

KEVICC Key Stage 3 Curriculum Subject: Mathematics		Key Vocabulary and notation.	
Spring Half-Term Algebraic Techniques		Expression Unlike terms Simplify Binomial Term Simplify Substitute Quadratic Coefficient Solve Equivalent Equation Positive Unknown Negative Solution Directed Side Substitute Form Solve Unknown Simplify Check Expand Inequality Multiply out Satisfy Bracket Solution set Identity Greater/less Product than (or Factor equal) Factorise Inequality Factorise fully Form Common Balance Common Formula factor Variable HCF Subject Like terms	
Term: Year 8 Spring Term – Block One	Topic: Brackets, equations and inequalities		
What is the essential knowledge from this unit? What do students need to remember and understand? Building on the understanding of equivalence from Year 7, students will explore expanding over a single bracket and factorising by taking out common factors. The higher strand will also explore expanding two binomials. All students will revisit and extend their knowledge of solving equations, now to include those with brackets and for the higher stand, with unknowns on both sides. Bar models will be recommended as a tool to help students make sense of the maths. Students will also learn to solve formal inequalities for the first time, learning the significance of a solution set and exploring the similarities and differences compared to solving equations. Emphasis is placed on both forming and solving equations rather than just looking at procedural methods of finding solutions. National curriculum content covered: - Identify variables and express relationships between variables algebraically. - Begin to model situations mathematically and express the results using a range of formal mathematical representations. - Substitute numerical values into formulae and expressions, including scientific formulae. - Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms, and factors. - Simplify and manipulate algebraic expressions to maintain equivalence by: - Collecting like terms - Multiplying a single term over a bracket - Taking out common factors - Expanding products of two or more binomials - Understanding and use standard mathematical formulae. - Use algebraic methods to solve linear equations in one variable We know that breaking the curriculum down into small manageable steps should help students to understand concepts better. As a result, for each block of content in the scheme of learning we have provided the following ‘small step’ breakdown for this unit as follows: Lesson One - Form algebraic expressions Lesson Two - Use directed number with algebra Lesson Three - Multiply out a single bracket Lesson Four - Factorise into a single bracket Lesson Five - Expand multiple single brackets and simplify Lesson Six - Expand a pair of binomials (H) Lesson Seven - Solve equations, including with brackets Lesson Eight - Form and solve equations with brackets Lesson Nine - Understand and solve simple inequalities Lesson Ten - Form and solve inequalities Lesson Eleven - Solve equations and inequalities with unknowns on both sides (H) Lesson Twelve - Form and solve equations and inequalities with unknowns on both sides (H) Lesson Thirteen - Identify and use formulae, expressions, identities, and equations Interleaving/Extension of previous work - Revisiting Venn diagrams and set notation. - Links to representing data and using graphs in other areas of the curriculum. - Use the product rule for counting.		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? - Use and interpret algebraic notation - Understand and use inverse operations. - Understand equality. - Use fact families - Form and solve one-step equations. - Understand equivalence of algebraic expressions. - Collect like terms.		How does this content link to future learning? - Generate sequences using more complex rules e.g. with brackets and squared terms, both in words and algebraically. - Form expressions using indices. - Understand and use addition and substitution rules. - Revisit and extend to equations and inequalities with unknowns on both sides using all previous contexts: angles, probability, area, etc. - Change the subject of a formula.	
Reading: <i>Where in the unit are students supported to read complex academic text?</i> - 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. - Recognising patterns and relationships in mathematics.		Writing: <i>Independent writing tasks and how they are structured</i> - 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 students review the information learned?

End of block assessments.

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 covered.

A Core paper – it is envisaged that all students will take this paper, to provide a direct comparison with the performance of the rest of the cohort. All topics from each term will be covered, and the use of a calculator is expected.

End of term assessments.

A Foundation paper – students who are working below national expectations will have the opportunity to show their understanding of the material with more straightforward questions. Non calculator paper.

A Higher paper – students who are working at or above national expectations will have the opportunity to tackle more challenging questions on the same material, plus the extra objectives indicated as "Higher" in our scheme of learning. Non calculator paper.

How will feedback be seen?

Marked end of block and term assessments.

Personalised learning checklists for end of term 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.