

KEVICC Key Stage 4 Curriculum Subject: Mathematics			Key Vocabulary and notation.	
Spring Half-Term				
Term: Year 11 Spring Term – Block Seven		Topic: Gradient and Rate of Change		
What is the essential knowledge from this unit? What do students need to remember and understand?				
	Specification content	Specification notes		
R15h	Interpret the gradient at a point on a curve as the instantaneous rate of change. Apply the concepts of average and instantaneous rates of change (gradients of chords and tangents) in numerical, algebraic, and graphical contexts			
Students should be able to: <ul style="list-style-type: none">draw a tangent at a point on a curve and measure the gradientinterpret the meaning of the gradient as the rate of change of the variable on the vertical axis compared to the horizontal axisunderstand that if the vertical axis represents speed/velocity and the horizontal axis represents time then the gradient will represent accelerationunderstand that if the vertical axis represents distance and the horizontal axis represents time then the gradient will represent speed/velocityunderstand the difference between positive and negative gradients as rates of changeunderstand that the rate of change at a particular instant in time is represented by the gradient of the tangent to the curve at that point.				
R14	Interpret the gradient of a straight line as a rate of change			
Students should be able to: <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.				
			Direct proportion Inverse proportion Rate of change Conversion Ratio Variables Compared Dividing Straight line Vertical Horizontal Gradient Proportional Increase	
			Decrease Same Reciprocal Curve Axis x-axis y-axis Table of values Smooth curve Plot Product Vice-versa Constant $y = kx$ $y = \frac{k}{x}$	
			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?		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 planeDraw graphs of functions in which y is given explicitly or implicitly in terms of xComplete tables of values for straight-line graphsCalculate the gradient of a given straight-line given two points or from an equation.Use the fact that the angle between the tangent and radius is 90° to work out the gradient of a tangent and hence the equation of a tangent at a given point.Substitute numerical values into formulae and expressions.		<ul style="list-style-type: none">Consolidate all aspects of Ratio and Proportion from key stage 3 and 4.Revise and explore subject content through examination questions and in context.		
Reading: Where in the unit are students supported to read complex academic text?		Writing: Independent writing tasks and how they are structured		
<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.		<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.