



The
Appleton
School

KS4 COMPUTER SCIENCE

OCR

REVISION GUIDES:

Issued to all student at the start of the course:

- GCSE OCR Computer Science Complete Revision and Practice – CGP
- GCSE OCR Computer Science 10 Minute Tests – CGP
- GCSE OCR Computer Science Knowledge Organiser – CGP
- GCSE OCR Computer Science Knowledge Retriever – CGP
- Python Programming Guide for GCSE Computer Science – CGP

REVISION RESOURCES / WEBSITES:

- [BBC Bitesize](#)
- [GCSE Pod](#)
- [Craig n Dave Videos](#)
- [Isaac Computer Science](#)
- [Ada Computer Science](#)
- [Seneca Learning](#)
- [The Ever Learner](#)
- [CSUK: Revise CS](#) and [CSUK – 6-A-Day](#)
- [CSNewbs - Theory](#) and [CSNewbs - Python](#)
- [Outwood Grange Academies' Trust Home Learning](#)
- [Teach-ICT](#)
- [Time2Code - Python Practice](#)
- [101 Computing](#)

OTHER USEFUL REVISION MATERIALS:

- Books:
 - PG Online Clear Revise – Illustrated Revision and Practice OCR GCSE Computer Science J277
 - PG Online Clear Revise – Exam Tutor and Practice Papers OCR GCSE Computer Science J277
 - PG Online Learning to Program in Python by PM Heathcote
 - PG Online Python Challenge! By PM Heathcote
- Revision Cards / Flash Cards
 - GCSE OCR Computer Science Revision Question Cards - CGP

Please see the GCSE Computer Science Revision Google Classroom for further resources, activities and tasks not already included in this document.

REVISION CENTRE

Topic			
1.1.1	Architecture of the CPU	Craig n Dave Videos	The Purpose of the CPU – The Fetch Execute Cycle
			Common CPU Components and their Function
			Von Neumann Architecture
		Computer Science UK Videos	CPU Function (YouTube)
			Von Neumann Architecture (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	CPU
		GCSEpod	GCSEpod Playlist
		Little Man Computer	Little Man Computer
1.1.2	CPU performance	Craig n Dave Videos	The Common Characteristics of CPU's
		Computer Science UK Videos	CPU Characteristics (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Factors Affecting CPU Performance
		GCSEpod	GCSEpod Playlist
1.1.3	Embedded systems	Craig n Dave Videos	Embedded Systems
		Seneca	Seneca

		The EverLearner	The Everlearner
		Outwood Grange Academies Trust – Home Learning Materials	Embedded Systems
		GCSEpod	GCSEpod Playlist
1.2.1	Primary storage (Memory)	Craig n Dave Videos	The Need for Primary Storage
			RAM / ROM
			Virtual Memory
		Computer Science UK Videos	Memory (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	RAM / ROM
			Virtual Memory
		GCSEpod	GCSEpod Playlist
1.2.2	Secondary storage	Craig n Dave Videos	The Need for Secondary Storage
			Common Types of Storage
			Suitable Storage Devices – Storage Media
		Computer Science UK Videos	Storage (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Types of Storage
			Storage Device Applications
		GCSEpod	GCSEpod Playlist
1.2.3	Units	Craig n Dave Videos	The Units of Data Storage
			How Data Needs to be Converted into Binary to be Processed by a Computer
			Data Capacity and Calculation of Data Capacity Requirements

		Computer Science UK Videos	Binary Units (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Units & Why Binary?
		GCSEpod	GCSEpod Playlist
1.2.4	Data Storage – Numbers	Craig n Dave Video	Converting Between Denary and 8-bit Binary
			Adding Two 8-bit Binary Integers
			Converting Between Denary and 2 Digit Hexadecimal
			Binary Shifts
		Computer Science UK Videos	Binary Units (YouTube)
			Binary Numbers (YouTube)
			Hexadecimal
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Binary
			Binary Addition
			Hexadecimal
			Binary Shifts
		GCSEpod	GCSEpod Playlist
		Practice / Games	Binary Bulbs
			Cisco's Binary Numbers Game
			Binary Bonanza
			Binary Addition

			Binary, Hex and Decimal Challenge <p>These are the options that apply to GCSE when generating questions.</p> <div> <p>Question types</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Binary (unsigned) to decimal <input type="checkbox"/> Binary (sign and magnitude) to decimal <input type="checkbox"/> Binary (two's complement) to decimal <input checked="" type="checkbox"/> Binary to Hexadecimal <input checked="" type="checkbox"/> Hexadecimal to Binary <input checked="" type="checkbox"/> Hexadecimal to Decimal <input checked="" type="checkbox"/> Decimal to Binary (unsigned) <input type="checkbox"/> Decimal to Binary (sign and magnitude) <input type="checkbox"/> Decimal to Binary (two's complement) <input checked="" type="checkbox"/> Decimal to Hexadecimal <input checked="" type="checkbox"/> Logical shifts <input type="checkbox"/> Arithmetic shifts </div>
	Data Storage - Characters	Craig n Dave Videos	Representing Characters and Character Sets
		Computer Science UK Videos	Characters (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Characters
	Data Storage - Images	Craig n Dave Videos	Representing Images
		Computer Science UK Videos	Images
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Representing Images
		GCSEpod	GCSEpod Playlist

	Data Storage - Sound	Craig n Dave Videos	Representing Sound
		Computer Science UK Videos	Sound
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Sound
		GCSEpod	GCSEpod Playlist
1.2.5	Compression	Craig n Dave Videos	Compression
		Computer Science UK Videos	Compression (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Compression
		GCSEpod	GCSEpod Playlist
1.3.1	Networks and topologies	Craig n Dave Videos	Types of Networks
			Factors that Affect the Performance of Networks
			Client Server and Peer to Peer Networks
			Hardware to Connect a LAN
			The Internet
			Star and Mesh Network Topologies
		Computer Science UK Videos	LAN's (YouTube)
			WAN's (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
			Types of Network

1.3.2	Wired and wireless networks, protocols and layers	Outwood Grange Academies Trust – Home Learning Materials	Factors Affecting Network Performance
			Client Server Vs. Peer to Peer
			Network Hardware
			The Internet
			Network Topologies
		GCSEpod	GCSEpod Playlist
			GCSEpod Playlist
		Craig n Dave Videos	Modes of Connection – Wired and Wireless
			Wireless Encryption
			The Use of IP and MAC Addressing
			Standards
			Common Protocols
			The Concept of Layers
1.4.1	Threats to computer systems and networks	Computer Science UK Videos	Protocols (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Modes of Connection
			Wi-Fi Ethernet
			IP, MAC and Encryption
			Protocols & Standards
			Layers
		GCSEpod	GCSEpod Playlist
			GCSEpod Playlist
		Craig n Dave Videos	Forms of Attack
			Threats Posed to Networks
		Computer Science UK Videos	Security (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
			Malware & Spyware

		Outwood Grange Academies Trust – Home Learning Materials	SQL Injection & DDOS
			Social Engineering, Data Interception & Brute Force Attacks
		GCSEpod	GCSEpod Playlist
1.4.2	Identifying and preventing vulnerabilities	Craig n Dave Videos	Identifying and Preventing Vulnerabilities
		Computer Science UK Videos	Security (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Identifying & Preventing Vulnerabilities
		GCSEpod	GCSEpod Playlist
1.5.1	Operating systems	Craig n Dave Videos	The Purpose and Functionality of Operating Systems
			Operating Systems (Part 1)
			Operating Systems (Part 2)
		Computer Science UK Videos	Operating Systems (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Operating Systems
		GCSEpod	GCSEpod Playlist
1.5.2	Utility software	Craig n Dave Videos	Utility System Software
		Computer Science UK Videos	Utility Software (YouTube)
		Seneca	Seneca

		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Utility Software
		GCSEpod	GCSEpod Playlist
1.6.1	Ethical, legal, cultural and environmental impact	Craig n Dave Videos	How to Investigate and Discuss Computer Science Technologies Considering Ethical, Legal, Cultural, Environmental and Privacy Issues
			Privacy Issues
			Cultural Implications of Computer Science
			Environmental Implementations of Computer Science
			Impacts of Digital Technology on Wider Society
			Legislation Relevant to Computer Science
			Open Source Vs. Proprietary Software
		Computer Science UK Videos	Issues (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Ethical Cultural Environmental Impact
			Computing Legislation
			Software Licences
		GCSEpod	GCSEpod Playlist
2.1.1	Computational thinking	Craig n Dave Videos	Abstraction
			Decomposition
			Algorithmic Thinking
		Computer Science UK Videos	Computational Thinking (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
			Abstraction

		Outwood Grange Academies Trust – Home Learning Materials	Decomposition
		GCSEpod	GCSEpod Playlist
2.1.2	Designing, creating and refining algorithms	Craig n Dave Videos	Inputs, Processes and Outputs
			Structure Diagrams
			How to Produce Algorithms Using Pseudocode and Flow Diagrams
			Identifying Errors and Suggesting Fixes
			Trace Tables
		Computer Science UK Videos	Algorithms (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Reading Algorithms (YouTube)
			Creating & Designing Algorithms (YouTube)
			Correcting Algorithms (YouTube)
			Refining Algorithms (YouTube)
			Flowcharts (YouTube)
			Trace Tables (YouTube)
		GCSEpod	GCSEpod Playlist
2.1.3	Searching and sorting algorithms	Craig n Dave Videos	Binary Search
			Linear Search
			Bubble Sort
			Merge Sort
			Insertion Sort
		Computer Science UK Videos	Search Algorithms (YouTube)
			Bubble Sort (YouTube)
			Insertion Sort (YouTube)
			Merge Sort (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
			Searching Algorithms

		Outwood Grange Academies Trust – Home Learning Materials	Bubble Sort
			Insertion Sort
			Merge Sort
		GCSEpod	GCSEpod Playlist
2.2.1	Programming fundamentals	Craig n Dave Videos	The Use of Variables, Constants, Inputs, Outputs and Assignments
			The Use of the Three Basic Programming Constructs
			The Common Arithmetic and Comparison Operators
			The Common Boolean Operators
		Computer Science UK Videos	Variables, Constants and Data Types (YouTube)
			Program Flow (YouTube)
			Operators (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Variables & Constants
			Programming Constructs
			Mathematical Operators
		GCSEpod	GCSEpod Playlist
		Python Tutorials / Videos	PythonBytesize
			W3schools
			CSNewbs - Python
			Time2Code - Python Practice
			101 Computing - Python Challenges
			Codecademy
		2.2.2	Data types
Seneca	Seneca		
The EverLearner	The EverLearner		
Outwood Grange Academies Trust – Home Learning Materials	Data Types		
GCSEpod	GCSEpod Playlist		

2.2.3	Additional programming techniques	Craig n Dave Videos	The Use of Basic String Manipulation
			The Use of Basic File Handling Operations
			The Use of Records to Store Data
			The Use of SQL to Search for Data
			The Use of Arrays
			How to Use Sub Programs
			Random Number Generation
		Computer Science UK Videos	Arrays (YouTube)
			File Handling (YouTube)
			SQL (YouTube)
			Subroutines (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	String Manipulation
			File Handling
			SQL
			Arrays
			Sub Programs
		GCSEpod	GCSEpod Playlist
		Python Tutorials / Videos	PythonBytesize
			W3schools
			CSNewbs - Python
			Time2Code - Python Practice
			101 Computing - Python Challenges
			Codecademy
2.3.1	Defensive design	Craig n Dave	Defensive Design Considerations (Part 1)
			Defensive Design Considerations (Part 2)
			Maintainability
		Computer Science UK Videos	Defensive Design (YouTube)
		Seneca	Seneca

		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Defensive Design
			Maintainability
		GCSEpod	GCSEpod Playlist
2.3.2	Testing	Craig n Dave Videos	The Purpose and Types of Testing
			How to Identify Syntax and Logic Errors
			Suitable Test Data
			Refining Algorithms to Make Them More Robust
		Computer Science UK Videos	Testing (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Testing Test Data
			Syntax Logic Errors
			Testing Tables
		GCSEpod	GCSEpod Playlist
2.4.1	Boolean logic	Craig n Dave Videos	Simple Logic Diagrams
			Truth Tables
			Combining Boolean Operators
			Applying Logical Operators in Truth Tables
		Computer Science UK Videos	Logic (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Logic Gates & Circuits
			Drawing Logic Circuits
		GCSEpod	GCSEpod
			Wordwall – Hit the Basic Gates

		Logic Gate Games	Wordwall – Logic Gates
2.5.1	Languages	Craig n Dave Videos	Characteristics and Purpose of Different Levels of Programming Language
			The Purpose of Translators
			Characteristics of Compilers and Interpreters
		Computer Science UK Videos	Translators and IDEs
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	Types of Languages
			Translators
		GCSEpod	GCSEpod Playlist
		Little Man Computer	Little Man Computer
2.5.2	The Integrated Development Environment (IDE)	Craig n Dave Videos	IDEs
		Computer Science UK Videos	Translators and IDEs (YouTube)
		Seneca	Seneca
		The EverLearner	The EverLearner
		Outwood Grange Academies Trust – Home Learning Materials	IDEs
			GCSEpod Playlist