Saffron Walden County High School Curriculum

CURRICULUM SUMMARY

SAFFRON WALDEN COUNTY HIGH SCHOOL

Year 12		AUTUMN TERM		SPRING TERM		SUMMER TERM	
		TERM 1A	**TERM 1B**	**TERM 2A**	**TERM 2B**	**TERM 3A**	**TERM 3B**
Further Maths	KNOWLEDGE DOMAIN	**Matrices** **Roots of polynomials** **Sequences and Series** **Complex number**	**Matrices** **Vectors and 3D space** **Dimensional analysis**	**Matrices** **Eigenvectors and Eigenvalues** **Discrete random variables**	**Discrete random variables** **Recurrence relations** **Matrices**	**Complex numbers** **Chi-squared tests**	**Proof** **Induction**
	SKILLS DEVELOPED THROUGH THE KNOWLEDGE AND ENQUIRIES TAUGHT THIS HALF TERM	Matrix arithmetic Transformations with matrices in both 2D and 3D Methods for solving high order polynomials with real, repeated and complex roots Use of Sigma notation Complex number arithmetic and complex roots to quadratics Use of the argand diagram for sums, differences and conjugates	Work out line of invariant points and invariant lines Calculating determinants of 2x2 matrices by hand and with a calculator for 3x3 Use of determinants with respect to coordinate geometry Understand the difference between singular and non-singular matrices and the implications of each Use matrices to solve 3-system simultaneous equations and	Calculate the inverse of a 3x3 matrices by hand using a variety of methods Calculate Eigenvectors and Eigenvalues of of a given matrix and understand the context of these in terms of transformations Calculate expectation and variance of both singular and linear combinations of discrete random variables Understand, use, and be able to model with the geometric and uniform distributions	Understand, use, and be able to model with the Binomial and Poisson distributions Calculate the expectation and variance of both the Binomial and Poisson distribution Find the closed form of first and second order recurrence relations (both homogenous and non-homogenous) and be able to model real-world problems using recurrence relations.	Convert between component and mod-arg form of complex numbers and how this relates to the argand diagram Be able to draw loci in the complex plane; specifically circles, sectors, half lines, and lines expressed as |z-a|=|z-b|. Sketch regions bounded by inequalities and use f set notation to describe solutions Use expected values to calculate the test statistic and use to test for a goodness of fit of different models	To be able to use induction in a proof setting. Use of partial fractions with induction to perform proofs using the method of differences Use of induction with respect to divisibility

			understand the in context of intersecting planes/lines Calculate and use dot product Use of vector/cartesian form of equation of planes and work out angle between Deriving the units of given quantities and using these relationships to estimate indices in a model			.	