

KESTEVEN AND SLEAFORD HIGH SCHOOL

Mathematics Scheme of Learning

Year 10 – Term 6 – Statistical Measures/Algebraic Fractions/Measures/Congruence & Similarity/Constructions & Loci/Transformations

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?
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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?
<ul style="list-style-type: none"> 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?

KESTEVEN AND SLEAFORD HIGH SCHOOL

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Understanding of language used in worded problems. • Reasoning and drawing of conclusions | <ul style="list-style-type: none"> • Use of mathematical equipment • Mathematical language and acronyms • Improved algebraic manipulation in algebraic fractions |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Mathematics Scheme of Learning Year 10 – Term 6

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° . 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 GCSE loci problems, including equidistant from a point, from two points and from a line
 Describe combined transformations as a single transformation.

Extend

KESTEVEN AND SLEAFORD HIGH SCHOOL

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?
<ul style="list-style-type: none"> • 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 	<p>AQA topic <u>open book</u> assessments (homework) Exam question practice in class – open book Mini quizzes including Kahoot Multiple choice to address misconceptions Retrieval starters including Illwltly, exam technique, numberup Retrieval homework issued termly followed by teacher www.ebi comments with a week built in for pupils to digest and follow up on feedback. Formative assessment occurs throughout lessons and will address common misconceptions Pupils completed formal assessments in term 4 and in depth feedback has been provided on this. Class teachers identify areas of focus and build these into retrieval starters and homework for more practice. An in class assessment occurs week 1 of term 6 consolidating previously taught topics, in particular the identification of topics from the term 4 formal assessment where pupils require more testing.</p>

KESTEVEN AND SLEAFORD HIGH SCHOOL

Statistical Measures	R	A	G
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			
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			

KESTEVEN AND SLEAFORD HIGH SCHOOL

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.			

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° 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			