasoning**						**Revision and Communication**					
	Multiplicative		Geometric		Algebraic		Transforming& constructing			Listing & describing	Show that...	
Summer	**Revision**						**Examinations**					

	Autumn		Spring		Summer	
	Learning Cycle 1	**Learning Cycle 2**	**Learning Cycle 3**	**Learning Cycle 4**	**Learning Cycle 5**	**Learning Cycle 6**
Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
Critical Prior Knowledge	Year 10 learning cycle 1 – consolidation of straight-line graphs Year 9 learning cycle 6 – non-linear graphs Year 10 learning cycle 4 – growth & decay problems, **iterative processes**	(Revisit directed number arithmetic) Year 10 learning cycle 1 & 2 -solve simultaneous equations, **solve quadratic equations by factorising** Year 9 learning cycle 1 – change the subject of a formula	Year 9 learning cycle 5 – compound measures, **converting compound measures** Year 9 learning cycle 6 – conversion graphs, direct & inverse proportion, **inverse proportion graphs** Year 10 learning cycle 5 – types of sequences, n^{th} term, **n^{th} term of a quadratic sequence**	Year 11 learning cycle 1 – different types of graphs Year 10 learning cycle 1 - Pythagoras' theorem & trigonometry		
Overall Intent (Big ideas & key concepts)	Gradients & lines *Non-linear graphs* Using graphs	Expanding & factorising *Changing the subject* Functions	Multiplicative *Geometric* Algebraic	Transforming & constructing *Listing & describing* Show that….		

	Autumn		Spring		Summer	
	Learning Cycle 1	**Learning Cycle 2**	**Learning Cycle 3**	**Learning Cycle 4**	**Learning Cycle 5**	**Learning Cycle 6**
Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
Essential Knowledge milestones (What students must master)	Equations of lines parallel to the axis (R) Plot straight line graphs (R)] Interpret y = mx + c (R) Find the equation of a straight line from a graph (1) (R) Find the equation of a straight line from a graph (2) Equation of a straight-line graph given one point & a gradient Equation of a straight graph given two points	Expand & factorise with a single bracket (R) Expand binomials (R) Factorise complex quadratic expressions (H) Solve equations equal to 0 Solve complex quadratic expressions by factorisation (H) Complete the square (H) Solve quadratic equations using the quadratic formula (H)	Use scale factors (R) Understand direct proportion Construct complex direct proportion equations (H) Calculate with pressure & density Understand inverse proportion Construct inverse proportion equations Ratio problems (R) *Angles at points (R)* *Angles in parallel lines & shapes (R)*	Perform & describe line symmetry & reflection (R) Perform & describe rotation/rotational symmetry (R) Perform & describe translations of shapes (R) Perform & describe enlargements of shapes (R) Perform & describe negative enlargements of shapes (R) (H) Identity transformations of shapes (R) Perform & describe a series of		

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Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
	Determine whether a point is on a line Solve linear simultaneous equations graphically (R) Recognise when straight lines are perpendicular (H) Find the equations of perpendicular lines (H) *Plot & read from quadratic graphs* *Plot & read cubic graphs* *Plot & reciprocal graphs* *Recognise graph shapes*	*Solve linear equations (R)* *Solve inequalities (R)* *Form & solve equations & inequalities in the context of shape* *Change the subject of a simple formula (R)* *Change the subject of a known formula Change the subject of complex formula* *Change the subject where the subject appears more than once (H)* *Solve equations by iteration (H)*	*Exterior & interior angles of polygons* *Proving geometric facts* *Solve problems involving vectors* *The first four circle theorems (R) (H)* *Angle between a radius & a chord (H)* *Angles between a radius & a tangent (H)* *Two tangents from a point (H)* *Alternate segment theorem (H)* *Pythagoras' theorem &*	transformations of shapes Identify invariant points & lines (H) Perform standard constructions using ruler & protractor or ruler & compasses (R) Solve loci problems Understand & use trigonometrical graphs (H) Sketch & identify translations of the graphs of a given function (H) Sketch & identify reflections of graph of a given (H)		

	Autumn		Spring		Summer	
	Learning Cycle 1	**Learning Cycle 2**	**Learning Cycle 3**	**Learning Cycle 4**	**Learning Cycle 5**	**Learning Cycle 6**
Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
	Identify & interpret roots & intercepts of quadratics *Understand & use exponential graphs (H)* *Find & use the equation of a circle centre (0,0) (H)* *Find the equation of the tangent to any curve (H)* Reflect shapes in given lines (R) Construct & interpret conversion graphs (R) Construct & interpret other real-life straight line graphs (R)	Use function machines (R) Substitute into expressions & formulae (R) Use function notation Work with composite functions Work with inverse functions Graphs of quadratic functions Solve quadratic inequalities (R) (H) Understand & use trigonometric functions (R)	*trigonometrical ratios (R)* Simplify complex expressions Find the rule for the nth term of a linear sequence (R) Find the rule for the nth term of a quadratic sequence (R) (H) Use rules for sequences Solve linear simultaneous with one quadratic (R) (H) Formal algebraic proof Inequalities in two variables (H)	*Work with organised lists* *Sample spaces & probability (R)* *Use the product rule for counting (H)* *Complete & use Venn diagrams (R)* *Construct & interpret plans & elevations (R)* *Use data to compare distributions (R)* *Interpreting scatter diagrams (R)* “Show that” with number		

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Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
	Interpret distance/time graphs Construct distance/time graphs Construct & interpret speed/time graphs Construct & interpret piece-wise graphs Recognise & interpret graphs that illustrate direct & inverse proportion Find approximate solutions to equations using graphs			"Show that" with algebra "Show that" with shape "Show that" with angles "Show that" with data "Show that" with vectors (H) "Show that" with congruent triangles Formal proof with congruent triangles (H)		

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Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
	Estimate the area under a curve (H)					
Cultural Capital	Year 11 Enriching mathematics 1	Year 11 Enriching mathematics 2	Practical Maths for real world	Practical Maths for real world		
Mode of Retrieval	Prior learning quiz End of Year Retrieval quiz.	Prior learning quiz End of Unit Retrieval quiz.	Prior learning quiz End of Unit Retrieval quiz.	Prior learning quiz End of Unit Retrieval quiz. **End of Term Unit 7-10 Retrieval task**	Prior learning quiz End of Unit Retrieval quiz.	Prior learning quiz End of Unit Retrieval quiz.
ECC Student Characteristics	2. Always endeavour to show resilience to be the best they can be. 4. Know how to behave well & respect other members of our community. 5. Have confidence & communicate effectively. 6. Be mutually tolerant & empathetic individuals. 7. Be knowledgeable &	2. Always endeavour to show resilience to be the best they can be. 3. Be aspirational & understand their career options.(ref local construction) 4. Know how to behave well & respect other members of our community. 5. Have confidence & communicate effectively. 6. Be mutually tolerant &	2. Always endeavour to show resilience to be the best they can be. 3. Be aspirational & understand their career options. 4. Know how to behave well & respect other members of our community. 5. Have confidence & communicate effectively. 6. Be mutually tolerant &	1. Know how to be healthy & stay safe.(ref real data from health) 2. Always endeavour to show resilience to be the best they can be. 3. Be aspirational & understand their career options.(eg data driven careers) 4. Know how to behave well & respect other members of our community.	2. Always endeavour to show resilience to be the best they can be. 3. Be aspirational & understand their career options. 4. Know how to behave well & respect other members of our community. 5. Have confidence & communicate effectively. 6. Be mutually tolerant &	2. Always endeavour to show resilience to be the best they can be. 3. Be aspirational & understand their career options. 4. Know how to behave well & respect other members of our community. 5. Have confidence & communicate effectively. 6. Be mutually tolerant &

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Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
	able to deeply understand & recall information easily. 8. Be skilled in applying this knowledge in a range of circumstances.	empathetic individuals. 7. Be knowledgeable & able to deeply understand & recall information easily. 8. Be skilled in applying this knowledge in a range of circumstances.	empathetic individuals. 7. Be knowledgeable & able to deeply understand & recall information easily. 8. Be skilled in applying this knowledge in a range of circumstances.	5. Have confidence & communicate effectively. 6. Be mutually tolerant & empathetic individuals. 7. Be knowledgeable & able to deeply understand & recall information easily. 8. Be skilled in applying this knowledge in a range of circumstances.	empathetic individuals. 7. Be knowledgeable & able to deeply understand & recall information easily. 8. Be skilled in applying this knowledge in a range of circumstances.	empathetic individuals. 7. Be knowledgeable & able to deeply understand & recall information easily. 8. Be skilled in applying this knowledge in a range of circumstances.
Cultural Capital	Year 11 Enriching mathematics 1	Year 11 Enriching mathematics 2				
Mode of Retrieval	PiXL Wave	Gap Filling assessment from Wave	PiXL Wave	Gap Filling assessment from Wave	Past Paper questions targeted revision	Past Paper questions targeted revision
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					

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	Learning Cycle 1	**Learning Cycle 2**	**Learning Cycle 3**	**Learning Cycle 4**	**Learning Cycle 5**	**Learning Cycle 6**
Topic	Graphs	Algebra	Reasoning	Revision & communication	Revision	Revision
	Know how to behave well & **respect other members** of our community when sharing ideas remembering to be mutually **tolerant** & **empathetic**					