KEVICC Key Stage 4 Curriculum Subject: Mathematics	Key Vocabulary and notation.

Spring Half-Term

Term: Year 11 Spring Term – Block Six	Topic: Growth and Decay and Numerical Methods

What is the essential knowledge from this unit?
What do students need to remember and understand?

	Specification content	Specification notes
R16	Set up, solve, and interpret the answers in growth and decay problems, including compound interest **and work with general iterative processes**	

Students should be able to:
- solve problems involving repeated proportional change
- use calculators to explore exponential growth and decay using a multiplier and the power
- solve compound interest problems.

R16h	Set up, solve and interpret the answers in growth and decay problems, including compound interest and work with general iterative processes	

Students should be able to:
- model growth and decay problems mathematically
- solve growth and decay problems, for example using multipliers or iterative processes
- understand that some iterations may have a limiting value.

A20h	**Find approximate solutions to equations numerically using iteration**	including the use of suffix notation in recursive formulae

Students should be able to:
- use systematic trial and improvement to find approximate solutions of equations where there is no simple analytical method
- use suffix notation in recursive formulae
- find approximate solutions using recursive formulae.

Key Vocabulary and notation.

Growth and Decay	Compound interest
Fraction	Simple interest
Decimal	
Percentage	Exponential growth
Equivalent	
Denominator	Iteration
Numerator	Accurate
Fraction key	Solution
Estimate	Substitute
Rounding	Formula
Conversion	Solution between . . .
Hundredth	
Tenth	Repeating
Reduce	Iterative formula
Decrease	
Multiplier	Sequence
Increase	Input
Loss	Output
Interest	Growth and Decay
Change	
Original	Recursive formula
Invest	
Reverse	Rounding

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?
- Recognise that equations of the form $y = mx + c$ correspond to straight-line graphs in the coordinate plane.
- Complete tables of values for straight-line graphs.
- Draw graphs of functions in which y is given explicitly or implicitly in terms of x.
- Calculate the gradient of a given straight-line given two points or from an equation.
- Substitute numerical values into formulae and expressions.
- Simplify and manipulate algebraic expressions (including those involving surds).

How does this content link to future learning?
- Consolidate all aspects of algebra 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?*
- 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: *Independent writing tasks and how they are structured*
- 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.