

4: Yr9 Computer Science: Memory & Storage

Memory

RAM Definition: Random Access Memory, able to read and write data to this memory store.

Contents: Holds programs and files currently in use

Volatility: Yes, loses data when power is lost

ROM Definition: Read Only Memory, only able to read data from this memory store.

Contents: Holds BIOS and BOOTSTRAP, along with other manufacturer data and settings.

Volatility: No, keeps data even when power is off.

Virtual Memory Definition: Area of secondary storage, usually the hard disk drive, reserved as an overflow for RAM when RAM becomes full.

Purpose: Act as overflow storage for data once RAM becomes full.

Impact: + Stops the computer from crashing once RAM is full. - Can slow your computer down during processing data in the FDE as data has to move from VM to RAM before moving to CPU.

BIOS:

Basic Input Output System, a collection of your computer's manufacturer's settings.

Boot Strap:

The path (location) of where the operating system start up files can be found on the hard disk drive.

Storage

Primary Definition: Memory stores directly accessible by the CPU (RAM, CACHE, ROM)

Secondary Definition: Storage not directly accessible by the CPU (HDD, USB stick)

Magnetic Description & Examples: (HDD, Floppy Disk, Magnetic Tape)

Stores data using magnetic fields, + high capacity, + cheap, - slow data access speed, - bulky

Optical Description & Examples: (CD, DVD, Blue Ray)

Stores data using lasers, + Cheap, + Portable, - Unreliable, - Requires additional equipment

Solid State Description & Examples: (USB Stick, SSD, SD Memory Card)

Stores data using electrons, no moving parts: + Robust, +Fast Data Access, - Expensive, - Can be lost

Competencies: I Can...

Explain 3 differences between RAM and ROM

Identify 2 items held in BIOS

Explain what BOOTSTRAP is

Define and give examples of each storage type

State an advantage and disadvantage of each storage type

Explain the meaning of the 6 key terms for storage and relate them to storage types

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Key Terms:

Portability

Durability

Cost

Reliability

Capacity

Speed