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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**  **Y11**  **1A** | **Intent**  **Threats to computer systems and network 1.4**  Why is this taught now?  This fundamental topic follows from the work completed in Y7/8 on Online Safety and part of the GCSE syllabus. | Students will be able to describe a range of computer system threats and protect from the following forms of attack or threats:   * malware * phishing * people as the ‘weak point’ in secure systems (social engineering) * brute force attacks * denial of service attacks * data interception and theft * the concept of SQL injection   Students will be able to describe ways of preventing vulnerabilities within networks:   * Physical security * Penetration testing * Anti-malware software * Firewalls * User access levels * Passwords * Encryption. | 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 |
| **Identifying and preventing vulnerabilities**  This topic follows on from the above topic of Threats to Computer/Networks |
| **Autumn Term**  **1B** | **Intent**  **Ethical, legal, cultural and environmental concerns 1.6**  Why is this taught now?  By year 2 of the GCSE course, students have acquired knowledge of the use of Computer Technology, Networking, Transmission of Data and therefore will have a better understanding of the ethics of computer use. | * The purpose of RAM, ROM and Virtual memory * Secondary storage * How data is stored – binary * Students will be able to describe the impacts of digital technology on wider society including: ethical issues, legal issues, cultural issues, environmental issues and privacy issues. * How key stakeholders are affected by technologies * Open source vs proprietary software   Legislation relevant to Computer Science including:   * The Data Protection Act 2018 * Computer Misuse Act 1990 * Copyright Designs and Patents Act 1988 * Software Licenses (ie open source and proprietary) | 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**  **Re-visiting Programming Techniques**  **Producing robust programs 2.3**  **Designing, creating and refining algorithms**  Why is this taught now?  This topic follows on from Y1 ensuring students are comfortable with a range of algorithm tasks in preparation for the examinations. | * 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 * Using a range of advanced GCSE questions ensuring students are best prepared for answering more complex questions. | 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 |
| **Translators and facilities of languages 2.5**  Pupils have a sound understanding of programming and the environment on which to code so this topic follows on with students having a clear grasp of key features of translators. |
| **Spring Term**  **2B** | **Intent**  **Computational Thinking 2.1**  Why is this taught now?  A fundamental and large theoretical component of Module 1 | * Computational Thinking: abstraction, decomposition and algorithmic thinking. * Create, interpret, correct, complete, and refine algorithms using:: pseudocode and flow charts, Reference language/high level programming language. * Use Trace Tables to evaluate the outputs based on inputs | 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 |
| **Designing, creating and refining algorithms**  This topic is a continuation of what is covered during Y1 with the aim to ensure students have a solid grasp of algorithms. |
| **Summer Term**  **3A** | Recapping previously taught content |  |  |
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| **Summer Term**  **3B** | Revision/Exam Practice |  |  |
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