KEVICC Key Stage 4 Curriculum Subject: Mathematics

Summer Half-Term

Term: Year 9 Summer Term – Block Five | **Topic: Pythagoras**

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

	Specification content	Specification notes
G20	Know the formulae for: Pythagoras' theorem, $a^2 + b^2 = c^2$, and the trigonometric ratios, $\sin\theta = \frac{opposite}{hypotenuse}$ $\cos\theta = \frac{adjacent}{hypotenuse}$ $\tan\theta = \frac{opposite}{adjacent}$ apply them to find angles and lengths in right-angled triangles in two dimensional figures	

Students should be able to:
- understand, recall, and use Pythagoras' theorem in 2D problems
- understand, recall, and use trigonometric relationships in right-angled triangles
- use the trigonometric relationships in right-angled triangles to solve problems, including those involving bearings.

Key Vocabulary and notation.

Pythagoras' Theorem	Lengths
Formula	Relationship
Right Angle	Trigonometric ratio
Adjacent	Square
Opposite	Square root
Hypotenuse	Sum
Right Angle Triangle	Total
Non right-angle triangle	Substitute
Formula	Expression
Rearrange	Calculate
Subject	Proof
Angle	Prove
	Surds
	Exact value
	Simplifying

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?
- Simplify algebraic expressions.
- Substitute numerical values into formulae and expressions
- Rearrange equations to change the subject.
- Calculate squares and square roots.
- Identify 2-D shapes with 3-D shapes.
- Understand the language of faces, edges, and vertices.

How does this content link to future learning?
- Use 2D representations of 3D shapes.
- Draw nets and show how they fold to make a 3D solid.
- Analyse 3D shapes through 2D projections and cross sections, including plans and elevations.
- Understand and draw front and side elevations and plans of shapes made from simple solids, for example a solid made from small cubes.
- Understand and use isometric drawings.

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.