

### Artificial Intelligence

**What is it?** Area of computer science that emphasizes the creation of intelligent machines that work and react like humans.

#### Benefits it can bring

- AI has a low error rate compared to humans, if coded properly.
- Replace humans in repetitive, tedious tasks.
- Don't need to sleep, rest or take breaks

#### Threats

- Can cost a lot of money and time.
- Leads to unemployment of certain jobs
- Can lead to destruction in the wrong hands.

### 3D Printing

**What is it?** Layers of a material are built up into a 3D solid. The most common materials used are wax, starch or some thermoplastics. Complex shapes can be created.

#### Benefits it can bring

- Customisation - can print any design no matter how complex
- Increase demand for engineers

#### Threats

- Decrease in manufacturing jobs
- Violation of copyright – anyone who gets hold of a blueprint will be able to counterfeit products easily.
- Production of dangerous items – plastic knives and guns etc.

### Virtual Reality

**What is it?** an interactive computer-generated experience taking place within a simulated environment.

#### Benefits it can bring

- Helps with Visualisation and simulations e.g. driving
- Can be used in education and in workplace
- Makes tourism and visiting sites more easy by giving a detailed view.

#### Threats

- Ineffective human connections – only about you and the software, can lead to loss of realization.
- Getting addicted to the virtual world.
- Motion sickness due to headset

**Modern Technology** - An advancement of old technology.

**Impact** – The effect 'technology' has had on society and industries

**Threat** – Risks associated with modern technology.

**Ethical Issues** – A problem that requires a person to choose between alternatives that could be right (ethical) or wrong (unethical).

**Mobile Data** – way that mobile device users can gain wireless access to the internet using network providers e.g. EE or o2

**WiFi** – Technology for radio wireless networking of devices (allows wireless access to the internet)

**Hotspot**– When a mobile device uses mobile data to create a WiFi connection for other users

**Broadband** – cabled transmission technique to deliver internet to households

**Cloud Computing** – using a network of remote servers hosted on the Internet to store data.

**Accessibility**– creating products that are usable by people with the widest possible range of abilities

Standard **broadband** - sometimes called cable broadband or ADSL broadband.

- This uses copper cables to transmit data
- Cheaper but can get some interference.

#### **Fibre Optic broadband**

- This uses cables made from glass to transmit data
- Expensive but has super speed!

#### **Accessibility Hardware**

Puff-sip switch  
Foot control/foot mouse  
Eye typer  
Braille keyboard and printer  
Speakers/microphones  
Mobile phones/Smart watches  
Smart technology in general

#### **Accessibility Software**

Built into operating systems on desktop and mobile  
Resizing text/changing colour/zoom  
Siri/Alexa/Google Assistant (Voice assistants)  
Predictive text  
Screen readers/overlays  
Web accessibility  
ALT tags on images (descriptions)

WiFi	Mobile Data
<b>Advantages</b> <ul style="list-style-type: none"> <li>• Easy to set up yourself at home and connect many devices. Also reliable connection.</li> <li>• Internet can be accessed from anywhere,</li> <li>• Add multiple devices on same WiFi network</li> <li>• Free at certain locations, cheaper than mobile data</li> <li>• WiFi calling if no mobile network</li> <li>• Free messaging (iMessage, WhatsApp etc)</li> </ul>	<b>Advantages</b> <ul style="list-style-type: none"> <li>• Greater availability</li> <li>• 4G can deliver speeds similar to WiFi</li> <li>• 4G has greater speed over distance</li> <li>• SMS text messaging</li> <li>• Helps GPS to provide a precise location</li> <li>• Internet can be accessed from anywhere, i.e. Bus, train, coffee-shop, super market, etc.</li> </ul>
<b>Disadvantages</b> <ul style="list-style-type: none"> <li>• Can be hacked if not configured properly.</li> <li>• Limited distance</li> <li>• Interference can affect speeds</li> </ul>	<b>Disadvantages</b> <ul style="list-style-type: none"> <li>• Costs can vary and network operator packages vary enormously, sometimes depending on phone.</li> <li>• A lot of data can be used for streaming rich media</li> </ul>

#### **Cloud services – Storing files and data, images**

(Google Drive and Dropbox, Google Photos, iCloud)

**Streaming** - Netflix, Apple music, Spotify and PlayStation Now