ICT Level 2 – Hardware Devices

1 of 18 – Welcome

Welcome to this session on types of hardware devices. In this session we will think about a number of hardware devices available on the technology market at the moment and consider their specific uses.

By the end of this session, you will:

* Know of six different types of hardware devices currently available
* Understand the different features built into each device
* Know what the key use is for each device

2 of 18 – Introduction to hardware devices

**What does ‘hardware device’ mean?**

Well, let’s break it down. Hardware refers to any kind of physical instrument or internal element that is used as part of a technology system.

So hardware devices covers things like computers and laptops, amongst other things, all of which can be used to store data, input information (inputting), and distribute information (outputting).

3 of 18 – Different types of hardware devices

The technology industry is fast-growing and so we are introduced to new types of devices all the time. However, there are some devices that are familiar to most, if not all, technology users, such as:

* PCs
* Servers
* Laptops
* Games consoles
* Tablets
* Programmable digital devices

4 of 18 – PC (personal computer)

**Personal computers** – as the name might suggest – are designed to be used by one individual at a time. They can often be found in companies, schools, or even at home.

Nowadays, personal computers are thought to be fairly **inexpensive** hardware devices – especially in comparison to some alternatives that are now available.

They have a **broad range of uses**, covering things such as:

* Word processing
* Data storage
* Managing or monitoring finances
* Computer games

5 of 18 – PC (personal computer): key features

Each PC has a number of key features that individuals must consider before making a purchase. These key features, although present in each PC, can change from one model to the next, and so you need to be aware of things like:

* Processor type (is it single core, dual core, or quad core?)
* Processor speed (1.6 or 2.6 gigahertz)
* Amount of RAM (Random Access Memory)
* Network connectivity (is it wireless or wired?)
* Storage size (for example, 160 gigabytes)
* Storage type (for example, Solid State Drive, sometimes called SSD)
* Type of operating system (is it using Windows, OS X, or something else?)

6 of 18 – Server

**Server** is a term that can refer to either a computer, a device, or a programme.

As we’re talking about hardware devices, we can think of a server as a **large and powerful computer**. Its key feature is that it has lots of RAM and available disk space, which means it can safely store huge amounts of information.

The server belongs at the central hub of a network of other computers, and this is really its main use – the server controls the network that the surrounding computers are connected to.

Due to the server being the biggest and most powerful computer, not only does it store huge amounts of data, but it can also be used to control who has access to that data.

7 of 18 – Laptop

A **laptop** is basically a personal computer that you can take on the move with you. It mostly has the same features and uses as a personal computer, as it provides users with the right equipment for word processing, data storage, and even computer games.

You will need to look out for the same internal features as with a personal computer, such as: processor speed, type of operating system, and storage type.

However, the key use of a laptop that distinguishes it from personal computers is that it allows for mobile computing. The ability to take this device on the go is what gives it a competitive edge – for most users – over the static personal computer.

8 of 18 – Tablet

**Tablets** have become an extremely popular hardware device in recent years, with companies such as Apple, Samsung, and Amazon launching their own versions – and many updated versions to follow the originals.

In terms of their key features, these also have many similarities with a personal computer. The difference is that tablets all feature touch-screen technology, and they all typically run a mobile operating system.

While tablets do allow for things such as word processing, and (a little) data storage, their key use is web browsing. Despite tablets being used in large businesses now, they are also still heavily aimed towards individual users.

9 of 18 – Games console

**Games consoles** are a booming product in the technology industry. We have PlayStation and Nintendo, amongst others, frequently releasing new consoles on the market, but we don’t often think of these consoles as computers – even though at their core, that’s what they are.

Consoles are computer systems that feature a high-quality graphics card – this allows graphics to appear in high quality with better colour, definition, and overall appearance.

Games consoles are also designed to display and run games more efficiently than the average personal computer (although custom-built gaming-computers are available now, too).

The key use for this style of device is, of course, gaming!

Some examples of games consoles are:

* PlayStation 4
* Xbox One
* Nintendo Switch

10 of 18 – Programmable digital devices

**Programmable digital devices** is an umbrella term that covers a number of products. To narrow it down a little, this basically covers anything that uses a digital control – that’s the key feature that ties these different things together.

So, a programmable digital device could be a digital alarm clock, but it could also be a microwave oven (they both have some kind of digital control).

Unlike the uses found for the earlier devices, here the main use of this system is that it controls hardware. Think about how the digital control of a microwave oven controls how the machine functions; when it starts, how long it heats for, when it stops.

11 of 18 – Question 1

Match the devices; **personal computer**, **laptop** and **tablet**, to the descriptions below:

1. A device for mobile computing – the key use of this device is that you can take it on the move with you wherever you go
2. A distinguishing feature of this device is that it uses touch-screen technology and it is most commonly used for web browsing
3. Designed to be used by one person at a time and they are static, so cannot be moved around

The correct answers are:

A description of a **laptop** is a device for mobile computing – the key use of this device is that you can take it on the move with you wherever you go.

A description of a **tablet** is a distinguishing feature of this device is that it uses touch-screen technology and it is most commonly used for web browsing.

A description of a **personal computer** is that it is designed to be used by one person at a time and they are static, so cannot be moved around.

12 of 18 – Question 2

A server is the biggest computer that has control over a network of computers. This means that it has which of the following?

1. Lots of RAM and available disk space, so that it can store huge amounts of data.
2. Not much functional use, and only small amounts of storage space.

The correct answer is A, lots of RAM and available disk space, so that it can store huge amounts of data.

13 of 18 – Question 3

Indicate whether the following statements are true or false.

A microwave oven is an example of a programmable digital device.

True

False

The correct answer is: True

Games consoles use low-quality graphics cards, so your computer generates less heat.

True

False

The correct answer is: False

Games consoles are best used for everyday apps, like word processing and document storage.

True

False

The correct answer is: False

Personal computers can often be found in companies, at school, or even in the home.

True

False

The correct answer is: True

14 of 18 – Additional uses for hardware devices

Hardware devices can be used for lots of different things and can be split into three sections: hardware devices which input data, hardware devices that output data and hardware devices that can store data.

**Inputting**

Alongside the uses that have already been mentioned, hardware devices can also be used by technology systems for one or two other reasons such as: inputting information (sometimes just referred to as inputting). This means putting information or commands into the system, and can be done by using:

* A keyboard
* A mouse
* Sensors
* Touch screens
* Digital cameras
* Microphones
* Scanners

**Outputting**

Hardware devices can also be used to distribute information – sometimes referred to as outputting. This is the term that’s used when information is transferred out of your technology system, often using one of the following devices:

* Printers
* Speakers
* Force feedback devices
* Actuators
* Screens
* Projectors

**Data Storage**

Finally, hardware devices can also be very useful for data storage. This means anything that can hold information and data when the hardware device or technology system itself is turned off. Examples of data storage devices include:

* Solid State Drives (SSD)
* Optical media (for example CDs, DVDs, or hard disks)

15 of 18 – Question 4

What three uses are commonly associated with hardware devices?

Choose all that apply:

1. Data storage
2. Word processing
3. Inputting information
4. Web browser
5. Distributing information

The correct answers are A, C and E, data storage, inputting information and distributing information.

16 of 18 – Question 5

Categorise the items below according to their type, either **used for inputting**, **used for outputting** or **used for data storage**.

DVDs

Keyboard

Printer

Solid-state drive

Projector

Touchscreen

Screen

Microphone

The correct answers are:

Keyboard, touchscreen and microphone are items **used for inputting**.

Printer, projector and screen are items **used for outputting**.

DVDs and solid-state drive are items **used for data storage**.

17 of 18 – End

Well done. You have completed this session on different types of hardware devices.

In this session we have looked at:

* Six different types of hardware devices currently available
* The different features built into each device
* The key uses for each device

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