KEVICC Key Stage 3 Curriculum Subject: Mathematics

Summer Half-Term Developing Geometry

Term: Year 8 Summer Term – Block Two | **Topic:** Area of Trapezia and Circles

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

Students following the Higher strand will have met the formulae for the area of a trapezium in year 7; this knowledge is now extended to all students, along with the formula for the area of a circle. A key aspect of the unit is choosing and using the correct formula for the correct shape, reinforcing recognising the shapes, their properties and names, and looking explicitly at compound shapes.

National curriculum content covered:

- Derive and apply formula to calculate and solve problems involving perimeter and area of triangles, parallelograms, trapezia.
- Calculate and solve problems involving perimeters of 2D shapes (including circles), areas of circles and composite shapes.

We know that breaking the curriculum down into small manageable steps should help students to understand concepts better. As a result, for each block of content in the scheme of learning we have provided the following 'small step' breakdown for this unit as follows:

Lesson One - Calculate the area of triangles, rectangles and parallelograms
Lesson Two - Calculate the area of a trapezium
Lesson Three - Calculate the perimeter and area of compound shapes (1)
Lesson Four - Investigate the area of a circle
Lesson Five - Calculate the area of a circle and parts of a circle without a calculator
Lesson Six - Calculate the area of a circle and parts of a circle with a calculator
Lesson Seven - Calculate the perimeter and area of compound shapes (2)

Interleaving/Extension of previous work

- Revisit forming and solving equations.
- Revisit properties of shapes.
- Revisit equations of straight lines.
- Perform standard constructions including perpendiculars.
- Understand and use the properties of diagonals of quadrilaterals.

Key Vocabulary and notation.

Formula	Rectangle
Area	Estimate
Triangle	Infinity
Square	Radius
Parallelogram	π
Rhombus	Approximately
Trapezium	Estimate
Trapezia	Diameter
Parallel	In terms of π
Perpendicular	Decimal place
height	Estimate
Compound	Calculate
Component	Substitute
shapes	Significant
Perpendicular	figures
Sector	

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?

- Review Year 7 angle rules.
- Understand and use parallel lines in angles.
- Revisit geometric notation.
- Workout angles in special quadrilaterals.
- Find and use the sum of interior and exterior angles of a polygon.
- Prove simple geometric facts.

How does this content link to future learning?

- Revisit properties of shapes.
- Revisit equations of straight lines.
- Recognise line symmetry in polygons and other shapes.
- Reflect shapes in horizontal, vertical and diagonal lines

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.
- Recognising patterns and relationships in mathematics.

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 students review the information learned?
End of block assessments.
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 covered.
A Core paper – it is envisaged that all students will take this paper, to provide a direct comparison with the performance of the rest of the cohort. All topics from each term will be covered, and the use of a calculator is expected.
End of term assessments.
A Foundation paper – students who are working below national expectations will have the opportunity to show their understanding of the material with more straightforward questions. Non calculator paper.
A Higher paper – students who are working at or above national expectations will have the opportunity to tackle more challenging questions on the same material, plus the extra objectives indicated as "Higher" in our scheme of learning. Non calculator paper.
How will feedback be seen?
Marked end of block and term assessments.
Personalised learning checklists for end of term 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.