KEVICC Key Stage 4 Curriculum Subject: Mathematics

Spring Half-Term

Term: Year 11 Spring Term – Block Three | **Topic: Solving Quadratic Equations**

What is the essential knowledge from this unit?
What do students need to remember and understand?

	Specification content	Specification notes
A18	Solve quadratic equations algebraically by factorising Find approximate solutions using a graph	

Students should be able to:
- solve quadratic equations by factorising
- read approximate solutions from a graph.

Key Vocabulary and notation.

Quadratics	Parabola
Expression	Symmetrical
Simplify	Maximum
Term	value
Substitute	Minimum
Coefficient	value
Equivalent	x-intercepts
Positive	Line of
Negative	symmetry
Directed	x-axis
Substitute	x-values
Solve	Crosses the
Simplify	line
Expand	Read off
Multiply out	Vertical
Bracket	Unknown
Identity	Solution
Product	FOIL
Factor	Side
Factorise	Form
Factorise	Unknown
fully	Check
Common	Inequality
Common	Satisfy
factor	Solution set
Make the	Inequality
subject of	Form
Unlike terms	Balance
Binomial	Formula
Simplify	Variable
Solve	Subject
Equation	Factor
Graphically	Terms
Co-	Expanding
ordinate	products
pair	$x^2 + bx + c$
Smooth	$(x \pm a)(x \pm b)$
Intersect	$ax^2 + bx + c$
Curve	$(cx \pm a)(dx \pm b)$

Mathematical questioning should be designed to unpick the structure of the maths and deepen the student's understanding. When students talk about mathematical concepts, they should develop the vital mathematical language that helps them explain their ideas fully.

Students are expected and encouraged to use terminology during all discussions, verbal feedback and in written content.

What prior learning supports understanding of this content?	**How does this content link to future learning?**
Simplify and manipulate algebraic expressions by: • Expanding products of two binomials factorising quadratic expressions of the form $x^2 + bx + c$ • Simplifying expressions involving sums, products and powers, including the laws of indices.	• Recognise, sketch and interpret graphs of linear functions, quadratic functions. • Identify and interpret roots, intercepts and turning points of quadratic functions graphically. • Deduce roots algebraically including the symmetrical property of a quadratic.
Reading: *Where in the unit are students supported to read complex academic text?* • Reading and understanding mathematical questions and problems' – teacher input. • Decoding complex examination questions - explain what they are asking the student to do' – teacher input. • Following instructions to solve problems - break down the tasks – teacher input. • Recognising terminology, numbers, and symbols.	**Writing:** *Independent writing tasks and how they are structured* • Using the correct subject specific terminology for numbers and symbols – examination papers, class books. • Responding to questions that ask for an explanation or a reason – examination papers, class books. • Self-evaluation, reviewing, reflecting and analysis of own work – class books, personalised learning checklists and analysis. • Creating notes that can be used later for revision purposes - class books, revision cards, mind maps etc.

Key assessments:

How will do students review the information learned?

End of block assessments.

AQA end of block assessments provide a quick progress check at the end of each block of learning to make sure students have understood the content being covered. These are available for both foundation and higher tiers.

End of term/year assessments and mock examinations.

End of term assessments assessing the students' progress towards targets and provide diagnostic information to modify future teaching.

End of year 9 and 10 examinations assessing the students' progress towards targets and provide diagnostic information to modify future teaching.

Two mock examinations seasons take place during year 11 using previous years AQA 8300 examination papers. Students to experience the full suite of papers at both Foundation and higher tiers using Non-calculator and Calculator requirements.

All examinations will explore the three examination papers at both foundation and higher tiers using non-calculator and calculator requirements.

How will feedback be seen?

Marked end of block, term assessments and mock examinations.

Personalised learning checklists for all assessments identifying strengths and areas of development.

Written teacher feedback and marking in compliance with faculty and College Marking Policies. Student responses to marking. Students self-mark using purple pen. Verbal feedback given every lesson from teacher and peers as appropriate. Teacher and student self-assessment of presentation of class books will be completed to ensure written work is of high standard and students are achieving their potential.