



MAGHULL HIGH SCHOOL – CURRICULUM MAP Year 11 Half Term 4

Unit:	Week 1 -2		Week 3-4		Week 5-6	
LESSON TOPIC QUESTION(S)	HIGHER	FOUNDATION	HIGHER	FOUNDATION	HIGHER	FOUNDATION
	Measure and read bearings	4/5 Pythagoras' theorem (2)	Construct an angle bisector and a perpendicular bisector	4/5 Use the rule of indices (2)	Enlargement (negative scale factor)	Revision and past papers
	Scale drawings using bearings	4/5 Trigonometry - Finding missing sides	Construct a perpendicular from or to a point	4/5 Solve a pair of linear simultaneous equations (1)	Reflection	Revision and past papers
	Calculate bearings using angles rules	4/5 Trigonometry - Finding missing angles	Locus of distance from a point and a straight line	4/5 Solve a pair of linear simultaneous equations (2)	Rotation	Revision and past papers
	Choose appropriate methods to solve problems with right-angled triangles	G Simplify algebraic expressions by collecting like terms	Locus equidistant from two points and perpendicular bisectors	4/5 Factorise quadratic expressions	Translation	Revision and past papers
	Solve bearings problems using Pythagoras and trigonometry	G Expand and factorise single brackets (1)	Locus equidistant from two lines and angle bisectors	G Recognise and continue patterns	Describe a transformation	Revision and past papers
	Sine and cosine rules	G Expand and factorise single brackets (2)	Solve problems with loci	G Continue a sequence given rules in words	Find the result of a series of transformations	Revision and past papers
	Solve bearings problems using the sine and cosine rules (E)	4/5 Expand a pair of binomials		4/5 Use formulae to generate sequences	Invariant points and lines (E)	Revision and past papers
	Construct triangles	G Simplify expressions involving sums, products and powers	Enlargement (positive integer scale factor)	4/5 Find the rule for the nth term of a sequence	Formative Assessment	Formative Assessment
	Construct polygons	4/5 Use the rule of indices (1)	Enlargement (fractional scale factor)		Therapy	Therapy
	Formative Assessment	Formative Assessment	Formative Assessment	Formative Assessment		
	Therapy	Therapy	Therapy	Therapy		

Knowledge & Skills development	<p>At Higher Level:</p> <p>Bearings and Trigonometry</p> <ul style="list-style-type: none"> Read and interpret bearings using three-figure notation and clockwise measurement from north. Use scale drawings to represent and solve real-life problems involving direction and distance. Apply angle rules (e.g. angles on a straight line, around a point, alternate/corresponding angles) to calculate bearings. Select and apply appropriate methods for solving problems involving right-angled triangles. Use Pythagoras' Theorem and trigonometric ratios (sine, cosine, tangent) to solve problems involving bearings and distances. Understand and apply the sine and cosine rules to find missing sides or angles in non-right-angled triangles. Solve complex bearing problems involving the sine and cosine rules (Higher tier only). 	<p>At Foundation Level:</p> <p>Pythagoras' Theorem and Trigonometry</p> <ul style="list-style-type: none"> Apply Pythagoras' Theorem to calculate the length of a missing side in right-angled triangles in both 2D and basic 3D contexts. Identify when Pythagoras' Theorem is appropriate in real-world and geometric problems. Use trigonometric ratios (sine, cosine, and tangent) to find missing sides in right-angled triangles. Use inverse trigonometric functions to find missing angles in right-angled triangles. Apply trigonometry to solve contextual and geometric problems, interpreting results accurately.
	<p>Constructions and Loci</p> <ul style="list-style-type: none"> Accurately construct triangles from given information using a compass and straightedge. Draw regular and irregular polygons using precise geometric techniques. Construct angle bisectors and perpendicular bisectors, understanding their uses in geometric reasoning. Construct perpendiculars from or to a point, including from a point to a line and from a line to a point. Understand and construct loci for a point at a fixed distance from: <ul style="list-style-type: none"> a point a straight line two points (using perpendicular bisectors) two lines (using angle bisectors) Solve real-world and geometric problems involving loci, interpreting and applying the conditions accurately. 	<p>Algebraic Manipulation</p> <ul style="list-style-type: none"> Simplify algebraic expressions by collecting like terms involving addition and subtraction. Expand single brackets and factorise expressions involving a common factor (introductory and more complex cases). Expand a pair of binomial expressions, leading to quadratic expressions. Simplify algebraic expressions involving sums, products, and powers, including variables and constants. Apply the rules of indices (laws of exponents), including: <ul style="list-style-type: none"> Multiplying and dividing powers with the same base, Raising powers to powers, Working with zero and negative indices.
		<p>Simultaneous Equations</p> <ul style="list-style-type: none"> Solve pairs of linear simultaneous equations algebraically using: <ul style="list-style-type: none"> The substitution method, The elimination method. Interpret solutions graphically and understand their meaning in real-life contexts.
	<p>Transformations</p>	<p>Quadratic Expressions</p> <ul style="list-style-type: none"> Factorise quadratic expressions of the form ax^2+bx+c, where appropriate.

	<ul style="list-style-type: none"> • Perform enlargements with: <ul style="list-style-type: none"> ○ Positive integer scale factors ○ Fractional scale factors ○ Negative scale factors, including identifying the centre of enlargement. • Carry out and describe reflections across horizontal, vertical or diagonal lines. • Perform and describe rotations about a point, including identifying the centre, angle, and direction of rotation. • Carry out and describe translations using vector notation. • Describe single transformations accurately, including type, direction, and scale factor or vector. • Find the result of a series of transformations, recognising combined effects and describing each transformation. • Identify and describe invariant points and lines under different transformations (Higher tier). 	<ul style="list-style-type: none"> • Understand and apply factorisation techniques in solving equations and simplifying expressions. <p>Sequences</p> <ul style="list-style-type: none"> • Recognise and continue number patterns, including arithmetic and simple geometric sequences. • Extend sequences based on rules given in words. • Use algebraic formulae to generate terms in a sequence. • Find and use the nth term rule of linear sequences to identify any term or determine if a value belongs to the sequence.
Assessment / Feedback Opportunities	<ul style="list-style-type: none"> • Weekly retrieval activities targeting prior and current knowledge • Mid-topic formative assessments with therapy follow-up sessions • End-of-topic quizzes focused on graphs, algebra, and inequalities • Peer/self-assessment tasks using GCSE-style worked solutions • Whole-class feedback and targeted interventions 	
Key Vocabulary	<p>Foundation Level</p> <p>angle, base, binomial, bracket, coefficient, collect like terms, common factor, constant, cosine, equation, elimination, expand, expression, factor, factorise, formula, generate, geometric sequence, hypotenuse, identity, index, indices, inverse, law of indices, linear, linear equation, multiply, nth term, pattern, power, product, Pythagoras' theorem, quadratic, rational, rearrange, rule, sequence, side, simplify, simultaneous equations, sine, solve, square root, substitution, sum, tangent, term, trigonometry, unknown, variable</p> <p>Higher Level</p> <p>angle, angle bisector, bearings, bisector, compass, construction, cosine, cosine rule, distance, enlargement, equidistant, geometric reasoning, integer, locus, perpendicular, perpendicular bisector, point, polygon, positive scale factor, Pythagoras, Pythagoras' theorem, right-angled triangle, rule, scale drawing, scale factor, similar, sine, sine rule, straight line, triangle, trigonometry,</p>	
Literacy/Reading opportunities	<ul style="list-style-type: none"> • Structured sentence starters to support written mathematical reasoning • Analysis of multistep worded problems in real-life graph and shape contexts • Reading worked solutions to complex equations and identifying errors • Building vocabulary through glossaries and retrieval-based literacy tasks 	

Cross Curricular Themes	<ul style="list-style-type: none"> • Physics – Speed-time graphs and motion equations • Geography – Data interpretation, gradients, and mapping scales • Business – Modelling with real-life graphs and interpreting trends • Computing – Algorithmic thinking and equation solving strategies
Personal Development (Including British Values, RSE, Citizenship)	<p>Teaching topics such as bearings, scale drawings, and loci provides natural opportunities to develop spatial awareness, and decision-making skills. These areas promote critical thinking and problem-solving, especially when applying angle rules, trigonometry, and constructions to real-life scenarios such as navigation and planning. British Values can be embedded by encouraging students to work collaboratively, listen to others' methods respectfully, and appreciate a variety of problem-solving approaches—promoting mutual respect, tolerance, and democracy within the classroom. These activities also develop precision, patience, and perseverance, contributing to students' character education and readiness for life beyond school, where careful reasoning and accurate communication are essential.</p>
Career Opportunities	<ul style="list-style-type: none"> • Grounding for careers in data analysis, engineering, and finance • Supports applications of mathematical reasoning in healthcare, architecture, and construction • Builds confidence in problem solving for public service and digital technologies sectors