KESTEVEN AND SLEAFORD HIGH SCHOOL

Mathematics Scheme of Learning
Year 10 – Term 6

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 10 Term 2 collecting and representing data • Year 10 Term 4 functions, Term 3 fractions • Year 10 Term 2 area of 2D shapes, Term 1 ratio • Year 9 Term 4 congruence conditions • Year 9 Term 4 construction • Year 9 Term 6 transformations including fractional sf	• A level Statistics • A level Pure maths further functions work including polynomial division and binomial expansion • Year 11 Term 1 volume of frustrum
What are the links with other subjects in the curriculum?	**What are the links to SMSC, British Values and Careers?**
• Statistical measures used in variety of subjects to find averages from data eg Science, Geography, Technology, PE • Measures used in Science, Technology, Geography, PE	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?**

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• Understanding of language used in worded problems. • Reasoning and drawing of conclusions	• Use of mathematical equipment • Mathematical language and acronyms • Improved algebraic manipulation in algebraic fractions

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Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?
Know Interpret, analyse and compare data by comparing and commenting in context on average and measure of spread. Know the limits of sampling. Manipulate and simplify algebraic expressions involving algebraic fractions. Solve equations involving algebraic fractions. Use standard units of measure (length, area, volume/capacity, mass, time, money) using decimal quantities where appropriate. Change freely between standard units. Know and use compound measures, including speed, density, pressure and units of pay. Use basic congruence criteria for triangles. 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) **Apply** Apply statistic to analyse a population. Compound measure problems in context Apply the ideas of similarity to length, area and volume to similar shapes. Solve loci problems, including equidistant from a point, from two points and from a line Describe combined transformations as a single transformation. **Extend**

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Finding an algebraic common denominator
Use compound measures in algebraic contexts.
Apply angle facts, congruence and similarity to prove results.
Understand invariance with combined transformations

What subject specific language will be used and developed in this topic?	What opportunities are available for assessing the progress of students?
• Distribution, average, measure of spread, mean, median, mode, range, interquartile range, upper quartile, lower quartile, skew, percentage, frequency • Algebraic fraction, numerator, denominator, simplify, factorise, multiply, divide, add, subtract, solve • Measures, compound, speed, density, time, formula, pressure, force, area, mass, volume, density, convert, units • Congruence, condition, ASA, SAS, SSS, RHS, similarity, proportional, scale factor, corresponding • Construction, loci, perpendicular, bisect, equidistance • Transformations, transform, translation, rotation, reflection, enlargement, stretch, scale factor, centre, direction, column vector, invariance	End of topic homework tests Exam question practice – open book Mini quizzes including Kahoot Multiple choice to address misconceptions Recall starters: • LLLWLTLY • Corbett 5 a day • Whiterose maths KS4 problem of the day • Mini quiz on last term topics •

Statistical Measures	R	A	G
Interpret, analyse and compare data by comparing and commenting in context on:			

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1. Use appropriate measures of central tendency: mean, median, mode and modal class.			
2. Use of spread, range, quartiles and interquartile range			
Apply statistics to describe a population			
Know the limitations of sampling.			

Algebraic Fractions	R	A	G
Simplify algebraic expressions involving algebraic fractions			
Manipulate and simplify algebraic expressions involving algebraic fractions			
Solve equations involving algebraic fractions			

Measures	R	A	G
Use standard units of measure (length, area, volume/capacity, mass, time, money) using decimal quantities where appropriate.			
Change freely between standard units			
Use compound measures such as speed, density, pressure, rates of pay, unit pricing.			
Use compound measure in algebraic contexts			

Congruence and Similarity	R	A	G
Use the basic congruence criteria for triangles			
Apply angle facts, congruence and similarity to prove results			
Apply the ideas of similarity to length, area and volume to similar shapes.			

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Constructions and Loci	R	A	G
Construct perpendicular bisector			
Construct perpendicular from a line to a point of 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 and negative scale factors)			
Describe translations using vectors			
Understand invariance with combined transformations			

Intent – Concepts

Lesson title	Learning challenge	Higher level challenge	Suggested activities and resources
Statistical Measures	Interpret, analyse and compare data by comparing and commenting in context on: 1. Use appropriate measures of central tendency: mean, median, mode and modal class. 2. Use of spread, range, quartiles and interquartile range		Statistical Measures PP

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	Apply statistics to describe a population. Know the limitations of sampling.		
Algebraic Fractions	Simplify algebraic expressions involving algebraic fractions		Algebraic Fractions PP
	Manipulate and simplify algebraic expressions involving algebraic fractions	Adding/subtracting where common denominator is needed to be found.	
	Solve equations involving algebraic fractions		
Measures	Use standard units of measure (length, area, volume/capacity, mass, time, money) using decimal quantities where appropriate. Change freely between standard units.		Measures PP
	Use compound measures such as speed, density, pressure, rates of pay, unit pricing.	Use compound measure in algebraic contexts	
Congruence & similarity	Use the basic congruence criteria for triangles	Apply angle facts, congruence and similarity to prove results	Congruency & Similarity PP
	Apply the ideas of similarity to length, area and volume to similar shapes.	Algebraic problems	Encourage students to state when using LSF, ASF, VSF to help organise their workings and use correct value in their calculations. Corbett maths worksheets
Construction	Construct perpendicular bisector Construct perpendicular from a line to a point of vice versa Bisect a given angle Construct a 60^o angle		

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	Solve loci problems, including equidistant from a point, from two points and from a line		Exam questions. Encourage students to identify construction for each "condition" given before constructing and shading.
Transformations	Identify and construct congruent and similar shapes		Transformations PP Make a word worksheets using transformations
	Apply reflection, rotation, translation and enlargement (including fractional and negative scale factors) Describe translations using vectors.		
	Describe combined transformations as a single transformation	Understand invariance with combined transformations	

Transformations is left until end of Term 6 as a recap if time allows. It is a commonly practiced skill with little extension at GCSE from KS3. Some students may not have drawn an enlargement with a negative scale factor. Invariance may be new language to many students.