Computer Science

OPTION - COMPUTER SCIENCE	Content
Year 10 HT 1	How to produce algorithms using pseudocode and flow diagrams. This terms work will focus on how to produce working code by following computational thinking stages.
Year 10 HT 2	Programming practice using TIME methodology: Learn how to write structured programs, use selection, to use number data types, use string data types, use counter-controlled iterations, use condition-controlled iterations, handle user inputs, use arrays and lists, use serial files.
Year 10 HT 3	Using the LMC to study machine code and link to Systems architecture including the purpose of the CPU ,Von Neumann architecture, common CPU components and their functions, the function of the CPU as fetch and execute instructions stored in memory, how common characteristics of CPUs affect their performance and embedded systems:
Year 10 HT 4	This unit allows learners to gain the understanding and skills required for the data representation sections of the GCSE computer science exam. First, learners look at binary and hexadecimal numbering systems, how they work, and how to convert between bases. Then, learners explore different coding systems and find out how text, images, and sound are represented in computers.
Year 10 HT 5	This unit guides learners to gain an understanding of computer networks as required for GCSE Computer Science. It starts by defining what networks are and where we find them in our modern world. Then, learners look at the hardware involved in creating networks. and the factors that affect the performance of networks.
Year 10 HT 6	NEA: Students are to be given the opportunity to undertake a larger programming task(s) during term which allows them to develop their skills to design, write, test and refine programs using a high-level programming language.
Year 11 HT 1	In this half term students will study algorithms The main focus of this unit is on searching and sorting algorithms, though other topics are covered such as computational thinking, flowcharts and tracing algorithms. Students will have opportunities to analyse, interpret, modify and implement a range of algorithms. Students will complete various practice exam questions in order to ensure they have the experience and the knowledge to be able to complete Mock exam papers.
Year 11 HT 2	This unit enables students to gain knowledge and understanding of the range of cybersecurity threats impacting the world, our organisations, as well as us as individuals. Learners will explore security measures that can be put in place to protect networks and your data against different forms of automated and non-automated forms of attack. Once they have understood the impact of cybercrime, they will be inspired to be part of the solution, when they learn about the potential for lucrative and fulfilling careers in cybersecurity.
Year 11 HT 3	This unit allows learners to gain the understanding and skills required for the data representation sections of the GCSE computer science exam. First, learners look at binary and hexadecimal numbering systems, how they work, and how to convert between bases. Then, learners explore different coding systems and find out how text, images, and sound are represented in computers.
Year 11 HT 4	Ethical, legal, cultural and environmental impact Students will learn how to identify the specific type of impact, i.e. legal, cultural, privacy, environmental, and ethical, . They will then progress to identifying stakeholders who are impacted by technology, and learn how these impacts are experienced, negated, or adapted to. Throughout the unit, learners will be encouraged to discuss their views and make use of sample long-form answers as either cloze or comprehension exercises, to further develop their rhetorical skills. We will also consider the purpose of operating systems, the role of systems software in providing a user interface and abstraction to the physical hardware.
Year 11 HT 5	In this final half term students will use these last few lessons to revise and develop their subject knowledge and writing skills for identified questions