Subject: Maths

Year 13 Further Maths Curriculum

William Hulme's Grammar School
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Overview	**Maths Further Maths A' Level (MEII)** Developed in collaboration with Mathematics in Education and Industry (MEI), the new A Level Further Mathematics B (MEI) qualification offers a coherent course of study to develop students' mathematical understanding and skills, encouraging them to think, act and communicate mathematically. It provides a solid foundation for further study in mathematics and also for those studying Computer Science, Finance, Engineering and the Physical Sciences other disciplines that make extensive use of mathematical skills.

	Half Term 1	Half Term 2	Assessment
Autumn Term	**Vectors:** ■ Lines and planes **Further Calculus:** ■ Using inverse trigonometric functions and partial fractions to integrate. **Matrices:** ■ Matrices and the intersection of planes (if not covered in HT6) **Polar Coordinates:** ■ Graphs expressed in terms of a radius and an angle not x and y. **Maclaurin Series:** ■ Deriving series that can approximate to common functions.	**Complex Numbers:** ■ Powers and Roots of complex numbers. The exponential form (e to the i theta). **Projectiles and Motion** ■ under Variable Force: **Circular Motion** **First Order Differential Equations:** ■ Equations in terms of variables and a first differential (eg x, y and dy/dx)	We do a second assessment in the first week after half term. A formal assessment takes place just before the end of HT2.

	Half Term 3	Half Term 4	Assessment
Spring Term	**Hyperbolic Functions:** ■ Functions based on the hyperbola x2-y2=1 **Applications of Integration:** ■ Volumes, mean of a function and general integration **Second Order Differential Equations:** ■ Equations with second differentials (d2y/dx2)	**Vector Product:** ■ Multiplying vectors to get a vector solution. **Centres of Mass** ■ **2**: Centres of mass using volumes of revolution and plane regions. **Hook's Law:** ■ Springs, Extension, work and energy. **Oblique Impact:** ■ Collisions at an angle.	We do two assessments in Pure Maths. One towards the end of each half term

	Half Term 5	Half Term 6	Assessment
Summer Term	**Modelling Oscillations:** ■ Simple harmonic motion. Motion of a simple pendulum. **Statistics Recap:** ■ Recap of year 1 statistics.	**External Exams**	The main assessment in HT5 & 6 take place shortly after half term and are a full set of summer exams.

Useful Resources for Supporting Your Child at Home:	Homework:
■ integralmaths.org ■ www.drfrostmaths.com ■ www.savemyexams.co.uk/a-level ■ www.examsolutions.net ■ www.physicsandmathstutor.com/maths-revision ■ www.madasmaths.com	Homework is much more extensive, and we expect students to take control of their own work and spend longer on It (a minimum of 300 mins per week). Minimum Expectations are: ■ All questions especially "P" & "E" questions from exercises in the textbooks are to be completed self-marked and corrected. ■ All MEI Section test to be completed online this is marked by the online program ■ When requested Topic Assessment tests and exam practice questions might be set by teachers. Other Topic specific questions are available in Class Material in Teams.