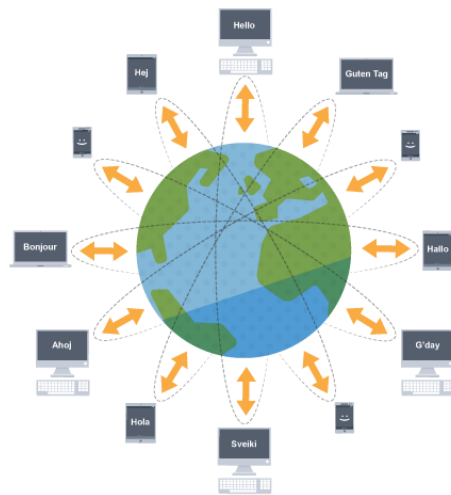# Internet and communication

As a society we need to communicate and share. The internet allows us to communicate and share information in a matter of seconds.

What is the internet?

The internet has revolutionised the way we work and play. It allows us to communicate, to share data and to seek information in a matter of seconds. All this is possible through the use of computers and networks.

The internet is a global network of computers. All computer devices (including PCs, laptops, games consoles and smartphones) that are connected to the internet form part of this network. Added together, there are billions of computers connected to the internet, all able to communicate with each other.

Today, the internet is a massive part of our daily lives.

When we connect to the internet, we are said to be 'online'. Today the internet has many online facilities, for example:

- communication via email and VoIP
- sharing of information such as text, images, sounds and videos
- storage of information
- streaming television programmes, films, videos, sounds and music
- playing online games
- shopping
- social networking
- banking

Most of these online facilities are available through the use of websites on the World Wide Web.

What is the World Wide Web?

The internet is a global network of computers. The World Wide Web is the part of the internet that can be accessed through websites. Websites consist of webpages which allow you to see information.

Websites are accessed using a web browser. A browser is a program designed to display the information held on a website. Every website has an address at which it can be found, a bit like a house address.
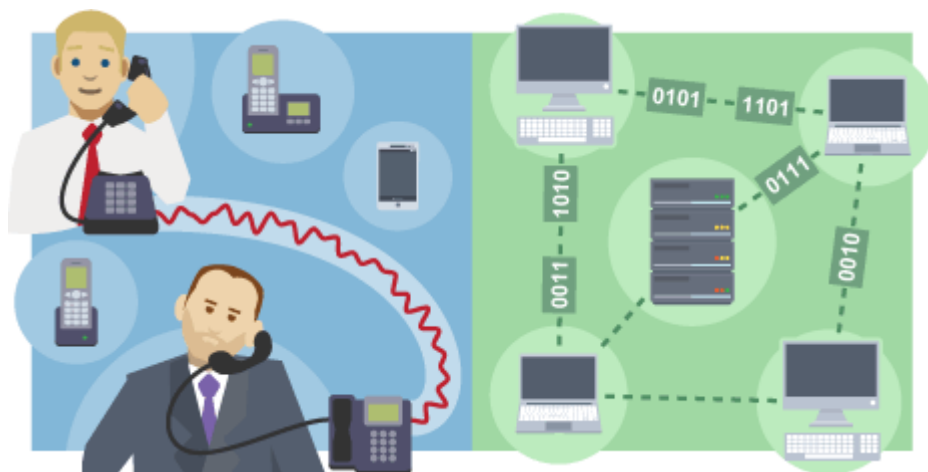
A website's address is known as its URL. A website can be visited by typing its URL into a web browser. Each address contains the prefix 'http:' which tells the computer to use the hyper text transfer protocol for communicating with the website. The browser then connects to the internet, finds the website at its address and downloads the information stored there onto our computer for us to view.

Websites and webpages are joined together using hyperlinks. Clicking on a hyperlink takes us to another site or page.

Transferring information via the internet

The internet is a global network of computers, some of which are called web servers. A web server is a computer which holds websites for other computers linked to the internet to access. Holding a website is known as 'hosting'. A web server may host one or many websites and webpages. Sending information to a web server is known as uploading. Receiving information from a web server is known as downloading.

When you make a telephone call, a direct connection is formed between you and the person you are calling. While you are making the call, no-one else can communicate with you. A web server needs to be able to communicate with many different computers at the same time. When information is uploaded to, or downloaded from, a web server it is broken up into tiny pieces called data packets. Each packet is a very short communication between the client computer and the web server. Because each communication lasts only milliseconds, the web server can seemingly communicate with many computers at the same time. It is a bit like having several conversations at the same time, but only saying one word to each person in turn.

Using email to communicate

Two of the main ways in which people use the internet for communication are email and VoIP.

Email (short for electronic mail) is the digital equivalent of sending a letter. Each email has a sender, a receiver and a message. The big difference is that instead of waiting for our posted letter to be delivered by the post office, an email is sent and received almost immediately.

Advantages and disadvantages of email

Aside from speed, email has several other **advantages**:

- It costs virtually nothing to send an email, whereas you need to buy stamps to post a letter.
- The same email can be sent to many people at the same time.
- Assets, such as text, videos or sound clips, can be attached to email.
- A record is kept of each sent email, so it is possible to refer back to check what was sent.
- When emails are sent, the recipient doesn't have to be there. Emails can be sent late at night and the recipient will see it when they check their email the following day. This has great benefits when sending emails to another part of the world.
- Emails can be sent at any time or day of the year. Post is not usually delivered on Sundays or bank holidays.
- Emails can be sent and received on various internet connected devices, eg PCs, laptops, games consoles, tablets or smartphones.
- Emails can be automatically forwarded on to another address.

Using email has its **disadvantages** too:

- The recipient can only receive the email if they are connected to the internet.
- Emails can sometimes contain viruses in the form of attachments.
- Spam emails can be a problem. So can phishing emails, which are designed to trick people into giving away personal information.
- Because emails can be delivered to internet-connected digital devices anywhere, they can be hard to get away from.

Email is a hugely popular form of communication for businesses and individuals alike. Nearly 200 billion emails are sent each day.

Using VoIP and video conferencing

A video conference is live video streamed over the internet so that people can communicate face to face without being in the same room. Although this was mainly used by businesses and academics at first, video conferencing is now used socially by many people. **Voice over Internet Protocol (VoIP)** is the technology that allows us to video conference. Many companies offer free VoIP services, including Skype, Apple Facetime and Google Hangouts.

To video conference with another person, both people need an internet-connected computer with a monitor, webcam, microphone and speakers. The webcam allows video images to be sent, which are seen on the monitor, and the microphone allows sound to be transmitted, which is heard through speakers. A program called a VoIP client handles the communication.

Video conferencing technology is built into many modern laptops, tablets and smartphones, and VoIP apps are available to use, often for free.

Advantages and disadvantages of video conferencing

Video conferencing has several **advantages**:

- Seeing as well as hearing the other person.
- Showing others what is going on around us.
- Reducing time to travel to see and speak with someone. This has even greater benefits if the other person is on the other side of the world.
- Saving money, in travel costs.
- The ability to video conference several people in different locations, at the same time.

Using video conferencing also has its **disadvantages**:

- Everyone who wants to video conference must have suitable hardware and software.
- Video conferencing from smartphones can be expensive because of the high data usage.
- Streaming video two ways requires a good deal of bandwidth. You might struggle to video conference if your connection to the internet is of poor quality.