HOLYROOD ACADEMY

KS4 Curriculum: Computer Science

Y10	Knowledge	Tier 2 Vocabulary	Skills	Assessment
Autumn 1	2.4.1 Boolean logic 1.2.4 Data storage 2.1.1 Computational thinking	• Denary • Binary • Hexadecimal • Abstraction • Decomposition • Truth table	Knowledge of Boolean logic and understand the principles of computational thinking	MCQs Practical programming
Autumn 2	1.2.4 Data storage 2.1.2 Designing, creating and refining algorithms	• Input • Process • Output • Interpret • Trace tables • Convert	Know how to convert denary into hexadecimal numbers and vice versa & binary shifts	Topic based test Problem solving programming task
Spring 1	1.1.1 Architecture of the CPU 2.2.1 Programming fundamentals	• Von Neumann • Components • Fetch-execute cycle • Variable • Constant	Know the purpose of the CPU and the common CPU components use of variables, constants, operators, inputs, outputs and assignments	MCQs Practical programming
Spring 2	1.1.3 Embedded systems 1.2.1 Primary storage 1.2.2 Secondary storage	• Characteristics • RAM • ROM • Virtual memory • Optical • Magnetic • Solid state	The need for primary & storage	MCQs Practical programming
Summer 1	1.3.1 Networks and topologies 2.2.3 Additional programming techniques	• LAN & WAN • Wireless • Router • Switch • NIC	Know the types of networks Practical use of programming	MCQs Practical programming
Summer 2	1.3.1 Networks and topologies 1.3.2 Wired and wireless networks, protocols and layers	• DNS • Star & Mesh • Protocol • Layers • Encryption • IP & MAC	Know the modes of connection Common protocols in a network	MCQs Practical programming

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Y11	Knowledge	Tier 2 Vocabulary	Skills	Assessment
Autumn 1	1.4.1 Threats to computer systems and networks 2.3.1 Defensive design 1.5.1 Operating systems 2.3.2 Testing	• Malware • SQL injection • User interface • Multitasking • Authentication • Indentation • Iterative • Final/terminal	Recognise the threats posed to devices/systems & how the attack is used Understand the purpose and functionality of operating systems	Exam questions and practical assessments
Autumn 2	1.5.2 Utility software 1.6.1 Ethical, legal, cultural and environmental impact 2.5.1 Languages	• Defragmentation • Compression • Encryption • Legislation • Translator • Compiler • Interpreter	Know the purpose of the identified utility software Be able to know the impact of the technology introduces ethical, legal, cultural, environmental and privacy issues	Exam questions and practical assessments
Spring 1	2.5.2 The Integrated Development Environment (IDE) 2.1.3 Searching and sorting algorithms Practical Programming skills	• Editor • Diagnostic • Environment • Binary search • Linear search • Bubble sort • Merge sort • Insertion sort	Be aware of the common tools and facilities available in an Integrated Development Environment	Exam questions and practical assessments
Spring 2	Exam preparation: Theory revision Programming revision Exam technique	• Analyse • Compare • Describe • Discuss • Explain • Evaluate • Identify • Justify • Outline • Order • Solve • State	Demonstrate and apply knowledge and understanding of the key concepts and principles of Computer Science. Analyse problems & make reasoned judgements; to design, program, evaluate and refine solutions.	Exam questions
Summer 1				External exam
Summer 2				