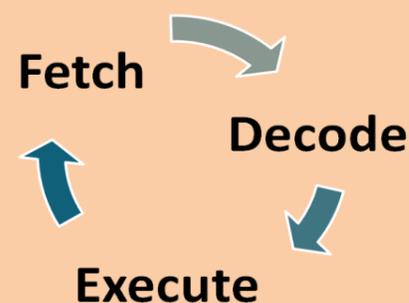


Devices			
Device	What is it?	Input, Output or Storage ?	What it is used for ?
	Monitor	Output	Displaying images and text
	Mouse	Input	Selecting items on a screen
	CD or DVD	Storage	Storing files e.g. movies
	USB Flash Memory Stick	Storage	Backing up or transferring data from one computer to another
	Keyboard	Input	Creating or editing a document
	Printer	Output	Print Work
	Hard Disk Drive	Storage	Storing applications and files
	Speakers	Output	Hearing system sounds / noises / beeps
	Scanner	Input	Scanning important documents to store digitally
	Sim Card	Storage	Storing mobile phone contacts
	Webcam	Input	Using video calling over the Internet
	Headphones	Output	Listening to music

Fetch – Decode – Execute cycle

1. Computer has a list of instructions in memory to carry out
2. CPU **Fetches** top instruction from the list
3. Instruction is passed to **Decoder** to interpret
4. **Decoder** passes on the instruction
5. Instruction is **Executed** or carried out
6. CPU **Fetches** top instruction from the list...



What is Binary

Binary is a number system that only uses two digits: 1 and 0. All information that is processed by a computer is in the form of a sequence of 1s and 0s. Therefore, all data that we want a computer to process needs to be converted into binary.

The binary system is known as a 'base 2' system. This is because:

There are only two digits to select from (1 and 0)

When using the binary system, data is converted using the power of two.

Name	Equal To	Size in Bytes
Bit	1 bit	1/8
Byte	8 bit	1
Kilobyte	1,000 byte	1,000
Megabyte	1,000 kilobyte	1,000,000
Gigabyte	1,000 mega-byte	1,000,000, 000
Terabyte	1,000 gigabyte	1,000,000, 000, 0000

Storage capacities

Device and capacity	Strengths	Weaknesses
USB 6-32Gb or more	Easily portable, fast, high capacity storage, durable.	Easy to lose. Slower than an internal hard disk.
INTERNAL HARD DRIVE 1 TB or more	Large storage capacity.	Internal hard disks are not portable. External hard disks are not very convenient to carry around and have moving parts so are breakable.
OPTICAL DRIVE 4GB to 9GB or up to 50GB for rewritable Blu-ray	Large storage capacity, sound and picture quality excellent, cheap.	Easily scratched, too large to fit in a pocket.
SD CARD 8-64 GB, typically	Used in portable devices such as cameras.	Easily lost. Not good for long term storage – may deteriorate after several years.
CLOUD STORAGE Infinite, depending on how much you are prepared to pay	Useful for backup as it is secure, not likely to be lost. Data can be accessed from anywhere, or shared with others.	Can be slower to access than data held on a local hard disk.

Key Terms

Hardware	Objects that you can touch, like a keyboard.
Software	You cannot 'touch' software. Software refers to the programs that run on a computer. Examples of software: Windows, MS Word, MS Excel, Kodu and Logo.
Input Devices	In computing, an input device is computer hardware which is used to enter data for processing. Examples of input devices include keyboard, mouse, image scanner, digital cameras and joysticks.
Output Devices	An output device is any hardware device used to send data from a computer to another device or user. Typical examples of output devices are monitors and projectors (video), headphones and speakers (audio), or printers and plotters.
Storage Devices	A piece of computer equipment on which information can be stored.
Peripheral	A peripheral device is defined as a computer device , such as a keyboard or printer, that is not part of the essential computer (i.e., the memory and microprocessor).
Binary	Binary is a number system that only uses two digits: 1 and 0.
Operating System	Manages the hardware and software in a computer (e.g. Windows 10).
Systems Software	Software that helps maintain the computer – such as anti-virus or compression ('Zip') software.
Applications Software	Everyday programs such as Microsoft Office, web browsers and graphics packages.
Optical media	Refers to discs that are read by a laser. This includes CD-ROMs, DVD-ROMs.

The CPU and the fetch-execute cycle

What is the purpose of the CPU?

The purpose of the CPU is to process data. The CPU is made up of three main components: SEE TABLE BELOW

Control Unit	The immediate access store	The arithmetic and logic unit.
The control unit controls the flow of data within the system. The control unit controls and monitors communications between the hardware attached to the computer. It controls the input and output of data, checks that signals have been delivered successfully, and makes sure that data goes to the correct place at the correct time.	The immediate access store is where the CPU holds all the data and programs that it is currently using. You can think of it like the numbers typed into a calculator – they are being stored inside the calculator while it processes the calculations. The immediate access store is often referred to as the registers in the CPU.	The arithmetic and logic unit (ALU) is where the CPU performs the arithmetic and logic operations. Every task that your computer carries out is completed here. Even typing into a word processor involves adding binary digits to the file, and then calculating which pixels on the screen should change so that you can see the characters.

CPU speed

A computer's speed is heavily influenced by the CPU it uses. There are three main factors that affect how quickly a CPU can carry out instructions: CLOCK SPEED / CACHE / CORES

CLOCK SPEED	Cores	CACHE
CPUs can only carry out one instruction at a time. It might seem like CPUs can perform many instructions simultaneously, since it is possible for you to do homework, read instant messages and listen to music at the same time. However, the CPU is able to carry out instructions at such speed that it can seem like it is simultaneous.	A CPU is traditionally made up of a processor with a single core. Most modern CPUs have two, four or even more cores. A CPU with two cores, called a dual core processor, is like having two processors in one. A dual core processor can fetch and execute two instructions in the same time it takes a single core processor to fetch and execute just one instruction. A quad core processor has four cores and can carry out even more instructions	This is a tiny block of memory built right onto the processor. The most commonly used instructions and data are stored in the cache so that they are close at hand. The bigger the cache is, the more quickly the commonly used instructions and data can be brought into the processor and used.

Software

Operating Systems

- The operating system is the programme that allows you to interact with your computer
- The operating system and the hardware completes a system of what your computer can do
- There are 2 different types of OS, one is known Microsoft Windows and the other MAC OS
- Microsoft Windows comes preloaded on most Desktop Computers
- Operating Systems does not just come on desktop computers but it can be on smartphones for example Apple IOS and Google Android

System Software

- Type of computer a programme is designed to run a computers hardware.
- System Software controls the computer's internal functioning chiefly through an operating system.
- Directs the computer to execute commands given by the user.
- It controls peripherals such as monitors, printer etc.

Application Software

- A programme or a group of programs designed for end-users
- These application systems exchange data electronically with other applications via a network
- An application systems which normally consists of user interface
- An example of an application system would be photo editor / word processor

PROGRAMS	TYPE OF SOFTWARE
♦ Word processor (Microsoft Word)	♦ Application Software
♦ Anti-virus software	♦ System Software
♦ iOS	♦ Operating System
♦ Compression software (WinZip)	♦ System Software
♦ Disk Cleaner	♦ System Software
♦ File Manager	♦ System Software
♦ Android	♦ Operating System
♦ Windows 10	♦ Operating System
♦ Presentation software (Powerpoint)	♦ Application Software
♦ Web Browser	♦ Application Software
♦ FIFA 17	♦ Application Software
♦ MAC	♦ Operating Software

8 BIT TABLE

128	64	32	16	8	4	2	1
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