






Knowledge Organiser
1.1.1 Hardware Devices
and
1.1.2 Functionality of Different Software

Name:

Computing Devices

| Device | Use |
|--|---|
| <p>Personal Computer</p>  | <p>Used to carry out tasks such as word processing, spreadsheet modelling. You can also use complex software for image / animation design. A personal computer can be used to browse the Internet and play games, as well as communication such as email. A PC is fixed, as you cannot move it around due to wired connections.</p> |
| <p>Smartphone</p>  | <p>Used to carry out tasks such as making telephone calls, sending messages (text and email) and calendar activities. Can be used for social media and games. Can be used for office software but a smaller version.</p> |
| <p>Tablet</p>  | <p>Used to carry out tasks such as word processing, spreadsheet modelling. You can also use software for image / animation design. A tablet can be used to browse the Internet and play games, as well as communication such as email. You can stream videos and watch online TV services.</p> |
| <p>Laptop</p>  | <p>Used to carry out tasks such as word processing, spreadsheet modelling. You can also use complex software for image / animation design. A laptop can be used to browse the Internet and play games, as well as communication such as email. A laptop allows the user to move around, so they are not fixed in one place.</p> |
| <p>Games console</p>  | <p>Used to play games that are made for that specific console. Has online functionality to be able to communicate with other players.</p> |


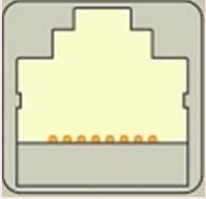
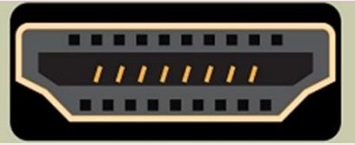

Input Devices

| Device | Description of use |
|------------------|---|
| Mouse | Used to help the user navigate the screen and select areas of the screen (for example, click an option / hyperlink). |
| Keyboard | Allows the user to send data to the computer by typing letters, numbers and symbols. Has keys that perform specific jobs. |
| Touch Screen | Allows the user to send data to the device by selecting options or typing on screen. A touch screen is an input and an output device. |
| Scanner | Allows the user to turn a physical item into something digital. An example is to make a copy of a letter you may have received. |
| Games Controller | Used to allow the user to play games. It can control what the user wants to select and allow the control of a character. |
| Microphone | Used to allow the user to input or record their voice. Works with a CODEC to turn an analogue signal into digital. |
| Camera | Allows the user to send any photographs taken to the computer for editing or storage. |

Output Devices

| Device | Description of use |
|--------------|---|
| Monitor | Allows the user to see the outcome of what they are doing on the device. |
| Touch Screen | Allows the user to see the outcome of what they are doing on the device. It is also an input device. |
| Projector | Allows the user to see the outcome of what they are doing on the device, but on a larger scale. |
| Speakers | Allows the user to be able to listen to sounds from the device. Can be heard by others. |
| Headphones | Allows the user to be able to listen to sounds privately from the device. Can only be heard by the user. |
| Lights | Allows the user to see the outcome of an action, for example if using a self service till, if an item hasn't scanned properly a light will start flashing to call for help. |

Computer Ports

| Device | Description of use |
|--|--|
| VGA  | A VGA cable is used primarily to link a computer to a display device. One end of the VGA cable is attached to the port in the graphics card on the computer motherboard, and the other to the port in the display device. |
| Ethernet  | An Ethernet cable carries the broadband signals between your modem, router, computer and other wired internet-capable devices. |
| HDMI  | HDMI cable is used for the connection and transfer of audio and video to a variety of HD equipment, including the Blu-ray player, personal video recorder (PVR) and television. |
| USB  | The term USB stands for "Universal Serial Bus". USB cable assemblies are some of the most popular cable types available, used mostly to connect computers to peripheral devices such as cameras, camcorders, printers, scanners, and more. |

System Software

What is the main purpose of System Software?

Software that allows the user to interact with the computer.
The Operating System is an example of systems software.

| Feature | How is this tool used by System Software? |
|-----------------------------------|---|
| Memory Management | This ensures that programs/data do not corrupt each other and is stored in correct memory locations. |
| Process control/scheduling | This ensures that programs/data do not corrupt each other and is stored in correct memory locations. |
| File/folder management | This allows users to store files in a logical structure. |
| User management/access levels | This will allocate the user with an account which will give them access to files based on the permissions set by an administrator. |
| Peripheral devices/device drivers | Each peripheral device will contain software called a driver that will allow the device to communicate with the CPU. In the modern era of technology, this would be referred to as 'plug and play'. |
| User interface | This allows the user to interact with the computer. |

Open Source and Proprietary Software

| Type of Software | Open Source | Proprietary |
|------------------|--|---|
| Definition | <p><u>Open source</u> software is a free form of software which allows users to access the source code so that modify it to suit their own needs.</p> | <p><u>Proprietary</u> software is a commercial form of software where manufacturers hide the source code so it cannot be imitated.</p> |
| Examples | <ul style="list-style-type: none">• LibreOffice• Linux• VLC Media Player• Mozilla Firefox (web browser)• GIMP (photo editing software) | <ul style="list-style-type: none">• Microsoft Windows• iOS• Microsoft Word• FIFA• Adobe Photoshop |

Utility Software

What is the main purpose of Utility Software?

Software that is responsible for maintaining and optimising the performance of a computer. It's designed to perform a number of housekeeping tasks. It's considered part of systems software.

| Feature | How is this tool used by Utility Software? | How does it work? |
|------------------------|---|---|
| Anti-virus | This is designed to detect and destroy computer viruses. | Antivirus products work by detecting, quarantining and/or deleting malicious code, to prevent malware from causing damage to your device. |
| Backup | The copying of physical or virtual files or databases to a secondary location for preservation in case of equipment failure or catastrophe. | A full backup is when a complete copy of all files and folders is made. Incremental backups requires at least one full backup be made, and then afterward only the data that has changed since the last full backup will be backed up again. |
| Compression | Reducing the size of the file by performing an algorithm on the original data | <u>Lossless</u> - Identifies patterns within the data that allows it to be stored more efficiently. The original file can be re-created as no data is lost <u>Lossy</u> - Discarding elements of file. Some of the original data is lost and the original file can not be re-created |
| Defragmentation | Defragmentation software groups fragmented files back together. | Files become fragmented when they need to be saved in a hard disk that is getting full. Defragmentation software finds related files and groups them together to improve the speed of the hard disk. |
| Encryption | Encryption means to scramble data in a way that it is unreadable to anybody who doesn't have a key to be able to unscramble this. | Data is encrypted using a key and then decrypted using a key. |
| Firewall | It is used to protect (a network or system) from unauthorized access. | To protect your system, a firewall checks the data coming in from the various parts of the internet and verifies that it is safe. |

Applications Software

What is the main purpose of Applications Software?

Software that is designed to perform a specific task. Some applications are designed to handle information, communicate with others or perform a specific set of functions for one particular organisation.

| Feature | Explain what the applications are used for. | Example Software |
|--------------------|---|----------------------------------|
| E-Mail | To be able to communicate with others using electronic mail. The user will type their message and can attach files such as documents, images or videos. | Outlook Gmail |
| Video conferencing | To be able to communicate with others using video calls. Allows meeting to take place without having to travel to another city or country. | Microsoft Teams Zoom Skype |
| Spreadsheet | To be able to produce calculations on data in order to analyse it. Uses lots of formulas and functions. | Microsoft Excel |
| Instant messaging | To be able to communicate with others by sending messages instantly. Media files such as images can also be sent using this method. | WhatsApp |
| Databases | To be able to store data in an organised way. Gives the user the ability to search for specific data. | Microsoft Access |