

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.

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| 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? |

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| <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 |
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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 and vice versa and an angle of 60° . Bisect an angle.

Apply reflection, rotation, translation and enlargement (including fractional and negative scale factors)

Apply

Apply statistics 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

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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? |
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| <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>End of topic homework tests Exam question practice – open book Mini quizzes including Kahoot Multiple choice to address misconceptions Recall starters:</p> <ul style="list-style-type: none"> • LLLWLTLY • Corbett 5 a day • Whiterose maths KS4 problem of the day • Mini quiz on last term topics • |

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Intent – Concepts

| 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 | | | |

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| 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 | | | |