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| **Term** | **INTENT** | **IMPLEMENTATION** | **IMPACT** |
| **Substantive Knowledge**  This is the specific, factual content for the topic, which should be connected into a careful sequence of learning. | **Disciplinary Knowledge (Skills)**  This is the action taken within a particular topic in order to gain substantive knowledge. | **Assessment opportunities**  What assessments will be used to measure student progress?  Evidence of how well students have learned the intended content. |
| **Autumn Term**  **Y10**  **1A** | **Intent**  **Systems Architecture 1.1**  Why is this taught now?  This fundamental topic follows from the work completed in Y8/9 and students are expected to have a solid understanding of architectures and components. | * Be able to describe the FDE Cycle * Describe features of the Von Neumann architecture * Name and describe a range of registers including MAR (Memory Address Register), MDR (Memory Data Register), Program Counter, Accumulator * Name and describe common CPU components and their function: ALU (Arithmetic Logic Unit), CU (Control Unit), Cache, Registers * Describe the function of the CPU and features that affect their performance: clock speed, cache size, number of cores. * Describe embedded systems and their key features. | In class teacher assessment through Q & A  Knowledge recall activities  Homework activities and past paper questions  Teacher assessment during lesson  End of module test  End of Year assessments |
| * The purpose of the CPU: The FDE cycle. * Von Neumann architecture: understanding of a range of registers. * Common CPU components and their function. * How common characteristics of CPUs affect their performance: clock speed, cache size, number of cores. * Embedded systems: purpose of embedded systems, examples of embedded systems. |
| **Autumn Term**  **1B** | **Intent**  **Memory and Data Storage 1.2**  Why is this taught now?  This fundamental topic follows from the work completed in Y8/9 and students are expected to have a solid understanding of architectures and components. | * The purpose of RAM, ROM and Virtual memory * Secondary storage * How data is stored – binary * How images and sound files are stored * Types of compression | In class teacher assessment through Q & A  Knowledge recall activities  Homework activities and past paper questions  Teacher assessment during lesson  End of module test  End of Year assessments |
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| **Spring Term**  **2A** | **Intent**  **Programming Techniques 2.2**  **Producing robust programs**  **Boolean Logic**  **Designing, creating and refining algorithms**  Why is this taught now?  This topic follows on and builds on KS3 as well as Electronics and are fundamental components of the GCSE | * The use of the three basic programming constructs used to control the flow of a program: sequence, selection and iteration. * The use of variables, constants, operators, inputs, outputs and assignments * The use of a range of data types * Boolean logic including AND, OR, NOT gates * Be able to use sub programs (functions and procedures) to produce structured code / algorithms. * Identifying types of errors * Be able to use a range of testing strategies to test programs. | In class teacher assessment through Q & A  Knowledge recall activities  Homework activities and past paper questions  Teacher assessment during lesson  End of module test  End of Year assessments |
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| **Spring Term**  **2B** | **Intent**  **Networks and topologies 1.3**  **Wired and wireless networks, protocols and layers**  Why is this taught now?  A fundamental and large theoretical component of Module 1 | * Describe types of network: LAN/WAN * Describe the different roles of computers in a client-server and a peer-to-peer network * Be familiar with a range of network hardware * Describe different modes of connecting devices * Common protocols and layering | In class teacher assessment through Q & A  Knowledge recall activities  Homework activities and past paper questions  Teacher assessment during lesson  End of module test  End of Year assessments |
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| **Summer Term**  **3A** | **Intent**  **Systems software 1.5**  **Utility Software**  Why is this taught now?  Key components of the GCSE course | * Be able to describe the purpose and functionality of systems software * Be able to describe operating systems including: user interface, memory management/multitasking, peripheral management and drivers, user management, file management. * Be familiar with utility System Software including encryption software, defragmentation, data compression. | In class teacher assessment through Q & A  Knowledge recall activities  Homework activities and past paper questions  Teacher assessment during lesson  End of module test  End of Year assessments |
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| **Summer Term**  **3B** | **Intent**  **Searching and Sorting algorithms 2.1**  Why is this taught now?  Build on algorithms taught earlier in the year and is a topic that can be used to develop programming skills to a higher level. | * To describe the steps needed to carry out search and sorting techniques on a set of data * Be able to describe the search and sorting techniques algorithmically | In class teacher assessment through Q & A  Knowledge recall activities  Homework activities and past paper questions  Teacher assessment during lesson  End of module test  End of Year assessments |
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