

KEVICC Key Stage 3 Curriculum Subject: Mathematics		Key Vocabulary and notation.																																																																				
<b>Spring Half-Term 1 Application of Number</b>																																																																						
<b>Term:</b> Year 7 Spring Term – Block One	<b>Topic:</b> Addition & Subtraction																																																																					
<p><b>What is the essential knowledge from this unit?</b>  <b>What do students need to remember and understand?</b></p> <p>The focus for this block is building on the formal methods of addition and subtraction developed at key stage 2. All students will look at this in the context of interpreting and solving problems, for those for whom these skills are secure, there will be even more emphasis on this. Problems will be drawn from the contexts of perimeter, money, interpreting bar charts and tables and looking at frequency trees; we believe all these are better studied alongside addition rather than separately. Calculators should be used to check and/or support calculations, with significant figures and equations explicitly revisited.</p> <p><b>National curriculum</b> content covered:</p> <ul style="list-style-type: none"> <li>Use formal written methods, applied to positive integers and decimals.</li> <li>Recognise and use relationships between operations including inverse operations.</li> <li>Derive and apply formulae to calculate and solve problems involving perimeter.</li> <li>Construct and interpret tables, charts, and diagrams, including frequency tables, bar charts and pictograms for categorical data, and vertical line (or bar) charts for ungrouped data.</li> </ul> <p>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:</p> <p><b>Lesson One</b> - Properties of addition and subtraction  <b>Lesson Two</b> - Mental strategies for addition and subtraction  <b>Lesson Three</b> - Use formal methods for addition of integers  <b>Lesson Four</b> - Use formal methods for addition of decimals  <b>Lesson Five</b> - Use formal methods for subtraction of integers  <b>Lesson Six</b> - Use formal methods for subtraction of decimals  <b>Lesson Seven</b> - Choose the most appropriate method: mental strategies, formal written or calculator  <b>Lesson Eight</b> - Solve financial maths problems  <b>Lesson Nine</b> - Solve problems involving tables and timetables  <b>Lesson Ten</b> - Solve problems with frequency trees  <b>Lesson Eleven</b> - Solve problems with bar charts and line charts  <b>Lesson Twelve</b> - Add and subtract numbers given in standard form (H)</p> <p><b>Notes/Links/Interleaving</b></p> <ul style="list-style-type: none"> <li>Perimeter problems to revisit equations and simplifying.</li> <li>Tables to include distance charts and simple timetables.</li> <li>Revisit rounding.</li> <li>Choosing when to use mental, written or calculator methods.</li> <li>Order of operations to be revisited with negative numbers.</li> </ul> <p><b>Additional Higher Content</b></p> <ul style="list-style-type: none"> <li>Explore addition of numbers given in standard form.</li> </ul>		<table border="0"> <tr><td>Total</td><td>Edges</td></tr> <tr><td>Sum</td><td>Polygon</td></tr> <tr><td>Difference</td><td>Profit</td></tr> <tr><td>Number Line</td><td>Loss Balance</td></tr> <tr><td>Commutative</td><td>Credit</td></tr> <tr><td>Associate</td><td>Debit</td></tr> <tr><td>Inverse</td><td>Statement</td></tr> <tr><td>Bridging</td><td>Change</td></tr> <tr><td>Compensation</td><td>Bill</td></tr> <tr><td>Partition</td><td>Row</td></tr> <tr><td>Count On</td><td>Column</td></tr> <tr><td>Number bonds</td><td>Entry</td></tr> <tr><td>Column</td><td>Total</td></tr> <tr><td>Method</td><td>Hours</td></tr> <tr><td>Place Value</td><td>Minutes</td></tr> <tr><td>Carrying</td><td>Row</td></tr> <tr><td>Exchange</td><td>Column</td></tr> <tr><td>Placeholder</td><td>Entry</td></tr> <tr><td>Decimal Point</td><td>Total</td></tr> <tr><td>Equivalence</td><td>Hours</td></tr> <tr><td>Estimating</td><td>Minutes</td></tr> <tr><td>Exchange</td><td>Frequency</td></tr> <tr><td>Equation</td><td>Frequency</td></tr> <tr><td>Subtraction</td><td>Tree</td></tr> <tr><td>Inverse</td><td>Part-whole</td></tr> <tr><td>Digit</td><td>Axis</td></tr> <tr><td>Mental</td><td>Scale</td></tr> <tr><td>Written</td><td>Dual</td></tr> <tr><td>Jottings</td><td>Multiple</td></tr> <tr><td>Calculator</td><td>Standard</td></tr> <tr><td>Length</td><td>form</td></tr> <tr><td>Path</td><td>Power</td></tr> <tr><td>Distance</td><td>Exponent</td></tr> <tr><td>Units</td><td>Significant figure</td></tr> </table> <p>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.</p> <p>Students are expected and encouraged to use terminology during all discussions, verbal feedback and in written content.</p>	Total	Edges	Sum	Polygon	Difference	Profit	Number Line	Loss Balance	Commutative	Credit	Associate	Debit	Inverse	Statement	Bridging	Change	Compensation	Bill	Partition	Row	Count On	Column	Number bonds	Entry	Column	Total	Method	Hours	Place Value	Minutes	Carrying	Row	Exchange	Column	Placeholder	Entry	Decimal Point	Total	Equivalence	Hours	Estimating	Minutes	Exchange	Frequency	Equation	Frequency	Subtraction	Tree	Inverse	Part-whole	Digit	Axis	Mental	Scale	Written	Dual	Jottings	Multiple	Calculator	Standard	Length	form	Path	Power	Distance	Exponent	Units	Significant figure
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<p><b>What prior learning supports understanding of this content?</b></p> <ul style="list-style-type: none"> <li>Use mental and formal written methods of addition with integers and decimals.</li> <li>Use their knowledge of the order of operations to carry out calculations involving the four operations.</li> <li>Use simple formulae.</li> <li>Use and interpret algebraic notation.</li> <li>Form and substitute into expressions.</li> <li>Interpret and construct pie charts and line graphs and use them to solve problems.</li> <li>Explore and use standard index form.</li> </ul>	<p><b>How does this content link to future learning?</b></p> <ul style="list-style-type: none"> <li>Multiply by 10, 100 and 1000, 0.1 and 0.01, and convert metric units.</li> <li>Use mental and formal written methods of multiplication and division.</li> <li>Find the HCF and LCM of small numbers.</li> <li>Evaluate areas of triangles, rectangles and parallelograms.</li> <li>Find the mean of a set of numbers.</li> <li>Find simple fractions and percentages of amounts.</li> <li>Use their knowledge of the order of operations to carry out calculations involving the four operations.</li> </ul>																																																																					
<p><b>Reading:</b> <i>Where in the unit are students supported to read complex academic text?</i></p> <ul style="list-style-type: none"> <li>Reading and understanding mathematical questions and problems' – teacher input.</li> <li>Decoding complex examination questions - explain what they are asking the student to do' – teacher input.</li> <li>Following instructions to solve problems - break down the tasks – teacher input.</li> <li>Recognising terminology, numbers, and symbols.</li> <li>Recognising patterns and relationships in mathematics.</li> </ul>	<p><b>Writing:</b> <i>Independent writing tasks and how they are structured</i></p> <ul style="list-style-type: none"> <li>Using the correct subject specific terminology for numbers and symbols – examination papers, class books.</li> <li>Responding to questions that ask for an explanation or a reason – examination papers, class books.</li> <li>Self-evaluation, reviewing, reflecting and analysis of own work –, class books, personalised learning checklists and analysis.</li> <li>Creating notes that can be used later for revision purposes - class books, revision cards, mind maps etc.</li> </ul>																																																																					

**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.