Beamont Collegiate Academy Curriculum Map

Year 11 (Higher) Mathematics

Intent	Implementation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Knowledge	Units Taught	• Sequences • Linear Graphs • Functions	• Proportion • Compound Measure	• Quadratics • Advanced Graphs	• Trigonometry • Vector Geometry		
	Sequencing	Students begin Year 11 looking at linear and non-linear sequences. Students encountered linear sequences at Key Stage 3 but this is the first time they will have formally met quadratic sequences. The work on linear sequences links in to the second unit on linear graphs where students will first recap how to plot and recognise linear graphs before looking in more detail at parallel and perpendicular lines. In the later part of the half term, students will be taught about functions, inverse functions and composite functions. Students will be required to draw on their knowledge of rearranging formulae, and extend them to rearranging complex expressions.	This half term students are focusing on developing their understanding of proportion, both in a contextual and algebraic form. Students will be familiar with some of the content on proportion from key stage 3, but much of the algebraic content will be new. This work closely relates to the work on compound measure which follows, where students will look at speed distance time and density mass volume.	Students start the half term focusing on developing their Algebraic skills and deepening their understanding of quadratics. Some of these skills (factorising, quad formula) are carried over from Year 10, but much of what is taught is new content. Students will learn to form, and solve quadratics using different methods and in various (problem solving) contexts. Students will be required to sketch and draw accurately quadratics, drawing on their skills from term 1 on linear graphs. Students will then look at speed-time and velocity-time graphs, giving an opportunity to recap some work on gradients from term 1.	Students begin the half term by developing their understanding of trigonometry. Whilst students have looked at Trigonometry in Right Angled Triangles in Year 10, for most this will be the first time encountering advanced trigonometry. Students will first develop the composite knowledge of the sine and cosine rules before applying this knowledge to questions which draw on knowledge from other areas. Students will be taught how to apply trigonometry to 3D contexts for the first time. Students finish the half term by looking at vector geometry. They will learn to write and draw vectors, as well as combine vectors, drawing on their algebraic and number skills.		

	Substantive Knowledge *Declarative : "I Know that.."* *Proceedural : "I Know How"* *Conditional : "I Know When.."*	<u>Sequences</u> • Linear Sequences • Quadratic Sequences <u>Linear Graphs</u> • Plotting Linear Graphs • Gradient of a Line • Equation of a Line • Parallel Lines • Perpendicular Lines • Graphical Inequalities <u>Functions</u> • Substitution • Rearranging • Function Notation • Composite Functions • Inverse Functions	<u>Proportion</u> • Direct Proportion • Recipes • Exchange Rates • Inverse Proportion • Algebraic Direct and Inverse Proportion <u>Compound Measure</u> • Speed Distance Time • Density Mass Volume • Rates of Flow <u>PPE Examinations</u>	<u>Quadratics</u> • Quadratic Graphs • Solving simple quad. • Factorisation • Quadratic Formula • Algebraic Fractions • Completing the Square • Turning Points • Iteration • Quadratic Inequalities • Sketching Quadratics <u>Advanced Graphs</u> • Distance Time Graphs • Speed from a D-T Graph • Velocity Time Graphs • Area under a curve	<u>Trigonometry</u> • Pythagoras (recap) • Trigonometry in Right Angled Triangles • The Sine Rule • The Cosine Rule • Area of a Triangle • 3D Trigonometry <u>Vector Geometry</u> • Vector Notation • Combining vectors • Parallel vectors <u>PPE Examinations</u>		
Assessment	Summative assessment	Each unit of work within this half term is assessed using a formal assessment. Students will also sit a single PPE paper during this half term.	Each unit of work within this half term is assessed using a formal assessment. Students will also sit two PPE papers during this half term.	Each unit of work within this half term is assessed using a formal assessment. Students will also sit a single PPE paper during this half term.	Each unit of work within this half term is assessed using a formal assessment. Students will also sit two PPE papers during this half term.	Each unit of work within this half term is assessed using a formal assessment.	Each unit of work within this half term is assessed using a formal assessment.

Links	Main Links across the Curriculum	<u>Sequences</u> Solving Linear Equations Substitution <u>Linear Graphs</u> Co-ordinates Linear Equations Gradients Inequalities <u>Functions</u> Substitution Rearranging formulae	<u>Proportion</u> Ratio Algebraic Expressions <u>Compound Measure</u> Decimals Units of Measure	<u>Quadratics</u> Solving Equations Factorising 2D Shape Linear Graphs <u>Advanced Graphs</u> Decimals Units of Measure Gradient of a Line Area of a Triangle Area of a Trapezium	<u>Trigonometry</u> Circles Co-ordinates Pythagoras Linear Graphs <u>Vector Geometry</u> Algebraic Expressions Ratio Fractions		
	Cross-Curricular Links		<u>Compound Measure</u> Much of what is covered here is also covered in Science / Physics at Key Stage 4	<u>Advanced Graphs</u> Much of what is covered here is also covered in Science / Physics at Key Stage 4			
	Links to the Real World / Careers / P.D.	<u>Real World</u> • Gradients of Lines	<u>Real World</u> • Exchange Rates • Recipes • Speed • Density	<u>Real World</u> • Speed / Velocity • Acceleration	<u>Real World</u> • Exchange Rates • Recipes <u>Careers</u> • Architecture • Construction		
Vocabulary	Key words	<u>Sequences</u> • Linear • Quadratic • Nth Term <u>Linear Graphs</u> • Gradient • Intersect • Parallel • Perpendicular <u>Functions</u> • Substitution • Rearranging • Function • Composite • Inverse	<u>Proportion</u> • Direct Proportion • Inverse Proportion <u>Compound Measure</u> • Speed • Distance • Time • Density • Mass • Volume	<u>Quadratics</u> • Quadratics • Solutions / Roots • Formula • Equation • Turning Point • Iteration <u>Advanced Graphs</u> • Gradient • Trapezium • Speed • Velocity • Acceleration • Deceleration	<u>Trigonometry</u> • Right-Angled • Sine Function • Cosine Function • Ratio • Inverse <u>Vector Geometry</u> • Vector • Parallel • Scalar		