

Maths- Y13

MAGHULL HIGH SCHOOL – CURRICULUM MAP



HALF TERM 2 Nov - Dec	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
TOPIC (S):-Pure	Trigonometric identities.	Trigonometric identities.	Trigonometric identities.	Trigonometric identities.	Parametric Equations	Parametric Equations	Revision and test all modules.
:-Statistics	Statistical distributions	Statistical distributions	Statistical distributions	Statistical distributions	Statistical distributions	Statistical distributions	
:-Mechanics	Motion under gravity	Motion under gravity	Motion under gravity	Motion under gravity	Motion under gravity	Motion under gravity	
Knowledge & Skills development	Pure	Understand and use the definitions of secant, cosecant and cotangent and of arcsin, arccos and arctan; their relationships to sine, cosine and tangent; understanding of their graphs; their ranges and domains. Understand and use $\sec^2\theta = 1 + \tan^2\theta$ and $\operatorname{cosec}^2\theta = 1 + \cot^2\theta$. Understand and use double angle formulae; use of formulae for $\sin(A \pm B)$, $\cos(A \pm B)$ and $\tan(A \pm B)$; understand geometrical proofs of these formulae. Construct proofs involving trigonometric functions and identities. Understand and use expressions for $a\cos\theta + b\sin\theta$ in the equivalent forms of $r\cos(\theta \pm \alpha)$ or $r\sin(\theta \pm \alpha)$. Understand and use the parametric equations of curves and conversion between Cartesian and parametric forms. Use parametric equations in modelling in a variety of contexts.					
	Statistics	Understand and use the Normal distribution as a model; find probabilities using the Normal distribution. Link to histograms, mean, standard deviation, points of inflection and the binomial distribution. Select an appropriate probability distribution for a context, with appropriate reasoning, including recognising when the binomial or Normal model may not be appropriate					
	Mechanics	Recognise the underlying mathematical structure in a situation and simplify and abstract appropriately to enable problems to be solved. Understand, interpret and extract information from diagrams and construct mathematical diagrams to solve problems, including in mechanics. Translate a situation in context into a mathematical model, making simplifying assumptions. Use a mathematical model with suitable inputs to engage with and explore situations (for a given model or a model constructed or selected by the student). Interpret the outputs of a mathematical model in the context of the original situation (for a given model or a model constructed or selected by the student). Understand and use modelling assumptions. Use trigonometric functions to solve problems in context, including problems involving vectors. Use vectors to solve problems in Kinematics. Model motion under gravity in a vertical plane using vectors; projectiles.					

Assessment / Feedback Opportunities		Topic assessments	Self-assessment sheets	Homework	Formative teacher assessment - verbal	Retrieval practice	
Cultural Capital		<ul style="list-style-type: none"> • Tolerance and respect for peers and mathematicians • Democracy: allowing all to speak and voice views 					
SMSC / Promoting British Values (Democracy, Liberty, Rule of Law, Tolerance & Respect)		<p>Willingness to participate in, and respond to mathematical opportunities. Use of social skills in different contexts, including working and socialising with pupils from different religious, ethnic and socio-economic backgrounds.</p> <ul style="list-style-type: none"> • 					
Reading opportunities		<ul style="list-style-type: none"> • Fermat's Last Theorem • History of computer programming • History of Florence Nightingale 					
Key Vocabulary		secant, cosecant and cotangent arcsin, arccos, arctan, Cartesian, Parametric, Normal distribution, binomial distribution, histograms, mean, standard deviation, points of inflection, Kinematics, gravity, projectiles.					
Digital Literacy		Autograph, Desmos for graphing. Geogebra.					
Careers		Architect, Sports Science, Engineer, Statistician, Data Analyst, Business- manager, Market research. Computer Programmer, Video game development.					