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Year 12					
When	**WHAT & WHY WILL THEY LEARN?** (SOW overview linked to assessment Objectives) What do Yr12/13 need to know and be able to do by the time they leave TENC? How do you sequence the teaching? How do you revisit, revise and reinforce?	**New Skill = NS Revisit = R Revision = RV**	**Stretch and Challenge (Differentiation – how will you stretch the most able to achieve top grades?)** Is your curriculum challenging?	**CIEAG/Extension** **Enrichment** Trips, workshops, speakers, local environment and experiences	**KS4 PRIOR LEARNING** How will GCSE knowledge, skills & experience across 3 schools link to and support KS5 new knowledge and skills? This needs to show how you build links across the experiences of the different schools
	KNOWLEDGE & SKILLS	**Pupil Accountability**			
	Assessment For each chapter studied on the course students will receive a comprehensive homework task which will be marked by the class teacher with detailed feedback given. Pupils will then be given time to red pen their work with peer support. The teacher will address common issues. All homework tasks will be completed in the back of the pupil's exercise book. Medium term testing will be carried out using a Review of understanding for several chapters during each term	All pupils will be given an assessment file at the start of the year. In this they will store all assessments after they have red penned. This will contain - Induction task - Review tests - All past papers - A pupil record sheet for the course All pupils will need to have a calculator with statistical functions and	This course will stretch the brightest pupils across TENC as they are challenged to complete 2 A levels in only 8 lessons a week whereas the normal allocation is 5 lessons per A level. Traditionally only the most able pupils (those at 8/9 for GCSE maths) follow this course. The focus of every chapter therefore will be to push, challenge and stretch all pupils to achieve, the best that they can. Every exercise has a Challenge section that		Much of the work builds on skills studied in GCSE Maths. GCSE grades will allow us to focus on those pupils who may need more support (high grade 7's who have been allowed to start the course) Pupils at Rushden and Ferrers may also have studied the further maths GCSE course which will give them an advantage on some of the topics studied (for example calculus). Therefore, support will be targeted to those pupils who have not taken this course when these topics are taught

	(these are written into the Term plans - see below) Long term testing will consist of exam papers for each module covered (4 in total for A level maths). Pupils will also sit TENC mocks in Jan (based on the 2 AS books) and an Internal mock when they have finished all the modules (sometime in term 5)	able to handle matrices. We recommend the Casio fx-991EX "Classwiz"	can be used to stretch the A* potential pupils		At the beginning of the course pupils will be divided into many different random working groups to ensure that good relationships are formed across schools. Extra help sessions will be offered on a Mon at 3:10 in M1 throughout the duration of the course. On-line support using Google Meet will also be offered to the class particularly to support areas where they are struggling as evidenced by a poor Review Test score.
Term Plan	**Book + Topics covered**	**Lessons + time**	**Testing**	**Builds upon**	**Other comments**
Pre Term 1	**Transition Task** ***Chapters 1 – 3*** This is designed as an extension on prior GCSE Algebraic skills. Algebraic manipulation is a priority for this course and the students must be able to work through these topics independently: • Algebraic Expressions • Quadratics • Equations/Inequalities	2 induction lesson of 1.5 hours to introduce the course and to set the induction (summer) work Work will consist of the mixed exercise for each of the 3 chapters This will be taken in at the start of the course, marked and detailed feedback given to		All of these are GCSE maths topics that the pupils should already have a sound understanding of. The aim is to ensure that all pupils start from a level playing field	At least half of the chapters in the first Pure book are based on GCSE content and skills. Most are simply a very quick recap of things they should know with a bit of new material added. Success on these topics is a requirement to continue with the course as these are the building blocks for the whole course

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		pupils. Pupils will the red pen their work			
Term 1 50 hrs	Pure book 1 - Graphs and transformations - Straight line graphs - Circles - Algebraic method - The Binomial expansion Stats + Mechs book 1 - Data collection - Measures of location and spread - Representations of data - Correlation - Probability - Statistical distributions - Hypothesis testing	6 hours/lessons 4 hours/lessons 4 hours/lessons 8 hours/lessons 4 hours/lessons 4 hours/lessons 4 hours/lessons 4 hours/lessons 2 hours/lessons 3 hours/lessons 3 hours/lessons 4 hours/lessons	Review 1 Test – on chapters 1-4. This will give us an early indication as to pupil's suitability for the course Review 1 Test – on chapters 1-7	The first 3 chapters are all work that has been covered previously on the GCSE maths course. Algebraic methods will require a sound understanding of Algebraic expressions The first 5 chapters are all work that has been covered previously on the GCSE maths course. Use of statistical functions on their calculator is vital for both distributions and hypothesis testing work	Alongside the induction work scores the Review Test 1 score will offer some early evidence as to the suitability of pupils for the Further Maths course Throughout the delivery of the Statistics topics reference will need to be made to the "large data set" which forms part of the assessment for this unit. This is best done as work is completed rather than as an add on task. Opportunities for discussion are given in the textbook and many resources have been prepared by Pearson (look on the Maths Emporium) to facilitate this - Data overview sheet - Typical exam questions - Summary statistics To name just a few
Term 2 50 hrs	Pure book1 - Trigonometric ratios - Trigonometric identities and equations	5 hours/lessons 5 hours/lessons		Work on Trig builds on previous GCSE maths work	Use of the CAST diagram to be encouraged for solving Trig eqns

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	- Vectors - Differentiation - Integration - Exponentials and logarithms	5 hours/lessons 5 hours/lessons 8 hours/lessons 6 hours/lessons	Review 2 Test – on chapters 5-10 Review 3 Test – on chapters 11-14 Pure Practice paper to test the whole of book 1. Identify individual areas that each pupil needs to work on	Calculus is where those who did the further GCSE will have an advantage All other chapters are new topics	Ensure that those who did not study GCSE further have a secure understanding of Calculus Historically pupils struggle with logarithms so care and time needed to ensure a sound understanding
	Stats + Mech book 1 - Modelling in Mechanics - Constant acceleration - Forces and motion - Variable acceleration	 3 hours/lessons 4 hours/lessons 5 hours/lessons 4 hours/lessons	 Review 2 Test – on chapters 8-11 Stats+Mechs Practice paper to test the whole of book 1. Identify individual areas that each pupil needs to work on	 Those studying Physics will already have seen all work. Good integration skills needed for variable acceleration	 Diagrams for force questions are an absolute must! This needs to be stressed and modelled in lessons. Group work creating a force diagram at the start of a question works well
Term 3 43 hrs	TENC MOCKS – pupils will sit an AS paper for Pure 1 and Stats + Mech 1 under strict exam conditions. These are marked and graded using the official MS and grade boundaries issued by Pearson. Pupils red pen all work and use to identify key areas for revision.				
	Pure book 2 - Algebraic methods - Functions and graphs - Sequences and series - Binomial expansion - Radians - Trigonometric functions	 4 hours/lessons 5 hours/lessons 6 hours/lessons 2 hours/lessons 4 hours/lessons 4 hours/lessons	 Review 1 Test – on chapters 1-4	 Work builds upon corresponding work from Pure book 1 for example the chapters on Trigonometry	 The more difficult chapters here are Functions and graphs and Trig functions. Both are needed for chapters still to be covered so vital that pupils have a sound understanding before moving on

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	Stats+Mech book 2 - Moments - Forces and friction - Projectiles - Applications of forces - Further kinematics	 4 hours/lessons 2 hours/lessons 3 hours/lessons 5 hours/lessons 4 hours/lessons	 Review 2 Test – on chapters 4-8	Work builds upon corresponding work from Stats+Mech book 1 for example the chapters on Projectiles needs a secure knowledge of Constant acceleration	Diagrams for force questions are an absolute must! This needs to be stressed and modelled in lessons. Group work creating a force diagram at the start of a question works well
Term 4 43 hrs	Pure book 2 - Trigonometry and modelling - Parametric equations - Differentiation - Numerical methods - Integration - Vectors Stats+Mech book 2 - Regression, correlation, and Hypothesis testing - Conditional probability - Normal distribution	 5 hours/lesson 4 hours/lesson 8 hours/lesson 3 hours/lesson 8 hours/lesson 3 hours/lesson 3 hours/lesson 4 hours/lesson 5 hours/lesson	 Review 2 Test – on chapters 5-8 Review 3 Test – on chapters 9-12 Review 1 Test - on chapters 1-3	Work builds upon corresponding work from Pure book 1 for example the chapters on Differentiation and Integration Work builds upon corresponding work from Stats+Mech book 1 for example the chapters on Regression needs a secure knowledge of Correlation and Hypothesis testing	The work on calculus is vital if pupils are to get a good grade. Many different techniques to learn and lots of formulae (much of which is in the formulae booklet, pupils need a copy of this as they complete this work Tables not used for the normal distribution, instead pupils need to use their calculators
	Time to finish any outstanding work from the Maths A level course				

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Term 5 35 hrs	Exam practice papers 1, 2 and 3 completed – suggest in class and as homework in 1 week. Use of books, each other etc. to be encouraged. Pupils need to identify areas that they need to work on. Any obvious common problems to be addressed in class				
	Work through a complete set of Past papers	1 week		Other revision resources made available to pupils for home revision	Pupils identify their own weaknesses and work on these outside of lessons
	Internal Mocks – pupils tackle a full set of past papers under strict exam conditions. These are marked and graded using the official MS and grade boundaries issued by Pearson. Pupils red pen all work and use to identify key areas for revision. This should be completed in 1 week				
	Work through a complete set of Past papers	2 weeks		Other revision resources made available to pupils for home revision	Pupils identify their own weaknesses and work on these outside of lessons
Half term	Revision session offered to pupils aimed specifically at the A level papers that occur the earliest – likely to be the Pure exams – paper 1 and paper 2. Pupils will also have another full set of past papers to complete				
Term 6 35 hrs	Pupils take A level exam papers for Maths. These are all 2 hours in length and a calculator is needed for all papers. Paper 1 and 2 are based on the Pure content with paper 3 on Statistics and Mechanics. During this time pupils will still be expected to attend maths lessons when they are not in an exam. Lessons will be aimed at the next paper to be taken and used to deliver "final prep lessons" before each exam.				
	Start the further maths course by beginning Decision Maths 1 book - Algorithms - Graphs and networks - Algorithms on graphs - Route inspection - Travelling salesman	 7 hours/lessons 6 hours/lessons 6 hours/lessons 4 hours/lessons 5 hours/lessons	. Review 1 Test - on chapters 1-5	This is a completely new unit of work that the pupils will not have seen before. This is therefore a taster to allow them to decide option choices for applied units in year 13	It is vital that pupils understand that Method is key to this work. Without full method they are likely to lose significant marks. Good modelling by the teacher will be needed to re-enforce this

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Year 13						
When	**WHAT & WHY WILL THEY LEARN?** (SOW overview linked to assessment Objectives)	**New Skill = NS Revisit = R Revision = RV**	**Stretch and Challenge (Differentiation – how will you stretch the most able to achieve top grades?)**	**CIEAG/Extension** Trips, workshops, speakers, local environment and experiences	**KS4 PRIOR LEARNING** How will GCSE knowledge support new skills & knowledge	**IDENTIFY LINKS** How will you link learning between schools? What common threads do you have?
Term Plan	**KNOWLEDGE & SKILLS**	**Pupil Accountability**	**Band 5 = Informed Band 6 = Mature**			
Term Plan	**Books and topics covered**	**Lessons + time**	**Testing**	**Builds upon**	**Other comments**	
Term 1 50 hrs	Pure book 1 - Complex numbers - Argand diagrams - Series - Roots of polynomials - Volumes of revolution Decision Maths 1 book - Linear programming - Simplex algorithm - Critical path analysis	7 hours/lessons 7 hours/lessons 3 hours/lessons 7 hours/lessons 5 hours/lessons 5 hours/lessons 7 hours/lessons 9 hours/lessons	Review 1 Test – on chapters 1-5. Review 2 Test – on chapters 6-8	Most of these are completely new although Volumes of revolution needs a good understanding of Integration from A level maths This is a completely new unit of work that the pupils will	Would be useful to recap the main integration techniques that will be needed for volumes of revolution It is vital that pupils understand that Method is key to this work. Without full method they are likely to lose significant marks.	

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				not have seen before	Good modelling by the teacher will be needed to re-enforce this
Term 2 50 hrs	Pure book1 - Matrices - Linear transformations - Proof by induction - Vectors **EITHER** Further Mechanics 1 book - Momentum and Impulse - Work, energy, and power - Elastic strings and springs **OR** Further Pure 1 book - Vectors - Conic sections 1 - Conic sections 2	8 hours/lessons 8 hours/lessons 4 hours/lessons 8 hours/lessons 7 hours/lessons 7 hours/lessons 8 hours/lessons 7 hours/lessons 7 hours/lessons 8 hours/lessons	Review 2 Test – on chapters 1-5 Pure Practice paper to test the whole of book 1. Identify individual areas that each pupil needs to work on Review 1 Test – on chapters 1-3	Choice of applied unit – it may also be possible to drop Decision maths and instead do Further Mechanics and Further Pure	Teacher discussions needed with each pupil to decide on applied options. Play to the strength of each pupil. Further Statistics could also be considered if this is a strength for a pupil.
Term 3 43 hrs	TENC MOCKS – pupils will sit an AS paper for Pure 1 and a full A level paper for Decision maths, under strict exam conditions. These are marked and graded using the official MS and grade boundaries issued by Pearson. Pupils red pen all work and use to identify key areas for revision.				
	Pure book 2 - Complex numbers - Series - Methods in calculus - Volumes of revolution	7 hours/lessons 4 hours/lessons 5 hours/lessons 4 hours/lessons	Review 1 Test – on chapters 1-4	Work builds upon corresponding work from Pure book 1 for example the chapters on Calculus	The more difficult chapters here are Complex numbers and volumes of revolution. A recap of previous skills would be useful

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	EITHER Further Mechanics 1 book - Elastic collisions in 1D - Elastic collisions in 2D **OR** Further Pure 1 book - Inequalities - The t formula - Taylor series	 5 hours/lessons 5 hours/lessons 3 hours/lessons 4 hours/lessons 3 hours/lessons	 Review 2 Test – on chapters 4-5 Exam Practice paper Review 2 Test – on chapters 4-6	 Taylor series builds on all previous work on Calculus	Diagrams for force questions are an absolute must! This needs to be stressed and modelled in lessons. Group work creating a force diagram at the start of a question works well A recap of main Calculus skills would be useful
Term 4 43 hrs	Pure book 2 - Polar Coordinates - Hyperbolic functions - Methods in differential equations - Modelling with differential equations **EITHER** Further Mechanics 1 book **OR** Further Pure 1 book - Methods in calculus - Numerical methods - Reducible differential equations	 7 hours/lesson 8 hours/lesson 7 hours/lesson 7 hours/lesson 18 hours/lessons 6 hours/lesson 6 hours/lesson 6 hours/lesson	 Review 2 Test – on chapters 5-8 Past paper exam work Review 2 Test - on chapters 7-9	 Work builds upon corresponding work from Pure book 1 particularly Calculus skills Work builds upon Calculus work covered earlier in the course	The work on calculus is vital if pupils are to get a good grade. Many different techniques to learn and lots of formulae (much of which is in the formulae booklet, pupils need a copy of this as they complete this work Further Mechanics who have decided to drop Decision will use this time to also catch up with their 2nd applied unit

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Term 5 35 hrs	Time to finish any outstanding work from the Further Maths A level course Exam practice papers 1, 2, 3 and 4 completed – suggest in class and as homework in 1 week. Use of books, each other etc. to be encouraged. Pupils need to identify areas that they need to work on. Any obvious common problems to be addressed in class
Term 5 35 hrs Half term	Internal Mocks – pupils tackle a full set of past papers under strict exam conditions. These are marked and graded using the official MS and grade boundaries issued by Pearson. Pupils red pen all work and use to identify key areas for revision. This should be completed in 1 week
	Revision session offered to pupils aimed specifically at the A level papers that occur the earliest – likely to be the Pure exams – paper 1 and paper 2. Pupils will also have another full set of past papers to complete
	Pupils take 2 of the exam papers for Further Maths. These are all 1.5 hours in length and a calculator is needed for all papers. Paper 1 and 2 are based on the Pure content with paper 3 + 4 on Applied options. During this time pupils will still be expected to attend maths lessons when they are not in an exam. Lessons will be aimed at the next paper to be taken and used to deliver "final prep lessons" before each exam.
Term 6 35 hrs	Pupils sit remaining Applied papers for Further Maths. Revision sessions in lessons will be available for pupils until the last exam has been set Pupils are invited in for a goodbye lunch with their teachers - TBA