

# CAIE Computer Science IGCSE

## 3.3 Data storage

### Flashcards

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# Why do computers have primary storage (memory)?



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To provide fast access to data, instructions and software currently in use by the CPU.



# What does primary storage usually consist of?



# What does primary storage usually consist of?

RAM and ROM.



# What does it mean for memory to be volatile?



# What does it mean for memory to be volatile?

Its contents are lost when the computer loses power.



# What is stored in the Random Access Memory (RAM)?



# What is stored in the Random Access Memory (RAM)?

The data, instructions, and software that the computer is currently working with.



Is the Random Access  
Memory (RAM) volatile or  
non-volatile?



# Is the Random Access Memory (RAM) volatile or non-volatile?

## Volatile.



# What is stored in the Read-Only Memory (ROM)?



# What is stored in the Read-Only Memory (ROM)?

Firmware that is essential for the computer to boot up and operate.



True or false: the ROM's contents can be modified during normal operation



True or false: the ROM's contents can be modified during normal operation

False.



Is the Read-Only Memory  
(ROM) volatile or  
non-volatile?



# Is the Read-Only Memory (ROM) volatile or non-volatile?

## Non-volatile.



Name three types of  
secondary storage.



Name three types of secondary storage.

Solid-state, optical, and magnetic.



# How does magnetic storage store data?



# How does magnetic storage store data?

Using platters which are divided into tracks and sectors. Data is read and written using electromagnets.



Name a type of magnetic storage device.



Name a type of magnetic storage device.

Hard Disk Drive (HDD).



# How does solid-state storage store data?



# How does solid-state storage store data?

Using flash memory technology based on NAND or NOR transistors that trap charge.



Name three types of  
solid-state storage device.



Name three types of solid-state storage device.

Solid-State Drives (SSD), USB flash drives, and SD cards.



# How do optical disks store data?



# How do optical disks store data?

Using lasers to create and read pits and lands (recessed and raised sections respectively) on the surface of a disc.



Name three types of optical storage device.



Name three types of optical storage device.

CD, DVD, and Blu-ray.



# Why might virtual memory be needed in a system?



# Why might virtual memory be needed in a system?

When a computer's RAM is full and there are still more programs or data that need to be loaded.



# How does virtual memory work?



# How does virtual memory work?

The system uses part of the secondary storage (such as a hard drive or SSD) as if it were extra RAM. Pages of data are transferred between RAM and virtual memory when needed.



# What is cloud storage?



# What is cloud storage?

Where users store their files in a remote location, where magnetic and/or solid state storage is used to store their files on their behalf.



Explain three advantages of cloud storage compared with local storage.



## Explain three advantages of cloud storage compared with local storage.

- Enables users to access their data from more places and devices
- Parts of cloud storage can be made publicly available to others, enabling users to share their data more easily
- The cost of computing devices can be made cheaper to users as there is no need for as much built-in secondary storage



Explain three disadvantages  
of cloud storage compared  
with local storage.



## Explain three disadvantages of cloud storage compared with local storage.

- Cloud storage could potentially cost more in the long-term, as costs are typically ongoing
- There are potential data privacy issues, as there is an increased chance of others accessing personal data
- It relies on access to high-bandwidth network connection

