ICT Level 2 – Key Terms 3

1 of 20 – Welcome

Welcome to this session on key terms. In this session we will go back over some of the key terms and think about them in a little more detail.

In this session we will:

* Revisit several key terms from recent sessions
* Consider their specific meanings
* Consider how to use these key terms to explain the internal components of a computer

2 of 20 – Introduction to key terms

**What key terms are we looking at?**

In this session we will think back over the **internal components of a computer** that were introduced in previous sessions. These earlier sessions introduced a number of new key terms, such as:

* RAM (random access memory)
* Central processing unit (CPU)
* Cache memory

We’ll look at these terms, and one or two others, in the sections that follow and think about them in a little more detail.

3 of 20 – Machine code: what is it?

Machine code – sometimes known as machine language – is the internal language of computers.

You might remember back to the first session where central processing units and control units were introduced. These units process instructions between different parts of the computer, and the instructions can then trigger different tasks or allow different programs to run.

Machine code is what these instructions are actually written in.

The code is a special programming language that is made up of binary and hexadecimal figures, which the computer can understand and instantly respond to.

4 of 20 – RAM: what is it?

RAM (random access memory) is an important internal component of any technology device – personal computers, and laptops included.

The RAM is where information and data is stored in your computer, including things such as program instructions and running orders. The central processing unit will go to a computer’s RAM to recall previously stored details, which will then allow the computer to complete an action or instruction given by the user.

There are two main types of RAM:

* Dynamic RAM
* Static RAM

We will look at these in more detail later.

5 of 20 – Central processing unit: what is it?

The central processing unit (CPU) of a computer is the internal component that holds control over the entire computer system, and it also processes much of the data passed around inside the machine, too.

The central processing unit ensures that the correct bits of data go to the correct parts of the computer, so instructions are carried about properly by individual components.

Inside the central processing unit there is the **arithmetic and logic unit**, and there is also the **control unit**.

**Remember:** the arithmetic and logic unit handles a number of different calculations for the computer, while the control unit pulls instructions from the memory store.

6 of 20 – Graphical processing unit: what is it?

The graphical processing unit (GPU) inside a computer is the main component for handling graphics and image delivery.

The unit is designed to control graphics operations and ensure that graphics are displayed properly on a computer’s monitor. However, the unit does have a second job as it can also control and alter the quality of these displayed graphics, too.

This internal component of a computer was not introduced until the late 1990s. Prior to this in time, all of the graphics work was performed by the central processing unit. However, the quick success of the graphical processing unit as a separate component soon saw it introduced as a standard feature within computers.

7 of 20 – Multi-processing core: what is it?

**Remember:** processing cores are designed to understand and then complete program instructions within your computer.

Now though, many computers are built with multiple processing cores as a standard feature.

By having more than one processing core working at any given time, it means that multiple processing cores are able to read and complete instructions in different parts of the computer – but each core can be working at the same time as another.

This allows instructions to be completed even faster, making for an improved user experience, too!

8 of 20 – Clock speed: what is it?

If you think back to an earlier session, you might remember talk of computer clocks and how they indicate the speed at which your computer is completing operations or performing instructions.

This is what the clock speed relates to, as the internal clock(s) inside a computer are designed to monitor the time it takes for individual components to complete their work.

Clock speed is typically measured in either **megahertz (MHz)** or **gigahertz (GHz)**.

Generally speaking, the faster a clock speed, the better a computer’s performance; so clock speeds can be a good indicator of how well your machine is working overall.

9 of 20 – Cache memory: what is it?

Cache memory is a type of memory inside your computer that can be accessed quickly. Not only does cache memory work at a quicker pace, but it is also useful for storing computer programs – particularly the ones that are used quite often – and applications.

The main use for cache memory is that it acts as a buffer between fast and slow devices, which increases the productivity of each device – be it fast or slow – overall.

Cache memory can either be incorporated into the **motherboard** of a computer and be added straight into the processor, or it can be added to the computer’s **RAM** instead.

10 of 20 – Power supply unit: what is it?

A power supply unit (PSU) is basically a piece of hardware that supplies electricity to a device.

A power supply unit for technology systems is the part of the computer that connects to – or rather, plugs into – the main electricity socket.

The power supply unit then runs a low amount of electricity into a computer, enough to power the individual components that can be found inside the machine.

It is important to remember that each power supply unit distributes the same voltage, but the power – or wattage – might be different.

11 of 20 – Solid state: what is it?

Solid state specifically refers to computer components that **do not have any moving parts** – which is what makes solid state drives notably different from hard disk drives.

This technology is not only used in solid state drives though; there are many other examples that can be found inside a computer, such as:

* Cache memory
* RAM (random access memory)

Solid state drives are an increasingly popular storage method within computers now, as they are thought to be more reliable than alternatives – plus they make less noise due to their lack of moving parts.

12 of 20 – Different types of RAM: what are they?

RAM (random access memory) is the memory space in which data from your computer can be stored and then retrieved at a later date. However, there are two different types of RAM that can be used:

* **Dynamic RAM** – sometimes shortened to DRAM, this is often found inside personal computers and laptops. While it can store data for a number of programs, DRAM can only store information when the computer is turned on. When the power is cut, the data will be deleted.
* **Static RAM** – sometimes shortened to SRAM, this is often used inside mobile phones and digital cameras. It can store a significant amount of data safely, and it does not need to be refreshed regularly or connected to power – meaning that your data is safe even without a power supply.

**Flash memory** is similar to static RAM as both types of memory can store data without a power supply. Flash memory can delete data in ‘blocks’ (this is the name for the memory units) and it also stores new data in these unit sizes, too.

13 of 20 – Battery life and system on a chip: what do they mean?

The battery life refers to the amount of time a battery in any given technological device can last, without it needing to be charged again.

System on a chip – sometimes shortened to SoC – refers to a type of technology that is often used in mobile devices. This system works by combining different computer circuits – for example, the central processing unit and the graphical processing unit – and putting them into one chip.

When we talk about chips in technology systems, what we really mean is microchips. A microchip is an integrated circuit which can be attached to a circuit board, which then connects the chip to the larger device as a whole.

For example, consider how the system on a chip technology is inserted into a microwave – the entire microwave then has access to the technology contained within the one microchip.

14 of 20 – Traditional platform: what is it?

In technology systems, a traditional platform is the basic technology that other technologies might be built upon or developed from.

An example of a traditional platform would be a personal computer that still relies on a mains power supply and still uses external equipment, such as a keyboard, a mouse, and a monitor.

So, the platform can be thought of as the foundation on which new hardware and software can be tried and tested, and then developed from.

15 of 20 – Question 1

What are the **two** different types of RAM that can be used within a computer?

Choose all that apply:

1. Dynamic
2. ROM
3. Solid
4. Static
5. Flash

The correct answers are A and D, dynamic and static.

16 of 20 – Question 2

Using the following choice of words; **respond**, **binary**, **instructions**, **internal language** and **components**, fill in the blanks for the paragraph below:

Machine code is known as the **blank** of computers. This is the language that different **blank** are written in, so that they can be read by the different **blank** within the computer. The code itself is made up of **blank** and hexadecimal figures, which the computer can **blank** to instantly.

The correct paragraph should read:

Machine code is known as the **internal language** of computers. This is the language that different **instructions** are written in, so that they can be read by the different **components** within the computer. The code itself is made up of **binary** and hexadecimal figures, which the computer can **respond** to instantly.

17 of 20 – Question 3

Indicate whether the following statements are true or false.

The graphical processing unit controls the entire computer system and processes much of the data.

True

False

The correct answer is: False

Cache memory can act as a buffer between fast and slow devices.

True

False

The correct answer is: True

A power supply unit is a large battery that has to be charged before it can be connected to your computer.

True

False

The correct answer is: False

Solid state refers to memory and storage devices with no moving parts.

True

False

The correct answer is: True

18 of 20 – Question 4

What does system on a chip technology do?

1. It combines different computer circuits onto one individual chip
2. It is inserted into a mobile device to improve the performance of existing circuits

The correct answer is A, it combines different computer circuits onto one individual chip.

19 of 20 – End

Well done. You have completed this session on key terms.

In this session we have:

* Re-visited a number of key terms from recent sessions
* Considered their specific meanings
* Considered how to use these terms to explain the internal components of a computer

If you have any questions about any of these topics, make a note and speak to your tutor for more help.