

GCSE ICT

Unit 1 – Technology Update Issue 4 (Spring 2013)



This Technology Update (TU) clarifies what digital technology students are expected to learn about in Unit 1 - Living in a Digital World. It is updated annually to take account of emerging technologies. All updates relate directly to the content of the Unit 1 specification and this document should be used in conjunction with the specification.

**An updated TU will be published in May each year on the Edexcel website.
This issue will be valid for the June 2014 Unit 1 examination.**

Unit 1 - Technology Update Issue 4 (Spring 2013)

Topic 1 Personal digital devices

Mobile phones	
<ul style="list-style-type: none">SmartphonesSpecialist phones	<p><i>Smartphones provide significantly greater functionality than basic phones and can be used for activities such as email, social networking, surfing the web and running mobile applications.</i></p> <p><i>Specialist phones are designed for a very specific target market, e.g. elderly people, people who are partially sighted and those operating in challenging environments.</i></p>
Phone peripherals	
<ul style="list-style-type: none">Headsets (hands free)Removable storage	

Personal computers	
<ul style="list-style-type: none">DesktopsLaptopsTabletsNetbooks/smartbooks	<p><i>Desktops include 'All in one'.</i></p> <p><i>As tablets and smartphones develop they begin to share features. Differentiating between netbooks and smartbooks is currently difficult. For now we have decided to treat them as one type of personal computer.</i></p>
Computer peripherals	
<ul style="list-style-type: none">ScreensKeyboardsPointing devices, e.g. mouse, stylus, touchpad, nippleMicrophones/speakers/headsetsPrintersScannersGraphic tabletsWebcamsRemovable storageElectronic whiteboards	<p><i>Removable storage includes all devices not built into the PC, e.g. USB flash drives, memory cards, and USB hard drives.</i></p>

Cameras and camcorders	
<ul style="list-style-type: none">Digital (stills) cameraDigital camcorders	<p><i>Students should know the difference between high definition (HD) and standard definition (SD).</i></p>
Camera peripherals	
<ul style="list-style-type: none">Removable storage	

Unit 1 - Technology Update Issue 4 (Spring 2013)

Games consoles

- Hand-held consoles
- Consoles

Games peripherals

- Game controllers
- Removable storage
- 3D – using glasses/parallax

Parallax 3D is a barrier placed in front of an image to give a sense of depth. 3D is also used in TV.

Home entertainment systems

- Televisions (including 3D TV)
- Projectors
- DVD players/recorders
- Blu-ray players
- Personal video recorders (PVR)
- Set-top boxes (STB)
- Media stations
- Sound systems (HiFi)

Some devices may fall into multiple categories, e.g. a Sky+ box is both a STB and a PVR.

Media stations are devices that provide video/audio to a television, e.g. Apple TV. This could be by streaming from a remote source or from local storage.

Personal media players

- Personal audio players
- Personal video players
- E-book readers

Personal media peripherals

- Speakers/headsets

Navigation aids

- In-car sat navs
- Specialist sat navs, e.g. for walkers and cyclists

An in-car sat nav could be a separate unit or integrated into the dash.

Features of digital devices

- Methods of charging (wireless/USB etc)
- Sensors
- NFC (Near Field Communication)

Wireless or 'inductive' charging allows short-distance wireless energy transfer between two devices.

Sensors (such as accelerometers) are often found in personal digital devices. Data from them is used by the device's software to enhance the user experience.

e.g. contactless payment debit cards and smartphone NFC chips.

Unit 1 - Technology Update Issue 4 (Spring 2013)

Topic 2 Connectivity

Digital communications – device to device

Wired connections:

- USB, USB 2.0, USB 3.0
- Firewire
- Thunderbolt
- Lightning
- eSata

Firewire and Thunderbolt are high speed data ports.

Wired multimedia connections:

- Digital audio (e.g. SPDIF)
- HDMI (High Definition Multimedia Interface)
- Switches/splitters

HDMI transfers uncompressed digital data. Typically, it is used for connecting high definition video and audio devices.

A switch will allow multiple inputs to be output to one (or more) device. A splitter will allow one input to be output to multiple devices.

Wireless connections:

- Infrared
- Bluetooth
- WiFi (Wireless Ethernet), WiFi Direct

WiFi Direct is a way of allowing two devices to easily communicate/transfer data.

Telecommunications:

- Mobile phone networks (GSM, EDGE, 3G, HSPA, 4G)
- Mobile phone bands (Dual, Tri, Quad)
- Landline phone network

Newer technologies (such as HSPA and 4G) greatly improve the speed at which mobile phone networks provide online access.

Equipment needed to create a home network

- Modem
- Router
- Switch/hub/bridge
- Wireless base station/adaptor
- Powerline networks

In many cases one device fulfils multiple functions. Types of modem include ADSL, cable (fibre optic) and wireless broadband (3G).

A powerline network uses existing power wiring as a framework to carry data. (e.g. HomePlug Power Alliance)

Digital communications – broadcast

- Radio (AM/FM/digital/internet)
- TV (analogue/digital/internet)

Users can access radio and TV in different ways. Each method has its advantages and disadvantages.

Digital signals can be transmitted by cable, satellite or radio transmitter.

Topic 3 Operating online

Data protection

- IP filtering
- Policies

IP filtering prevents data from entering a network. One use of IP filtering is to prevent access from certain locations.

e.g. An Acceptable Use Policy sets out the expectations of users when accessing a website or service.

Unit 1 - Technology Update Issue 4 (Spring 2013)

Topic 4 Online goods and services

News and other information services

- Viral videos
- RSS

A video could be said to have gone 'viral' when it has been shared online by many people.

RSS is a method of subscribing to online content.

Software as a service

- Cloud computing

Online data storage and hosted applications are often combined to provide a 'cloud computing' facility.

Impact on organisations and individuals

- QR codes (Quick Response)

QR codes provide a way to link to online services using a camera and QR reader.



This QR code links to Pearson Edexcel's GCSE ICT website!

- Geo-tagging

The addition of location data to files (e.g. images), usually set by built-in GPS. The data can be used for searching, filtering or for display purposes.

Banking and other financial services

- Chip authentication devices

e.g. PINsentry

Unit 1 - Technology Update Issue 4 (Spring 2013)

Topic 5 Online communities

Social spaces

• Blogging	<i>e.g. weblogging, photoblogging and vlogging</i>
• Microblogging	<i>e.g. Twitter or Facebook's 'status update'</i>
• Social networks	<i>Social networks (e.g. Facebook/Google+/Twitter) form connections between users' profiles through their personal information. They often use Blogging / Microblogging / Chat features</i>
• Chat/Video chat	<i>e.g. MSN, Skype</i>

Work spaces

- Web conferencing

User-generated reference sites and social bookmarking

- Forums/message boards
- Wikis

Massively Multiplayer Online [Communities] (MMOs)

- | | |
|----------------------|-------------------------|
| • Virtual worlds | <i>e.g. Second Life</i> |
| • Gaming communities | <i>e.g. MMORPGs</i> |