

Learning Programme – A-Level Mathematics – Lower Sixth

Topic/Teacher	Content/Objectives/Skills	Homework	Assessment	Success Criteria (A-Level grades)	Stretch & Challenge (Thirst for Learning)
	Trinity First Half Term				
Probability: Mutually exclusive and independent events (A)	a) Understand and be able to use mutually exclusive and independent events when calculating probabilities. Includes understanding and being able to use the notation: $P(A)$, $P(A')$, $P(X = 2)$, $P(X = x)$. Includes linking their knowledge of probability to probability distributions. b) Be able to use appropriate diagrams to assist in the calculation of probabilities. Includes tree diagrams, sample space diagrams, Venn diagrams.	Assessment Homework on various Statistics topics	End of Year Exam (close to May Half-Term), on all Lower 6 th topics covered to date.	Mainly determined from Half-Term test, however, class work & homework may also be used. A-Level Grade boundaries dependent on difficulty of test.	Students will be challenged using extension questions on the topics they are studying, designed to develop their ability to solve multi-staged problems.

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Discrete probability distributions (A)	<p>a) Understand and be able to use simple, finite, discrete probability distributions, defined in the form of a table or a formula such as:</p> <p>$P(X = x) = 0.05x(x + 1)$ for $x = 1, 2, 3$.</p> <p>b) Understand and be able to use the binomial distribution as a model.</p> <p>a) Be able to calculate probabilities using the binomial distribution, using appropriate calculator functions.</p> <p>Includes understanding and being able to use the formula</p> $P(X = x) = \binom{n}{x} p^x (1 - p)^{n-x} \text{ and the notation } X \sim B(n, p).$ <p>Learners should understand the conditions for a random variable to have a binomial distribution, be able to identify which of the modelling conditions (assumptions) is/are relevant to a given scenario and be able to explain them in context. They should understand the distinction between conditions and assumptions.</p>	Assessment Homework on various Statistics topics	End of Year Exam (close to May Half-Term), on all Lower 6 th topics covered to date.	Mainly determined from Half-Term test, however, class work & homework may also be used. A-Level Grade boundaries dependent on difficulty of test.	Students will be challenged using extension questions on the topics they are studying, designed to develop their ability to solve multi-staged problems.

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<p data-bbox="107 355 286 467">Newton's 3rd Law (B)</p> <p data-bbox="107 719 286 751">Moments (B)</p>	<p data-bbox="349 323 1155 427">Apply Newton's 3rd Law to particles that are both at rest and moving with constant acceleration: 'Every action has an equal and opposite reaction'.</p> <p data-bbox="349 467 1088 531">Solve problems which may be modelled as the motion of two particles connected by a light inextensible string.</p> <p data-bbox="349 571 1144 643">Be able to solve problems involving simple cases of equilibrium of forces on a particle in two dimensions.</p> <hr/> <p data-bbox="349 683 1014 715">Understand and use moments in simple static contexts.</p> <p data-bbox="349 754 1122 858">Equilibrium of rigid bodies, including on the point of tilting. Problems involving parallel and nonparallel coplanar forces, e.g. ladder problems.</p>	<p data-bbox="1178 323 1357 467">Assessment Homework – Connected Particles</p>	<p data-bbox="1406 323 1585 627">End of Year Exam (close to May Half-Term), on all Lower 6th topics covered to date.</p>	<p data-bbox="1615 323 1827 587">Mainly determined from Half-Term test, however, class work & homework may also be used.</p> <p data-bbox="1615 643 1827 786">A-Level Grade boundaries dependent on difficulty of test.</p>	<p data-bbox="1859 323 2107 707">Students will be challenged using extension questions on the topics they are studying, designed to develop their ability to solve multi-staged problems.</p>