

KEVICC Key Stage 4 Curriculum Subject: Mathematics		Key Vocabulary and notation.
Spring Half-Term		
Term: Year 10 Spring Term – Block One	Topic: Algebra Recap and Extension	
What is the essential knowledge from this unit? What do students need to remember and understand?		
	Specification content	Specification notes
A3	<ul style="list-style-type: none"> Understand and use the concepts and vocabulary of expressions, equations, formulae, <u>identities</u>, inequalities, terms, and factors (review of Year 9) 	this will be implicitly and explicitly assessed
<p>Students should be able to:</p> <ul style="list-style-type: none"> understand phrases such as 'form an equation', 'use a formula', 'write down a term', 'write an expression' and 'prove an identity' when answering a question recognise that, for example, $5x + 1 = 16$ is an equation recognise that, for example, $V = IR$ is a formula recognise that $x + 3$ is an expression recognise that $(x + 2)^2 \equiv x^2 + 4x + 4$ is an identity recognise that $2x + 5 < 16$ is an inequality write an expression know the meaning of the word 'factor' for both numerical work and algebraic work. 		
A4	Simplify and manipulate algebraic expressions (<u>including those involving surds</u>) by: <ul style="list-style-type: none"> collecting like terms multiplying a single term over a bracket taking out common factors 	
<p>Students should be able to:</p> <ul style="list-style-type: none"> understand that algebra can be used to generalise the laws of arithmetic manipulate an expression by collecting like terms write expressions to solve problems write expressions using squares and cubes factorise algebraic expressions by taking out common factors multiply two linear expressions, such as $(x \pm a)(x \pm b)$ and $(cx \pm a)(dx \pm b)$, for example $(2x + 3)(3x - 4)$ multiply a single term over a bracket, for example, $a(b + c) = ab + ac$ know the meaning of and be able to simplify, for example $3x - 2 + 4(x + 5)$ know the meaning of and be able to factorise, for example $3x^2y - 9y$ or $4x^2 + 6xy$ factorise quadratic expressions using the sum and product method, or by inspection (FOIL) factorise quadratics of the form $x^2 + bx + c$ factorise expressions written as the difference of two squares of the form $x^2 - a^2$ use the index laws for multiplication and division of integer powers. simplify algebraic expressions, for example by cancelling common factors in fractions or using index laws. 		
A17	<ul style="list-style-type: none"> Solve linear equations in one unknown algebraically <u>including those with the unknown on both sides of the equation</u> (review of Year 9) 	<u>including use of brackets</u>
<p>Students should be able to:</p> <ul style="list-style-type: none"> solve simple linear equations by using inverse operations or by transforming both sides in the same way solve simple linear equations with integer coefficients where the unknown appears on one or both sides of the equation or where the equation involves brackets. 		
What prior learning supports understanding of this content?		
<ul style="list-style-type: none"> Use and interpret algebraic notation. Understand equality. Use fact families. Understand and use inverse operations. Find numbers that satisfy an equation with two unknowns Enumerate possibilities of combinations of two variables. Generate and describe linear number sequences. Express missing number problems algebraically. 		
How does this content link to future learning?		
<ul style="list-style-type: none"> Recognise that equations of the form $y = mx + c$ correspond to straight-line graphs in the coordinate plane Draw graphs of functions in which y is given explicitly or implicitly in terms of x Complete tables of values for straight-line graphs Calculate the gradient of a given straight-line given two points or from an equation Manipulate the equations of straight lines so that it is possible to tell whether lines are parallel or not Work out the equation of a line, given two points on the line or given one point and the gradient. 		
		Expression Binomial Simplify Simplify Term Solve Substitute Equation Coefficient Unknown Equivalent Solution Positive Side Negative Form Directed Unknown Substitute Check Solve Inequality Simplify Satisfy Expand Solution set Multiply out Greater/less Bracket than (or Identity equal) Product Inequality Factor Form Factorise Balance Factorise Formula fully Variable Common Subject Common Factor factor Identities Make the Terms subject of Unlike terms 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.

<p>Reading: <i>Where in the unit are students supported to read complex academic text?</i></p> <ul style="list-style-type: none"> • 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. 	<p>Writing: <i>Independent writing tasks and how they are structured</i></p> <ul style="list-style-type: none"> • 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.
<p>Key assessments:</p> <p>How will do students review the information learned?</p> <p>End of block assessments.</p> <p>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.</p> <p>End of term/year assessments and mock examinations.</p> <p>End of term assessments assessing the students' progress towards targets and provide diagnostic information to modify future teaching.</p> <p>End of year 9 and 10 examinations assessing the students' progress towards targets and provide diagnostic information to modify future teaching.</p> <p>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.</p> <p>All examinations will explore the three examination papers at both foundation and higher tiers using non-calculator and calculator requirements.</p> <p>How will feedback be seen?</p> <p>Marked end of block, term assessments and mock examinations.</p> <p>Personalised learning checklists for all assessments identifying strengths and areas of development.</p> <p>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.</p>	