KESTEVEN AND SLEAFORD HIGH SCHOOL

Mathematics Scheme of Learning
Year 11 – Term 3

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 Right angled trigonometry • Year 10 Term 2 Percentages, Year 11 Term 1 iterative processes Year 10 Term 4 Functions, Term 3 sketching graphs • Year 10 Term 1 expressions & equations, quadratics	• A level Pure maths further solving of trigonometric equations and interpreting graphs • A level further use of function notation including factor theorem
What are the links with other subjects in the curriculum?	**What are the links to SMSC, British Values and Careers?**
• Graphics links with trigonometry and constructing right angles • Biology and Geography with iterative processes • Science with sketching graphs and interpreting	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?**
• Please fill this in with your own suggestions alternatively the LRC team will provide some suggested titles/links	• New maths such as equation of a circle, trigonometric graphs and iteration • Opportunity to explore bridging content in to A level maths

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Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?
Know Know and apply the Sine rule and Cosine rule to find angles and sides in any given triangle. Find the area of any triangle. Find approximate solutions using iteration Recognise the equation of a circle with the centre at the origin Sketch a quadratic curve using y-intercept, roots and its turning point. Know the exact trigonometric values of sin, cos and tan for 0, 30, 45, 60, 90 degrees. Sketch the graphs of y = sin(x), y = cos(x), y=tan(x) Understand function notation showing graph transformations. State the coordinates of a given point after a transformation **Apply** Solve combined trigonometry problems including triangles formed in a sector. Use the recursive notation Identify the turning point of a quadratic in completed square form. Identify the line of symmetry in a quadratic curve. Describe the transformation shown in words and function notation **Extend** Arrange an equation into a recursive formula form Find the equation of a tangent to a circle at a given point. Find where a line meets a circle Solve trigonometric equations using the relevant graph Sketch the graph for a given transformation

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What subject specific language will be used and developed in this topic?	What opportunities are available for assessing the progress of students?
• Trigonometry, sine, cosine, area, hypotenuse, adjacent, opposite, angle, theta • Iterative, recursive formula, equation, iteration, approximate, significant figures • Circle, radius, centre, interest, roots, tangent, curve, • Sketch, draw, curve, linear, quadratic, reciprocal, exponential, cubic, intercept, roots, axis, turning point, symmetry, coordinate, trigonometric, sine, cosine, tangent, cyclic, period, solve • Transformation, translate, reflect, stretch, symmetry, scale factor, cyclic, period,	• End of topic homework tests • Exam question practice – open book • Mini quizzes including Kahoot • Recall starters: • LLLWLTLY • Corbett 5 a day • Whiterose maths KS4 problem of the day • Mini quiz on last term topics

Trigonometry	R	A	G
Know and apply the Sine rule to find angles and sides in any given triangle			
Know and apply the Cosine rule to find angles and sides in any given triangle			
Calculate the area of any given triangle			
Solve combined trigonometry problems including triangles formed in a sector.			

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Numerical Methods	R	A	G
Arrange an equation into a recursive formula form			
Find approximate solutions using iteration			
Use the recursive notation			

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			

Further Graphs	R	A	G
Identify the turning point of a quadratic in completed square form. Identify the line of symmetry in a quadratic curve.			
Sketch a quadratic curve using y-intercept, roots and its turning point			
Know the exact trigonometric values of sin, cos and tan for 0, 30, 45, 60, 90 degrees			
Sketch the graphs of y = sin(x), y = cos(x), y=tan(x)			
Solve trigonometric equations using the relevant graph			

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Graph Transformations	R	A	G
Understand function notation showing graph transformations			
State the coordinates of a given point after a transformation			
Describe the transformation shown in words and function notation			
Sketch the graph for a given transformation			

Intent – Concepts

Lesson title	Learning challenge	Higher level challenge	Suggested activities and resources
Sine and Cosine Rules (Higher only)	Know and apply the Sine rule to find angles and sides in any given triangle	Solve combined trigonometry problems including triangles formed in a sector.	PP
	Know and apply the Cosine rule to find angles and sides in any given triangle		
	Calculate the area of any given triangle		
Numerical Methods (Higher only)	Use the recursive notation to find approximate solutions using iteration	Arrange an equation into a recursive formula form	

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Equation of a Circle (Higher only)	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	Grid worksheet KDU
		Find where a line meets a circle	
Further Graphs	Sketching known graphs including quadratic, cubic, exponential, reciprocal	Identify the turning point of a quadratic in completed square form. Identify the line of symmetry in a quadratic curve.	Complete square and sketch worksheet
		Trig graphs – sketching and solving	Hand exact values worksheet Triangles exact value worksheet Sketch graphs worksheet
Graph Transformations (Higher only)	Understand function notation showing graph transformations State the coordinates of a given point after a transformation	Describe the transformation shown in words and function notation	PP
	Sketch the graph for a given transformation		