GCSE Information Communication Technology Checklist

Unit 3 - ICT in Organisations
(Written Exam: 1 hour 30 Minutes - 80 Marks - 20% of Qualification)

Topic	Sub-Topic	Explanation	I can statement	Studied	R	A	G
Data and Quality of data	Data and Information	Understand;	I can explain with an example what encoding data means.				
		~ the potential benefits of encoding data and the reasons for doing it, the improved speed of access to data, the advantages and disadvantages of using Information and	I can outline the benefits of encoding data.				
		Communication Technology for storing data.	I can outline the benefits and disadvantages of using Information and Communication Technology for storing data.				
	Data Validation	Define validation and verification. Know the methods used for validation and verification and where they are appropriate.	I can explain the difference between validation and verification.				
		Describe the following: Verification; parity check, double keying, visual check	I can explain a range of validation and verification checks.				
		Validation; batch totals, hash totals	I can explain how data input errors might occur.				
		Understand: the possible sources of error which could exist the techniques used to overcome these errors.	I can suggest ways in which data input errors can be avoided.				

Data Logging and Control		Understand: the use of ICT to control and monitor areas of everyday living such as • security systems, automatic doors, traffic control systems, car parking systems, greenhouse control systems and robotics, simulation (for example flight or driving)	I can explain how ICT can be used to control and monitor areas of everyday life.				
		Discuss the advantages and disadvantages of:	I can outline the advantages and disadvantages of data logging.				
		• computerised data logging	I can explain the difference between feedback and non-feedback control systems.				
		• computer control (non-feedback and feedback)	I can outline the benefits and disadvantages of feedback and non-feedback control systems.				
Web and Presentation		Describe advantages and disadvantages of data compression techniques for	I can explain what data compression is.				
		images, movies, sound, pages and slides.	I can outline the benefits and disadvantages of data compression.				
Web Software		Understand browser software: • URL • keyword searches • links • menus.	I can explain what a web browser is.				
		Analyse existing web pages.	I can outline the typical features a web browser contains.				
		Search for and search on web pages.	I can analyse existing webpages by commenting on house style, audience, size and techniques used.				
		Make comparisons on house style, audience, size and techniques used.	I can outline the typical interactive features that are found on websites.				
		Use interactive features such as online forms, email, games, quizzes and questionnaires.	I can explain what a master page is.				

	Tooks and techniques for creating websites	Understand and use: • master pages/templates • home page • site navigation • golden triangle • hyperlinks • graphical hyperlinks/hotspots/rollover buttons and polygon links • bookmarks/ anchors • navigation bars • leader boards • banners • web icons e.g. shopping trolley, email • HTML • plugins.	I can explain what a homepage is.				
			I can outline typical navigation systems which can be used in website design.				
			I can explain what a golden triangle is.				
			I can explain what a hyperlink is.				
			I can explain what a bookmark is.				
		Discuss issues with hosting of websites and factors affecting uploading times.	I can explain what a navigation bar is.				
			I can explain what web icons are.				
		Describe advantages and disadvantages of:	I can explain what HTML is.				
		• the use of web pages and the different features used on them	I can explain what Plugins are.				
		• RGB colours; decimal and hexadecimal code used for colour.	I can outline issues which can arise from the hosting of websites.				
			I can outline factors which can affect upload time to a website.				
			I can describe the advantages and disadvantages of using web pages to display information.				
			I can explain how the RGB colour system works.				

			I can outline the benefits and disadvantages of the RGB colour system.				
Presentation Software	**Tools and techniques for creating slide presentations**	Understand and use: • design templates • animation • transitions and timings • video and sound • navigation bookmarks, hyperlinks and hotspots • narration and speaker notes • printing formats.	I can outline the typical features found in presentation software.				
		Describe advantages and disadvantages of presentation software	I can outline the advantages and disadvantages of presentation software.				
Multimedia		Demonstrate an understanding and awareness of current developments in	I can explain what the term multimedia means.				
		the multimedia industry and their effects on:	I can explain how multimedia is currently used in education, entertainment, business and wider society.				
		• education	I can outline the typical input devices required for multimedia systems.				
		• entertainment	I can explain how screen size affects the quality of multimedia assets.				
		• business	I can outline the features of digital still and video cameras.				
		• society.	I can explain what a Musical Instrument Digital Interface (MIDI) is.				
			I can explain how multimedia technology makes use of internal memory and backing storage.				
		Demonstrate an awareness of current and future trends in multimedia	I can outline the typical features of multimedia software.				
			I can outline the benefits and disadvantages of multimedia software.				

Digital Imaging	**Vector and bitmap graphics**	Understand: • vector and raster graphical techniques and their implication for memory size and manipulation • pixel dimensions (pixels per inch/cm) and benefits and problems with resizing of images for optimum use • screen resolution and memory requirements for different backgrounds (transparent, white, colour).	I can explain the difference between a bitmap and vector graphic.				
		Describe advantages of vector graphics over bit mapped graphics	I can outline the advantages of vector graphics over bitmap graphics.				
	Tools and techniques for creating and manipulating still images	Use: • standard tools: zoom, selection, transforming, scaling and sizing, brush settings, distortion, moving, cloning, rotation, layering, toggling between layers • colour effects, colour palettes and gradient tools • imaging effects • transparency effects • composite patterning (repeated patterns).	I can explain what image manipulation is.				
			I can outline each of the typical tools which can be used for image manipulation.				
			I can outline colour tools which can be used for image manipulation.				
			I can list common image file formats.				
		Understand the use, advantages and potential disadvantages of: bmp, jpeg, gif, tiff, eps and other common formats	I can outline the benefits and disadvantages of common image file formats.				
Animation	**Origins of animation Animation processes**	Compare and contrast different animation techniques Understand: • the concept of persistence of vision • flip books	I can list different animation processes.				
			I can explain a range of animation processes.				

	• Stop Motion animation • flash/Key frame animation • 3D animation.	I can give examples of how animations can be used.				
Uses in commercial and learning environments	Understand: • film making and special effects industries • VLEs, educational websites, MOOCs • animations for the web • identification through logos • standard banners for web pages/leader boards. Describe advantages and disadvantages of animation in commercial and educational environments.	I can outline the benefits and disadvantages of animation in commerical and educational environments.				
		I can explain the techniques which can be can be used when planning animations.				
Tools and techniques for creating animated images	Plan an animation: folder trees, story boards. Show awareness of audience: mood boarding	I can outline the typical technqiues which can be used in animations.				
	Understand: • the impact of variety of frame rates and looping • vector and bit map animation • claymation and pixilation techniques • rotoscoping • tweening and onion skinning • grouping, cloning, backdrops.	I can list common animation file formats.				
	Understand their use and advantages and potential disadvantages of different formats such as gif, cgm, png, etc.	I can outline the benefits and disadvantages of common animation file formats.				

Sound and Music	**Hardware**	Understand: • sound storage devices e.g. MP3 players • music workstations • sound cards • input devices such as microphones and Midi interfaces including MIDI over USB • speakers • sound conversion analogue to digital and digital to analogue • sequencers (multitrack recording studios) • samplers • notators (music composition software) • sound wave editors • downloading music.	I can list the typical hardware devices used in sound and music file storage.				
	Software	Discuss potential problems in the capturing and use of sound with respect to copyright.	I can explain the typical hardware devices used for sound and music file storage.				
			I can explain how sound conversion works.				
			I can explain what sound sequencers are.				
			I can explain what a notator is.				
		Understand the use, advantages and potential disadvantages of different formats such as wav, wma, mp3, etc.	I can explain what a soundwave editor is.				
			I can explain the potential problems with downloading and uploading music files to the Internet.				
			I can list common audio file formats.				
			I can outline the advantages and disadvantages of common audio file formats.				
Networks	**Types of Network**	Appreciate the differences between local (LAN) and wide area (WAN) networks.	I can explain what a network is.				
		Understand and describe computer network operation and devices such as: • network topologies including bus, star and ring • Internet / Intranet • routers • switches	I can explain the difference between a local (LAN) and wide area (WAN) network.				

	Linking LANs and WANs	• gateways • bridges • packet switching.	I can explain what a ring network topology is.				
	Advantages and applications of networks	Compare the advantages and disadvantages of network systems against standalone computers Understand and describe: • integrated point of sale (PoS) systems • automatic stock control systems.	I can draw a ring network topology.				
			I can outline the advantages and disadvantages of a ring network topology.				
			I can explain what a bus network topology is.				
			I can outline the advantages and disadvantages of a bus network topology.				
			I can draw a bus network topology.				
			I can explain what a star network topology is.				
			I can outline the advantages and disadvantages of a star network topology.				
			I can draw a star network topology.				
			I can explain the difference between the Internet and a Intranet.				
			I can list the typical hardware devices which are required to construct and maintain a network.				
			I can explain each of the typical hardware devices which are used to construct and maintain a network.				
			I can compare the advantages and disadvantages of using network systems against standalone computer systems.				
Human Computer Interfaces (HCIs)		Understand the functions of an operating system	I can explain what a Human Computer Interface (HCI) is.				
		Recognise and describe the features and uses of the different types of user	I can explain what an operating system is.				
		interface including:	I can outline the key features an operating system contains.				

		• command line	I can explain the difference between hardware and software.				
		• GUI (graphical user interface)	I can explain what a Graphical User Interface (GUI) is.				
		o WIMP (windows, icons, mouse/menu, pointer)	I can explain what the term WIMP stands for.				
		o online tutorials	I can outline the benefits and disadvantages of using a Graphical User Interface (GUI).				
		o customised desktops	I can explain what a command line interface is.				
		• voice driven applications	I can outline the benefits and disadvantages of a command line interface.				
		• menu/dialogue boxes	I can explain what a menu / dialogue box interface is.				
		• touch sensitive applications e.g. mobile phones, learning aids and	I can outline the benefits and disadvantages of a menu / dialogue box interface.				
		PoS systems	I can explain what a voice driven application is.				
		• biometrics e.g. retina, DNA, fingerprints etc.	I can outline the benefits and disadvantages of voice driven applications.				
			I can explain what a touch sensitive application is.				
		Discuss the advantages and disadvantages of each HCI.	I can outline the benefits and disadvantages of touch sensitive applications.				
			I can explain what biometric systems are.				
			I can outline the benefits and disadvantages of biometric systems.				
Organisations		Demonstrate a knowledge and understanding of a variety of computer applications. Know: • how data is captured, checked and entered • which processing method is used, i.e. batch, real time, real time transaction • what the minimum hardware and software requirements are • how the information is output • what the security implications are.	I can explain the different methods in which data can be captured, checked and entered into a computer system.				

		Describe: • suitable data, file or database structures • suitable computer systems including data capture, output and communication devices • suitable software tools and techniques used in the processing and presentation of the data • suitable verification, validation and security and back-up systems associated with each of the following organisations or applications:	I can explain the difference between batch and real-time transactions.				
		• banking • e-commerce systems • payroll • modern mail handling methods • control processes(feedback) • robotics and bionics • Artificial Intelligence (AI) and expert systems • autonomous vehicles	I can describe different methods which can be used to output information to a computer user.				
	Data Protection methods	Know and understand: • physical protection e.g. back ups • restricted physical access e.g. biometric scans • restricted access to data e.g. hierarchy of passwords and access rights, encryption, firewalls • monitoring e.g. transaction logs.	I can explain different methods which can be used to keep data secure.				
			I can outline the security implications of processing and storing data.				
			I can describe different verification and validation techniques which can be used to ensure data entry within a computer system is accurate.				
			I can explain each of the different methods organisations can use to keep their data secure.				
Social and Environmental Impact		Reflect critically on the impact of ICT on their own and others' lives, considering the social, economic, political, legal, ethical and moral issues. Understand issues relating to: • emerging technologies.	I can explain the social impact the use of ICT has had on society.				

		• employment patterns	I can explain the economic impact the use of ICT has had on society.				
		• retraining	I can explain the politcal impact the use of ICT has had on society.				
		• changes in working practices (collaboration)	I can explain the legal impact the use of ICT has had on society.				
		• teleworking	I can explain the ethical impact the use of ICT has had on society.				
		• homeworking	I can explain the moral impact the use of ICT has had on society.				
		• videoconferencing	I can explain how the use of ICT has affected employment patterns.				
		• the environmental impact	I can explain how the use of ICT has changed working practices.				
		• the impact on rich and poor communities	I can explain how the use of ICT has affected rich and poor communities.				
Legal and Ethical Issues		Know and understand the:	I can explain what the Data Protection Act (DPA) 1998 is.				
		• provisions of the Data Protection Act (DPA) 1998	I can explain the difference between a data holder and a data subject.				
		o rights of the data subject and the holder	I can outline the eight main rules the Data Protection Act (DPA) 1998 contains.				
		o exemptions from the DPA	I can outline some of the exemptions contained within the Data Protection Act (DPA) 1998.				
		• Computer Misuse Act 1990	I can explain what the Computer Misuse Act 1990 is.				
		• Electronic Communications Act 2000	I can explain what Electronic Communication Act 2000 is.				
		• Regulation of Investigatory Powers Act 2000	I can explain what the Regulation of Investigatory Powers Act 2000 is.				
		• Freedom of Information Act 2000	I can explain what the Freedom of Information Act 2000 is.				
		• Health and Safety legislation	I can explain what the Health and Safety at Work Act 1974 is.				
			I can explain what pharming is.				

		Identify new crimes created and the implications for computer users.	I can outline the implications of pharming for computer users.				
		• pharming	I can explain what phishing is.				
		• phishing	I can outline the implications of phishing for computer users.				
		• ransomware	I can explain what ransomware is.				
			I can outline the implications of ransomware for computer users.				
Emerging Technologies		Be aware of current and emerging technologies in business and commercial contexts.	I can outline current emerging technologies.				
		Describe the advantages and disadvantages of emerging technologies in business and commercial contexts.	I can describe the advantages and disadvantages of emerging technologies in business and commerical contexts.				