Beths Grammar School KS4 Maths Curriculum Map – Year 11

Term	INTENT	IMPLEMENTATION	IMPACT
	Substantive Knowledge This is the specific, factual content for the topic, which should be connected into a careful sequence of learning.	**Disciplinary Knowledge (Skills)** This is the action taken within a particular topic in order to gain substantive knowledge.	**Assessment opportunities** What assessments will be used to measure student progress? Evidence of how well students have learned the intended content.
Autumn Term 1A Year 11	**Chapter 13 More Trigonometry** • 13.1 Accuracy • 13.2-13.4 Graph of trig functions • 13.8-13.9 Transforming trig graphs • 13.5 Calculating areas and the sine rule • 13.6 Cosine rule and 2D trigonometric problems • 13.7 Solving problems in 3D	**Chapter 13 More Trigonometry** • Understand and use upper and lower bounds in calculations, especially involving trigonometry • Understand how to find the sine of any angle • Know the graph of the sine function and use it to solve equations • Understand how to find the cosine of any angle • Know the graph of the cosine function and use it to solve equations • Understand how to find the tangent of any angle • Know the graph of the tangent function and use it to solve equations • Find the area of a triangle and a segment of a circle • Use the sine rule to solve 2D problems • Use the cosine rule to solve 2D problems • Solve bearings problems using trigonometry • Use Pythagoras theorem in 3D • Use trigonometry in 3D • Recognise how changes in a function affect trigonometric graphs	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Checkup/Strengthen/Extend exercises at the end of every chapter • End of unit test provided in the book • Formal Trial exams

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	Chapter 14 Further Statistics • 14.1 Sampling • 14.2 Cumulative Frequency • 14.3 Box plots • 14.4 Drawing Histograms • 14.5 Interpreting histograms • 14.6 Comparing and describing distributions	**Chapter 14 Further Statistics** • Use random numbers to select a random sample • Understand the assumptions made when using a sample to predict results for a population • Use the Petersen capture-recapture method • Draw and interpret cumulative frequency tables and graphs • Work out the median, quartiles and interquartile range from a cumulative frequency graph • Find the quartiles and the interquartile range from stem-and-leaf diagrams • Draw and interpret box plots • Understand frequency density • Draw histograms • Interpret histograms • Solve problems by comparing distributions	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Checkup/Strengthen/Extend exercises at the end of every chapter • End of unit test provided in the book • Formal Trial exams

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Autumn Term 1B Year 11	**Chapter 15 Equations and graphs** • 15.1 Solving simultaneous equations graphically • 15.2 Representing inequalities graphically • 15.3 Quadratic equations • 15.4 Using quadratic graphs • 15.5 Cubic equations • 15.6 Using iteration to solve equations	**Chapter 15 Equations and graphs** • Solve simultaneous equations graphically • Represent inequalities on graphs • Interpret graphs of inequalities • Find roots of equations • Sketch quadratic graphs • Find roots of quadratic equations • Solve quadratic inequalities • Expand triple brackets • Find the roots of cubic equations • Sketch graphs of cubic equations • Solve quadratic and cubic equations using an iterative process	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Checkup/Strengthen/Extend exercises at the end of every chapter • End of unit test provided in the book • Formal Trial exams
	Chapter 16 Circle Theorems • 16.1 Radii and chords • 16.2 Tangents • 16.3 Angles in circles 1 • 16.4 Angles in circles 2 • 16.5 Applying Circle theorems	**Chapter 16 Circle Theorems** • Solve problems involving angles, triangles and circles • Understand and use facts about chords and their distance from the centre of a circle • Solve problems involving chords and radii • Understand and use facts about tangents at a point and from a point • Solve angle and length problems involving circles and tangents • Understand, prove and use facts about angles subtended at the centre and the circumference of circles • Understand, prove and use facts about the angle in a semicircle • Understand, prove and use facts about angles subtended at the circumference of a circle • Understand, prove and use facts about cyclic quadrilaterals • Prove the alternate segment theorem • Solve angle problems using circle theorems • Find the equation of the tangent to a circle at a given point	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Checkup/Strengthen/Extend exercises at the end of every chapter • End of unit test provided in the book • Formal Trial exams

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Spring Term 2A Year 11	**<u>Chapter 17 More algebra</u>** • 17.1 Rearranging formulae • 17.2 Algebraic fractions • 17.3 More algebraic fractions • 17.7 Solving algebraic fraction equations • 17.5 Proof • 17.6 Surds • 17.8 Functions	**<u>Chapter 17 More algebra</u>** • Change the subject of a formula where the power or root of the subject appears • Change the subject of a formula where the subject appears twice • Add and subtract algebraic fractions • Multiply and divide algebraic fractions • Change the subject of a formula involving fractions where all the variables are in the denominator • Simplify algebraic fractions • Add and subtract more complex algebraic fractions • Multiply and divide more complex algebraic fractions • Prove a result using algebra • Simplify expressions involving surds • Expand expressions involving surds • Rationalise the denominator of a fraction • Solve equations that involve algebraic fractions • Use function notation • Find composite functions • Find inverse functions	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Checkup/Strengthen/Extend exercises at the end of every chapter • End of unit test provided in the book • Formal Trial exams

Beths Grammar School KS4 Maths Curriculum Map – Year 11

	Chapter 18 Vectors and geometric proof • 18.1 Vectors and vector notation • 18.2 Vector arithmetic • 18.3 More vector arithmetic • 18.4 Parallel vectors and collinear points • 18.5 Solving geometric problems	**Chapter 18 Vectors and geometric proof** • Understand and use vector notation • Work out the magnitude of a vector • Calculate using vectors and represent the solutions graphically • Identify when vectors are parallel • Calculate the resultant of two vectors • Solve problems using vectors • Use the resultant of two vectors to solve vector problems • Express points as position vectors • Prove that lines are parallel • Prove that points are collinear • Solve geometric problems in two dimensions using vector methods, including where vectors are divided in a given ratio • Apply vector methods for a simple geometric proofs	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Checkup/Strengthen/Extend exercises at the end of every chapter • End of unit test provided in the book • Formal Trial exams

Beths Grammar School KS4 Maths Curriculum Map – Year 11

Spring Term 2B Year 11	**<u>Chapter 19 Proportion and graphs</u>** • 19.1 Direct proportion • 19.2 More direct proportion • 19.3 Inverse proportion • 19.4 Exponential functions • 19.5 Non-linear graphs • 19.6 Translating graphs of functions • 19.7 Reflecting graphs of functions	**<u>Chapter 19 Proportion and graphs</u>** • Write and use equations to solve problems involving direct proportion • Write and use equations to solve problems involving direct proportion • Solve problems involving square and cubic proportionality • Write and use equations to solve problems involving inverse proportion • Use and recognise graphs showing inverse proportion • Recognise graphs of exponential functions • Sketch graphs of exponential functions • Match equations to graphs • Calculate the gradient of a tangent at a point • Estimate the area under a non-linear graph • Understand the relationship between translating a graph and the change in its function notation • Understand the effect reflecting a curve in one of the axes has on its function form	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Checkup/Strengthen/Extend exercises at the end of every chapter • End of unit test provided in the book • Formal Trial exams

Beths Grammar School KS4 Maths Curriculum Map – Year 11

	Revision • Closing gaps • Exam practice • Developing exam skills	**Revision** • Recapping prior topics • Going over exam questions and understanding what mark schemes are looking for • Adjusting to the pace so students have time to answer each question	• Exam questions by topic • Exam papers in timed conditions
Summer Term 3A Year 11	**Revision** • Closing gaps • Exam practice • Developing exam skills	**Revision** • Recapping prior topics • Going over exam questions and understanding what mark schemes are looking for • Adjusting to the pace so students have time to answer each question	• Exam questions by topic • Exam papers in timed conditions
Summer Term 3B Year			