



Hampton Court House

Curriculum Outline 2019/20 – Year 9 ICT & Computing (MFC)

Autumn 2019

Principal Text: *Handouts from the teacher.*

In the first half term the students will gain an understanding into why computers "speak" only binary. They will learn to represent the numbers and the text as sequences of binary digits. The question "How does a computer know if a binary sequence is a letter or a number?" will be discussed and answered.

The students will be challenged with a problem solving task to create a computer program in C# programming language that will convert from binary to decimal form and vice versa.

In the second half term the students will learn about cyphers, that is, how the data can be encrypted. The students will find out how some of the most popular cyphers work, such as Caesar cypher which was used by Julius Caesar to protect military messages.

Opportunities to independently extend learning
The student will work on a project to collect data relevant to the global warming, will create a tables and charts with the collected data and will present the data in a Microsoft Power Point.

Spring 2020

Principal Text: *Handouts from the teacher.*

The students will continue deepening their knowledge of problem solving and programming in C#. They will learn to create algorithms and computer programs for problems that require usage of repeated instructions, i.e. iterations.

The students will also learn about the consent in a digital world. They will be made to think critically about online behaviour, in particular, when and how we can share our or someone else's data online. The topics such as "What is "big data"?" and "How much Facebook know about us?" will be discussed and analysed.

Summer 2020

Principal Text: *Handouts from the teacher.*

The students will continue to deepen their understanding of computers as well as work on their problem solving and logical reasoning skills as they learn about logic circuits: the smallest units that make up computer components such as a CPU.

This unit will also extend their knowledge of mathematics.

The students will be challenged to create a computer program that will simulate the behaviour of basic logic gates.