Year 11 GCSE Digital Technology Revision Checklist

Subject	Digital Technology
Examination Unit Title	Unit 1: Digital Technology
Examination Board	CCEA
Examination Date	Friday 24th May 2024 (PM)
Examination length	1 Hour
Marks Available	90

TOPIC	KNOWLEDGE REQUIRED Students should be able to:
Digital data Representing data	• describe the difference between information and data; • describe how data is stored in the following units: – bit; – nibble; –byte; – kilobyte; – megabyte; – gigabyte; and – terabyte; identify the following data types: numeric (integer and real), date/time, character and string;
Representing images	• demonstrate understanding of how pixels are used in image representation; • demonstrate understanding of how image resolution affects file size; • describe how vector-based graphics and bitmap graphics are stored; • describe the difference between vector-based and bitmap graphics; and demonstrate understanding of how buffering and streaming are used to support the transfer of moving image files.
Representing sound	• describe factors that affect sound quality when recording sound, including sample rate, bit depth and bit rate; explain the need for analogue-to-digital conversion in sound recording;
Data portability	• 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; demonstrate understanding of the need for data compression;
Software	• describe the functions of system software, referring to allocating the following: – memory; – storage; and – processing time; • describe the following modes of processing: real-time, batch and multi-user; • describe the following tasks carried out by the utility applications: disk defragmenting, task scheduling, backup and restoring data; describe the role of antivirus software and the importance of regular updates;

Database applications	• demonstrate understanding of and explain basic database concepts such as table, record, field, key field, query, form, report, macro, relationship and importing data; • identify and use appropriate data types when creating a database structure; and • demonstrate understanding of the need for data validation. • describe the following types of validation checks: presence, length, type, format and range; • extract data from a database structure using simple query structures and using the following logical operators: <, >, =, <=, >=, AND, OR and BETWEEN; • demonstrate understanding of big data, referring to volume, velocity and variety; demonstrate understanding of the need for data analytics to interpret big data;
Spreadsheet applications	• describe the following basic structures of spreadsheet • software: cells, rows and columns; • describe and use the following features of spreadsheet • software: data types; templates, headers and footers, conditional formatting, • validation, and importing data; – entering text, numbers and formulae; – formatting cells, rows and columns; – creating and replicating formulae; – creating a simple template for others to use; and – using simple functions, relative and absolute cell • referencing, IF statements and VLOOKUPs; • use a spreadsheet for data modelling; • create, label and format charts; • select areas of a spreadsheet for printing; and create simple macros.
Computer hardware	• explain the purpose of the central processing unit (CPU); • describe the role of the following components of the CPU: • the arithmetic logic unit (ALU), control unit and immediate access store; • 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; • describe the impact of clock speed, cache size, and number • of cores on CPU performance; • 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); • explain the purpose of random access memory (RAM), read

	only memory (ROM) and cache;
Network technologies	• describe the main features of a local area network (LAN) • and a wide area network (WAN); • describe the difference between the World Wide Web, the • Internet of Things and intranets; and • describe and evaluate the effectiveness of the following • network communications technologies: Wi-Fi, Bluetooth, • optical fibre, and mobile communication technology • (4G and 5G). • describe the function of the following network resources: • network interface card, network cables, switch and router; • describe the following network topologies: Bus, Star and Ring; describe the advantages and disadvantages of using a network in an organisation;
Cyberspace, network security and data transfer	• 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; • define the term malware and describe the following forms • of malware: virus, Trojan horse, worm, key logger and • spyware; • explain how networks and data can be protected using • encryption, passwords, levels of access, backup and • firewalls; • describe the role of a protocol in data transfer; and • describe the purpose of the following protocols: File • Transfer Protocol (FTP), HyperText Transfer Protocol (HTTP) and HyperText Transfer Protocol Secure (HTTPS).
Cloud technology Implementation and application, security, and impact on local systems	• define the term cloud computing; • describe the advantages and disadvantages of cloud • computing for an organisation; • describe the impact of cloud computing on gaming, file storage and sharing (including collaborative tools);
Ethical, legal and environmental impact of digital technology on wider society	• 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; • identify typical breaches of the Copyright, Designs and Patents Act 1988, including software piracy and software licensing infringements; • 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; describe the terms hacker, virus and spyware and how these relate to the Computer Misuse Act 1990; and

Moral and ethical considerations	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.
Changes in employment opportunities, skills requirements and work practices	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;
Health and safety	• demonstrate understanding of digital technology related health and safety issues, including repetitive strain injury (RSI), back strain and eye strain; identify the measures that both the employee and employer should take to promote good health and safety practice in the workplace.
Digital applications	• 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 evaluate the impact of the following digital applications on our everyday lives: online banking, online training and e-commerce. • describe the difference between information and data; • describe how data is stored in the following units: – bit; – nibble; –byte; – kilobyte; – megabyte; – gigabyte; and – terabyte; identify the following data types: numeric (integer and real), date/time, character and string;
Specification	GCSE Digital Technology CCEA
Departmental Resources to support revision	Topic Booklets YouTube video lessons which include past paper questions Topic Revision Guide Kahoot! Revision Board Unit 1
External websites to support revision	BBC Bitesize www.bbc.co.uk Kahoot! www.kahoot.it
Past Paper Questions and Mark Schemes	Past Papers and Mark Schemes CCEA