

KEVICC Key Stage 4 Curriculum Subject: Mathematics		Key Vocabulary and notation.																											
Autumn Half-Term																													
Term: Year 11 Autumn Term – Block Six	Topic: Direct and Inverse Proportion	Direct Decrease proportion Same Inverse Reciprocal proportion Curve Rate of Axis change x-axis Conversion y-axis Ratio Table of Variables values Compared Smooth curve Dividing Plot Straight line Product Vertical Vice-versa Horizontal Constant Gradient $y = kx$ Proportional $y = \frac{k}{x}$ Increase																											
What is the essential knowledge from this unit? What do students need to remember and understand?																													
	<table border="1"> <thead> <tr> <th></th> <th>Specification content</th> <th>Specification notes</th> </tr> </thead> <tbody> <tr> <td>R10</td> <td>Solve problems involving direct and inverse proportion, including graphical and algebraic representations</td> <td></td> </tr> <tr> <td></td> <td> <p>Students should be able to:</p> <ul style="list-style-type: none"> use proportion to solve problems using informal strategies or the unitary method of solution use direct proportion to solve geometrical problems calculate an unknown quantity from quantities that vary in direct proportion or inverse proportion set up and use equations to solve word and other problems involving direct proportion or inverse proportion relate algebraic solutions to graphical representation of the equations sketch an appropriately shaped graph (partly or entirely non-linear) to represent a real-life situation choose the graph that is sketched correctly from a selection of alternatives recognise the graphs that represent direct and inverse proportion. </td> <td></td> </tr> <tr> <td>R13</td> <td> <p><u>Understand that x is inversely proportional to y is equivalent to x is proportional to $\frac{1}{y}$;</u></p> <p><u>interpret equations that describe direct and inverse proportion</u></p> </td> <td></td> </tr> <tr> <td></td> <td> <p>Students should be able to:</p> <ul style="list-style-type: none"> understand that an equation of the form $y = kx$ represents direct proportion and that k is the constant of proportionality understand that an equation of the form $y = \frac{k}{x}$ represents inverse proportion and that k is the constant of proportionality. </td> <td></td> </tr> <tr> <td>R13h</td> <td> <p><u>Understand that x is inversely proportional to y is equivalent to x is proportional to $\frac{1}{y}$</u></p> <p>Construct and <u>interpret equations that describe direct and inverse proportion</u></p> </td> <td></td> </tr> <tr> <td></td> <td> <p>Students should be able to:</p> <ul style="list-style-type: none"> understand that an equation of the form $y = kx$ represents direct proportion and that k is the constant of proportionality understand that an equation of the form $y = \frac{k}{x}$ represents inverse proportion and that k is the constant of proportionality. </td> <td></td> </tr> <tr> <td>R14</td> <td> <p><u>Recognise and interpret graphs that illustrate direct and inverse proportion</u></p> </td> <td></td> </tr> <tr> <td></td> <td> <p>Students should be able to:</p> <ul style="list-style-type: none"> interpret the meaning of the gradient as the rate of change of the variable on the vertical axis compared to the horizontal axis. </td> <td></td> </tr> </tbody> </table>		Specification content	Specification notes	R10	Solve problems involving direct and inverse proportion, including graphical and algebraic representations			<p>Students should be able to:</p> <ul style="list-style-type: none"> use proportion to solve problems using informal strategies or the unitary method of solution use direct proportion to solve geometrical problems calculate an unknown quantity from quantities that vary in direct proportion or inverse proportion set up and use equations to solve word and other problems involving direct proportion or inverse proportion relate algebraic solutions to graphical representation of the equations sketch an appropriately shaped graph (partly or entirely non-linear) to represent a real-life situation choose the graph that is sketched correctly from a selection of alternatives recognise the graphs that represent direct and inverse proportion. 		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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>
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What prior learning supports understanding of this content? <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 Substitute numerical values into formulae and expressions. 	How does this content link to future learning? <ul style="list-style-type: none"> 																												
Reading: <i>Where in the unit are students supported to read complex academic text?</i> <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. 	Writing: <i>Independent writing tasks and how they are structured</i> <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. 																												

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.