Learning Aims

- Difference between hardware and software
- Difference between internal and external components
- Name the different parts of a computer
- Describe the purpose of each component
- To understand the difference between an input and an output device

Key terms

Hardware
Software
Input-process-output
Components
Peripherals
Input device
output device

Motherboard
RAM
Hard drive
GPU
CPU
Network interface card

What is a computer?

- Computers are made up of hardware and software
- Hardware is the physical parts of the computer
- Software is the set of instructions that tells the computer what to do
- They work together to process data and carry out tasks

Today, we will be looking at the hardware components!

Hardware & Software

Computers are made up of hardware and software working together to process data and carry out instructions.

Hardware

- Hardware is the name given to the parts of the computer that you can physically touch.
- This also includes the internal parts of the computer like the hard drive, motherboard and CPU.

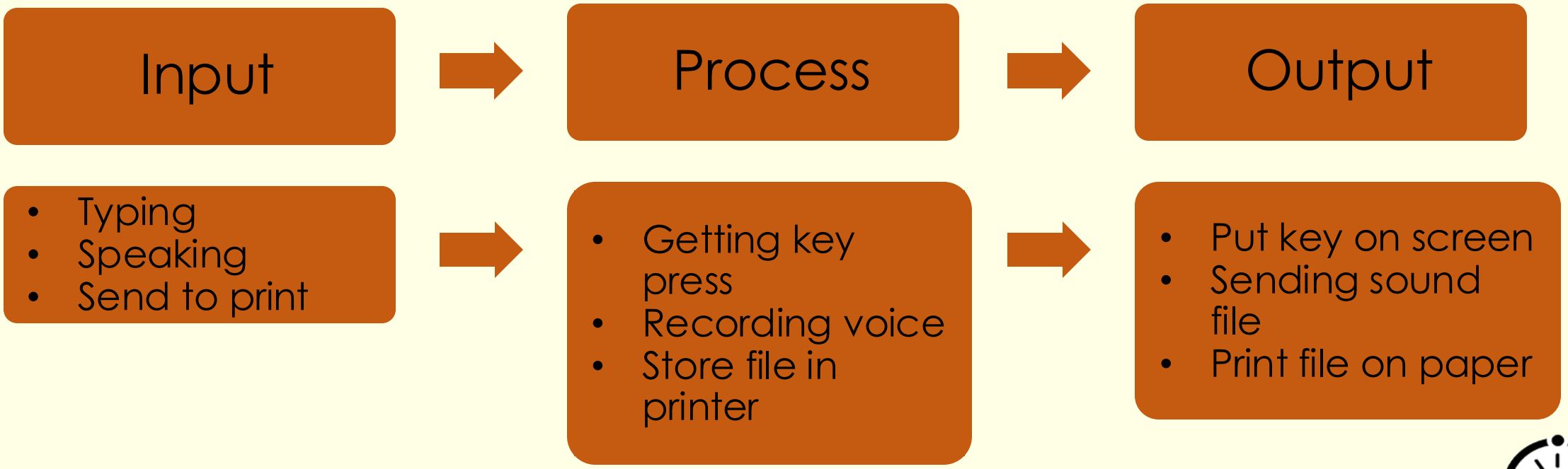
Software

- The term software relates to the sets of instructions that tell a computer what to do or how to perform a task.
- Software is basically the **programs** that are stored on a computer.

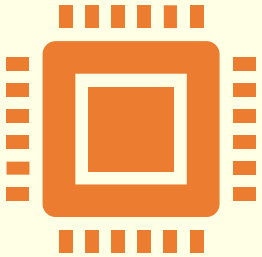
What is a computer?

1. Takes an input, usually from the user (a human)
2. Processes data based on the input
3. Outputs the data in a meaningful way

Note: They will only do what they have been programmed to do



Computer Systems



Internal Components (attached to the motherboard)

The processor

Main memory (RAM)

I/O controllers

Buses

Video card/ graphics card

External components (peripherals)

Keyboard, mouse, printer, disk drives

Output Devices - Video display / Printer

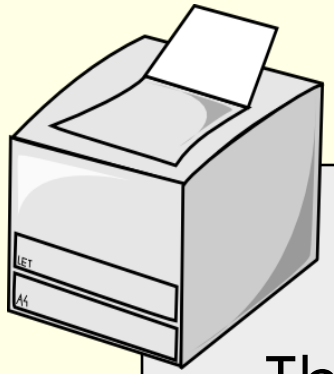
Secondary Storage eg. Flash drive

Input & Output Devices

Input Devices

An input device is a piece of hardware that is used to provide data to the computer; basically, it's a device that allows the user to get data into the computer.

How data enters the computer



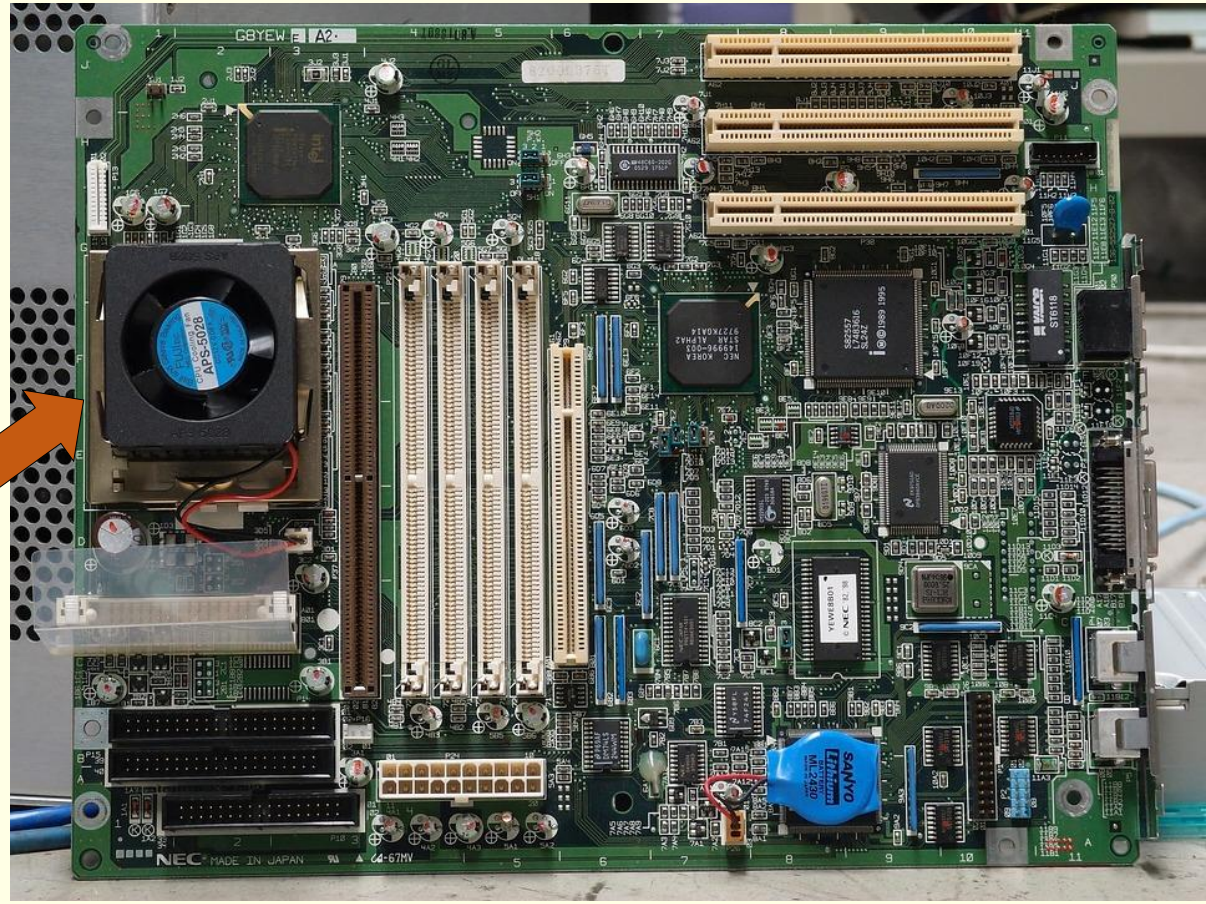
Output Devices

The opposite is true for output devices – these are pieces of hardware that allow data to come out of the system; they allow the user to see or hear the results of what has been processed in the system.

How data leaves the computer

Motherboard

- A circuit board
- Connects all other components together
- The CPU is underneath this fan and heat sink



Random Access Memory (RAM/ Main memory)

- Fast memory where your programs are held while the computer is running

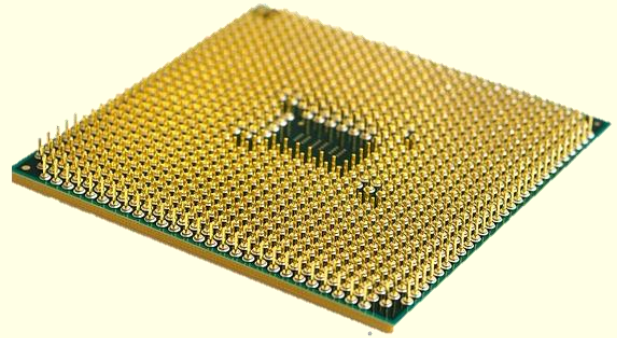
- Does retain data unless it has electricity running through it → "Volatile"

We have a lesson on memory later.

CPU

- Central Processing Unit
- Does almost every processing task, such as calculations
- Made of millions of transistors (tiny switches)

We'll be covering the CPU in detail next lesson



GPU

- Graphics Processing Unit or “Graphics Card”
- Has a processing unit, like a CPU, specialised for processing images
- Required for high-end gaming and media (such as photoshop)

Heat Sink

- Sits on top of your CPU to cool it down (by conducting the heat away from it)
- Often connected to a fan to help it get rid of the heat
- Without it your CPU could melt or set fire to your computer!

FAN

- Used for providing air flow to your computer
- Increased air flow means a cooler computer
- A cooler computer is a faster computer!

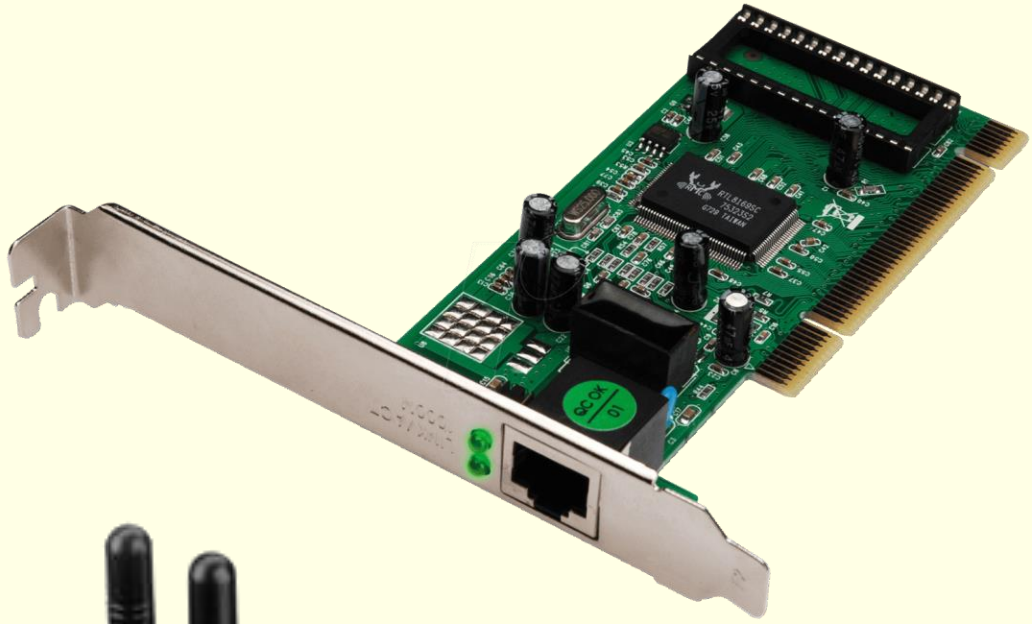
Hard drive

- Also known as a HDD or Hard Disk Drive
- A stack of magnetic disks used to store lots of data
- Where all your files are kept

We'll have a lesson on storage, too.

Network Interface Card

- The interface between your computer and a network
- Used to connect your computer to the internet
- They may also have antenna for wireless support (WiFi)



PSU

- Power Supply Unit
- As the name suggests, it supplies power to the rest of the computer
- Very dangerous, do not mess with this, even when it is off!