Computer science – Year 7 2023-2024

Term 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
	E-Safety						Desktop publishing			Networking					

Term 2	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26
	Computer systems						Data representations				

Term 3	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39
	Algorithms						Scratch programming						

Computer science – Year 8 2023-2024

Term 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
	The Ethical, legal, cultural and environmental impacts of digital technology				Features of Presentation software used to create an Interactive Multimedia Product			Layers of computing systems							

Term 2	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26
	Computational Thinking The main programming concepts covered will be sequencing, variables, selection, and count-controlled iteration						Python programming				

Term 3	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39
	Spreadsheets and Databases Modelling data						Introduction to Graphics						

Computer science – Year 9 2023-2024

Term 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
	What makes a Product? To become an expert in Market Research							**What is a Visual Identity?** To become an expert in creating a visual identity							

Term 2	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26
	What is an algorithm? To become an expert in Algorithms						What are the Programming Fundamentals? To develop expertise in 'Programming Fundamentals'				

Term 3	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39
	Introduction to cyber security						**Digital literacy**						

Computer science – Year 10 2023-2024

Term 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
	Computational Thinking Computational thinking ¨ Principles of computational thinking:	**Programming Fundamentals and data types** ¨The use of variables, constants, operators, inputs, outputs and assignments ¨ The use of the three basic programming constructs used to control the flow of a program:				**Designing, creating and refining Algorithms** ¨Identify the inputs, processes, and outputs for a problem ¨Structure diagrams ¨Create, interpret, correct, complete, and refine algorithms using:				**Searching and sorting Algorithms** 2.1.3 Searching and sorting algorithms			**Additional Programming Techniques** 2.2.3 Additional programming techniques ¨The use of basic string manipulation		

Term 2	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26
	System Architecture What is the "architecture" of a CPU? Recall ALU What factors affect the CPU performance? What are embedded systems, and what are their characteristics?			**Memory & Storage** Why do computers have primary storage?How does virtual memory work? Why do computers have secondary storage? What features of secondary storage make devices suitable for different situations? Recall Data Rep & Sys Arch			**Data Representation** Why is data stored in binary? How do you calculate data capacity? What can happen to the most significant bit when you add two binary numbers together? What actions can an ALU perform? What is the relationship between denary, binary and hexadecimal?			**Data Representation** How does a computer store characters and what are the implications for the number of bits used? How does a computer store graphics and what are the implications for image size and resolution? How do computers store sound and what are the implications for sample rate, duration and bit depth? Where is compression used and why? What are	

								the effects on a file for each type of compression? Recall Algorithmic Thinking and Programming Fundamentals

Term 3	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39
	Computer Networks connections and protocols What are the characteristics of LANs and WANs? What can affect the performance of a network? What are the differences between peer-to-peer and client-server networks? How do you set up a LAN? How does The Internet work?			**Computer Networks connections and protocols** Why is a mesh network better than a star network? Which is better, a wired or wireless network? What is the purpose of encryption? What are the differences between three types of network device addresses? What are standards and protocols? What are the benefits of layering protocols?				**Recall** Progress with individual programming challenges Gain experience in answering computational thinking, algorithms and programming questions for component J277/02 **MOCK WEEKS**		**Network Security** What are the threats to devices and computers? What effect do different malware attacks have on your computer? How is a phishing attack used? How does a brute force attack work on passwords? What is the effect of a DDOS? What do we mean by "humans are a weak point"? How does a SQL injection hack work? How can you protect yourself against hackers?			

Computer science – Year 11 2023-2024

Term 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
	1.5 System Software 1.5. 1 The purpose of the OS: o User interface o Memory management and multitasking o Peripheral management and drivers o User management o File management 1.5.2 The purpose and functionality of utility software Utility system software: o Encryption software o Defragmentation o Data compression			**1.6 Ethical Legal Cultural & Environmental concerns** 1.6.1 Impacts of digital technology on wider society including: o Ethical issues o Legal issues o Cultural issues o Environmental issues o Privacy issues Legislation relevant to Computer Science: o The Data Protection Act 2018 o Computer Misuse Act 1990 o Copyright Designs and Patents Act 1988 o Software licences (i.e. open source and proprietary)			Recall week **Algorithms** 2.1.1 Computational thinking: ¨ Principles of computational thinking: o Abstraction o Decomposition o Algorithmic thinking	**2.1.2 Designing, creating and refining algorithms** 2.1.2 Identify the inputs, processes, and outputs for a problem - Structure diagrams - Pseudocode Create, interpret, correct, complete, and refine algorithms using: o Flowcharts o Reference language/high-level programming language - Identify common errors - Trace tables			**2.1.3 Searching and sorting algorithms** Standard searching algorithms: o Binary search o Linear search ¨ Standard sorting algorithms: o Bubble sort o Merge sort o Insertion sort			**Recall unit 1 and Recall unit 2**	

Term 2	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26
	2. 2 Programming Fundamentals Recall programming fundamentals with Python exposure			**2.3 Robust Programs** Defensive design considerations: o Anticipating misuse o Authentication ¨ Input validation ¨ Maintainability: o Use of subprograms o Naming conventions o Indentation o Commenting **2.3.2 Robust** Programs - Testing The purpose of testing ¨ Types of testing: o Iterative oFinal/terminal ¨ Identify syntax and logic errors ¨ Selecting and using suitable test data: o Normal o Boundary oInvalid/Erroneous ¨ Refining algorithms		**2.4 Boolean Logic** Simple logic diagrams using the operators AND, OR and NOT ¨ Truth tables ¨ Combining Boolean operators using AND, OR and NOT ¨ Applying logical operators in truth tables to solve problems		**Unit 1 Recall**	**2.5 Programming languages and Integrated Development Environments** **(Only lesson 1 and 2 of week 25 for IDEs, lesson 3 will be WCF from 2.5 EOTT and exam questions recall from unit 2** 2.5.1 Languages ¨ Characteristics and purpose of different levels of programming language: o High-level languages o Low-level languages ¨ The purpose of translators ¨ The characteristics of a compiler and an interpreter 2.5.2 The Integrated Development Environment (IDE) Common tools and facilities available in an Integrated Development Environment (IDE) o Editors o Error diagnostics o Run-time environment o Translators		**Python Programming solution based on a scenario**

Term 3	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39
	Revision Unit 1 and 2 (interleave)	Revision 1.2 1.3 and 1.4	Revision 1.5 and 1.6	Revision 2.1 and 2.2	Revision 2.3 and 2.4 EXAM this week								