ICT Level 2 – Key Terms 2

1 of 19 – Welcome

Welcome to this session on key terms. A lot of key terms are being introduced in these sessions.

In this session we will:

* Revisit a number of key terms from recent sessions
* Consider their specific meanings
* Consider what these terms mean to technology systems

2 of 19 – Introduction to key terms

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

In this session we will think back to computer networking and data transfers. These introduced new terms and devices to us, such as:

* 3G mobile phone technology
* Synchronising (data)
* Cabled topology and technology

We’ll look at these terms, and one or two others, in the sections that follow and think about what the terms mean in real-life practice.

3 of 19 – Types of network: what are they?

**Remember:** there are four main network types that you are most likely to come across.

**Local area network (LAN)** – this works to connect a number of different computers and associated devices, all of which are connected inside quite a small geographical area. LANs are often used in schools or in homes.

**Wide area network (WAN)** – this works to connect multiple local area networks to one larger, all-inclusive network. WANs can connect computers that are whole cities and countries away from each other, making this network particularly useful for large businesses.

**Personal area network (PAN)** – this works to connect a number of different devices, all owned by one user. This network type allows a computer, laptop, tablet, and more to be connected to each other and share information inside one personal network space.

**Mobile broadband** – this works by using 3G mobile phone technology to connect your device to the internet.

4 of 19 – 3G mobile phone technology: what does this mean?

3G refers to third generation technology – this follows on from 1G and 2G and is now the foundation for 4G.

3G technology works by passing information from one phone tower to the next, until the tower closest to your mobile device is able to transmit data to your phone (or another similar technology device that you might be using).

The main reasons behind this technology’s popularity are that it allows for increasingly fast data exchanges, and it has also allowed for an increase in network capabilities – meaning networks can do more with this technology than they have with any technology before.

3G technology has also allowed for huge developments with how we connect our smartphones, and other associated devices, to different networks.

5 of 19 – Dongles: what are they?

When 3G mobile phone technology is used, dongles are never usually too far away – largely because dongles allow technology devices other than your phone, for example, your laptop or your netbook, to connect to a 3G wireless network.

Dongles are typically small devices – available from many different technology retailers – and they connect to your device via one of your USB ports.

Dongles are available with 3G technology but now that 4G is becoming more popular and reliable in the technology industry, dongles are picking up this new technology as well. They are a particularly useful device for ensuring you have a workable internet connection while you’re on the move.

6 of 19 – Synchronising data: how does this work?

**Remember:** when we talk about synchronising data, we mean that we’re making our data available on more than one technology device.

When you use any given device, the data that is stored on it will only be stored from the last time you used it, and so you may need to sync one device with another – for example, your phone to your laptop, or vice versa – to make sure you have the most recent data stored on both.

There are lots of types of data that we might share through synchronising our devices, for example, text messages, photographs, music, or even podcasts.

Podcasts have become particularly popular over the last two to three years. They are downloadable either as audio or video recordings, and they are available now from a number of different sources, for example, Apple iTunes, or the BBC. When you have downloaded the podcast you can access it whenever you want, either on your phone or your computer – or both, if you synchronise your data!

7 of 19 – Question 1

What does 3G technology stand for?

1. Three gigabyte technology
2. Third generation technology
3. Third generic technology
4. Three geared technology

The correct answer is B, third generation technology.

8 of 19 – Question 2

Indicate whether the following statements are true or false.

Dongles are small devices that connect to your laptop via a USB port, allowing you an internet connection.

True

False

The correct answer is: True

Dongles are fairly large devices that connect to your computer or tablet, allowing you a 2G internet connection.

True

False

The correct answer is: False

9 of 19 – Question 3

Using the following choice of words; **backing up**, **up-to-date**, **synchronise**, **available**, **text messages**, **downloaded** and **computer**, fill in the blanks for the paragraph below:

When we **blank** data across devices, what we really do is make our data **blank** from a number of different places. This means that whichever device we are using has the most **blank** version of our data, rather than data that is no longer relevant. This process is useful for **blank** documents, but we also need to synchronise more everyday information, for example **blank** or emails. Podcasts are another example of data that users might synchronise to different devices, as once these are **blank**, they can be accessed from either your **blank** or your phone.

The correct paragraph should read:

When we **synchronise** data across devices, what we really do is make our data **available** from a number of different places. This means that whichever device we are using has the most **up-to-date** version of our data, rather than data that is no longer relevant. This process is useful for **backing up** documents, but we also need to synchronise more everyday information, for example **text messages** or emails. Podcasts are another example of data that users might synchronise to different devices, as once these are **downloaded**, they can be accessed from either your **computer** or your phone.

10 of 19 – Transferring data: physical methods

**Remember:** when we are transferring data, we can either use physical methods or wireless methods.

The most common physical methods are:

* **Optical fibre** – this method is particularly useful for extremely fast connections, and for carrying data across a long distance, making it a preferred method for broadband connections
* **Unshielded twisted pair (UTP)** – this method is a cheaper alternative, and it is particularly reliable for local area networks. There are five different categories of UTPs to choose from
* **Coaxial cables (coax.)** – this method is thought to be much slower than alternatives and so it isn’t often used for technology systems anymore, although phone and television providers still use this method sometimes

11 of 19 – Physical methods: cabled technology and topology

Physical methods of data transfer are given this name because they rely on a physical device – in this context, that means the cables that are used – to ensure the data transfer takes place.

When each device is connected together by the use of a cable of some description; we can call that **cabled topology** (or sometimes **cabled technology**).

This tells users that the devices are connected via a cable rather than relying on any kind of wireless connection.

The phrase ‘cabled topology’ can be used to refer to any kind of cabled method, and so it won’t change regardless of the type of cables you are using.

12 of 19 – Physical methods: switch

**Remember:** when optical fibre is being used for data transfers, these cables are typically connected to switches within a network to allow for fast transfers and connections.

A switch is a small flat box that contains ports – or sockets – that are used to connect the network’s cables.

If a network is cabled, then the switch is the system used to connect all of the devices within that network together.

Switches are particularly useful when it comes to distributing technologies too, as they can limit the traffic to and from each connected device, meaning that each device across the network is given a good enough connection to keep running.

13 of 19 – Wireless methods: take it further

**Remember:** wireless methods for data transfer are anything that does not rely on a physical connection being made between two devices. The main examples of this are Wi-Fi and Bluetooth connections.

To make sure that Wi-Fi devices can work to a high enough standard, there are rules and regulations in place to make sure that systems can properly send out and receive data.

**The Institute of Electrical and Electronics Engineers** has a whole group devoted to monitoring what they call the **802.11 protocol** (pronounced eight-oh-two-dot-eleven).

802.11 is an umbrella term for a family of different standards, all of which provide technology guidelines for how different Wi-Fi should be performing.

Visit the following website to learn more about the 802.11 protocol:

[802.11 Standards Explained](https://www.lifewire.com/wireless-standards-802-11a-802-11b-g-n-and-802-11ac-816553)

14 of 19 – Question 4

Think about what we have discovered about cabled topology. Which definition is correct?

1. This is when one device is connected to another device by the use of a cable
2. This is when a device cannot be connected to a cable, and so needs a wireless connection

The correct answer is A, this is when one device is connected to another device by the use of a cable.

15 of 19 – Question 5

Using the following choice of words; **ports**, **cables**, **distributing**, **switch** and **traffic flow**, fill in the blanks for the paragraph below:

A **blank** is a small flat box that has **blank** or sockets built into it; **blank** are connected to these which allow the switch to connect to an entire network of computers. Switches are also useful for **blank** technologies fairly across a number of users, too. They can control the **blank** to or from a particular device, meaning that there is an equal share given to different devices within the network.

The correct paragraph should read:

A **switch** is a small flat box that has **ports** or sockets built into it; **cables** are connected to these which allow the switch to connect to an entire network of computers. Switches are also useful for **distributing** technologies fairly across a number of users, too. They can control the **traffic flow** to or from a particular device, meaning that there is an equal share given to different devices within the network.

16 of 19 – Question 6

Match the different cable types; **optical fibre**, **unshielded twisted pair** and **coaxial cables**, to the descriptions below:

1. Very reliable for fast connections and long distances, these are particularly useful for broadband connections
2. Thought to be a little slower than other cable types and so aren’t often used in the technology industry anymore – though other industries still use them on occasion
3. There are five different types available, all of which are useful for data transfers on a local scale

The correct answers are:

A description of **optical fibre** cabling is very reliable for fast connections and long distances, these are particularly useful for broadband connections.

A description of **unshielded twisted pair** cabling is there are five different types available, all of which are useful for data transfers on a local scale.

A description of **coaxial cables** is thought to be a little slower than other cable types and so aren’t often used in the technology industry anymore – though other industries still use them on occasion.

17 of 19 – Question 7

What does the 802.11 protocol do?

1. Provides technology guidelines for how to properly install Wi-Fi
2. Ensures that Wi-Fi connections are performing to an appropriate standard
3. Delivers a cheat for users to access free Wi-Fi connections
4. Ensures that Wi-Fi connections are only delivered to fast-acting devices

The correct answer is B, ensures that Wi-Fi connections are performing to an appropriate standard.

18 of 19 – End

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

In this session we have:

* Revisited a number of key terms from recent sessions
* Considered their specific meanings
* Considered what these terms mean to technology systems

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