



# Hampton Court House

## Curriculum Outline 2020/21 – Year 13 Further Maths (FWS, SJ, MAM)

### Autumn 2020

In this term, we will be completing the majority of the remaining Further Maths topics. These will include:

Statistics:

Poisson distributions, further hypothesis testing, normal approximations, statistical testing, continuous distributions.

Mechanics:

Work, energy and power, circular motion, centre of mass, variable forces, Hooke's law.

Pure maths:

Hyperbolic functions, further vectors, further complex numbers, polar coordinates, further differential equations, further integration, volumes of revolution.

Links with fundamental values

The origin of mathematics is in the birth of democracy as the ancient Greeks studied mathematics as a way sharpening their debating skills focused on 'logos' or 'appeals to reason'. This methodology restores the true purposes for studying mathematics in school, to enhance analytical reasoning, creative thinking, presenting an argument, and critical challenge.

Social, moral, spiritual and cultural content

Students will gain an overview of the history of mathematics from Parmenides to Russell. They will learn about the challenges faced in mathematics and why this or that branch was developed to address them.

### Spring 2021

The remaining topics will include:

Combining random variables, confidence intervals; oblique impacts; Maclaurin's expansion, simple harmonic motion

We will use past exam papers and STEP papers as a tool to revise and embed topics to ensure we can confidently and independently answer exam standard questions.

Opportunities to independently extend learning  
The UKMT publish their 'mentoring' challenge sheet every month or so during term time. These problem sets are excellent challenges that can be tackled independently.

Stephen Siklos's *Problems in Advanced Mathematics* is the definitive guide to practising for STEP papers

I have a collection of books on the history of mathematics and interesting problems. You are welcome to borrow them.

### Summer 2021

In the summer term we will bring together the methods studied over the year and prepare to take the single and further maths A level examinations.