

KS4 Overview

Computer Science (J277) 2021-2022

Year 10 & Year 11



Our intention is to provide a varied, challenging and engaging Computer Science & ICT curriculum, which ensures that our students of Computer Science & ICT will:

- understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- be able to evaluate and apply information technology, including new or unfamiliar technologies
- become responsible, competent, confident and creative users of information and communication technology



Year 10 Computer Science (J277) Overview – Lesson 1 of 2

Chapter 9:
Algorithms
Chapter 13:
Creating Robust Programs

Chapter 10:
Programming Fundamentals
Chapter 14:
Boolean Logic

Chapter 11:
Data Types & APT
Chapter 15:
Programming Languages &
IDEs

Chapter 12:
Searching & Sorting
Algorithms
Chapter 1:
The CPU

	AUTUMN TERM 1 (7 WEEKS)	AUTUMN TERM 2 (7 WEEKS)	SPRING TERM 1 (7 WEEKS)	SPRING TERM 2 (6 WEEKS)	SUMMER TERM 1 (5 WEEKS)	SUMMER TERM 2 (7 WEEKS)
1	GCSE INTRODUCTION & SETUP RESOURCES ACCESS - CE & eREVISION	Chapter 11: Data Types & APT (Cambridge Elevate) Strings Arrays Multi Arrays Data Structures Sub Programs	Chapter 13: Creating Robust Programs (Cambridge Elevate)	Logic Circuits NAND/NOR Circuit Truth Tables	Chapter 1: The CPU (Cambridge Elevate) CPU Components CPU Performance FDE Cycle Embedded Systems	Yr. 10 Exam Preparation
2	Chapter 9: Algorithms (Cambridge Elevate) Algorithms Input & Output Flowcharts Pseudocode	Chapter 12: Searching & Sorting Algorithms (Cambridge Elevate) Bubble Sort Insertion Sort Merge Sort Linear Search Binary Search Searching Sorted Lists Searching Unsorted Lists		Chapter 15: Programming Languages & IDEs (Cambridge Elevate) Low Level High Level Machine Code Translators Compilers Assemblers LMC		Yr. 10 Exam Preparation
3				Chapter 14: Boolean Logic (Cambridge Elevate) Logic Gates AND/OR/NOT Gate Truth Tables Lesson 6: Assessment & Booklets		
4	Chapter 10: Programming Fundamentals (Cambridge Elevate) Variables/constants Selection Iteration			Chapter 8: Binary & Hexadecimal (Cambridge Elevate)	YR 10 EXAMS	
5					Yr. 10 Exam Preparation	YR 10 EXAMS
6						YR 10 EXAM FEEDBACK
7						

<https://www.ocr.org.uk/qualifications/gcse/computer-science-j277-from-2020/>

Year 10 Computer Science (J277) Overview – Lesson 2 of 2

Chapter 9:
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		AUTUMN TERM 1 (7 WEEKS)		AUTUMN TERM 2 (7 WEEKS)		SPRING TERM 1 (7 WEEKS)		SPRING TERM 2 (6 WEEKS)		SUMMER TERM 1 (5 WEEKS)		SUMMER TERM 2 (7 WEEKS)	
1		GCSE INTRODUCTION & RESOURCE ACCESS		Chapter 3: Data Types Casting Converting Data Types								Yr. 10 Exam Preparation	
2		ZIG ZAG Python Programming Chapter 1: Numbers & Basic Operation in Python		Chapter 4 Functions Procedures Parameters Arguments		Chapter 6 Lists Arrays List Methods		Zig Zag Python Programming Challenges / OCR Programming Challenges				Yr. 10 Exam Preparation	
3												Yr. 10 Exam Preparation	
4													YR 10 EXAMS
5		Chapter 2: Assigning Values Variables Expression in Python		Chapter 5: For Loops While Loops Count-Controlled Condition- Controlled		Chapter 7: Working with Data Files Text Files Read / Write / Append SQL Databases SQL & Python				Yr. 10 Exam Preparation		YR 10 EXAMS	
6													YR 10 EXAM FEEDBACK
7													

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Year 11 Computer Science (J277) Overview Lesson 1 of 2

Term	Autumn Term 1 (8 weeks)	Autumn Term 2 (7 weeks)	Spring Term 1 (6 weeks)	Spring Term 2 (6 weeks)	Summer Term 1 (5 weeks)
1	Systems Architecture: Primary Storage	Data Representation: Compression	Network Protocols & Layers: Protocols	Environmental Issues	01 Networks Network Protocols Layers
2	Systems Architecture: Secondary Storage	Computer Networks: Types of Network	Network Threats: Threats & Malware	01 Components CPU & Memory System Performance	01 Networks The Internet Network Security
3	Systems Architecture: Units	Computer Networks: Topologies	Network Threats: Security Measures	01 Components Secondary Storage Storage Methods	01 Issues Ethical/Legal/Cultural/ Environmental
4	Data Representation: Binary & Denary	Computer Networks: Factors Affecting Performance	System Software: System Software	01 Components System Software OS & Utilities	Sample Paper 01
5	Data Representation: Binary Addition	Yr.11 Mock Exams	System Software: User Interfaces	01 Networks LANs & WANs Hardware	Sample Paper 02
6	Data Representation: Binary/Denary & Hex ASCII	Mock Exam Feedback	Ethical Legal & Cultural Issues	01 Networks Client-Server/ Peer- Peer Network Topologies	
7	Data Representation: Images	Network Protocols & Layers: Layers / Packets			

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includes Topic Tests /Knowledge Tests / Revision Learning Grids for each unit



Year 11 Computer Science (J277) Overview Lesson 2 of 2

Term	Autumn Term 1 (8 weeks)	Autumn Term 2 (7 weeks)	Spring Term 1 (6 weeks)	Spring Term 2 (6 weeks)	Summer Term 1 (5 weeks)
1	Systems Architecture: Virtual Memory	Data Representation: Compression	Network Protocols & Layers: Layers/Packets	O2 Algorithms Writing algorithms	O2 Data Representation Logic Units of Data
2	Systems Architecture: Secondary Storage	Computer Networks: Types of Network	Network Threats: Threats & Malware	O2 Algorithms Search/Sort algorithms	O2 Data Representation Binary & Hexadecimal Character Sets
3	Systems Architecture: Units	Computer Networks: Transmission Media	Network Threats: Security Measures	O2 Programming Data Types Constants & Variables	O2 Data Representation Images & Sound Compression
4	Data Representation: Binary Conversion	Exam Preparation	System Software: Operating Systems	O2 Programming Lists/Arrays	Sample Paper 01
5	Data Representation: Binary Shifts	Yr.11 Mock Exams	System Software: Utility Software	O2 Programming File Handling Storing/Searching Data	Sample Paper 02
6	Data Representation: Binary/Denary/Hex ASCII	Mock Exam Feedback	Ethical Legal & Cultural Issues	O2 Design Design & Testing Translators & IDE's	
7	Data Representation: Sound	Network Protocols & Layers: Protocols			

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