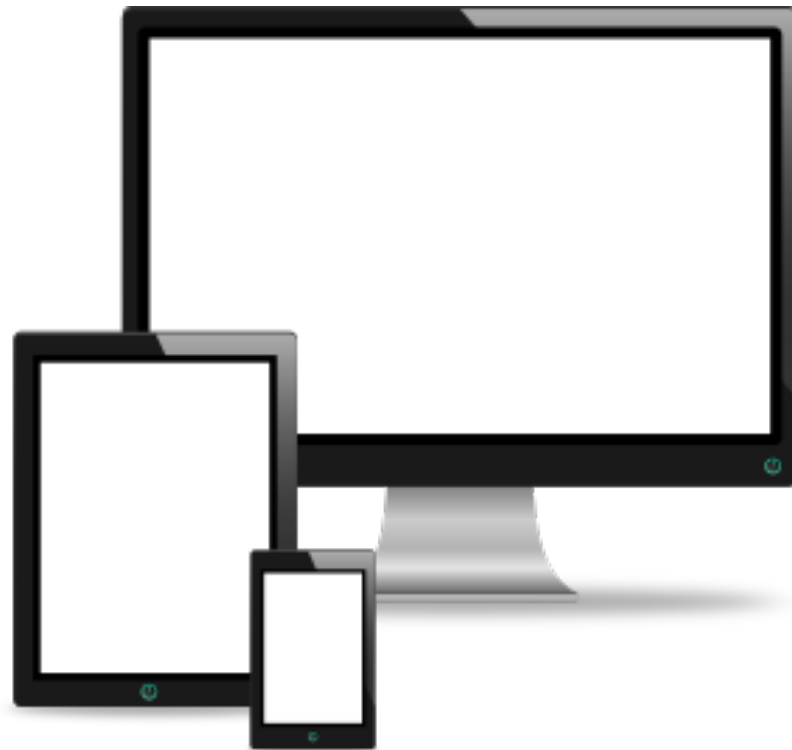


Computer Basics

(Covers desktop/laptop computers, smartphones and tablets)



Bonsor 55+ Computer Group

Outline of topics

Computer Basics Part 1:

What is a computer, types of computers

What is a computer?

- General definition

- Hardware and software

Types of computers (hardware)

Computer Basics Part 2: Software

Software

- Operating systems

- Applications

Outline of topics

Computer Basics Part 3: The internet

What is the internet?

How to connect to the internet

What you can do on the internet

Computer Basics Part 4: The Cloud

What is the cloud?

Cloud computing

Cloud and web applications

Acknowledgement

Material is based on the tutorial "Computer Basics" at GCFLearnFree.org

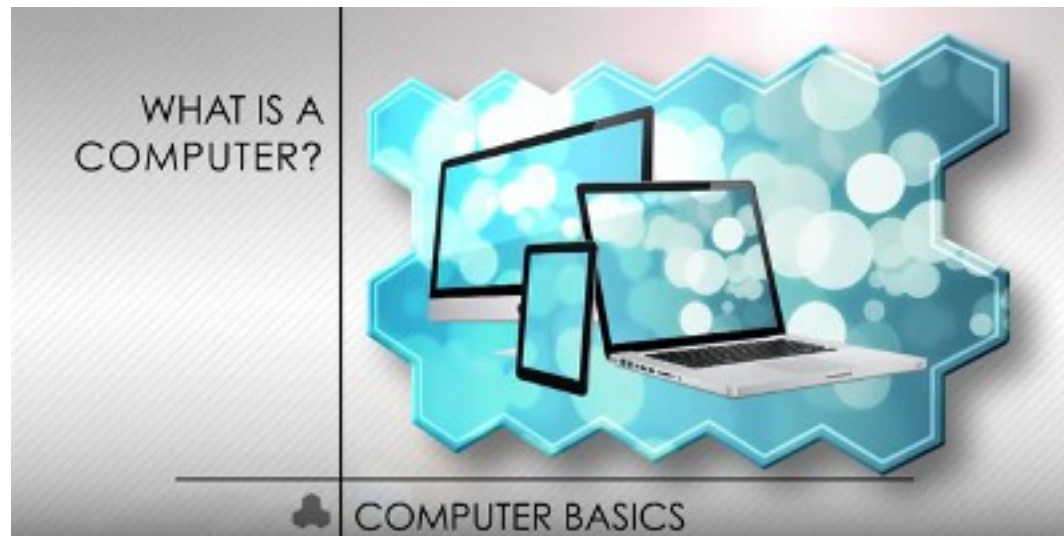
<https://www.gcflearnfree.org/computerbasics/>

Part 1

What is a computer, types of computers

What is a computer?

Let us first watch the video clip from GCFLearnFree.org.



<https://www.youtube.com/watch?v=7cXEOWAStq4>

What is a computer?

General definition:

An electronic device that processes data and manipulates information. It has the ability to store, retrieve, and process data.

A computer requires both hardware and software to work.

Hardware and software

Hardware comprises the physical make-up of the computer.

Software are the “instructions” that tell the computer what to do and how to do it and in the process controls its hardware.

Types of computers

"Traditional" computers:

Desktops and laptops, servers, supercomputers

Mobile devices:

Smartphones, tablets, e-Readers, wearables

Smart devices/machines:

Game consoles, TVs and other household appliances, cars, drones, medical equipment, etc.

A smart or "intelligent" device will have some type of computer in it.

Some common terms

Desktop - a computer fitted on a work desk for personal use, not easily carried

Laptop - an “all-in-one” (display, keyboard), fairly light and portable

Personal computer (PC) - a computer for personal use

Server computer - a computer that provides services

Client computer - a computer that makes use of the services of a server

Supercomputer - a computer with a very high level of computing performance (processing speed, data movement, storage, etc.)

Smartphone - a hand-held computer with cell phone capabilities

Tablet - a hand-held tablet-sized computer

Application software (apps) - software that performs specific tasks usually with results of direct interest to the user

Differences between PCs and mobile devices (smartphones/tablets)

Main differences (to the normal user)

Nature of the device: Mobile devices very personalised i.e. tied in with a particular person, contains personal information. The way a mobile device works/uses its apps assumes a particular individual is using it.

To fully utilise the device, require registration with the device system provider e.g. Google (for Android devices), Apple (for Apple devices) - a more restrictive, controlled environment; better user experience if user stays signed-in all the time.

PCs much less restrictive and more open. Multiple people can share the PC, less personal information needed to use it. Registration with a system service provider not needed to install new applications.

Differences between PCs and mobile devices (smartphones/tablets)

Size: Much smaller display on mobile device, need to re-design apps that originated from PC.

User interaction: PC uses keyboard/mouse, mobile device uses touchscreen/finger gestures; small onscreen keyboard for mobile device makes extensive keyboard use difficult, mobile apps minimises keyboard interaction.

Apps ecosystem: Mobile device utilises a controlled app repository for installation of new apps, PC has more freedom to get apps from almost anywhere.

Apps execution: Many web-based apps on PC implemented as native apps on mobile device for better user experience; native apps tend to be more intrusive with ability to harvest personal information from mobile device.

Part 2

Software

Software

Two main types of software: System software and application software

System software - software that controls the hardware as well as provides services to the application software

Application software - software that performs specific tasks usually with results of direct interest to the user

Operating System

The most important system software is the operating system (OS).

It manages the computer's memory and processes, as well as all of its software and hardware.

A computer requires an OS; it can be simple or sophisticated, depending on what the computer is used for.

What is an operating system?

Let us watch the video clip from
GCFLearnFree.org.



<https://www.youtube.com/watch?v=pTdSs8kQqSA>

Operating System examples

Microsoft Windows - desktops, laptops, servers, tablets, smartphones

Linux - servers, supercomputers, desktops, laptops, mobile devices (mainly Android)

Android - smartphones, tablets, wearables

Chrome OS - laptops (Chromebooks)

Mac OS X - Apple personal computers only

iOS - Apple products only; smartphones (iPhone), tablets (iPad)

What is application software?

Let us watch the video clip from
GCFLearnFree.org.



<https://www.youtube.com/watch?v=MYgy4rjV4J0>

Application software examples

Applications that we use on a daily basis include:

Web browser - to access and utilise websites and their services e.g. news, email, online payment



Firefox



Edge



Chrome



Safari

Email - specifically for email retrieval, reading, composing, sending and management



Gmail



YahooMail



Thunderbird



Outlook

Application software examples

Social media - connect with other people



Facebook Twitter Google+

Messaging - text messaging, audio/video calls



Whatsapp Wechat Skype Telegram Hangouts

Word/text processing - to compose and edit text and documents



Word Wordpad Notepad Open/LibreOffice

Part 3

The internet

The internet

Let us first watch the video clip from GCFLearnFree.org.



<https://www.youtube.com/watch?v=hMX6dVa61t0>

The internet

What is the internet?

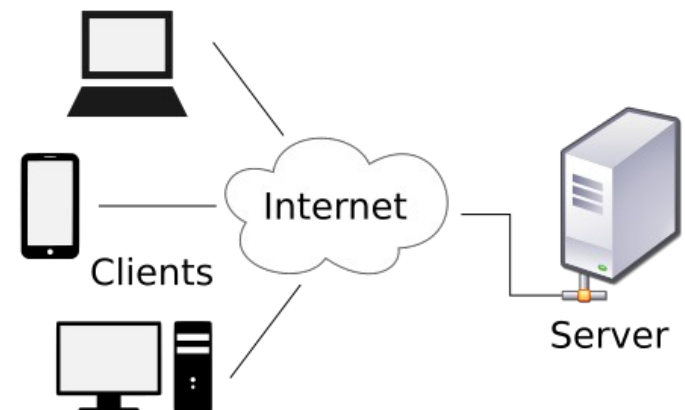
An internetwork of computer networks spanning the entire world.

Computer connects to this network for a variety of services e.g. news and information, entertainment, communications, social networking etc.

Utilises client-server network computing model:

Server - remote computer running applications offering services over the network

Client - computer (e.g. home PC, smartphone) that makes use of the services offered by the server



A bit of history ...

The internet began as a US DoD project to set up a network with no single point of failure.

Many universities and research institutions later joined in when it became a civilian project funded by the National Science Foundation.

Applications began as text-based, later supported graphics and multimedia; in the 1990s, researchers in CERN, Europe, applied hypertext technology to the display of information over the Internet.

That became the World Wide Web - WWW!

A bit of history ...

The WWW technology was **open and non-proprietary**; CERN allowed everyone access to it.

WWW caught on very fast as the main way to display and disseminate information over the internet.

Applications and other services also make use of web technologies for users to access them.

The Web became the public face of the internet to most users.

The internet

How do I connect to the internet?

At home, we connect to the internet usually through an ISP (internet service provider) e.g. Shaw, Telus.

Typically all the mobile devices and computers in the house are networked together and this local network connects to your ISP which acts as your gateway to the internet.

The internet

How do I connect to the internet?

Public places such as libraries, hotels, community centres, cafes, restaurants, etc., very often provide internet access through wireless networks (wifi). Laptops and mobile devices can then access the internet using the wifi capabilities built into these devices.

Smartphones may also access the internet directly through their cellular phone service providers if they have signed up for it. Smartphones with a data plan can access the internet wherever there is cell phone coverage.

What you can do on the internet

Access information

Websites available for almost any topic

Use search engines to search for information

Communication

Email - web-based email or dedicated programs

Messaging - send and receive text, pictures, videos
instantaneously, group messaging

Chats - voice and/or video, conference calls

Social networking

Easily connect and share information, photos and videos
with other people and groups of people

What you can do on the internet

Shopping and Selling

Buy and sell from anywhere in the world

Banking

Perform banking transactions from your home

Education

Online courses ranging from simple tutorials to graduate and post-graduate programs

Entertainment

Streaming music, movies and videos

... and much much more!! ...

Part 4

The Cloud

What is the cloud?

Let us first watch the video clip from GCFLearnFree.org.



<https://www.youtube.com/watch?v=gu4FYSFfeWqg>

What is the cloud?

A catch-all term describing the internet and the features, facilities and resources associated with it. Term also used for cloud storage, cloud computing.

Cloud storage

Remote storage on the internet in which you can access as if it were local to your device; e.g. Google Drive, Onedrive, Dropbox, iCloud.

Cloud computing

IT platform that enables ubiquitous access to shared pools of configurable system resources and higher-level services that can be rapidly provisioned with minimal management effort, often over the internet.

Ref: https://en.wikipedia.org/wiki/Cloud_computing

Cloud computing

In simple terms

Computing resources such as infrastructure, hardware and software are located on networks accessible remotely.

Resources shared to achieve coherence and economy of scale, similar to a utility.

Utilises “everything as a service” model - *Infrastructure as a Service (IaaS)*, *Platform as a Service (PaaS)*, *Software as a Service (SaaS)*. These services can be utilised individually or jointly.

Cloud computing

In cloud computing, infrastructure, platform and software may be delivered and treated as a service utility not unlike electricity or water.

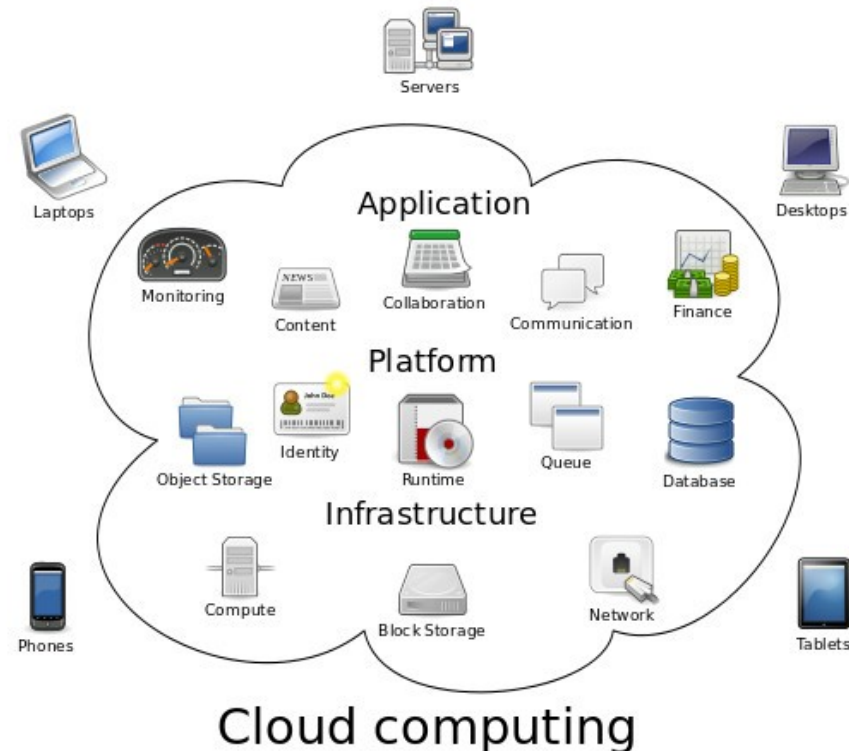
Electricity utility service analogy - we do not know (or care) where our electricity comes from, e.g. which power grid our house is on, which power sub-station, main station our house is connected to, etc. All we know is when we turn on switch there is electrical power!

So for example, for SaaS, we do not know or care where software we use is located or where data associated with it is stored, we just inform the computer that we want to execute the software and “magically” the application runs and we can just interact with it; data is stored and retrieved without us having to know where physically the data is located.

Cloud computing

Cloud computing resources and services may be owned and managed in-house or from 3rd party (subscription based).

Popular cloud computing vendors are Amazon (AWS), Microsoft (Azure), Google, IBM.



Cloud and web applications

The terms cloud and web apps sometimes used interchangeably but there can be a difference, although the lines are blurred in many cases.

Web app

An application that is executed and utilises resources on a remote computer; user interacts with it using a web browser and has to be online to use it, e.g. web-based GMail, web-based Facebook, Google Docs.

Cloud app

An application which has some components running on the local device and other components running in the cloud, all working together to deliver a seamless unified user experience. Able to work offline and connect later to synchronise, e.g. Microsoft Office 360, Google G-Suite (includes Google Docs etc.), Dropbox.

Finally ...

Any questions???

