Revision Guide for GCSE Computer Science units 1.1 End of Topic Tests

1.1 Systems Architecture Objectives

I understand and can explain the basic computer system model of: INPUT – PROCESS – OUTPUT.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe the purpose of the Central Processing Unit (CPU).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the Fetch-Decode-Execute cycle including what happens at each stage.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and describe the Von Neumann architecture as a stored program computer.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can label an abstract diagram of the CPU.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the role and operation of the Memory Address Register (MAR), Memory Data Register (MDR), Program Counter and Accumulator used in the Von Neumann architecture.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can describe the common CPU components and their function: Arithmetic Logic Unit (ALU), Control Unit (CU), and Cache.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe how common characteristics of CPUs affect their performance: clock speed, cache size, number of cores.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand what embedded systems are, their characteristics and can give examples of when they are used.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Learner Companion (Notes in Folder)	PG Online Textbook	Teach-ICT	CraignDave (Youtube)
Chapter 1: Pages 1 - 5 **Read ☐**	Section 1: Pages 1 - 7 **Read ☐** **Questions 1-3 ☐**	1.1.1 Architecture of the CPU – Defining what is a computer system? **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.1.1 Architecture of the CPU – Common CPU components and their function **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.1.1 Architecture of the CPU – Von Neumann architecture **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.1.1 Architecture of the CPU – Fetch-Decode-Execute cycle **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.1.2 CPU performance - CPU common characteristics **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.1.3 Embedded systems - Purpose, characteristics of embedded systems **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐**	OCR GCSE (J277) 1.1 The purpose of the CPU - The fetch-execute cycle **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.1 Common CPU components and their function **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.1 Von Neumann architecture **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.1 The common characteristics of CPUs **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.1 Embedded systems **Watched ☐** **Notes ☐**

Also CPU Components Starter, FDE Cycle and Components Starter and Activity, Starter - How common characteristics of CPUs affect their performance, The Purpose of the CPU worksheet and handout, The CPU worksheet, Performance of the CPU worksheet, Embedded systems worksheet, "Kevin Drumm " video called: "Fetch Decode Execute Cycle in more detail " on YouTube, "Crash Course" video in YouTube called "Advanced CPU Designs: Crash Course Computer Science #9"

Revision Guide for GCSE Computer Science units 1.2 End of Topic Tests

1.2 Memory and Storage part 1

I understand why computers need primary storage and that it consists of ROM and RAM.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand the difference between and the key characteristics of RAM and ROM.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can describe the purpose of ROM in a computer system.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can describe the purpose of RAM in a computer system.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand the need for virtual memory in a computer system.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe how virtual memory works.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe what flash memory is and its use in a computer system.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand why computers need secondary storage.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I recognise the different storage types, optical, magnetic and solid state, and understand the differences between the technologies in each.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I recognise a wide range of different storage devices / media and understand the differences between them.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can compare the advantages and disadvantages of different storage devices as they relate to these characteristics: Capacity, Speed, Portability, Durability, Reliability, and Cost.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can recommend suitable storage devices / media to a given application based on given scenarios and device characteristics.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Learner Companion (Notes in Folder)	PG Online Textbook	Teach-ICT	CraignDave (Youtube)
Chapter 2: Pages 1 - 6 **Read ☐**	Section 1: Pages 8 – 15 **Read ☐** **Questions 1-6 ☐** **Exercises 1-5 P14 ☐**	1.2.1 Primary Storage Features **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.2.2 Secondary Storage Features **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐**	OCR GCSE (J277) 1.2 The need for primary storage **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 RAM & ROM **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Virtual memory **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 The need for secondary storage **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Common types of storage **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Suitable storage devices & storage media **Watched ☐** **Notes ☐**

Also all files listed here found on Teams: 1.2 Lesson 1 - RAM and ROM, 1.2 Lesson 2 - Virtual memory, 1.2 Lesson 3 - Common types of storage, 1.2 Lesson 4 - Common types of storage, 1.2 Lesson 5 - Applications of storage, 1.2 Workbook (part 1), 1.2 Workbook (part 1) Answers, 6. GCSE OCR 1.2 The need for primary storage, 7. GCSE OCR 1.2 RAM & ROM, 8. GCSE OCR 1.2 Virtual memory, 9. GCSE OCR 1.2 The need for secondary storage, 10. GCSE OCR 1.2 Common types of storage, 11. GCSE OCR 1.2 Suitable storage devices & storage media.
Full Course on Seneca Learning, BBC Bitesize and some elements on ISAAC Computer Science.

Revision Guide for GCSE Computer Science units 1.2 End of Topic Tests

1.2 Memory and Storage part 2

I understand and can use the units of data representation: bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte, petabyte and can covert between units.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain how data needs to be converted into a binary format to be processed and stored by a computer.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can calculate the capacity of various storage devices.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can calculate the required capacity for a given set of files.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can calculate file sizes of sound, images and text.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I know how to convert positive denary whole numbers (0–255) into 8 bit binary numbers and vice versa.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I know how to add two 8 bit binary integers and explain overflow errors which may occur.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can apply binary shifts and understand their effect.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I know how to convert positive denary whole numbers (0–255) into 2 digit hexadecimal numbers and vice versa.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I know how to convert from binary to hexadecimal equivalents and vice versa.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the use of binary codes to represent characters.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the term ‘character-set’.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand the relationship between the number of bits per character in a character set and the number of characters which can be represented (for example ASCII, extended ASCII and Unicode).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain how an image is represented as a series of pixels represented in binary.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe the metadata that is included in a file.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe the effect of colour depth and resolution on the size of an image file.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain how sound can be sampled and stored in digital form.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain how these sampling intervals and other factors affect the size of a sound file and the quality of its playback: duration, bit depth, sample rate.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain need for compression.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can describe scenarios where compression may be needed.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain these types of compression: lossy, lossless and the effects they have on the file.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the advantages and disadvantages of each type of compression.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Zig Zag Learner Companion (Notes in Folder and on Teams)	PG Online Textbook (Available in Teams)	Teach-ICT	CraignDave (Youtube)
Chapter 3: Pages 1 - 17 **Read ☐** **Practice questions (Page 17) ☐** **Activities (Page 17) ☐**	Section 2: Pages 16 – 33 **Read ☐** **Questions 1-16 ☐** **Exercises 1-8 P32-33 ☐**	1.2.4 Data storage - Binary numbers **Video ☐** **Theory ☐** 1.2.4 Data storage - Hexadecimal numbers **Theory ☐** **Exam questions ☐** 1.2.4 Data storage - Characters **Theory ☐** **Exam questions ☐** **Flash-cards ☐** 1.2.4 Data storage - Images **Video ☐** **Theory ☐** **Exam questions ☐** **Flash-cards ☐**	OCR GCSE (J277) 1.2 The units of data storage **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 How data needs to be converted into binary to be processed by a computer **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Data capacity and calculation of data capacity requirements **Watched ☐** **Notes ☐**

		1.2.4 Data storage - Sound **Video ☐** **Theory ☐** **Exam questions ☐** **Flash-cards ☐** 1.2.4 Data storage - Compression **Theory ☐** **Exam questions ☐** **Flash-cards ☐**	OCR GCSE (J277) 1.2 Converting between denary and 8 bit binary **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Adding two 8 bit binary integers **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Converting between denary and 2 digit hexadecimal **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Binary shifts **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Representing characters and character sets **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Representing images **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.2 Representing sound **Watched ☐** **Notes ☐** **OCR GCSE (J277) 1.2 Compression** **Watched ☐** **Notes ☐**

Also all files listed used for this Topic can be found in Teams under: Files – Class Materials – 1.2 – Memory and storage (part 2)

Revision Guide for GCSE Computer Science
Unit - 1.3 – Computer networks, connections and protocols

1.3 – Computer networks, connections and protocols

I understand and can explain the different types of network, especially LAN and WAN and describe their characteristics.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can give examples of where a LANs and WANs are likely to be found.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand the factors that affect network performance, including the number of devices connected and bandwidth.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can explain the different roles of computers within client-server and peer-to-peer networks.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can identify and describe the role of each piece of hardware needed to connect stand-alone computers into a LAN, including: Wireless Access points, Routers and switches, NIC (Network Interface Controller), transmission media.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand that the internet is a worldwide collection of computer systems.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can explain how networks link across the world, forming the internet.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe what is meant by: DNS (Domain Name Server), Hosting, The cloud, Web servers and clients.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and explain the role of a DNS in the conversion of a URL to IP address.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the advantages and disadvantages of cloud computing.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can explain the term “network topology”.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe mesh and star network topologies and can explain the advantages and disadvantages of each.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can apply my understanding of networks to a give scenario.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain these modes of connection; Ethernet, Bluetooth and Wi-Fi and can explain the advantage and disadvantages of each.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can recommend the best connection type for a scenarios based on given factors.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the principle of encryption to secure data across network Connections.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the uses and formats of IP addressing and MAC addressing.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand the principle of standards to provide rules for areas of computing.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand that standards allow hardware/software to interact across different manufacturers products.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the principle of a (communication) protocol as a set of rules for transferring data.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can describe the basic principles and key features of different protocols and understand that they have different purposes, including TCP/IP (Transmission Control Protocol/Internet Protocol), HTTP (Hyper Text Transfer Protocol), HTTPS (Hyper Text Transfer Protocol Secure), FTP (File Transfer Protocol), POP (Post Office Protocol), IMAP (Internet Message Access Protocol), SMTP (Simple Mail Transfer Protocol).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can describe the concept of layers and that layers are used in protocols.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the advantages of using layers in protocols, such as the 4 layer TCP/IP model.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Learner Companion (Folder)	PG Online Textbook	Teach-ICT	CraignDave (Youtube)
Chapter 4: Pages 1 - 13 **Read ☐** Chapter 4: Pages 3 - 12 **Read ☐** Exam-style Questions Chapter 4: Page 13 **Questions 1-5 ☐**	Section 3: Pages 34 - 52 **Read ☐** **Questions 1-3 ☐** **Exercises p51-52 ☐**	1.3.1 Networks and topologies– Types of network **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.3.1 Networks and topologies– Performance factors **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.3.1 Networks and topologies– Roles of computers **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.3.1 Networks and topologies– Hardware needed **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.3.1 Networks and topologies– Internet technology **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.3.1 Networks and topologies– Network topology **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.3.2 Networks, protocols and layers– Modes of connection **Theory ☐** **Flash-cards ☐** **Exam questions ☐** 1.3.2 Networks, protocols and layers– Encryption **Theory ☐** **Flash-cards ☐** **Exam questions ☐** 1.3.2 Networks, protocols and layers– IP and MAC addressing **Theory ☐** **Flash-cards ☐** **Exam questions ☐** 1.3.2 Networks, protocols and layers– Common Protocols **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐**	OCR GCSE (J277) 1.3 Types of networks **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Factors that affect the performance of networks **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Client server and peer to peer networks **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Hardware to connect a LAN **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 The Internet **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Star and mesh network topologies **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Modes of connection, wired and wireless **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Wireless encryption **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 The use of IP and MAC addressing **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Standards **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 Common protocols **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.3 The concept of layers **Watched ☐** **Notes ☐**

Also documents and learning activities that can be found in your exercise books or in the "***Files – Class materials***" of **MS Teams**: **Theory Slideshows 23-34**, **Client-server and peer-to-peer networks** – handout & worksheets, **Networks Hardware** – handout & worksheets, **The Internet** – handout & worksheets, **Network Topology** – handout & worksheets.

Revision Guide for GCSE Computer Science
Unit – 1.4 Network Security

1.4 – Network Security

I understand and can explain that these are forms of attack and threats to a network: malware, phishing, people as the 'weak point' in secure systems (social engineering), brute force attacks, denial of service attacks, data interception and theft, the concept of SQL injection, poor network policy.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the principles of each form of attack including; the purpose of the attack and how the attack is used.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can identify and explain these ways to prevent vulnerabilities: penetration testing, anti-malware software, firewalls, user access levels, passwords, encryption, and physical security.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the principles of each prevention method including; what each method may limit / prevent and how it limits the attack.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Learner Companion (Folder)	PG Online Textbook	Teach-ICT	CraignDave (Youtube)
Chapter 5: Pages 1 - 7 **Read ☐** Exam-style Questions Chapter 5: Page 7 **Questions 1-5 ☐** **Activities 1&2 ☐**	Available in Teams Section 4: Pages 53 - 61 **Read ☐** **Questions 1-7 ☐** **Exercises 1&2** **p66☐**	1.4.1 Network Threats – Types of Threats **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐** 1.4.2 Prevention Methods – Threat prevention methods **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐**	**OCR GCSE (J277) 1.4 Forms of attack** **Watched ☐** **Notes ☐** **OCR GCSE (J277) 1.4 Threats posed to networks** **Watched ☐** **Notes ☐** **OCR GCSE (J277) 1.4 Identifying and preventing vulnerabilities** **Watched ☐** **Notes ☐**

Also documents and learning activities that can be found in your exercise books or in the "***Files – Class materials***" of **MS Teams**: **Theory Slideshows 35-37-34**, various hand-outs and worksheets, Cornell notes available in folder.

Revision Guide for GCSE Computer Science Units 1.5 Systems software End of Topic Test

1.5 Systems Software

I understand and can explain the purpose of each of these functions of an operating system: user interface, memory management/multitasking, peripheral management and drivers, user management, file management.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the purpose and function of each of these utility programs: encryption software, defragmentation, data compression.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand that computers often come with utility software, and how this performs housekeeping tasks.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Zig Zag Learner Companion (Notes in Folder and on Teams)	PG Online Textbook (Available in Teams)	Teach-ICT	CraignDave (YouTube videos)
Chapter 6 Pages 1-8 **Read ☐** **Practice questions 1-4 (Page 8) ☐** **Activities 1-3 (Page 8) ☐**	Section 4: Pages 61 – 66 **Read ☐** **Questions 8 & 9 ☐** **Exercises 3-5 P66 ☐**	**1.5.1 Operating systems – Purpose and use of operating systems** **Video ☐** **Quiz ☐** **Theory ☐** **Practice Questions ☐** **Flash-cards ☐** **1.5.2 Utility software – Purpose and use of utility software** **Video ☐** **Quiz ☐** **Theory ☐** **Practice Questions ☐** **Flash-cards ☐**	**OCR GCSE (J277) 1.5 The purpose and functionality of operating systems** **Watched ☐** **Notes ☐** **OCR GCSE (J277) 1.5 Operating systems part 1** **Watched ☐** **Notes ☐** **OCR GCSE (J277) 1.5 Operating systems part 2** **Watched ☐** **Notes ☐** **OCR GCSE (J277) 1.5 Utility system software** **Watched ☐** **Notes ☐**

Also: Lesson workbooks and slides found in Teams, Seneca Learning OCR GCSE J277 Software and Issues, various resources found in (student resources w drive), GCSE Bitesize – System software

Revision Guide for GCSE Computer Science
Unit – 1.6 Ethical, legal, cultural and environmental impacts of digital technology

1.6 Ethical, legal, cultural and environmental impacts of digital technology

I understand that technology introduces ethical, legal, cultural, environmental and privacy issues.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can discuss the impact of digital technology on wider society including: Ethical issues, Legal issues, Cultural issues, Environmental issues, Privacy issues.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I have knowledge of different digital technologies and how they can impact society in regards to the issues listed above.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I have studied and understand these areas of legislation relevant to Computer Science: The Data Protection Act 1998, Computer Misuse Act 1990, Copyright Designs and Patents Act 1988.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the purpose of each piece of legislation and the specific actions it allows or prohibits.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the need to license software and the purpose of a software licence.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can recognise and describe the features of open source (providing access to the source code and the ability to change the software).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can recognise and describe the features of proprietary (no access to the source code, purchased commonly as off-the-shelf).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can recommend a type of licence for a given scenario including benefits and drawbacks.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Zig-Zag Learner Companion (Available in folders and Teams)	PG Online Textbook (Available in Teams)	Teach-ICT	CraignDave (Youtube)
Chapter 7: Pages 1 - 9 **Read ☐** Exam-style Questions Chapter 7: Page 9 **Questions 1-5 ☐** **Activities 1-3 ☐**	Section 5: Pages 67 - 80 **Read ☐** **Questions 1-14 ☐** **Exercises 1-6** **P80☐**	1.6.1 Ethical Legal – Ethical Issues **Discussions ☐** 1.6.1 Ethical Legal – Environment **Theory ☐** **Exam questions ☐** 1.6.1 Ethical Legal – Privacy Issues **Theory ☐** **Exam questions ☐** 1.6.1 Ethical Legal – Cultural Issues **Theory ☐** 1.6.1 Ethical Legal – Legislation **Video ☐** **Theory ☐** **Quiz ☐** **Exam questions ☐**	OCR GCSE (J277) 1.6 How to investigate and discuss Computer Science technologies **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.6 Privacy issues **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.6 Cultural implications of computer science **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.6 Environmental impact of computer science **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.6 Impacts of digital technology on wider society **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.6 Legislation relevant to computer science **Watched ☐** **Notes ☐** OCR GCSE (J277) 1.6 Open source vs proprietary software **Watched ☐** **Notes ☐**

Also documents and learning activities that can be found in your exercise books or in the "***Files – Class materials***" of **MS Teams**: **Theory, 1.6 Workbook (yours and version with answers), Slideshows 42-48**, all home learning slides, various hand-outs and worksheets, Cornell notes available in folder.

Revision Guide for GCSE Computer Science
Unit – 2.1 - Algorithms

2.1 - Algorithms

I understand and can apply computational thinking techniques including: abstraction, decomposition and algorithmic thinking.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand the computational thinking technique principles and how they are used to define and refine problems.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can identify the inputs, processes, and outputs for a problem.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can produce a simple structure diagram to show: the structure of a problem and subsections and how they link to other subsections.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can create, interpret, correct, complete, and refine algorithms using: Pseudocode, Flowcharts and Reference language/high-level programming language.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can identify syntax/logic errors in code and suggest fixes.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can create and use trace tables to follow an algorithm.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the main steps of the binary and linear search algorithms.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the main steps of the bubble, merge and insertion sort algorithms.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain any pre-requisites of an algorithm.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can apply the algorithm to a data set.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can identify an algorithm if given the code for it.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Learner Companion (Folder also available as a tab in Teams)	**PG Online Textbook (available as a tab in Teams)**	**Teach-ICT**	**CraignDave (Youtube)**
Chapter 8: Pages 1 - 15 **Read ☐** Exam-style Questions Chapter 8: Page 15 **Questions 1-5 ☐** Activities Chapter 8: Page 15 **Activity 1-3 ☐**	Section 6: Pages 81 - 104 **Read ☐** **Questions 1-25 ☐** **Exercises 1-6 P101-104 ☐**	2.1.2 Computational thinking - Principles of computational thinking **Video ☐** **Theory ☐** **Practice ☐** **Exam questions ☐** 2.1.2 Computational thinking - Writing Pseudocode **Video ☐** **Theory ☐** **Exam questions ☐** 2.1.2 Computational thinking - Using Flowcharts **Video ☐** **Theory ☐** **Exam questions ☐** 2.1.2 Computational thinking - Search Algorithms **Theory ☐** **Exam questions ☐** 2.1.2 Computational thinking - Sort Algorithms **Video ☐** **Theory ☐** **Exam questions ☐**	OCR GCSE (J277) 2.1 Abstraction **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Decomposition **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Algorithmic thinking **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Inputs, processes and outputs **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Structure diagrams **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 How to produce algorithms using pseudocode and flow diagrams **Watched ☐** **Notes ☐**

			OCR GCSE (J277) 2.1 Identifying errors and suggesting fixes **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Trace tables **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Binary search **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Linear search **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Bubble sort **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Merge sort **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.1 Inputs, processes and outputs **Watched ☐** **Notes ☐**

Also documents and learning activities that can be found in your exercise books or in the "***Files – Class materials***" of **MS Teams**, **Workbooks** used during the live lessons, BBC Bitesize- Computational thinking, algorithms and programming, Seneca Learning – OCR GCSE Computer Science – Algorithms

Revision Guide for GCSE Computer Science units 2.2 End of Topic Tests

2.2 Programming Fundamentals

I understand and can use variables, constants, inputs, outputs and assignments in a range of different programming scenarios.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use the three basic programming constructs of sequence, selection and iteration.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use the common arithmetic operators including: addition (+), subtraction (-), multiplication (*), division (/), exponentiation (^), modulus (MOD) and quotient (DIV).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand, can use in a program the common Boolean operators: AND, OR, NOT.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program the common comparison operators including: equal to (==), not equal to (!=), less than (<), less than or equal to (<=), greater than (>), and greater than or equal to (>=).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program these data types: integer, real, Boolean, character and string, casting.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I have the ability to choose the correct data type for a given scenario and I understand that data types may be temporarily changed through casting, and where this may be useful.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program string manipulation functions including concatenation and slicing.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program these basic file-handling operations: open, read, write, close.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand how records are used to store data and I can use this in a program.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can use SQL to search for data with the following commands: SELECT, FROM, WHERE.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program one and two dimensional arrays (or equivalent).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use sub-programs (functions and procedures) to produce structured code.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program random number generation techniques.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Zig Zag Learner Companion (Notes in Folder and on Teams)	PG Online Textbook (Available in Teams)	Teach-ICT	Python Programming for OCR GCSE J277 (small folder and on Teams)
Chapter 9 Pages 1-22 **Read ☐** **Practice questions 1-6 (Page 21) ☐** **Activities 1-4 (Page 22) ☐**	Section 7: Pages 105 – 130 **Read ☐** **Questions 1-23 ☐** **Exercises 1-7 P128-130 ☐**	2.2.1 Programming Fundamentals – Variables and others **Theory ☐** **Practice Questions ☐** **Flash-cards ☐** 2.2.1 Programming Fundamentals – Arrays **Theory ☐** **Practice Questions ☐** 2.2.1 Programming Fundamentals – Sequence Selection Iteration **Video ☐** **Theory ☐** **Practice Questions ☐** **Flash-cards ☐** 2.2.2 Data types – Use of data types **Theory ☐** **Practice Questions ☐** **Flash-cards ☐** 2.2.3 Additional programming – String manipulation and handling **Theory ☐** **Practice Questions ☐** **Flash-cards ☐**	OCR GCSE (J277) 2.2 The use of variables, constants, inputs, outputs and assignments **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.2 The use of the three basic programming constructs **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.2 The common arithmetic and comparison operators **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.2 The common Boolean operators **Watched ☐** **Notes ☐**

		2.2.3 Additional programming – File manipulation and handling Theory ☐ 2.2.3 Additional programming – SQL and databases Theory ☐ Practice Questions ☐ 2.2.3 Additional programming – Functions and sub-procedures Theory ☐ Practice Questions ☐ 2.2.3 Additional programming – Random numbers Theory and worked example ☐	OCR GCSE (J277) 2.2 The use of data types and casting Watched ☐ Notes ☐ OCR GCSE (J277) 2.2 The use of basic string manipulation Watched ☐ Notes ☐ OCR GCSE (J277) 2.2 The use of basic file handling operations Watched ☐ Notes ☐ OCR GCSE (J277) 2.2 The use of records to store data Watched ☐ Notes ☐ OCR GCSE (J277) 2.2 The use of SQL to search for data Watched ☐ Notes ☐ OCR GCSE (J277) 2.2 The use of arrays Watched ☐ Notes ☐ OCR GCSE (J277) 2.2 How to use sub programs Watched ☐ Notes ☐ OCR GCSE (J277) 2.2 Random number generation Watched ☐ Notes ☐

Also: Python Programming for OCR GCSE J277 (small folder and on Teams), lesson workbooks and slides found in Teams, Seneca Learning OCR GCSE J277 and Python Programming courses, Python challenges (student resources w drive), 150 challenges (student resources w drive),

Revision Guide for GCSE Computer Science units 2.3 End of Topic Tests

2.3 Producing Robust Programmes

I understand and apply these defensive design considerations: anticipating misuse and authentication.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the issues that a programmer should consider to ensure that a program can cater for all likely input values.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program a range of techniques to deal with invalid data as it is entered into a program (input validation).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use in a program a range of techniques to confirm the identity if a user.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand why it is useful and can use sub-programs, naming conventions, comments and indentation to assist the maintainability of programs.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe the purpose of testing.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can use these types of testing: iterative, final/terminal.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the difference between testing modules of a program during development and testing the program at the end of production.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I am able to identify and correct syntax and logic errors.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand, can use and can explain the use of these types of test data: normal test data, boundary test data, invalid test data, and erroneous test data.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I have the ability to select the correct type of test data for a given programming scenario and can anticipate the result of the test data.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I have the ability to create and use a test plan.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can use testing to correct and refine algorithms and programming code.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Zig Zag Learner Companion (Notes in Folder and on Teams)	PG Online Textbook (Available in Teams)	Teach-ICT	CraignDave (Youtube)
Chapter 9 Pages 13-18 **Read ☐** **Practice question 3 (Page 21) ☐** **Activities 3&4 (Page 22) ☐**	Section 8: Pages 135 – 143 **Read ☐** **Questions 2-5 ☐** **Exercises 3&4 P150 ☐**	2.3.1 Defensive design methods - Defensive design **Theory ☐** **Practice Questions ☐** 2.3.1 Defensive design methods – Maintainable code **Theory ☐** **Practice Questions ☐** 2.3.2 Identify syntax and logic errors - Spotting errors **Theory ☐** 2.3.2 Identify syntax and logic errors - Types of testing **Theory ☐** **Practice Questions ☐**	OCR GCSE (J277) 2.3 Defensive design considerations part 1 **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.3 Defensive design considerations part 2 **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.3 Maintainability **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.3 The purpose and types of testing **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.3 How to identify syntax and logic errors **Watched ☐** **Notes ☐**

			OCR GCSE (J277) 2.3 Suitable test data **Watched ☐** **Notes ☐** **OCR GCSE (J277) 2.3 Refining algorithms to make them more robust** **Watched ☐** **Notes ☐**

Also: Python Programming for OCR GCSE J277 (small folder and on Teams), lesson workbooks and slides found in Teams, Seneca Learning OCR GCSE J277 and Python Programming courses

Revision Guide for GCSE Computer Science
Unit – 2.4 – Boolean logic

2.4 – Boolean logic

I can draw simple logic diagrams with more than one gate, using the correct gate symbols for these operations AND (conjunction), OR (disjunction) and NOT (negation).	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can produce accurate truth tables to represent each gate symbol.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I am able to create, complete or edit logic diagrams and truth tables for given scenarios.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can combine Boolean operators: AND, OR and NOT to two levels.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I am able to apply logical operators in appropriate truth tables to solve problems.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Learner Companion (Folder)	PG Online Textbook	Teach-ICT	CraignDave (Youtube)
Chapter 10: Pages 1 - 6 **Read ☐** Exam-style Questions Chapter 10: Page 6 **Questions 1 - 5 ☐** Activities Chapter 10: Page 6 **Activity 1 & 2 ☐**	Section 8: Pages 132 - 135 **Read ☐** **Questions 1 ☐** **Exercises 1&2 P149 ☐**	2.4.1 Boolean logic - Logic **Video ☐** **Theory ☐** **Practice workbook ☐** **Flashcards ☐**	OCR GCSE (J277) 2.4 Simple logic diagrams **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.4 Truth tables **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.4 Combining Boolean operators **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.4 Applying logical operators in truth tables to solve problems **Watched ☐** **Notes ☐**

Also documents and learning activities that can be found in your exercise books or in the "***Files – Class materials***" of **MS Teams**: **Theory Slideshows 81-84**, **2.4 Workbook (with answers also)**. Also additional handouts given in the classroom, found in your folder or class exercise book.

Revision Guide for GCSE Computer Science
Unit – 2.5 – Programming Languages and Integrated Development Environments

2.5 – Programming Languages and Integrated Development Environments

I understand and can describe characteristics and purpose of different levels of programming language, including low level languages and high level languages.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the difference between high and low level languages.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain the purpose of and the need for translators.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can describe the characteristics of a compiler and an interpreter.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I can describe and use these common tools and facilities available in an integrated development environment (IDE): editors, error diagnostics, run-time environment, translators.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I understand and can explain how each of the tools can be used by a programmer to help develop a program.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆
I have practical experience of using a range of these tools within at least one IDE.	Before Revision☆☆☆☆☆ After Revision☆☆☆☆☆

Learner Companion (Folder)	PG Online Textbook	Teach-ICT	CraignDave (Youtube)
Chapter 9: Pages 18 - 20 **Read ☐** Exam-style Questions Chapter 9: Page 21 **Questions 2, 5 ☐** Activities Chapter 9: Page 22 **Activity 1 ☐**	Section 8: Pages 144 - 148 **Read ☐** **Questions 6-8 ☐** **Exercises 4&5 P150 ☐**	2.5.1 & 2.5.2 Languages & IDE **Theory ☐** **Exam questions ☐**	OCR GCSE (J277) 2.5 Characteristics and purpose of different levels of programming language **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.5 The purpose of translators **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.5 Characteristics of compilers and interpreters **Watched ☐** **Notes ☐** OCR GCSE (J277) 2.5 IDEs **Watched ☐** **Notes ☐**

Also documents and learning activities that can be found in your exercise books or in the "***Files – Class materials***" of **MS Teams**: **Theory Slideshows 84-88**. Also additional handouts given in the classroom, found in your folder or class exercise book.