



## Year 11 GCSE Digital Technology Revision Checklist



Subject	Digital Technology
<u>Examination Unit Title</u>	Unit 1: Digital Technology
<u>Examination Board</u>	CCEA
<u>Examination Date</u>	Thursday 18 <sup>th</sup> May (13.30-14.30)
<u>Examination length</u>	1 Hour
<u>Marks Available</u>	90
<b>TOPIC</b> <u>Advance</u> <u>Information from</u> <u>CCEA</u>	<b>KNOWLEDGE REQUIRED</b> Students should be able to:
Digital data Representing data	<ul style="list-style-type: none"> <li>• describe the difference between information and data;</li> <li>• describe how data is stored in the following units: - bit; - nibble; -byte; - kilobyte; - megabyte; - gigabyte; and - terabyte;</li> <li>• identify the following data types: numeric (integer and real), date/time, character and string;</li> </ul>
Representing images	<ul style="list-style-type: none"> <li>• demonstrate understanding of how pixels are used in image representation;</li> <li>• demonstrate understanding of how image resolution affects file size;</li> <li>• describe how vector-based graphics and bitmap graphics are stored;</li> <li>• describe the difference between vector-based and bitmap graphics; and</li> <li>• demonstrate understanding of how buffering and streaming are used to support the transfer of moving image files.</li> </ul>
Representing sound	<ul style="list-style-type: none"> <li>• describe factors that affect sound quality when recording sound, including sample rate, bit depth and bit rate;</li> <li>• explain the need for analogue-to-digital conversion in sound recording;</li> </ul>
Data portability	<ul style="list-style-type: none"> <li>• demonstrate understanding of data portability and the following file formats that support it: jpeg, tiff, png, pict, gif, txt, csv, rtf, mp3, mp4, midi, mpeg, avi, pdf, wav and wma;</li> <li>• demonstrate understanding of the need for data compression;</li> </ul>
Software	<ul style="list-style-type: none"> <li>• describe the functions of system software, referring to allocating the following: - memory; - storage; and - processing time;</li> </ul>

	<ul style="list-style-type: none"> <li>• describe the following modes of processing: real-time, batch and multi-user;</li> <li>• describe the following tasks carried out by the utility applications: disk defragmenting, task scheduling, backup and restoring data;</li> <li>• describe the role of antivirus software and the importance of regular updates;</li> </ul>
<b>Database applications</b>	<ul style="list-style-type: none"> <li>• demonstrate understanding of and explain basic database concepts such as table, record, field, key field, query, form, report, macro, relationship and importing data;</li> <li>• identify and use appropriate data types when creating a database structure; and</li> <li>• demonstrate understanding of the need for data validation.</li> <li>• describe the following types of validation checks: presence, length, type, format and range;</li> <li>• extract data from a database structure using simple query structures and using the following logical operators: &lt;, &gt;, =, &lt;=, &gt;=, AND, OR and BETWEEN;</li> <li>• demonstrate understanding of big data, referring to volume, velocity and variety;</li> <li>• demonstrate understanding of the need for data analytics to interpret big data;</li> </ul>
<b>Spreadsheet applications</b>	<ul style="list-style-type: none"> <li>• describe the following basic structures of spreadsheet software: cells, rows and columns;</li> <li>• describe and use the following features of spreadsheet software: <ul style="list-style-type: none"> <li>• data types; templates, headers and footers, conditional formatting,</li> <li>• validation, and importing data: <ul style="list-style-type: none"> <li>- entering text, numbers and formulae;</li> <li>- formatting cells, rows and columns;</li> <li>- creating and replicating formulae;</li> <li>- creating a simple template for others to use; and</li> <li>- using simple functions, relative and absolute cell</li> </ul> </li> </ul> </li> <li>• referencing, IF statements and VLOOKUPS;</li> <li>• use a spreadsheet for data modelling;</li> <li>• create, label and format charts;</li> <li>• select areas of a spreadsheet for printing; and</li> <li>• create simple macros.</li> </ul>
<b>Computer hardware</b>	<ul style="list-style-type: none"> <li>• explain the purpose of the central processing unit (CPU);</li> <li>• describe the role of the following components of the CPU: <ul style="list-style-type: none"> <li>• the arithmetic logic unit (ALU), control unit and immediate access store;</li> </ul> </li> <li>• describe the role the following play in the fetch-execute cycle: program counter, memory address register (MAR), memory data register (MDR), instruction address register (IAR) and ALU;</li> <li>• describe the impact of clock speed, cache size, and number of cores on CPU performance;</li> </ul>

	<ul style="list-style-type: none"> <li>describe the characteristics, typical uses, and advantages and disadvantages of the following input, output and storage devices: microphone; mouse; graphics digitiser; touch screens; speakers; printers (laser and 3D); hard disc drive (HDD); high definition (HD) storage media; and solid state drive (SSD);</li> <li>explain the purpose of random access memory (RAM), read only memory (ROM) and cache;</li> </ul>
<p><b>Network technologies</b></p>	<ul style="list-style-type: none"> <li>describe the main features of a local area network (LAN) and a wide area network (WAN);</li> <li>describe the difference between the World Wide Web, the Internet of Things and intranets; and</li> <li>describe and evaluate the effectiveness of the following network communications technologies: Wi-Fi, Bluetooth, optical fibre, and mobile communication technology (4G and 5G).</li> <li>describe the function of the following network resources: network interface card, network cables, switch and router;</li> <li>describe the following network topologies: Bus, Star and Ring;</li> <li>describe the advantages and disadvantages of using a network in an organisation;</li> </ul>
<p><b>Cyberspace, network security and data transfer</b></p>	<ul style="list-style-type: none"> <li>define the term cybercrime and give examples of threats to cybersecurity, including: hacking; pornography; cyber stalking; data theft; denial of service; digital forgery; cyber defamation; spamming; and phishing;</li> <li>define the term malware and describe the following forms of malware: virus, Trojan horse, worm, key logger and spyware;</li> <li>explain how networks and data can be protected using encryption, passwords, levels of access, backup and firewalls;</li> <li>describe the role of a protocol in data transfer; and</li> <li>describe the purpose of the following protocols: File Transfer Protocol (FTP), HyperText Transfer Protocol (HTTP) and HyperText Transfer Protocol Secure (HTTPS).</li> </ul>
<p><b>Cloud technology Implementation and application, security, and impact on local systems</b></p>	<ul style="list-style-type: none"> <li>define the term cloud computing;</li> <li>describe the advantages and disadvantages of cloud computing for an organisation;</li> <li>describe the impact of cloud computing on gaming, file storage and sharing (including collaborative tools);</li> </ul>
<p><b>Ethical, legal and environmental impact of digital technology on wider society</b></p>	<ul style="list-style-type: none"> <li>demonstrate knowledge and understanding of: - the Consumer Contracts (Information, Cancellation and Additional Charges) Regulations 2013; - the Copyright, Designs and Patents Act 1988; - the Data Protection Act 1998; and - the Computer Misuse Act 1990;</li> </ul>

	<ul style="list-style-type: none"> <li>• identify typical breaches of the Copyright, Designs and Patents Act 1988, including software piracy and software licensing infringements;</li> <li>• demonstrate and apply knowledge and understanding of: - the eight principles of the Data Protection Act 1998; and - the rights of the data subject and the responsibilities of the data controller and Information Commissioner in ensuring the Data Protection Act 1998 is enforced;</li> <li>• describe the terms hacker, virus and spyware and how these relate to the Computer Misuse Act 1990; and</li> </ul>
Moral and ethical considerations	<ul style="list-style-type: none"> <li>• describe the ethical impact of technology on society, referring to the following: - internet misuse; - access to personal information; - social media misuse; - the implications of global positioning system (GPS) and tracking; and - concerns about the security of personal data.</li> </ul>
Changes in employment opportunities, skills requirements and work practices	<ul style="list-style-type: none"> <li>• describe the impact of digital technology on employment, including: - increased job opportunities in the digital technology and computing sector; - job displacement; - changes in work patterns; and - the need for upskilling;</li> </ul>
Health and safety	<ul style="list-style-type: none"> <li>• demonstrate understanding of digital technology related health and safety issues, including repetitive strain injury (RSI), back strain and eye strain;</li> <li>• identify the measures that both the employee and employer should take to promote good health and safety practice in the workplace.</li> </ul>
Digital applications	<ul style="list-style-type: none"> <li>• describe the main features of gaming applications, simulations and mobile phone applications and how they can be used to support the following: - education and training; - social interactions; and - work practices; and</li> <li>• evaluate the impact of the following digital applications on our everyday lives: online banking, online training and e-commerce.</li> </ul>
Specification	<a href="#">GCSE Digital Technology CCEA</a>
Departmental Resources to support revision	<p>Topic Booklets</p> <p><a href="#">YouTube video lessons which include past paper questions</a></p> <p>Topic Revision Guide</p> <p><a href="#">Kahoot! Revision Board Unit 1</a></p>
External websites to support revision	<p>BBC Bitesize <a href="http://www.bbc.co.uk">www.bbc.co.uk</a></p> <p>Kahoot! <a href="http://www.kahoot.it">www.kahoot.it</a></p>
Past Paper Questions and Mark Schemes	<a href="#">Past Papers and Mark Schemes CCEA</a>