

Long Term Plan

Year 11: Computer Science

Introduction to key computing systems, principles and algorithmic thinking				
Learning Cycle	Key Concepts and Themes	Vocabulary		
HT1	Network security and systems software	<ul style="list-style-type: none"> • Network threats • Preventing vulnerabilities • Operating Systems • Utility Software 	Malware, virus, Trojan horse, worm, social engineering, phishing, brute-force attack, denial of service attack, data interception and theft, SQL injection, penetration testing, anti-malware software, anti-virus software, firewalls, user access levels, passwords, encryption, physical security, operating system, user interface, graphical user interface (GUI), command line interface (CLI), memory management, multitasking, peripheral management, drivers, user management, file management, utility software, encryption software, defragmentation, data compression	• Paper 1 cumulative assessment
				PROGRESS CHECK 1
HT2	Impacts of Digital Technology	<ul style="list-style-type: none"> • Ethical and cultural issues • Environmental issues • Legislation and privacy 	Ethical, cultural, environmental, legislation, Manufacture, disposal, upgrade, replace, e-waste, Privacy, legal, data protection, computer misuse, copyright, copyright designs and patents act, open source, proprietary, software licence	<ul style="list-style-type: none"> • Paper 1 cumulative assessment • Paper 2 cumulative assessment • Year 11 November Mocks
HT3	Logic and Languages	<ul style="list-style-type: none"> • Logic diagrams and truth tables • Defensive design • Errors and testing • Translators and facilities of languages • IDEs 	Defensive design, anticipating misuse, authentication, validation, maintainability, sub programs, naming conventions, indentation, commenting, testing, iterative testing, final/terminal testing, syntax, syntax error, logic error, test data, normal, boundary, invalid, erroneous, test plan, AND, OR, NOT, truth table, logical operators, logic gates, logic diagrams, conjunction, disjunction, negation, high-level language, low-level language, translators, compiler, interpreter, compiler, interpreter, Integrated Development Environment (IDE), editors, error diagnostics, run-time environment.	PROGRESS CHECK 2
HT4	Revision	<ul style="list-style-type: none"> • Systems Architecture • Data Representation • Networks • Algorithms • Programming 	Analyse, assess, calculate, demonstrate, describe, discuss, evaluate, explain, identify, justify, state	• Year 11 February Mocks
HT5				PROGRESS CHECK 3

Skill Development	<ul style="list-style-type: none"> • Problem Solving - Take a systematic approach to problem solving including the use of decomposition and abstraction, and make use of conventions including pseudo code and flowcharts • Programming - Design, write, test and refine programs, using one or more high-level programming language with a textual program definition, either to a specification or to solve a problem • Algorithmic Thinking - Use abstraction effectively to model selected aspects of the external world in a program and to appropriately structure programs into modular parts with clear, well documented interfaces • Apply computing-related mathematics such as hexadecimal conversions, binary conversions, binary addition and shifts.
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