



HALF TERM 4 Feb-Apr	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
TOPIC (S):-Pure :-Statistics :-Mechanics	Proof Hypothesis Testing 1 Forces and Newton's Laws	Proof Hypothesis Testing 1 Forces and Newton's Laws	Straight Lines and Circles Hypothesis Testing 1 Forces and Newton's Laws	Straight Lines and Circles Analysis of data using statistical packages Forces and Newton's Laws	Exponentials an Logs Analysis of data using statistical packages Forces and Newton's Laws	Exponentials an Logs Analysis of data using statistical packages Forces and Newton's Laws	Revision and Test for all modules.
Knowledge & Skills development	Pure	<p>Proof: Students should be able to: Set out a clear proof with the correct use of symbols, such as =, \Rightarrow, \Leftarrow, \Leftrightarrow, \equiv, \therefore, and to understand that many examples can be useful in looking for structure, but they do not constitute a proof. Note: at A-level 25% (20% at AS) of the assessment material must come from Assessment Objective 2 (reason, interpret and communicate mathematically). A focus on clear reasoning, mathematical argument and proof using precise mathematical language and notation should underpin the teaching of this specification. Students should become familiar with the mathematical notation found in Appendix A of the specification.</p> <p>Straight Lines and Circles Students should: Be able to solve problems using gradients, midpoints and the distance between two points, including the form $y = mx + c$ and the forms $y = a$ and $x = a$ for horizontal and vertical lines, and know that the product of the gradients of two perpendicular lines is -1. To find the equation of a tangent or normal at a point, and find relevant gradients using the coordinates of appropriate points. Note: implicit differentiation will not be required at AS.</p> <p>Exponentials And Logs Students should be able to: Sketch and use simple transformations of the function a^x, and sketch and use simple transformations of the function e^x. At AS, students should know that the gradient is proportional to the value of the function and are not expected to differentiate functions involving e^{kx}.</p>					

	<p>Statistics</p>	<p>Hypothesis Testing 1:Recognise whether a given context requires the use of a 1-tail or 2-tail test and understand the difference between them, be able to state appropriate null and alternative hypotheses to test a population proportion in a given context and know that the null hypothesis always contains the equality sign. Understand that the significance level of a test is the probability of rejecting a correct null hypothesis in error Be able to find the test statistic as being the observed number of outcomes of the event and be able to find the critical region for a 1-tail test, or the critical regions for a 2-tail test, supporting the choice of values in such regions with appropriate binomial probabilities. Know that the critical region consists of the critical values for the test and that if the test statistic lies in the critical region that this will lead to the rejection of the null hypothesis Know that the acceptance region is the range of possible values, that the discrete random variable can take, that do not lie in the critical region and that if the test statistic lies in the acceptance region that this will lead to the acceptance of the null hypothesis, appreciate that if the test statistic corresponds to a critical value in the critical region that the null hypothesis is rejected, or that if the test statistic is in the acceptance region then the null hypothesis is accepted.</p> <p>Analysis of data using statistical packages. At AS students are required to become familiar with one or more specific large data set(s) in advance of the final assessment (these data must be real and sufficiently rich to enable the concepts and skills of data presentation and interpretation in the specification to be explored). Use technology such as spreadsheets or specialist statistical packages to explore the data set(s). Interpret real data presented in summary or graphical form and use data to investigate questions arising in real contexts. Pupils are encouraged to use statistical data sets and statistical packages throughout the course of study of statistics</p>
	<p>Mechanics</p>	<p>Understand types of force, including, normal reaction force, tension in a string or a rod, thrust in a rod, weight and friction. Know that the resultant force acting on a body is zero if a body is in equilibrium and be able to find unknown forces acting on bodies that are at rest or moving with constant velocity. Be able to model forces as vectors and to find the resultant of several forces acting at a point. Use $F = ma$ for constant mass and constant force Understand that objects can be modelled as particles and comment on the relevance of any modelling assumptions made. Understand the distinction between mass and weight. In questions where a numerical value for g is needed, students will be clearly told which approximation to use and their answers should then be given to an appropriate degree of accuracy. When deciding on the degree of accuracy to use in their answers, students should be guided by the accuracy of the data given in the question. In questions involving objects in motion under gravity it will be assumed that: g remains constant, objects can be treated as particles and resistance forces are negligible Understand and use Newton's third law; equilibrium of forces on a particle and motion in a straight line (restricted to forces in two perpendicular directions or simple cases of forces given as 2-D vectors); application to problems involving smooth pulleys and connected particles; resolving forces in 2 dimensions; equilibrium of a particle under coplanar forces.</p>

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)		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.					
Reading opportunities		<ul style="list-style-type: none"> • Fermat's Last Theorem • History of computer programming • Newton's Laws of Motion • The Man who knew Infinity by Robert Kanigel • What is Mathematics? by Richard Courant and Herbert Robbins 					
Key Vocabulary		Exponential, Logarithms, Hypothesis, Equilibrium, Resultant Forces.					
Digital Literacy		Autograph, Desmos for graphing. Geogebra.					
Careers		Architect, Sports science, Engineer, Statistician, Business- manager, Market research. Computer Programmer, Video game development.					

Maths- Y12

MAGHULL HIGH SCHOOL – CURRICULUM MAP



HALF TERM 2 NOV - DEC	Week 1	Week 2	Week 3	Week 4 and 5	Week 6	Week 7
TOPIC (S)						
Knowledge & Skills development	•					
Assessment / Feedback Opportunities	Topic assessments	Self-assessment sheets	Homework	Formative teacher assessment - verbal	Retrieval practice	
Cultural Capital	•					
SMSC / Promoting British Values (Democracy, Liberty, Rule of Law, Tolerance & Respect)	• •					

Reading opportunities	•
Key Vocabulary	
Digital Literacy	
Careers	

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MAGHULL HIGH SCHOOL – CURRICULUM MAP



HALF TERM 3 JAN - FEB	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
TOPIC (S)	ASSESSMENT review	Inequalities	Vectors	Vectors	Sine and Cosine rules	Sine and Cosine rules
Knowledge & Skills development	•					
Assessment / Feedback Opportunities	Topic assessments	Self-assessment sheets	Homework	Formative teacher assessment - verbal	Retrieval practice	
Cultural Capital	•					

SMSC / Promoting British Values (Democracy, Liberty, Rule of Law, Tolerance & Respect)	<ul style="list-style-type: none"> • •
Reading opportunities	<ul style="list-style-type: none"> •
Key Vocabulary	
Digital Literacy	
Careers	

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MAGHULL HIGH SCHOOL – CURRICULUM MAP



HALF TERM 4 FEB - APR	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
TOPIC (S)						
Knowledge & Skills development	<ul style="list-style-type: none"> • 					
Assessment/ Feedback Opportunities	Topic assessments	Self-assessment sheets	Homework	Formative teacher assessment - verbal	Retrieval practice	

Cultural Capital	•
SMSC / Promoting British Values (Democracy, Liberty, Rule of Law, Tolerance & Respect)	• •
Reading opportunities	•
Key Vocabulary	
Digital Literacy	
Careers	

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MAGHULL HIGH SCHOOL – CURRICULUM MAP



HALF TERM 5 APR - MAY	Week 1	Week 2	Week 3	GCSE exams
TOPIC (S)				
Knowledge & Skills development	•			

Assessment / Feedback Opportunities	Topicassessments	Self-assessment sheets	Homework	Formative teacher assessment - verbal	Retrieval practice	
Cultural Capital	•					
SMSC / Promoting British Values (Democracy, Liberty, Rule of Law, Tolerance & Respect)	• •					
Reading opportunities	•					
Key Vocabulary						
Digital Literacy						
Careers						

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MAGHULL HIGH SCHOOL – CURRICULUM MAP



HALF TERM 6 JUN - JUL	Week 1	Week 2	Week 3	Week 4	Week 5 and 6	Week 7
TOPIC (S)						

Knowledge & Skills development	•					
Assessment / Feedback Opportunities	Topic assessments	Self-assessment sheets	Homework	Formative teacher assessment - verbal	Retrieval practice	
Cultural Capital	•					
SMSC / Promoting British Values (Democracy, Liberty, Rule of Law, Tolerance & Respect)	• •					
Reading opportunities	•					
Key Vocabulary						
Digital Literacy						
Careers						