Year 9 Revision

Software

Software is the term for all the programs that run on the hardware.

There are 2 general types of software, application software and systems software.

Application software

Application software is the software used to carryout users' specific tasks.

There are 3 types of application software, generic, integrated, and specific.

Generic software

Generic software is software that has been designed to carryout a wide variety of tasks.

It is also known as general-purpose software.

There are several different types of generic packages, each type having specific functions that define them.

They also come with functions that are common to all generic packages.

These include:

- ability to save,
- ability to cut, copy, and paste, and
- ability to print.

Word-processing software

The main use of this software is to create documents that contain mostly text.

Examples of uses include:

- letters
- memos
- essays
- reports
- curricula vitae (CVs)
- wills

One would expect any word-processing package to have the following functions:

Function	Explanation/description
Ability to alter typeface	e.g. Arial, Tahoma, Times New Roman, etc.
Ability to alter size of font	point size
Ability to alter colour of font	
Ability to alter alignment of font	e.g. left, centre, right, justify
Ability to alter style of font	e.g. **bold**, *italic*, underline, etc.
Text wrapping	
Ability to alter line spacing	
Insert objects	e.g. pictures, charts/graphs, diagrams, etc.
Spell-check text	

Function	Explanation/description
Grammar-check text	
Mail merge	
WYSIWYG	what you see is what you get

There are advantages and disadvantages to using word -processing software.

Advantages	Disadvantages
Easier to edit documents than using pen and paper, or typewriter and paper.	Users need to be trained to use software.
Better presentation of documents than using pen and paper, or typewriter and paper.	A computer, with a printer, is needed.
Easier to produce multiple copies of same/standard documents than using pen and paper, or typewriter and paper.	

Spreadsheet software

The main use of this software is to perform calculations and present numerical information in graphical formats.

Examples of use include:

- accounting
- recording students' marks/performance
- recording students' attendance
- recording science experiment results

One would expect any spreadsheet package to have the following functions:

Function	Explanation/description
Ability to format cells	e.g. to 2 decimal places, currency, percentage, date/time, etc.
Ability to perform calculations	e.g. =A1+A2, =A1-A2, =A1*A2, =A1/A2, etc.
Built in formulae/functions	e.g. MAX, MIN, SUM, AVERAGE, MODE, MEDIAN, etc.
Ability to recalculate sums when data changes	
Ability to create graphs and charts	
Macros	

There are advantages and disadvantages to using spreadsheet software.

Advantages	Disadvantages
If input data changes sums will be automatically recalculated.	Users need to be trained to use software.
Neater than using pen and paper as alterations can just be deleted.	A computer is needed.

Database software

The main use of this software is to store, organise, and retrieve information.

Examples of use include:

- library book loaning
- video rental
- school pupil information

One would expect any database package to have the following functions:

Function	Explanation/description
Create tables to store data	
Sort/organise data	
Find information using filters	
Find information using queries	
Create forms to input and edit data	
Create reports to display information	

There are advantages and disadvantages to using spreadsheet software.

Advantages	Disadvantages
More information can be stored using a computer-based database than a filing cabinet.	Users need to be trained to use software.
It takes less time to find information in a computer-based database than in a conventional paper-based filing system.	A computer is needed.
It takes less time to organise and re-organise a computer-based database than a conventional paper-based filing system.	

Desktop publishing software

The main use of this software is to create documents that contain ma ny graphics and some text.

Examples of use include:

- posters
- catalogues
- invitations
- newsletters

One would expect any desktop publishing package to have the following functions:

Function	Explanation/description
Ability to create templates	
Ability to create frames	
Ability to insert graphics	

Function	Explanation/description
Ability to adjust kerning	
Ability to create and edit borders	
Ability to text wrap graphics	
Ability to resize graphics	
Ability to layer graphics and text	
Built in graphics library	
WYSIWYG	what you see is what you get

There are advantages and disadvantages to using spreadsheet software.

Advantages	Disadvantages
Quicker to create documents than using pen and paper.	Users need to be trained to use software.
Easier to make changes to documents than using pen and paper.	A computer is needed.

Presentation software

The main use of this software is to animated visual presentations.

Examples of use include:

- presentations for meetings
- computer-based help systems

Graphics software

There are two types of graphics packages.

Bitmap graphics software stores images as lots of coloured dots, known as pixels.

Vector based graphics software stores images as rules, covering the dimensions, direction, and colour of the drawn object.

Function	Explanation/description
drawing tools	
pre-defined shapes	
ability to scale, stretch, and crop images	
ability to rotate images	
ability to flip images	
paint palette	
zoom/magnify	
ability to fill	

Computer aided design (CAD) software

The main use of this software is to design three dimensional objects.

HTML editing software

The main use of this software is to create web-pages.

Communications software

There are two types of communications software.

Electronic mail, used to send and receive messages.

Web-browser software to view web pages on the Internet.

Integrated software

A software package that combines the functions of two or more distinct generic applications.

Specific software

Software designed to carry out a single task for users.

System software

Software that manages and controls the computer and all its peripherals.

Operating system software

A layer of software that enables a user to control the hardware, and application programs to run on the computer.

Utility software

Software used to carry out routine tasks often needed by the user to maintain the performance of the computer.

Hardware

Hardware is the name given to any part of the computer that you can actually touch.

A device is an individual piece of hardware.

Examples include:

- keyboard
- visual display unit (VDU) or monitor
- floppy disk drive

Describing hardware

Technical specification

This is a list of its properties. It usually refers to the performance and/or capacity of the device.

Performance

This is a way of describing how well a device in a computer system does its job. This often refers to the speed at which it works.

Capacity

This is the amount of data that can be stored.

Processor

The central processing unit (CPU) is the part of the computer where the searching and sorting of data, calculating and decision-making goes on.

Also known as the 'processor'.

Choosing a processor

Processors are measured by their speed.

The number of instructions it can perform in 1 second.

This is measured in hertz (Hz).

1 hertz = 1 instruction per second

1 KHz = 1,000 instructions per sec

1 MHz = 1,000,000 instructions per sec

1 GHz = 1,000,000,000 instructions per sec

Input devices

Input devices are used to enter commands or information into a computer.

Examples of input devices include:

- keyboard
- mouse
- scanner
- microphone

- trackball
- joystick/ joypad
- graphics tablet
- digital camera/ web-camera

Output devices

Output devices are used by the computer to communicate information to human users or to affect a change in a physical environment.

Examples of output devices include:

- VDU/monitor
- printer
- speakers

Types of VDUs/monitors

cathode ray tube (CRT)	liquid crystal display (LCD)
less expensive to buy	more expensive to buy
better quality image	lower quality image
can be easily viewed from an angle	can only be properly viewed from one angle
requires more power	requires less power
gives off lots of heat	gives off less heat
takes up a lot of space	takes up less space
more likely to cause eye strain	less likely to cause eye strain

Choosing VDUs/monitors

Type

cathode ray tube (CRT) or liquid crystal display (LCD) (thin-film transistor [TFT])

Colour

monochrome, or grey-scale, or colour

Resolution

measured in pixels; 640 X 480 (VGA), 800 X 600 (SVGA), 1024 X 768 (XVGA or XGA)

Size

diagonal distance, from one corner to another (inches)

Types of printers

inkjet	laser
less expensive to buy	more expensive to buy
more expensive to run	less expensive to run
relatively slow speed printing	relatively fast speed printing

Choosing printers

Speed

characters per second (cps) or pages per minute (ppm)

Quality

dots per inch (dpi)

Colour

monochrome, or colour

Data storage devices

Storage devices are used to store the programs and data needed by the computer.

The two main categories of storage devices are main memory and backing storage.

Main memory

RAM – random access memory

RAM is used by the computer to store the programs and data that are being used at a given time.

RAM is 'volatile' which means that when the computer is turned off all its contents are wiped clean.

Choosing RAM

RAM is measured by its capacity; the amount of data that it can store when the computer is switched on.

All computers ultimately store data as 1s and 0s (this number system is known as binary).

A single unit (either 1 or 0) is called a bit.

8 bits = 1 byte 1,000 bytes = 1 KB

1,000 KB = 1 MB 1,000 MB = 1 GB

Backing storage

Backing storage is used to store programs and data when they are not being used or when the computer is switched off.

Backing storage is 'non-volatile' which means that when the computer is turned off none of its contents are lost.

backing storage device – used to read and write data onto storage media.

backing storage media – the collective name given to the disks and tapes used to store data.

Choosing backing storage

The first decision is between fixed media or removable media.

Backing storage media can be measured by its capacity; bytes, or kilobytes (KB), or megabytes (MB), or gigabytes (GB).

Backing storage can also be judged by the data transfer speed of the backing storage device to the backing storage media. This is measured in; bytes per second (Bps), or kilobytes per second (KBps), megabytes per second (MBps).

Audio CDs read at 150KBps – 8X, 16X, 24X, 48X, 52X.

The final way that backing storage can be differentiated is whether it is:

- read only memory (ROM), or
- recordable (R)/ write once read many (WORM), or
- read and write (RW).

Types of portable backing storage

- floppy disk drive (FDD)
- compact disk (CD) drive
- Zip drive
- digital versatile disk (DVD) drive
- flash stick

Computers and peripherals

Desktop computer

An entire computer that sits on a desk or a table.

Laptop computer

A personal computer that can be simply carried around by one person and used in transit from internal battery power.

Peripherals

Standard (expected)	Additional (extra)
hard disk drive (HDD)	printer
floppy disk drive (FDD)	scanner
VDU/monitor	microphone
keyboard	web-cam
mouse (pointing device)	joystick
CD drive (ROM/R/RW)	DVD drive (ROM/R/RW)
speakers	Zip drive

Social Impact

In the home

In business