

KEVICC Key Stage 4 Curriculum Subject: Mathematics			Key Vocabulary and notation.	
Spring Half-Term				
Term: Year 10 Spring Term – Block Three		Topic: Congruence and Similarity		
What is the essential knowledge from this unit? What do students need to remember and understand?				
	Specification content	Specification notes		
G5	<u>Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)</u>			
Students should be able to: <ul style="list-style-type: none">understand congruenceidentify shapes that are congruentunderstand and use conditions for congruent triangles: SSS, SAS, ASA and RHSrecognise congruent shapes when rotated, reflected or in different orientationsunderstand and use SSS, SAS, ASA and RHS conditions to prove the congruence of triangles using formal arguments, and to verify standard ruler and compass constructions.				
G6	<u>Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides including the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs</u>			
Students should be able to: <ul style="list-style-type: none">understand similarityunderstand similarity of triangles and of other plane figures, and use this to make geometric inferencesidentify shapes that are similar, including all squares, all circles, or all regular polygons with equal number of sidesrecognise similar shapes when rotated, reflected or in different orientationsapply mathematical reasoning, explaining, and justifying inferences and deductionsshow step-by-step deduction in solving a geometrical problemstate constraints and give starting points when making deductions.				
G19	<u>Apply and use the concepts of congruence and similarity, including the relationships between lengths, areas, and volumes in similar figures</u>			
Students should be able to: <ul style="list-style-type: none">understand the effect of enlargement on perimeterwork out the side of one shape that is similar to another shape given the ratio or the factor of lengths.				
G19h	<u>Apply and use the concepts of congruence and similarity, including the relationships between lengths, areas and volumes in similar figures</u>			
Students should be able to: <ul style="list-style-type: none">understand the effect of enlargement on areas of shapesunderstand the effect of enlargement on volumes of solidscompare the areas or volumes of similar shapes or solids, knowing that if $a:b$ is the ratio of lengths, then $a^2:b^2$ is the ratio of areas and $a^3:b^3$ is the ratio of volumeswork out the area or volume of one shape/solid given the area or volume of a similar shape/solid and the ratio or scale factor of lengths of the shape/solid.				
R12	Compare lengths using ratio notation; <u>Make links to trigonometric ratios</u>			
Students should be able to: <ul style="list-style-type: none">understand the effect of enlargement on perimeterunderstand the effect of enlargement on areas of shapesunderstand the effect of enlargement on volumes of shapes and solidscompare the areas or volumes of similar shapesunderstand, recall, and use trigonometry ratios in right-angled triangles.				
			SSS	Congruent
			Side – side	Similar
			side	Scale factor
			ASA	In proportion
			Angle-side-	Ratio
			angle	Corresponding
			SAS	Length scale
			Side-Angle-	factor
			Side	Parallel
			RHS	Alternate
			Right angle-	angles
			hypotenuse-	Corresponding
			side	angles
			Conditions	Enlarge
			of	Length scale
			congruence	factor
			Object	Area scale
			Image	factor
			Proportion	Volume scale
			Enlarge	factor
			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"> • Understand ratio and its link to multiplication. • Use ratio notation. • Reduce ratios to simplest form. • Solve ratio problems. • Recap understanding of congruency. • Review area and volume of shapes covered in key stage 3. • Use of significant figures. 	<p>How does this content link to future learning?</p> <ul style="list-style-type: none"> • Know the formulae for: Pythagoras' theorem, $a^2 + b^2 = c^2$, and the trigonometric ratios, $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}} \quad \cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}} \quad \tan \theta = \frac{\text{opposite}}{\text{adjacent}}$ <p>Apply them to find angles and lengths in right-angled triangles in two- and three-dimensional figure.</p> <ul style="list-style-type: none"> • Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides including Pythagoras' Theorem and use known results to obtain simple proofs. • Compare lengths using ratio notation; Make links to trigonometric ratios
<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>	