KESTEVEN AND SLEAFORD HIGH SCHOOL

Mathematics Scheme of Learning
Year 11 – Term 1

Intent – Rationale

"Maths is for everyone". AQA GCSE Mathematics is designed to be diverse, engaging and essential to equip all students with the skills and knowledge to reach their future destination. Opportunities to make connections, generalise and apply are embedded where appropriate for each individual student. References to careers and future learning and shared with students.

Sequencing – what prior learning does this topic build upon?	Sequencing – what subsequent learning does this topic feed into?
• Year 9 Term 4 construction • Year 9 Term 6 transformations including fractional sf • Year 10 Term 2 area, Year 9 Term 5 volume, Year 10 Term 6 similarity • Year 10 Term 3 basic probability (not conditional)	• A level statistics •
What are the links with other subjects in the curriculum?	**What are the links to SMSC, British Values and Careers?**
• Technology- isometric drawing in graphics • Art – isometric drawing • Science-volume in chemical calculations	SP2&3, C1 SP2&3, C1 GB4efghi
What are the opportunities for developing literacy skills and developing learner confidence and enjoyment in reading?	**What are the opportunities for developing mathematical skills?**
• 'Alex's Adventure in Numberland' - Alex Bellows • 'The Math Book' - Clifford Pickover	• Development of previous trigonometric skills (recap of SOHCAHTOA and progress onto non-right angled triangles) • Pupils will be able to calculate the volume of more complex 3D shapes

	• Pupils will recognise and calculate the constant of proportionality in both direct and inverse relationships

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Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?
Know Construct perpendicular bisector, perpendicular from a line to a point of vice versa and an angle of 60^o. Bisect an angle. Apply reflection, rotation, translation and enlargement (including fractional and negative scale factors) Construct plans and elevations of 3D shapes Calculate the volume of prisms, spheres, pyramids, cones and other composite solids. Use similarity and scale factors with area and volume. Draw and use tree diagrams and use to calculate probabilities for independent and dependent events including knowing when to use the OR rule & AND rule. **Apply** Solve GCSE loci problems, including equidistant from a point, from two points and from a line Describe combined transformations as a single transformation. Interpret plans and elevations of 3D shapes Context volume problems Use of tree diagram to calculate probability of combined event. .

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Extend Understand invariance with combined transformations Calculate the volume of a frustum. Algebraic probability problems	
What subject specific language will be used and developed in this topic?	**What opportunities are available for assessing the progress of students?**
• Construction, loci, perpendicular, bisect, equidistance • Transformations, transform, translation, rotation, reflection, enlargement, stretch, scale factor, centre, direction, column vector • Plan, side, elevation, isometric, construct • Volume, length, width, depth, height, capacity, cuboid, prism, formulae, pyramid, sphere, frustrum, composite, compound, dimension • Probability, and, or, tree diagram, events, outcomes, dependent, independent, conditional probability, replacement, without replacement, exhaustive, sample space, two-way table, product rule, systematic listing, frequency	• End of topic homework tests • Exam question practice – open book • Mini quizzes including Kahoot • Recall starters: • LLLWLTLY • Corbett 5 a day • Whiterose maths KS4 problem of the day • Mini quiz on last term topics

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Constructions and Loci	R	A	G
Construct perpendicular bisector			
Construct perpendicular from a line to a point or vice versa			
Bisect a given angle			
Construct a 60^{o} angle			
Solve loci problems, including equidistant from a point, from two points and from a line			

Transformations	R	A	G
Identify and construct congruent and similar shapes			
Apply reflection, rotation, translation and enlargement (including fractional scale factors)			
Describe translations using vectors			

2D Representation of 3D shapes	R	A	G
Construct plans and elevations of 3D shapes			
Interpret plans and elevations of 3D shapes			

Volume	R	A	G
Know and use the formulae for cuboids			
Know and use the formulae for prisms			
Calculate the volume of spheres, pyramids, cones and other composite solids			
Calculate give answers in terms of Pi.			
Calculate dimensions when the volume is known			
Solve algebraic equivalence volume problems			

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Probability	R	A	G
Calculate the probability of independent events			
Draw and use tree diagrams and use to calculate probabilities including knowing when to use the OR rule & AND rule.			
Calculate conditional probability			