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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 & AKnowledge recall activitiesHomework activities and past paper questionsTeacher assessment during lessonEnd of module testEnd 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.
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| **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 & AKnowledge recall activitiesHomework activities and past paper questionsTeacher assessment during lessonEnd of module testEnd 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 & AKnowledge recall activitiesHomework activities and past paper questionsTeacher assessment during lessonEnd of module testEnd 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 & AKnowledge recall activitiesHomework activities and past paper questionsTeacher assessment during lessonEnd of module testEnd 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 & AKnowledge recall activitiesHomework activities and past paper questionsTeacher assessment during lessonEnd of module testEnd 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 & AKnowledge recall activitiesHomework activities and past paper questionsTeacher assessment during lessonEnd of module testEnd of Year assessments |
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