

KEVICC Key Stage 4 Curriculum Subject: Mathematics		Key Vocabulary and notation.
Spring Half-Term		
Term: Year 10 Spring Term – Block Six	Topic: Further Circumferences and Area	
What is the essential knowledge from this unit? What do students need to remember and understand?		
	Specification content	Specification notes
G9	Identify and apply circle definitions and properties, including centre, radius, chord, diameter, circumference, <u>tangent, arc, sector, and segment</u>	
Students should be able to: <ul style="list-style-type: none"> recall the definition of a circle identify and name the parts of a circle draw the parts of a circle understand related terms of a circle draw a circle given the radius or diameter. 		
G17	Know and use the formulae $Circumference = 2 \pi r = \pi d$ $Area = \pi r^2$ Calculate the perimeter of 2D shapes including circles and composite shapes Calculate areas of circles and composite shapes <u>Calculate surface area of spheres, cones and composite solids</u>	including frustums
Students should be able to: <ul style="list-style-type: none"> work out the perimeter of a rectangle work out the perimeter of a triangle calculate the perimeter of shapes made from triangles and rectangles calculate the perimeter of compound shapes made from two or more rectangles calculate the perimeter of shapes drawn on a grid calculate the perimeter of simple shapes recall and use the formula for the circumference of a circle work out the circumference of a circle, given the radius or diameter work out the radius or diameter given the circumference of a circle use $\pi = 3.14$ or the π button on a calculator work out the perimeter of semicircles, quarter circles or other fractions of a circle recall and use the formula for the area of a circle work out the area of a circle, given the radius or diameter work out the radius or diameter given the area of a circle work out the area of semicircles, quarter circles or other fractions of a circle work out the surface area of spheres, pyramids, and cones work out the surface area of compound solids constructed from cubes, cuboids, cones, pyramids, cylinders, spheres, and hemispheres work out volume of spheres, pyramids, and cones work out the volume of compound solids constructed from cubes, cuboids, cones, pyramids, cylinders, spheres, and hemispheres solve real-life problems using known solid shapes. 		
G18	<u>Calculate arc lengths, angles and areas of sectors of circles</u>	
Students should be able to: <ul style="list-style-type: none"> calculate the length of arcs of circles calculate the area of sectors of circles given the lengths or areas of arcs, calculate the angle subtended at the centre. 		
N8	<u>Calculate exactly with multiples of π</u>	
Students should be able to: <ul style="list-style-type: none"> identify equivalent fractions write a fraction in its simplest form simplify a fraction by cancelling all common factors, using a calculator where appropriate, for example, simplifying fractions that represent probabilities convert between mixed numbers and improper fractions compare fractions compare fractions in statistics and geometry questions. add and subtract fractions by writing them with a common denominator convert mixed numbers to improper fractions and add and subtract mixed numbers give answers in terms of π and use values given in terms of π in calculations. 		
		Formula Decagon Area Rectangle Triangle Estimate Rhombus Infinity Trapezium Radius Trapezia Diameter Parallel Tangent Perpendicular Arc height Sector Compound Segment Component Semi-circle shapes π Perpendicular Approximately Sector Estimate Equilateral In terms of π Isosceles Decimal Scalene place Length Estimate Acute Calculate Obtuse Substitute Right-angle Significant Reflex figures Polygon Cube Square Cuboid Kite Prism Rhombus Cylinder Parallelogram Pyramid Trapezium Cone Polygon Sphere Edges Hemi-spheres Face Uniform Vertices Cross-section Vertex Volume Equal Surface area Triangle Compound
		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.

<p>What prior learning supports understanding of this content?</p> <ul style="list-style-type: none"> Recall and use the formulae for the perimeter and area of a rectangle, triangle, parallelogram, and trapezium Calculate the perimeter and area of shapes made from triangles and rectangles Calculate the perimeter and area of compound shapes made from two or more rectangles, for example an L shape or T shape Work out the circumference of a circle, given the radius or diameter Work out the radius or diameter given the circumference of a circle Recall and use the formula for the circumference and area of a circle Work out the circumference and area of a circle, semicircles, quarter circles or other fractions of a circle given the radius or diameter 	<p>How does this content link to future learning?</p> <ul style="list-style-type: none"> Derive and use the sum of angles in a triangle (e.g. to deduce and use the angle sum in any polygon, and to derive properties of regular polygons). Derive and apply the properties and definitions of: <ul style="list-style-type: none"> Special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite, and rhombus and triangles and other plane figures using appropriate language. Including knowing names and properties of isosceles, equilateral, scalene, right-angled, acute-angled, obtuse-angled triangles. Including knowing names and using the polygons: pentagon, hexagon, octagon, and decagon.
<p>Reading: <i>Where in the unit are students supported to read complex academic text?</i></p> <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. 	<p>Writing: <i>Independent writing tasks and how they are structured</i></p> <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.
<p>Key assessments:</p> <p>How will do students review the information learned?</p> <p>End of block assessments.</p> <p>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.</p> <p>End of term/year assessments and mock examinations.</p> <p>End of term assessments assessing the students' progress towards targets and provide diagnostic information to modify future teaching.</p> <p>End of year 9 and 10 examinations assessing the students' progress towards targets and provide diagnostic information to modify future teaching.</p> <p>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.</p> <p>All examinations will explore the three examination papers at both foundation and higher tiers using non-calculator and calculator requirements.</p> <p>How will feedback be seen?</p> <p>Marked end of block, term assessments and mock examinations.</p> <p>Personalised learning checklists for all assessments identifying strengths and areas of development.</p> <p>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.</p>	