Computer Science GCSE is a rigorous and technically demanding subject that gives the

learner an understanding of the fundamental concepts of how a computer works. Through

this process students will develop skills in computational and logical thinking. You will learn;

Theory:

Number systems including binary conversion, addition, shifts and hexadecimal conversion.

Boolean algebra including digital logic gates to perform addition and multiplication.

Hardware: How Von Neumann/Harvard architecture works, ALU, Control Unit and Registers.

Storage: Primary and secondary storage, solid state, magnetic and optical.

Algorithms: decision making, calculation, data processing and automated reasoning.

Practical:

Using microcontrollers and open source software to create basic Computer Engineering projects.

Programming constructs: variables, sequence, selection, iteration, file handling strings and data structures.

Cryptography: The history of cryptography and cryptanalysis from Scytales to modern public key.

Flowcharts: designing and developing solutions to real world problems using mimics and microcontrollers

Robotics: develop skills in programming constructs through the use of a variety of robotic devices.