# Computing: Year 9 Overview

## Autumn 1: Computer Systems

Students recap prior learning, including the input/output process storage memory model, hardware and software, memory (RAM/ROM) and what is stored in them. More detail about CPU is covered in this year as we prepare for GCSE. They begin to answer more advanced 6 mark and 4-mark exam style questions on these topics which builds towards assessment. **Binary Maths:** Students learn the concept of binary overflow and how computers store data in binary and data units. Binary hexadecimal notation is introduced in year 9 and students convert hexadecimal binary to denary.

## Block 2: Python Programming

Students are introduced to programming flow sequence and the usage of variables. They are shown how to use numbers and text strings. Selection and IF statements are then introduced as a second programming flow. They revise loops (iteration), Boolean operators (AND, OR) and lists (Arrays). Year 9 are then shown the sub programming techniques and the difference between the procedure and the function, and are then encouraged to create their own python projects where they will work independently on a project from start to finish.

## Block 3: Computational Thinking

Students engage with a more advanced unit on computational thinking. Programming / flow charts / pseudocode and the similarity between them is explored in more depth in year 9 in Block 3. Students are assessed at the end of the block 3 which again builds towards final assessment levels.

## Block 4: Networks

The network topic is recalled by starting with the most familiar network, the internet. Different wiring is covered when we talk about connectivity media and network speeds. We then look at the idea of traditional local area networking and wide area networking, the purpose of networks in business and the evolution of network topologies.

Students will also be able to design a network and how they might set up a school or office network. Students are given a social engineering scenario and how they might inform the owners how to avoid being the target of a hacking. The necessity of encryption when transferring data over a network is also covered, as is the cloud and finally peer to peer networking vs a client server network.