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Some General Concepts | IGCSE ICT

Before you begin ploughing through the notes for each part of the syllabus, I recommend that you take a couple of minutes to read through these pages covering some general concepts.

- What is ICT?
- Data and Information
- What is a System?
- What is a Computer?

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What is ICT? | IGCSE ICT

ICT is an abbreviation for...

Information and Communication Technology

The subject of ICT encompasses any technology that allows us to **process data** and to **communicate**.

If you're not sure what that means, keep reading!

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Data and Information | IGCSE ICT

What is Data?

In terms of **ICT**, data is simply any **numbers**, **letters** or **symbols** that can be entered into a computer system.

Here are some items of data:

A, 20, DOG, 3.1415927, ABC123, +++

But what do they mean? Who knows? They could mean anything!

Data values **don't have any meaning** unless we put them into **context** (context means a setting or circumstance).

For instance, in the above example what does the value 20 mean?

20 cm? 20 minutes? 20 cats?

What is Information?

We might enter this data into a computer…

1861977905
0806973587
0806992867
1402748124
0831110848

Without knowing the **context** (what the data actually represents) the data is just a meaningless collection of numbers

However, if we are told that the values represent the ISBNs of books, the values now have a **context**.

With context, they have **meaning** - they are now **information**.

Information is

Data + Context

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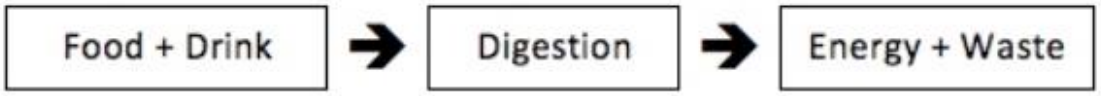
What is a System? | IGCSE ICT

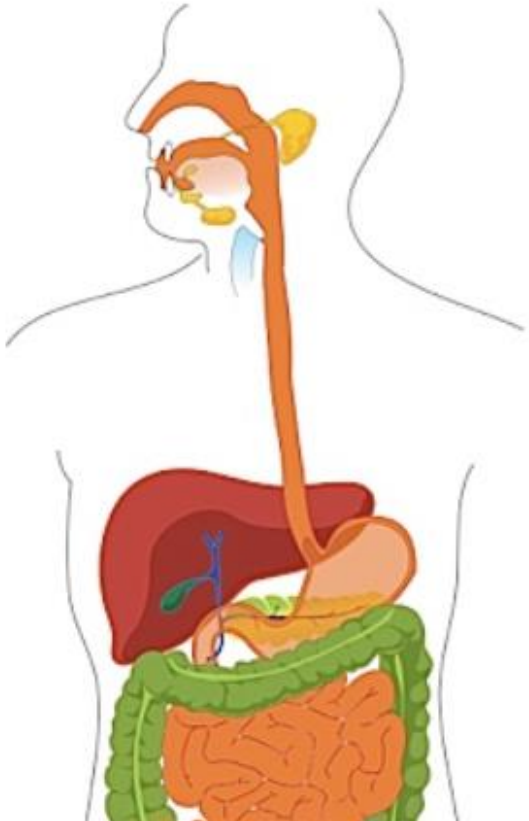
A system has **three** stages...

1. Something feeds into the system (the **input**)
2. The system does something with the input (the **process**)
3. The process gives a result (the **output**)

We are surrounded by all sorts of systems. In fact we actually have quite a few systems inside our bodies, e.g. our digestive system...



A **computer** system also has three stages...



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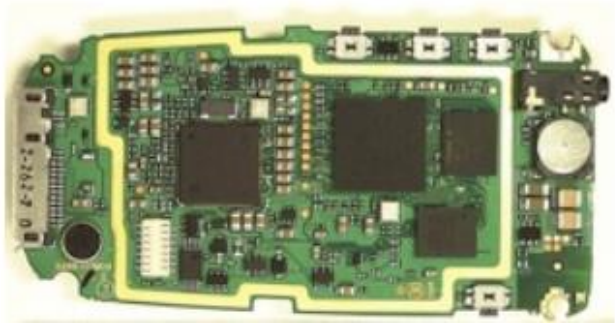
What is a Computer? | IGCSE ICT

Computers come in a huge variety of shapes, and sizes. You will be most familiar with Personal Computers (PCs) – the small computer on your desk, or the laptop in your bag.

However there are some computers that fill whole buildings and others that are small enough to fit in a slim mobile telephone. Whatever the size, all computers do the same thing…

A computer is a device that stores and processes information according to a set of instructions.



In other words, a computer is a device that you feed information into and it does something with the information (processes it) based on some instructions (a 'program') that it has been given.

An Information Processing System

A computer is an information processing system...

Information	→	Processing of the information using instructions	→	New information

It doesn't matter what type of computer we are looking at, or what programs the computer is running, it always takes in information and does something with it.

For example, a **spreadsheet** running on a personal computer...

Data entered into cells	→	*Calculations based on the formulae in cells*	→	*New, calculated values*

Or a **game** being played on a games console (these are computers too)...

Buttons pressed on the joypad	→	*Deciding where the player moves to, which enemies attack, etc.*	→	*Graphics shown on the screen*

The huge room-sized 'mainframe' above and the tiny mobile phone circuitboard below it are <u>both</u> computers