

KESTEVEN AND SLEAFORD HIGH SCHOOL

Mathematics Scheme of Learning

Year 10 – Term 5 – Circle Theorems/Inequalities/Vectors

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 9 Term 6, 5 out of 8 circle theorems (not alternate segment theorem)Year 9 Term 5 representing inequalities on a number line and solving linear inequalitiesYear 9 Term 5 describing translations using column vectors, fractional and positive scale factors for enlargement, rotation around any point, reflection in any line.	<ul style="list-style-type: none">GCSE equation of a circle and A level circle geometryA level Pure, solving quadratic inequalitiesA level vectors in 3D and further vector geometry
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">Physics – vectorsSports Science – vectorsBusiness studies – inequalities and modelling profit margins	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, eg use of reasoning in circle theorem proof, forming an argument for colinear in vector proof

- Links to other topics, such as angle facts in circle theorems, ratio in vectors
- Insight in to A level mathematics – challenge for HAP
- Further mathematical notation

Mathematics Scheme of Learning **Year 10 – Term 5**

Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?

Know

Know the parts of a circle. Recognise in circles isosceles triangles and tangent formed right angled triangles. Recognise cyclic quadrilaterals.

Solve linear inequalities in one or two variables.

Know and use vector notation, diagrammatic representation and column vectors.

Apply

Apply circle theorems to solve problems.

Represent inequalities using set notation, on a number line and graphically

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Solve geometrical vector problems including using ratio and midpoints.

Extend

Apply circle theorems to prove specific results.

Solve quadratic inequalities

Use vectors to construct geometrical proofs and arguments including showing parallel or on the same straight line

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"> • Segment, diameter, radius, arc, sector, tangent, perpendicular, cyclic quadrilateral, subtended • Inequality, greater than, less than, variable, sets • Vector, scalar, magnitude, direction, resultant, parallel, multiple, colinear, midpoint 	<p>AQA topic <u>open book</u> assessments (homework)</p> <p>Exam question practice in class – open book</p> <p>Mini quizzes including Kahoot</p> <p>Multiple choice to address misconceptions</p> <p>Retrieval starters including Illwiltly, exam technique, numberup</p> <p>Retrieval homework issued termly followed by teacher www/ebi comments with a week built in for pupils to digest and follow up on feedback.</p>

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	<p>Formative assessment occurs throughout lessons and will address common misconceptions</p> <p>Pupils completed formal assessments in term 4 and indepth feedback will be provided on this. Class teachers identify areas of focus and build these into retrieval starters and homework for more practice</p>
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Circle Theorems	R	A	G
Know the parts of a circle. Recognise in circles isosceles triangles and tangent formed right angled triangles. Recognise cyclic quadrilaterals.			
Apply circle theorems to solve missing angle problems			
Use circle theorems to prove specific results			

Inequalities	R	A	G
Solve linear inequalities in one or two variables			
Solve quadratic inequalities in one variable			
Represent the solution using set notation			
Represent the solution on a number line			
Represent linear inequalities on a graph			

Vectors	R	A	G
Know and use vector notation, diagrammatic representation of vectors and column vectors			
Apply addition and subtraction of vectors			
Apply multiplication of vectors by a scalar			

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Use ratio, midpoints and shape properties in geometrical vector problems			
Use vectors to construct geometrical proofs and arguments including showing parallel or on the same straight line			