KESTEVEN AND SLEAFORD HIGH SCHOOL

Mathematics Scheme of Learning

Year 11 – Term 2 – Equations of circles/Gradients

Intent – Rationale

"Maths is for everyone". AQA GCSE Mathematics is designed to be diverse, engaging and essential to equip all students with th e skills and knowledge to reach their future destination. Opportunities to make connections, generalise and apply are embedded wher e 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 circle parts, Term 4 simultaneous equations • Year 10 Term 1 coordinates and linear graphs	• A level circle geometry, including finding the equation of a circle with any given centre. • A level calculus, rates of change
What are the links with other subjects in the curriculum?	**What are the links to SMSC, British Values and Careers?**
• Science-gradients representing various rates of change	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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• 'Alex's Adventure in Numberland' - Alex Bellows • 'The Math Book' - Clifford Pickover	• Apply knowledge of finding gradient of linear relationships to approximate gradient of a curved line

Mathematics Scheme of Learning
Year 11 – Term 2

Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?	
Know Recognise the equation of a circle with the centre at the origin. Know the gradient as the rate of change. Find the instantaneous rate of change and the average rate of change from a curve. **Apply** Find where a line meets a circle **Extend** Find the equation of a tangent to a circle at a given point.	
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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• Equation, circle, radius, square, tangent, origin, perpendicular • Gradient, rate of change, interpret, instantaneous, average, chord, tangent	AQA topic open book assessments (homework) Exam question practice in class – open book Mini quizzes including Kahoot Multiple choice to address misconceptions Retrieval starters including lllwltly, 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. A termly assessment will follow on from this with year
	group 'topic top up' identified in preparation for next term's teaching. Formative assessment occurs throughout lessons and will address common misconceptions

Equations of Circles	R	A	G
Recognise the equation of a circle with the centre at the origin			
Find the equation of a tangent to a circle at a given point			
Find where a line meets a circle			

Gradients	R	A	G
Interpret the gradient of a straight line as the rate of change			
From a graph find the instantaneous rate of change			
From a graph find the average rate of chance			

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