









# GCSE Computer Science

OCR J276

How to Revise


# Google Classroom

- All Units 1.1 - 1.8
- All Units 2.1 - 2.6
- Anywhere
- Anytime
- Any device

1.1 Systems Architecture		⋮
	1.1 Answers [DIRT]	Posted Oct 4
	1.1 Quality Marked Homework	Due Oct 4
	1.1 Learning Grid	Due Oct 4
	1.1 Resources, Videos and Revision	Edited Sep 25
	1.1 Workbook	Due Sep 20
	1.1 Notes	Due Sep 20

# Resources, Videos and Revision

- Teacher Presentation
- Flipped Learning Videos
- Revision Guide
- Presentation Flashcards
- Memrise Flashcards




## 1.1 Resources, Videos and Revision


Edited Sep 25

The resources listed below cover all of the course content. Use these resources to prepare for lessons, complete classwork, homework and revise for tests.


You will need your account name and password to access the videos outside of school.




**1.1 Teacher Presentation**  
Google Slides




**1.1 Flipped Learning Videos**  
Google Docs



**1.1 Revision Guide**  
Google Docs



**1.1 Systems Architecture ...**  
Google Slides



**Mr Dent's Computer Scie...**  
<https://www.memrise.com/c...>

[View Material](#)

# Flipped Learning Videos

- E-Stream
- YouTube
- Good to refresh knowledge

## **1.1 Systems Architecture - Flipped Learning Videos**

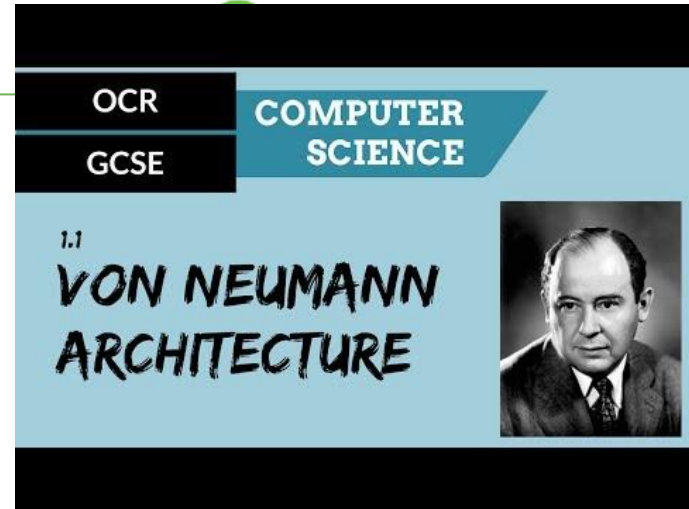
The flipped learning videos listed below cover all of the course content. Use these videos to prepare for lessons, complete your notes and revise for tests. Anything you are unsure of please make notes and ask your classroom teacher.

You will need your account name and password to access these outside of school.

[1.1.1 The Von Neumann architecture](#)

[1.1.2 The common characteristics of CPUs](#)

[1.1.3 Embedded systems](#)



# Revision Guides

- Reduce & Make Notes
- Highlight

1.1 Systems Architecture	
<b>Purpose of the CPU</b>	Carry out the processing on the computer by continuously doing the Fetch > Decode > Execute cycle.
<b>Von Neumann Architecture</b>	All Data and instructions have a unique address in RAM.
<b>Memory Address Register</b>	Contains the <u>address</u> of the data / instruction to be processed.
<b>Memory Data Register</b>	Contains the <u>data / instruction</u> to be processed.
<b>Program Counter</b>	Contains the address of the data / instruction to be processed <u>next</u> . Once an instruction is fetched its value is increased by one.
<b>Accumulator</b>	Temporary store of <u>data</u> , whilst calculations are being performed within the ALU.
<b>Common CPU Components</b>	<b>Arithmetic Logic Unit</b> Data <u>processing</u> within the CPU: - <u>Arithmetic</u> operations (addition, subtraction etc.) - <u>Logic</u> operations (equal to x, Greater than x, less than < etc.)
	<b>Control Unit</b> Controls the way data <u>flows</u> around the CPU. Controls the way data flows between the CPU and Memory & Input & Output devices <u>Executes</u> instructions.
	<b>Registers</b> Hold temporary Data while the program is running. As the CPU processes data, it will shift data in and out of the registers.
	<b>Cache</b> Small block of extremely fast memory found on the CPU contains <u>instructions &amp; Data</u> that are frequently used (often). Eg as INPUT, LOAD, STORE and ADD commands
<b>CPU Performance</b>	<b>Clock Speed</b> How fast the CPU can perform the Fetch > Decode > Execute cycle. Increase the clock speed increase the number of Fetch > Decode > Execute cycles in a given time. <small>1 GHz = 1 Billion Cycles/Seconds</small>


**RAM** is short for random access memory. It is the place in a computer where all the programs and data that are currently in use are stored. These are stored in RAM when they are in use as this allows the computer to quickly access them. This is because RAM is quicker to read to and write from than any other storage in a computer, such as the **hard disk**.

RAM is very useful as it allows quick access to the data and programs in use. However, the items in RAM only stay there as long as the computer is turned on. As soon as the computer is turned off, all the data and programs that are stored in RAM are lost - this means that RAM is an example of what we call volatile memory. In order to save the data and programs we want to use again, a computer needs a hard disk to save these items to. If we save these items to a hard disk they will not be lost when we shut our computer down.

RAM is given this name as any location in the memory can be directly accessed. A computer does not have to move sequentially through each memory location to find the data or program it needs; it can go straight to the memory location through the use of a highly organised and efficient system.

**RAM - the place in memory where all current programs and data are stored**

**Hard disk - a type of magnetic storage device inside a computer that is used to store data long term**



**What is the purpose of ROM?**


**OCR specification reference:**  
[3] the purpose of ROM is a computer system

**ROM** is short for read-only memory. It is given this name as the computer only reads from this memory and doesn't write to it. ROM contains the programs that allow your computer to 'boot up'. The data and programs that are stored in ROM are not lost when the computer is turned off; they will still remain in the ROM.

**ROM - the place in memory where the boot-up programs are stored**


ROM is often described as non-volatile memory, meaning it is permanent. This means that the contents of the ROM remain permanently in the memory, even when the computer loses power.

**RAM and ROM**

<b>RAM</b>	Random Access Memory: When a program is loaded from a computer's hard disk: See Chapter 1.3 - Storage: In data and instructions are copied into RAM, which is generally much smaller but much faster than a hard disk. When a computer is turned off or subject to a loss of power the content of RAM is lost. This means that RAM is volatile. If a computer has more RAM, it will be able to run more applications at the same time.	
<b>ROM</b>	Read Only Memory: Read Only means that the content cannot be added or deleted (meaning it is not volatile). As such, ROM stores data or instructions that do not need to be updated. ROM will typically store booting instructions, which tell the computer the initial steps in finding and installing the operating system when the computer is turned on.	

**Virtual Memory**


Virtual memory - part of the computer's hard disk is treated as RAM, storing data and instructions currently in use. Data is transferred between the two as needed, without the user being made aware of each individual transfer. Virtual memory is used when the computer needs to free up space in RAM for other processes.



**Flash Memory**

Flash memory - a form of memory that stores data using electronic circuits, specifically transistors, but the voltage to control each other power is removed, so it stays safe. Flash memory is non-volatile.

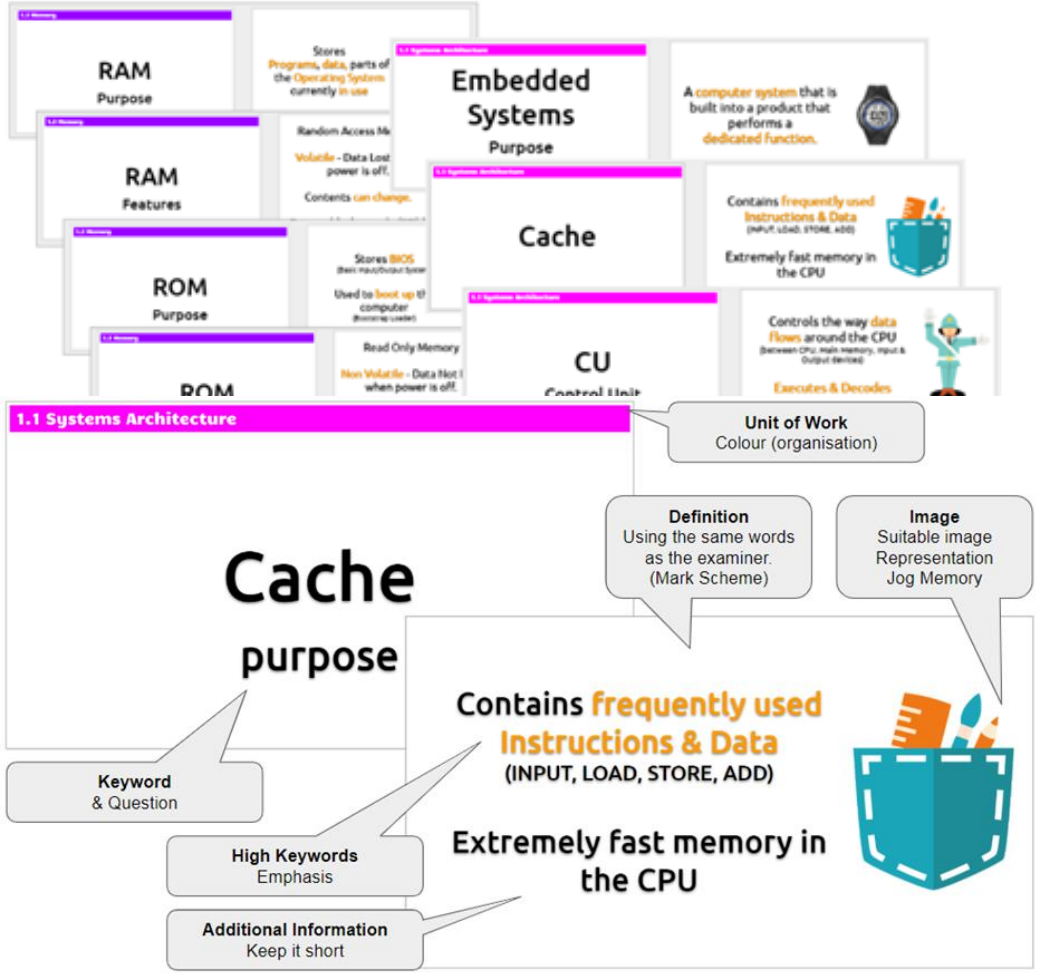
Flash memory is one implementation of solid state drives, which are covered in Chapter 1.3 - Storage.



the king >

# Electronic Flashcards

- Phone/Tablet
- Quick & Easy
- Family & Friends can help
- Important: Say Answers Outloud or Write them down



# Spaced Repetition

- Most Efficient Way to Revise
- Printed Flashcards
- Rubber Band or Envelope for each pile
- Everyday pile 'should' start to get very small



## 30 mins Flashcard Revision

### Idea 1 - Spaced Repetition / 4 piles.

- Use paper clips or **envelopes** to keep your piles together.
- All cards start in the Red 'Every Day' pile. If you get a card **correct**, it is promoted to the next pile.
- If you get a card **wrong**, it is sent back to the 'Every Day' pile.
- Use the **corners** of this sheet to help you organise your piles.
- Eventually all/most cards will be in the Green 'Every 2 Weeks' Pile.

### Idea 2 - Paired Question Master

- In pairs take turns to test each other on both Key terms & Definitions.
- Keep a score

### Idea 3 - Mind Map

- Make a mind map showing how key terms connects to each other.

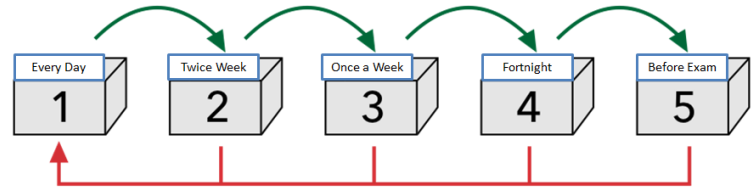
### Top Tips!

- Say your answers **out loud** - not in your head.
- Test yourself **both ways** - Turn your piles upside down.



## Spaced Repetition (Piles)

### CORRECTLY ANSWERED CARDS



### INCORRECTLY ANSWERED CARDS

# Memrise Flashcards

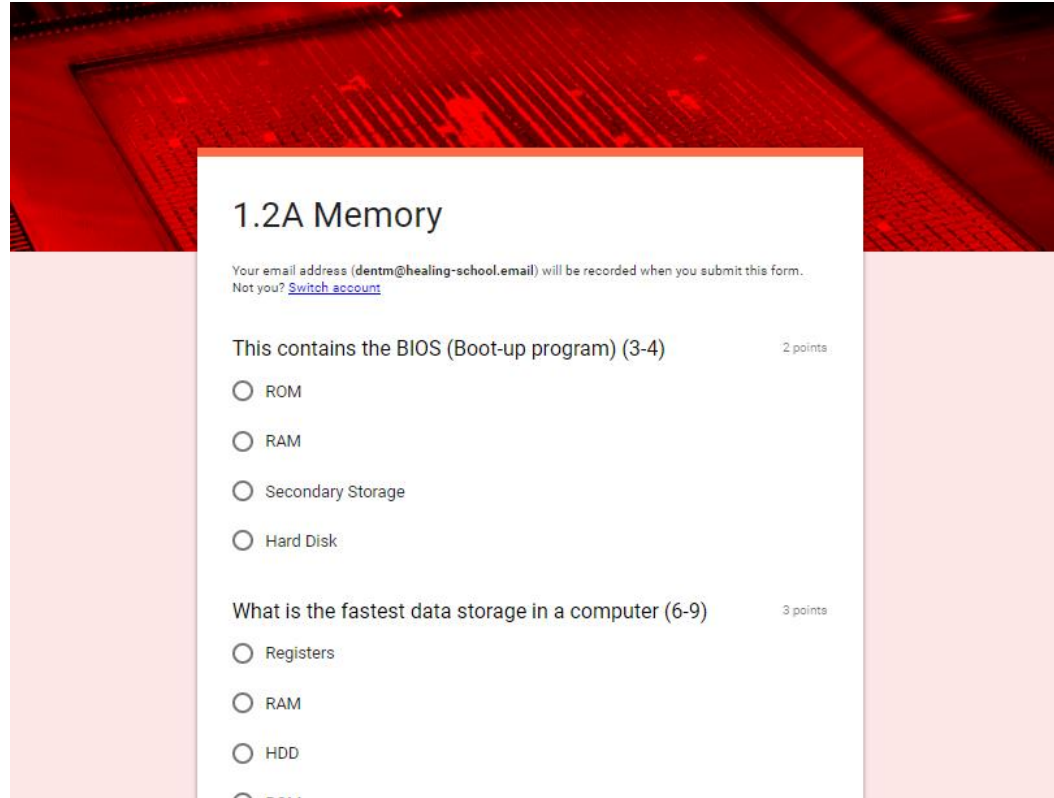
- Electronic method of Spaced Repetition Flashcards
- Slowly introduce new Key Terms
- Assess their recall.
- App / Website

The screenshot displays the Memrise interface for a course titled "Level 1 1.1 Systems Architecture". At the top right, there is an "Edit Level" button. Below the course title, there is a search icon, a trash can icon, and an "Options" dropdown menu. A prominent green button labeled "Learn these words" is located on the right side. The interface shows progress with "14 words" and "0 ignored". A status bar indicates "Ready to learn" (with an eye icon) and "Ready to review" (with a water drop icon), along with an "Ignore" button (with a gear icon). The main content area features a flashcard for the term "CPU - Purpose" with the definition "Continuously perform the FDE cycle". A progress bar is visible next to the definition. The flashcard itself has a light yellow background and a small globe icon in the top right corner. The text on the flashcard reads: "Continuously perform the FDE cycle" and "Pick the correct one". Below this, there are four answer options in rounded rectangular buttons: "1. Registers", "2. Ethernet Cable - Uses", "3. CPU - Purpose", and "4. Purpose of ROM".



# Multiple Choice Quiz

- Quick and Self Marking
- Repeatable



**1.2A Memory**

Your email address (dentm@healing-school.email) will be recorded when you submit this form. Not you? [Switch account](#)

This contains the BIOS (Boot-up program) (3-4) 2 points

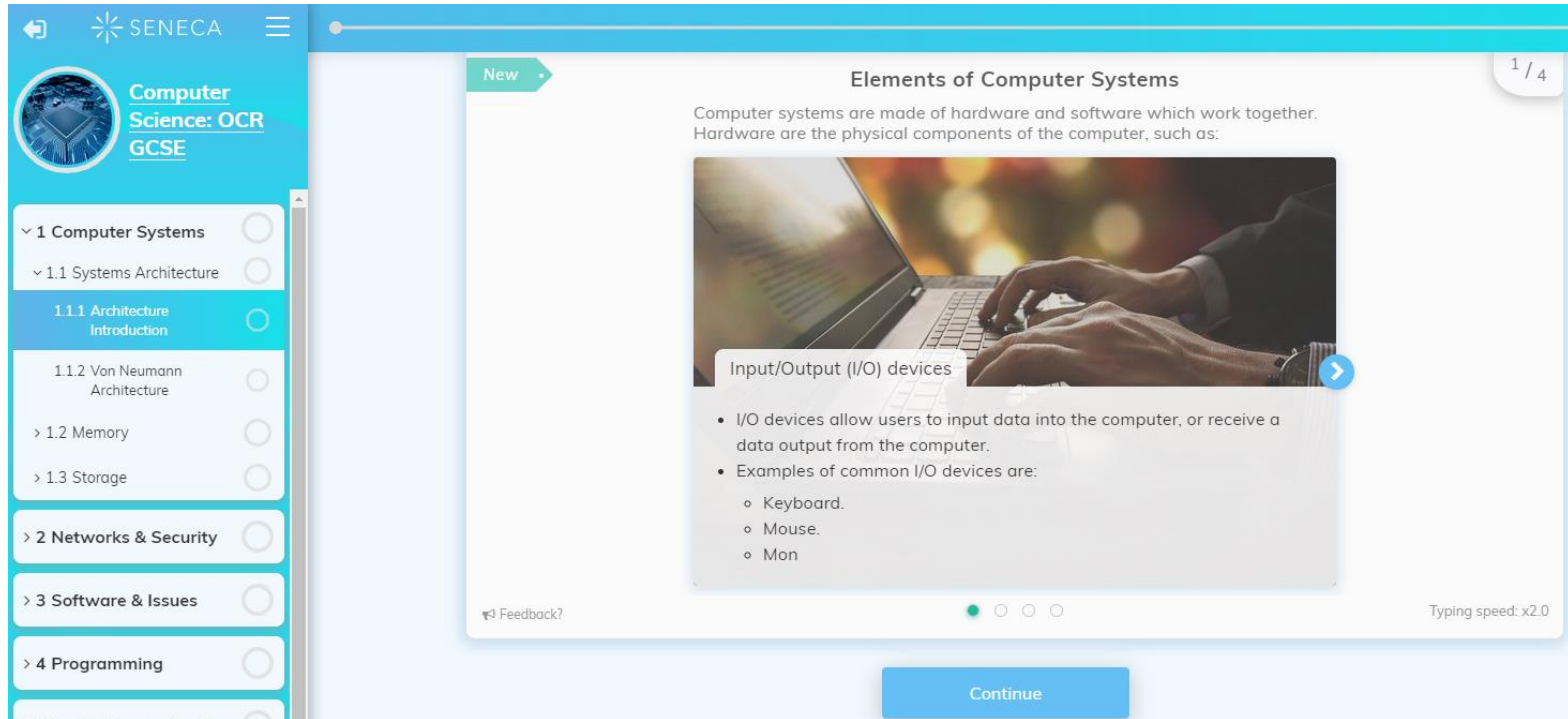
- ROM
- RAM
- Secondary Storage
- Hard Disk

What is the fastest data storage in a computer (6-9) 3 points

- Registers
- RAM
- HDD
- SSD

# Seneca Learn

- Free online revision resource covering the full course for both examinations.



The screenshot displays the Seneca Learn platform interface. On the left is a navigation sidebar with a blue header containing the Seneca logo and 'Computer Science: OCR GCSE'. Below the header, a list of topics is shown with expandable arrows and progress indicators: '1 Computer Systems' (expanded), '1.1 Systems Architecture' (expanded), '1.1.1 Architecture Introduction' (selected), '1.1.2 Von Neumann Architecture', '1.2 Memory', '1.3 Storage', '2 Networks & Security', '3 Software & Issues', and '4 Programming'.

The main content area is titled 'Elements of Computer Systems' and includes a 'New' tag and a '1 / 4' indicator. The text reads: 'Computer systems are made of hardware and software which work together. Hardware are the physical components of the computer, such as:'. Below this is an image of hands typing on a laptop keyboard. A callout box titled 'Input/Output (I/O) devices' is overlaid on the image, containing a list of bullet points: 'I/O devices allow users to input data into the computer, or receive a data output from the computer.' and 'Examples of common I/O devices are:' followed by sub-bullets: 'Keyboard.', 'Mouse.', and 'Mon'.

At the bottom of the main content area, there is a 'Feedback?' link, a progress indicator with four circles (the first is green), and a 'Typing speed: x2.0' display. A blue 'Continue' button is located at the bottom center of the page.