

KEVICC Key Stage 4 Curriculum Subject: Mathematics			Key Vocabulary and notation.	
Spring Half-Term				
Term: Year 9 Spring Term – Block Six		Topic: Ratio and Proportion		
What is the essential knowledge from this unit? What do students need to remember and understand?				
	Specification content	Specification notes		
N11	Identify and work with fractions in ratio problems			
Students should be able to: <ul style="list-style-type: none"><li>understand the meaning of ratio notation</li><li>interpret a ratio as a fraction</li><li>use fractions and ratios in the context of geometrical problems, for example similar shapes, scale drawings and problem-solving involving scales and measures</li><li>understand that a line divided in the ratio 1 : 3 means that the smaller part is one-quarter of the whole.</li></ul>				
R3	Express one quantity as a fraction of another, where the fraction is less than 1 or greater than 1			
Students should be able to: <ul style="list-style-type: none"><li>work out one quantity as a fraction or decimal of another quantity</li><li>use a fraction of a quantity to compare proportions.</li></ul>				
R4	Use ratio notation, including reduction to simplest form			
Students should be able to: <ul style="list-style-type: none"><li>understand the meaning of ratio notation</li><li>simplify ratios to their simplest form <math>a : b</math> where <math>a</math> and <math>b</math> are integers</li><li>write a ratio in the form <math>1 : n</math> or <math>n : 1</math></li></ul>				
R5	Divide a given quantity into two parts in a given: part : part or part : whole ratio Express the division of a quantity into two parts as a ratio Apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing and concentrations)	including better value or best buy problems		
Students should be able to: <ul style="list-style-type: none"><li>use ratios in the context of geometrical problems, for example similar shapes, scale drawings and problem-solving involving scales and measures</li><li>interpret a ratio in a way that enables the correct proportion of an amount to be calculated.</li><li>use ratio to solve, for example geometrical, statistical, and number problems</li><li>use ratio to solve word problems using informal strategies or using the unitary method of solution</li><li>solve best-buy problems using informal strategies or using the unitary method of solution.</li></ul>				
R6	Express a multiplicative relationship between two quantities as a ratio or fraction			
Students should be able to: <ul style="list-style-type: none"><li>make comparisons between two quantities and represent them as a ratio</li><li>compare the cost of items using the unit cost of one item as a fraction of the unit cost of another item.</li></ul>				
R7	Understand and use proportion as equality of ratios			
Students should be able to: <ul style="list-style-type: none"><li>use equality of ratios to solve problems.</li></ul>				
R8	Relate ratios to fractions and to linear functions			
Students should be able to: <ul style="list-style-type: none"><li>understand the meaning of ratio as a fraction</li><li>understand that a line divided in the ratio 1 : 3 means that the smaller part is one-quarter of the whole</li><li>represent the ratio of two quantities in direct proportion as a linear relationship and represent the relationship graphically</li><li>relate ratios to fractions and use linear equations to solve problems.</li></ul>				

Ratio	Parts
Equal Parts	Factors
For every	Equivalent
Proportion	Simplify
Relationship	Common
Order	factors
Colon	Scale
Divide	Compare
Proportional	Total parts
Multiply	Fraction
Part	Proportion
Double	Simplest form
number line	Convert
Placeholder	More/less than
Units	Whole
Share	Best value
Total	Unit cost
Label	
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><b>What prior learning supports understanding of this content?</b></p> <ul style="list-style-type: none"> <li>• Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</li> <li>• Solve problems involving the calculation of percentages and use of percentage comparison.</li> <li>• Solve problems involving similar shapes where the scale factor is known or can be found.</li> <li>• Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> </ul>	<p><b>How does this content link to future learning?</b></p> <ul style="list-style-type: none"> <li>• Use scale factors, linking ratio, to solve simple direct proportion problems.</li> <li>• Convert between currencies, including using graphs.</li> <li>• Explore direct proportion graphs.</li> <li>• Draw and interpret scale diagrams and maps.</li> <li>• Solve problems involving direct and inverse proportion, including graphical and algebraic representations.</li> <li>• Understand that <math>x</math> is inversely proportional to <math>y</math> is equivalent to <math>x</math> is proportional to <math>\frac{1}{y}</math></li> <li>• Interpret equations that describe direct and inverse proportion Recognise and interpret graphs that illustrate direct and inverse proportion.</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> </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>
<p><b>Key assessments:</b></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><b>How will feedback be seen?</b></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>	