Cambridge Nationals R001

Revision help (LO1)

Portable devices

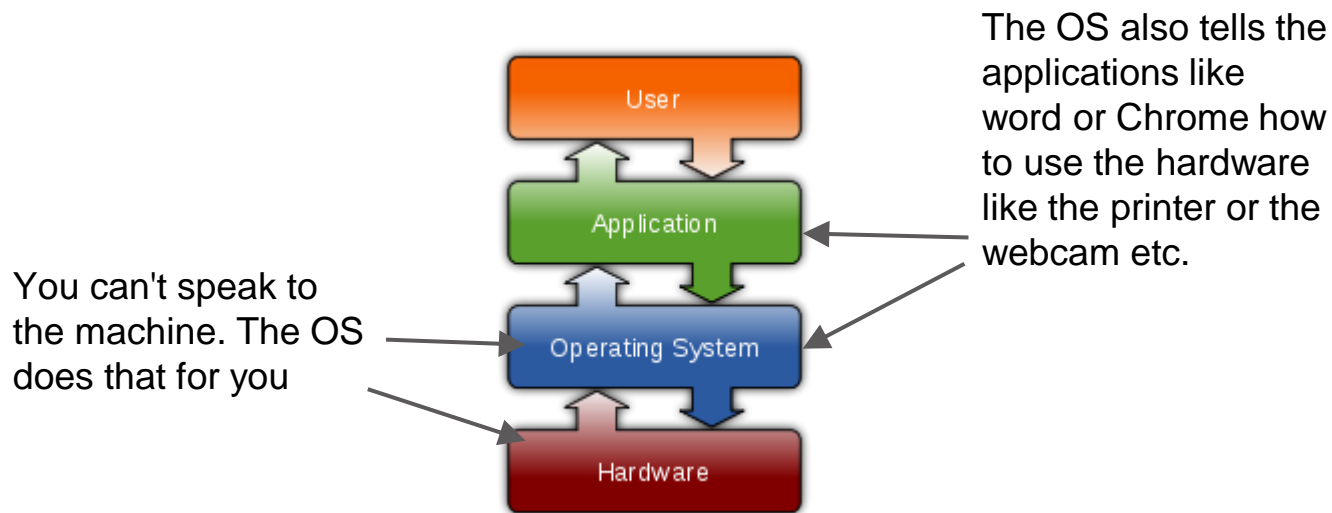These are electronic devices that can be carried easily.

Examples include:

- Laptops
- Netbooks
- Mobile phones
- Tablets (Ipad, Android Tablet)
- handheld consoles
- Media players (eg iPods, mp3 or video players)

Operating Systems

The software that acts as the communicator between your computer's hardware and you.

The OS also tells the applications like word or Chrome how to use the hardware like the printer or the webcam etc.

You can't speak to the machine. The OS does that for you

User

Application

Operating System

Hardware

HW1 -Examples of Operating Systems

Windows 7

Ubuntu Linux

Google Android OS

Apple IOS

PC OS'

Mobile OS'

Mac OSx

Application software

Applications (or apps for short) are software that are installed onto an OS to help you carry out tasks.

On a PC, apps can be installed from the internet and CDs.

New OSs like Windows 8 and Mac OSx 10.7 allow you to access an app store to download and install apps from online just like smartphone stores like Android's Play Market, Apple's App store or Blackberry's Appworld.

HW1-Application software cont.

Apps can include word processors such as Microsoft word, spreadsheet apps like MS Excel, Browsers like Chrome, Safari or internet Explorer, Camera apps on a phone and many more.
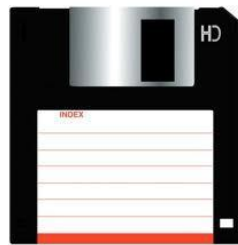
Storage Devices

A storage device is used to store files such as photos, music, movies, school work etc.

USB flash disk

Floppy disk

Desktop hard drive

Dropbox

SkyDrive

Google Drive

Online storage websites

Check out this video for more on cloud computing

CDs, DVDs & BluRay

Memory cards

Storage Devices

Some storage devices have a lot more capacity than others.

The floppy disk which is now obsolete could hold 1.4 megabytes (MB) of data.

Today the average USB drive can hold 2-8 Gigabytes (GB) of data.

Bit	The smallest unit of data that a computer uses	
Byte (B)	= 8 bits	
Kilobyte (KB)	= 1 000 bytes	
Megabyte (MB)	= 1 000 000 bytes	
Gigabyte (GB)	= 1 000 000 000 bytes	
Terabyte (TB)	= 1 000 000 000 000 bytes	= 1 000 gigabytes
Petabyte (PB)	= 1 000 000 000 000 000 bytes	= 1 million gigabytes
Exabyte (EB)	= 1 000 000 000 000 000 000 bytes	= 1 billion gigabytes
Zettabyte (ZB)	= 1 000 000 000 000 000 000 000 bytes	= 1 trillion gigabytes
Yottabyte (YB)	= 1 000 000 000 000 000 000 000 000 bytes	= 1 quadrillion gigabytes

A 1GB flash drive can hold upto 476 photos or 238 mp3s or upto 2 movies.

[Check out this website for what other device sizes can hold](#)

Magnetic Media

Magnetic media uses magnetic patterns to represent information. They are still used in computer hard drives to store data but no one really uses them for films or music anymore.

Magnetic media is becoming obsolete as a result of new ways of saving files. Older computers would once use floppy disk drives or magnetic tape to save data, load software and games.

Storage devices explained

DATA STORAGE DEVICES

Difference between features of portable devices

Laptop	Netbook	Tablet	Smartphone
• Internet browsing • listening to music • watching DVDs • word processing • spreadsheets • graphic design • video editing • gaming • sending emails	• Internet browsing • listening to music • word processing • spreadsheets • no DVD drive • small screen • sending emails	• Internet browsing • Listening to music • touch screen capability • gaming • there are apps for creating office documents but are not as specialist as on a laptop. • sending emails	• Internet browsing • sending emails • gaming • making calls • navigating with GPS maps • sending messages • touch screen on most devices

Input Devices

Input devices allow us to enter raw *data* into a computer. The computer
processes the data and then produces *outputs* that we can understand
using an output device.

Examples include:

Extra reading 1

Extra reading 2

Extra reading 3

Input devices for suitable tasks

Keyboard	Surfing - clicking on links, icons
Mouse	Recording a song
Microphone	Writing a letter
Scanner	'Face to face' communication
Webcam	Capturing photos for editing

Output devices

An output device is something the computer uses to display information it has processed. This could be in the form of an image on screen, music from speakers or even a print out from a printer.
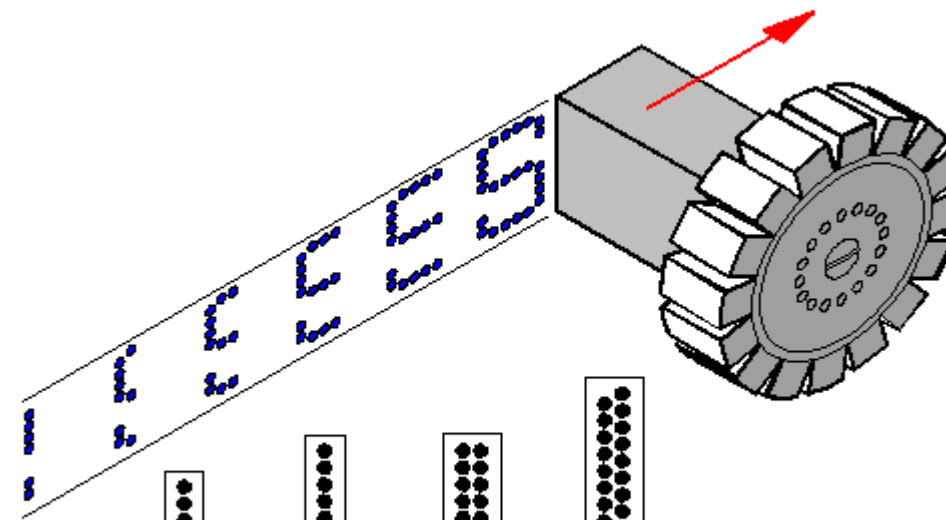
The different types of printer - Dot Matrix

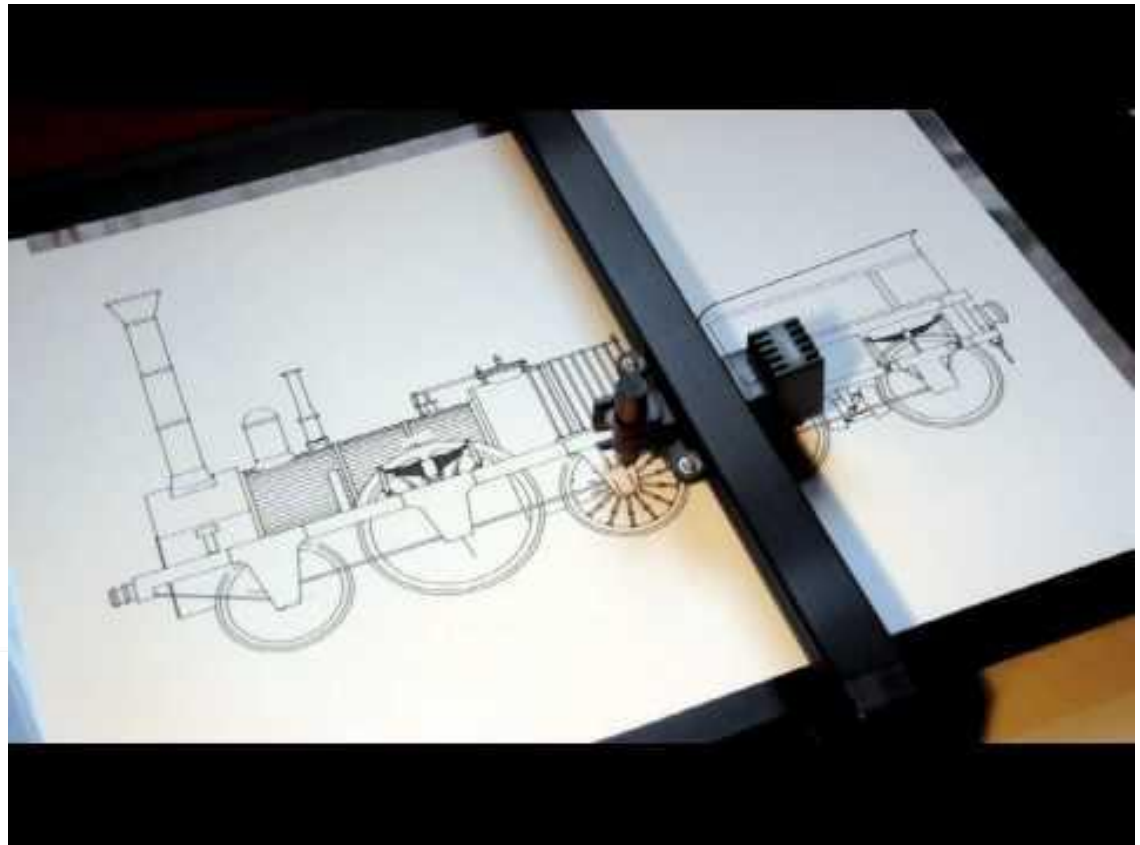A dot matrix printer uses pins to push the letter, symbol or number onto a ribbon which then marks the paper it is pushed onto.

Because the pins are usually 7, 9, 18 or 24, this limits the printer into using basic fonts like above.

7 Pin   9 Pin   18 Pin   24 Pin

The different types of printer - Plotter

There are many different types of plotter printers. A traditional plotter is loaded with a pen which is lowered and lifted on paper when needed. They are traditionally used for printing large vector graphics like posters or blueprints from an architect.
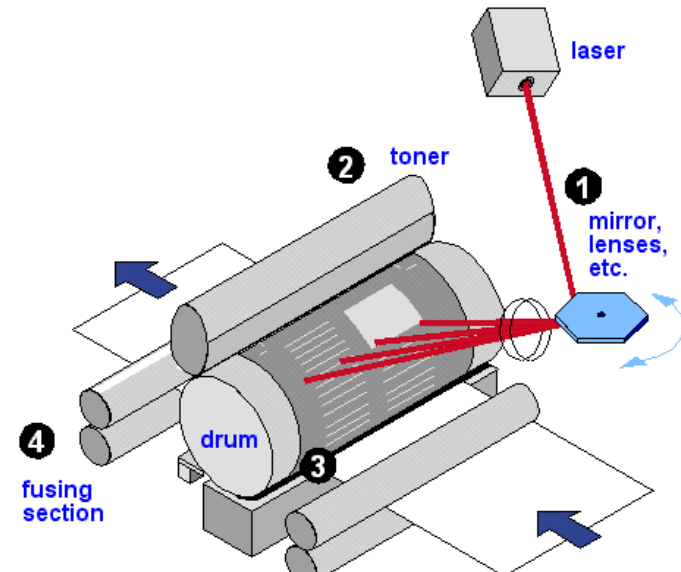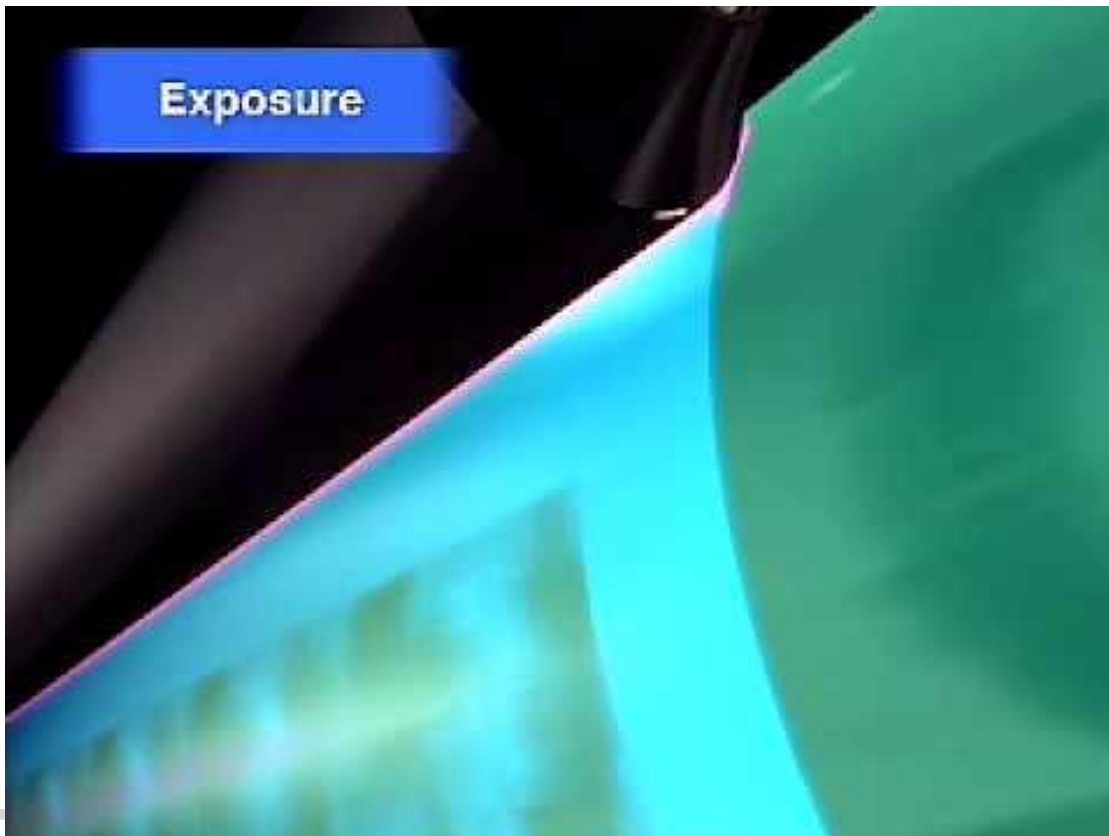
# The different types of printer - The laser printer

A laser printer is the fasted way of printing. A laser charges the drum with particles which then makes the ink from the toner stick to the paper as it comes through. It is then fused to the paper as it comes out.

From Computer Desktop Encyclopedia
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laser

toner

mirror, lenses, etc.

drum

fusing section

Exposure

HW6- The different types of printer - The Inkjet

An inkjet printer is slow but the quality of the printing is high. The printer will drip ink drops from the cartridge on the paper very accurately to make up the image being printed.
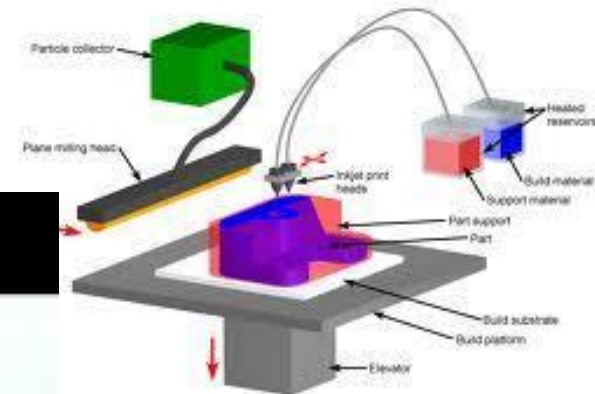
Application software for particular tasks

When working on a document, you need to use the correct software to get the best results. Application software is a program which performs a particular task.

Your teachers would have recommended the best software for you to use when asking you to do a piece of work. **BUT do you know what is best for what?**

Word processing	Spreadsheets	graphic design	web design	Desktop publishing (eg making flyers, posters or magazines)	Editing video	Editing sound	Presentation software	Internet browsers	Email programmes
MS Word Word Perfect LibreOffice	MS Excel LibreOffice	Fireworks Photoshop Serif Draw Inkscape Coral Draw Aviary OpenO Draw LibreOffice	Dreamweaver KompoZer CoffeeCup	MS Publisher Adobe InDesign QuarkXPress Scribus Serif PagePlus	MS MovieMaker Adobe Premiere iMovie Sony Vegas Camtasia Studio	**Audacity Logic Pro** GarageBand	MS PowerPoint	Chrome Internet Explorer Safari Firefox Opera	MS Outlook Gmail Thuderbird Hotmail

Storage capacities

Remember the video on slide 11?

Although floppy disks, CDs, DVDs & Blu-Ray media have all got a maximum amount that can be saved on them, Hard drives, SSDs, cloud storage and Flash Drives are always increasing in size of capacity.

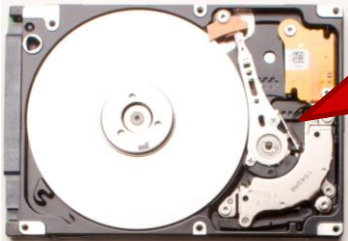Check the video again to see maximum capacity of floppy disks, CDs, DVDs & Blu Rays.

See next slide for what SSD is!

Solid State Drives (SSD)

SSD drives are a new thing replacing the standard magnetic hard drives which had mechanical parts which often failed.
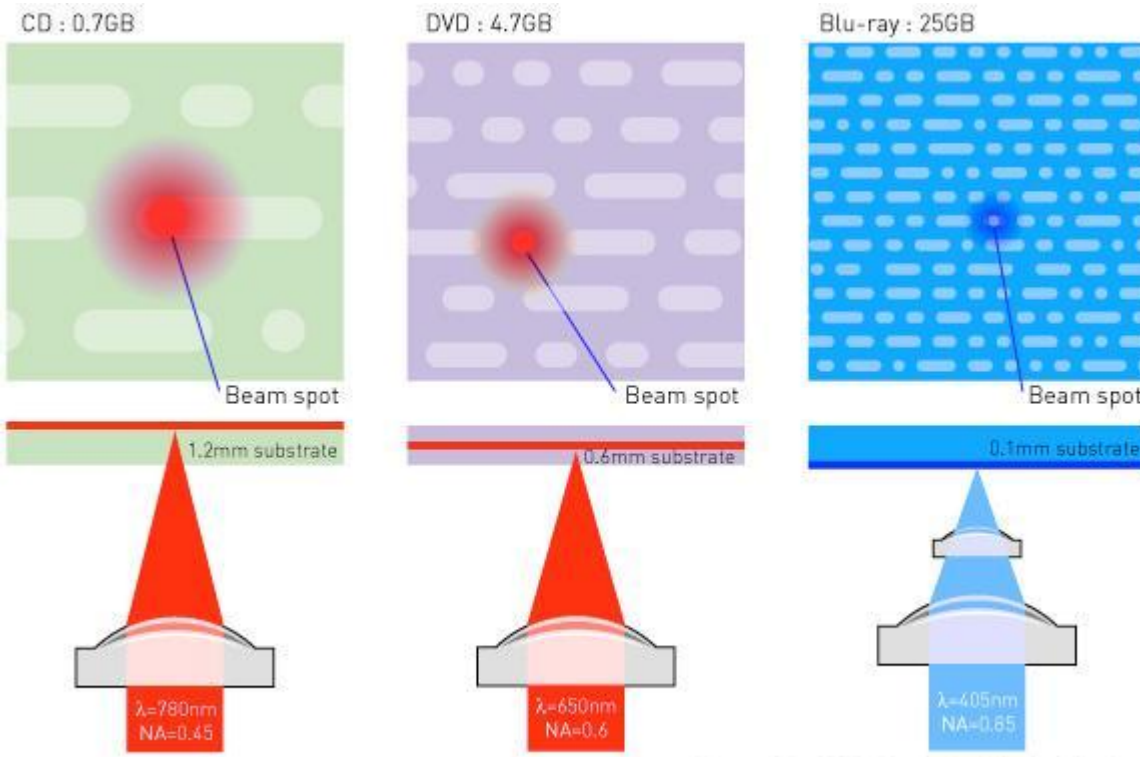
Hard Disk Drive with Moving Parts

Solid State Drive with No Moving Parts memory Chips only

You can also check out this video for more info
http://www.youtube.com/watch?v=rjCmLJtITK4&NR=1&feature=endscreen

Storage Capacities

The difference in capacity between a CD, DVD & Blu ray is affected by the thickness of the laser. As technology has got better it has been possible to write onto a disc with thinner laser meaning more information can fit onto a disk. The image below demonstrates this.

CD : 0.7GB

DVD : 4.7GB

Blu-ray : 25GB

Beam spot

Beam spot

Beam spot

1.2mm substrate

0.6mm substrate

0.1mm substrate

λ=780nm
NA=0.45

λ=650nm
NA=0.6

λ=405nm
NA=0.85

Capacities of a floppy disk (magnetic media) was **1.4 MegaBytes** (MB).

Capacities of laser disks:
CD - **700MB**
DVD - **4.7GB** (4,812.8MB)
Blu-Ray- **25GB** (25,600MB)

Difference in resolution on a DVD & Blu-Ray

More memory on a disk means more information of image sound can be added to a disk.

Click on the image below to see the difference in full size or click here.

Tailor made software

Tailor made software is software that is made to the specifications of a client. In other words it is custom made, bespoke, or 'tailored' to address a specific need. This kind of software can be expensive as it has to be designed by a team who are making software to specific needs for a specific organisation.

Off the shelf software is more general and produced for the masses. Although it probably also costs a lot of money to make, it is cheaper to buy because it can be bought by anyone.
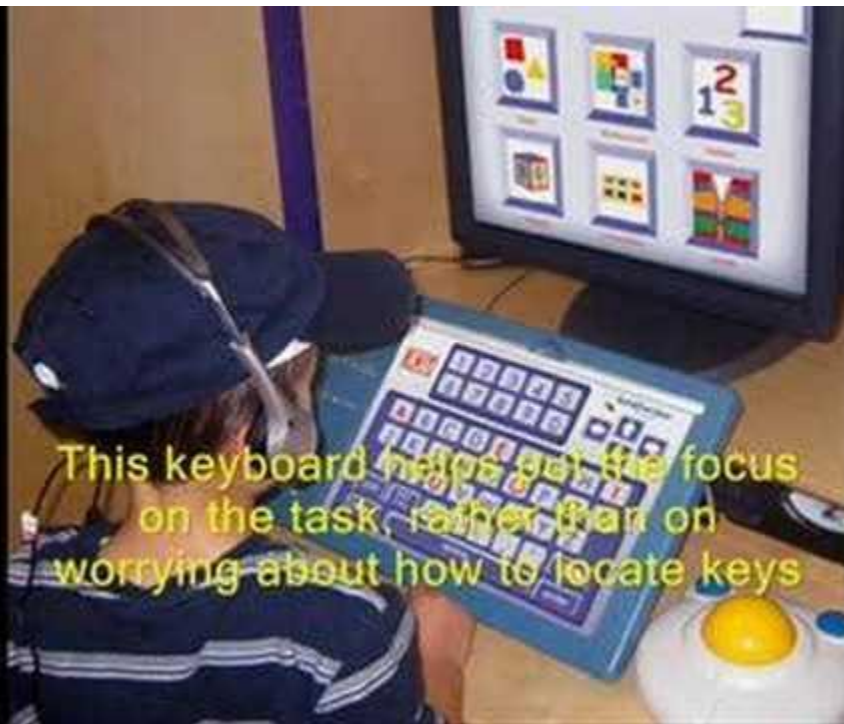
[Extra reading 1](#)

Technology for people with impairments

Assistive technology (AT) is technology developed to help people with disabilities use computers.

Connectivity - Router

- This device is used to share an internet connection.

- It allows more than one person to use an internet connection within a home or business.

- It tends to allow people to share your connection wirelessly.

- To let people connect they need to connect to a unique name for your connection and enter a password.

Connectivity - Modem

- This device allows a computer to connect to the internet.

- It connects one computer to a server at your internet provider.

- It allows the two computers to talk to each other.

- Without a modem, a computer is not able to connect to the internet.

- Most routers have in-built routers to allow you to share your connection with multiple people.
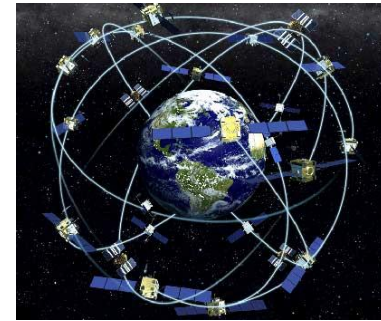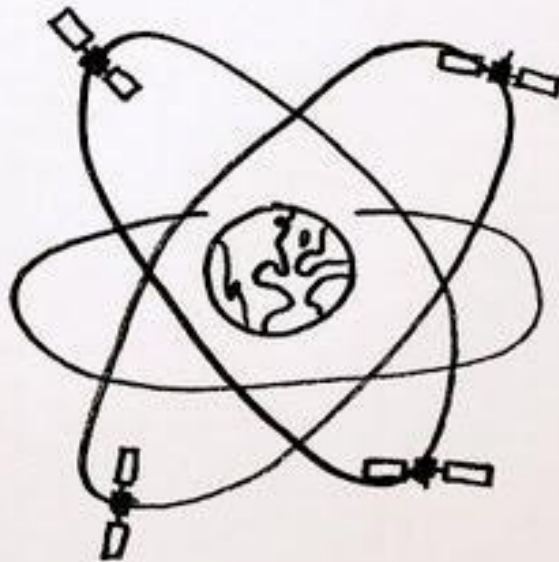
Connecting to a wireless network

1. What is WIFI?

2. how to set up WIFI

What is GPS?
(Global Positioning Satellite)

What is and how does it work?

Using GPS to track someone

- GPS Chip in Device
- GPS Chip Picks up signal from satellite to determine location
- This can then be sent via internet to 3rd Party