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