



Hampton Court House

Curriculum Outline 2020/21 – Year 12 Physics (JWM)

Autumn 2020

Principal Text: *Physics AQA A-level Year 1 and AS*

We begin the course with the topic of particle physics, something that will be completely new to most students. We will learn about the fundamental particles that make up all matter and the four fundamental forces that govern their interactions. We will then look at quantum phenomena, considering some of the most important discoveries in modern physics. In the final weeks of term students will begin studying Electricity, revisiting their foundations from GCSE to prepare for the additional complexity and content of the AS course.

Assessment of students' progress will be through a mixture of homework exercises and end of topic tests with questions from a bank of AQA past paper resources.

There will also be a number of required practical activities through which various practical competencies will be assessed by the teacher.

Links with fundamental values

The students have more practice of the Scientific Method which embraces evidence over opinion in order to understand and make sense of the world around them.

They will work on their own and in teams in order to promote resilience and mutual respect and tolerance of others. They will be encouraged to reflect on their own work and listen to the views of others.

Spring 2021

Principal Text: *Physics AQA A-level Year 1 and AS*

In the Spring Term students will tackle two of the larger topics. In mechanics they will learn how motion, and the forces causing it, can be described mathematically. Many concepts from GCSE will be extended and built upon to form a more complete understanding and build the capability to tackle complex problems.

While studying electricity, key concepts such as voltage, current and resistance will be developed to include new ideas such as resistivity, electromotive force, and internal resistance. There are several required practicals in this topic, so students will get lots of practice building and troubleshooting circuits.

Social, moral, spiritual and cultural content

We will provide an awareness of science as a social and cultural activity, which has strengths and limitations. The children's curiosity will be stimulated by demonstrating interesting scientific phenomena so they can appreciate and question the world around them. They will develop investigative abilities, paying due regard to safe practice.

We will acknowledge and recognise the contributions from scientists from around the world who have made significant contributions to the advancement of science.

Summer 2021

Principal Text: *Physics AQA A-level Year 1 and AS*

After finishing up the mechanics and electricity topics, Summer Term will be dedicated to revision for the AS Physics exam.

Following the exam there will be the opportunity to explore some of the Year 13 topics such as circular motion and exponential decay.