	Year 10 IT WJEC	Year 10 CS	Year 11 Business Studies	Year 11 WJEC	Year 11 CS	Year 12	Year 13
Unit	Functionality of different hardware devices/software/services provided by IT support	Components of a computer system	Organisational structures	Unit 2: ICT in Context	Issues	Fundamentals of IT	Project management
Objectives	Understanding types of Computing devices Input devices Output devices storage devices internal components ports system software applications software utility software specialist software information handling software open sources software communication software image capture and manipulation webcam services social networking e commerce banking payroll control processes AI and expert systems Robotics and bionics Online shopping Online booking Registration systems	The purpose of the CPU The fetch-execute cycle Common CPU components and their function ALU (Arithmetic Logic Unit) CU (Control Unit) Cache Registers Von Neumann architecture MAR (Memory Address Register) MDR (Memory Data Register) Program Counter Accumulator How common characteristics of CPU's affect their performance Clock speed Cache size Number of cores	To understand internal organisational structures, span of control, chain of command, delayering and delegation. To understand why businesses have internal organisational structures. To understand the impact that having a tall or flat organisational structure has on how a business is managed. To understand how an organisational structure may affect the different ways of communication. Main stages in the recruitment and selection process include an understanding of job analysis, job description, person specification, and selection methods. Benefits include high productivity, high quality output or customer service and staff retention	2.1 Planning, creating, modifying and using databases 2.2 Planning, creating, modifying and using spreadsheets 2.3 Planning, creating and modifying an automated document 2.4 Planning, creating, manipulating and storing images • analyse requirements to a specified client brief • identify success criteria • identify the different entities within a specified client brief • design a database structure including tables, relationships, forms, queries, reports, fields, primary and foreign keys, data types, field properties, validation rules minimising data redundancy • give detailed justification for field types used • justify their choice of validation rules applied to field types.	Impacts of digital technology on wider society including: Ethical issues Legal issues Cultural issues Environmental issues Privacy issues Legislation relevant to Computer science The data protection act 2018 Computer misuse act 1990 Copyright designs and patents act 1988 Software licences (i.e. open source and proprietary)	Understand computer hardware 1.1 Computer hardware, i.e.: • input devices • output devices • communications devices • benefits (e.g. integrated devices make portable devices simpler to use) • limitations (e.g. voice recognition performs poorly in noisy environments) • uses (e.g. membrane keyboard could be used in harsh physical environments) 1.2 Computer components, i.e.: • processors • motherboards • storage (i.e. hard drive, solid state, flash, internal, removable, SAS, SCSI, portable, Cloud) • ports (i.e. USB, Firewire, SATA, Network, Fibre Channel) • memory (i.e. RAM, ROM, cache) 2.1 Types of software, i.e.: • open source • closed source • off the shelf • bespoke • shareware • freeware • embedded • characteristics • use 2.2 Applications software, i.e.: • productivity software (i.e. word processor, spreadsheet, database, email) • development tools (i.e. compiler, debugger, translator, integrated design environment) • business software (i.e. MIS, multimedia, collaboration, project management, manufacturing, CAD/CAM, publishing, expert systems, healthcare	Internet of everything: 1.1 Things, i.e.: • physical objects • experiential interactions • aids to people • aids to society/community • machines 1.2 Where the IoE is used 1.3 Applications of the use of the IoE, i.e.: • body/health • home/garden • city/neighbourhood • industry • the environment 1.4 Global impacts, i.e.: • positive • negative • cost savings • increased productivity • new sources of revenue • enhanced citizen experiences 1.5 The four pillars of the IoE, i.e.: • people • data • process • things (devices and objects) 1.6 People, i.e.: • students • members of society • connecting people in relevant ways
NC links (where	B1, B2, B3	A5, A6, A8, B1	NA	B1, B2, B3	A8, A9, B1	N/A	N/A
Key Words	**Tier 2 identify, describe, explain, analyse** Software, hardware, input, process, output, social networking, e commerce, ports, devices	**Tier 2 identify, describe, explain, analyse** Computer system, hardware, software, peripheral, input/output, CPU, processor, cache, clock speed, fetch-execute cycle	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Centralisation Decentralisation Organisational chart Chain of command Span of control	**Tier 2 analyse, evaluate, compare, discuss,** Characteristics, text, number, tables, graphs/charts, infographics, validation methods, proofreading, size of sample, big data, e-commerce, primary data, secondary data, sectors, data modelling, vulnerable groups,	**Tier 2 analyse, evaluate, compare, discuss,** Ethical, legal, cultural, environmental, privacy, prohibits, licence, off the shelf	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Hardware, input, output, communication, environment, storage, processor, memory, expansion, characteristics, computer, quantum, connectivity, hub, switch, modem measurement, binary, decimal, hexadecimal	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Methodologies, project, Prince2, DMAIC, CPM, Agile, scrum, principles, financial, risk, acceptance, quality, resource, closure, plan, meeting, report, importance, evaluate, improvement, recommend
Homework	Working on coursework within school. Either at lunch/after school. Completing improvements.	English – report writing, bullet points, Maths – conversion, numbers	Literacy using key vocabulary and applying to context-based scenarios. Listening and or reading current news stories and analysing the business concepts that apply to this	Working on coursework within school. Either at lunch/after school. Completing improvements.	Identifying ethical, moral & cultural issues, exploring laws and regulations and assessing impact on society & business.	Regular work set individually/group work focusing on covered content and adding extra facts to already covered content to develop understanding. (Revision)	Working on coursework within school. During study periods/afterschool Completing improvements.
Career link (Unifrog)	User interfaces – programmer, cyber security specialist, computer game designer. Public needs – MP, Councillor,	Computer games developer, computer programmer, forensic computer analyst, software developer, network engineer, IT systems architect, CNC machinist	https://www.unifrog.org/teacher/resources/sort/skills-and-enterprise-start-up-challenge	User interfaces – programmer, cyber security specialist, computer game designer, web developer, security specialist, computer programmer, software application developer, computer system engineer Spreadsheet – admin assistant, accountant, cost estimator, financial analyst, sales manager, teacher, sales/marketing manager, quality surveyor, analyst, receptionist	Private investigator, Head of IT, web developer, e-learning developer	Network manager, IT support, network engineer, e-learning developer, IT teacher	Network manager, IT support, network engineer, e-learning developer, IT teacher, project manager, planner, IT support worker

Employability skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
Common misconceptio	The security methods and infrastructure required to support online services.	Students may have forgotten some of the roles of the different components within a computer system.	Layers of management and areas od responsibility, being accountable for and accountable to.	Data analysis, big data, data, spreadsheets, database, formula, open questions, closed question, interview, sensors, military uses, benefits,	Student become mixed up with ethical, cultural and legal issues and relate these to religious beliefs.	Some students come to IT from year 11 with no knowledge as we take on students from all subject. They require no previous grade from IT to uptake subject.	Students struggle to understand the concepts of using a range of project management techniques to compete set task.
Assessment	End of objective assessments twice a half term. Working towards examination criteria.	Word – students will create small written report that identifies all the content that they have covered to date. Key words will be displayed as prompter. Marks will be awarded for valid references to accurate information.	Weekly examination questions and feedback on business concepts	Students will be completing an entirety of a piece of coursework. They will all be working to aim for Distinction level with all the necessary tasks to be completed. Each student will constantly be given updated task sheets in which they need to complete to attain next grade.	Exam questions focused on ethical issues. Extended questions will be focused on in preparation for forthcoming mocks & exam series.	Half termly unit class mock. This will cover content to date to ensure students have fully understood tasks given and to ensure all students become familiar with command words identified within spec. Questions taken from OCR exam builder from previous tests.	Coursework assessed on daily basis and marked off on tracker and 'turnitinuk' to identify plagiarism across internet and from within school.
Half term 2							
Unit	How data and information is used and transferred	Components of a computer system	motivation	Creating and modifying a database	Algorithms	Fundamentals of IT	Project management
Objectives	What data must be fit for purpose: Data consists of raw facts and figure Information and data processed by the computer Applying rules to data and information Speed and access of data and storage File types Data compression File properties How data is checked for errors: Data capture methods Validation and verification Sources of error Problem solving How data transfers over different types of network The difference between LAN and WAN Protocols Bus, star and ring Packet sniffing Emerging technologies	The purpose and characteristics of embedded systems Examples of embedded systems The needs for primary storage The difference between RAM and ROM The purpose of ROM in a computer system The purpose of RAM in a computer system Virtual memory	Financial methods include an understanding of the main methods of payment including salary, wage, commission and profit sharing. Specific motivational theories (such as Maslow) will not be examined. Benefits of a motivated workforce include staff retention and high productivity. Non-financial methods of motivation include styles of management, importance of training, greater responsibility and fringe benefits. Benefits include increased productivity, ability to deal with changes in technology, increased motivation, staff retention, production of high quality goods and good customer service.	create and add tables • add fields • create a primary key • assign appropriate data types • apply effective validation rules and error messages • link tables using key fields and relationships • import data from a given CSV file • add, edit and delete records • check and test data to ensure it is error-free • check and test the database to ensure it functions correctly. import data from a CSV file and generate content of their own • enhance layout and format of the spreadsheet including font style; font size; enhanced grids/borders; titles; colours; merged cells; cell alignment; text wrap; headers or footers; forms; worksheet tab • facilitate data entry through use of form controls, e.g., buttons, check box, drop-down lists, combo boxes, spinners, scroll bar • define a print area in order to present a customer-friendly output • create a navigation menu in order to customise and simplify the client's use of the workbook.	Principles of computational thinking Abstraction Decomposition Algorithmic thinking Identify the inputs, processes, and outputs for a problem Structure diagrams Create, interpret, correct, complete, and refine algorithms using: Pseudocode Flowcharts Reference language/high-level programming language Identify common errors Trace tables	Understand computer software Understand business IT systems 3.1 Types of servers, i.e.: • file/print • application • database • web • mail • hypervisor 3.2 Virtualisation, i.e.: • server • client • storage • cloud • hybrid • benefits and limitations 3.3 Networking characteristics, i.e.: • peer to peer • client server (i.e. DNS) • bus/star/ring/mesh • addressing (i.e. default gateway, IP address, subnet mask) • diagrammatical representation	Understand the project life cycle Be able to initiate and plan projects Be able to execute projects Be able to carry out project evaluations 2.1 Developments, i.e.: • body/health, e.g.: o sensors, e.g. wearable thermometer o social safety wearables o Wi-Fi mattress cover o Bluetooth stethoscope o biometric patch o running analytics o Bluetooth weather sensor o Bluetooth maps for visually impaired o Bluetooth sunglasses • home/garden, e.g.: o smart air conditioner o Bluetooth tape measure o smart locks o smart lights o smart batteries o global location devices o Bluetooth measurement jars o Bluetooth flower pots o wireless water shutoff o Wi-Fi shopping lists o solar powered window blinds o Wi-Fi gas and carbon monoxide detectors • city/neighbourhood, e.g.: o real-time air traffic o smart signage o bicycle barometer o city dashboard o intelligent street lights o taxi locator o surveillance systems o wearable air quality sensor o smart urban furniture

NC links (where	B1, B2, B3	A5, A6, A8, B1		B1, B2, B3	A1, A2, A3, A4, A6	N/A	N/A
Key Words	**Tier 2 identify, describe, explain, analyse** Extranet, intranet, topology, servers, packet sniffing, operation, protocol.	**Tier 2 identify, describe, explain, analyse** RAM, ROM, bootstrap loader, volatile, non – volatile, memory, secondary memory, virtual memory, magnetic, optical, solid state	**Tier 2 State, identify, describe, evaluate, discuss** Motivation, human resources, retention, customer service, productivity	**Tier 2 analyse, evaluate, compare, discuss,** Importing, formulae, sorting, filtering, macros, relative cell referencing, conditional formatting, budget allocation, dropdown menus.	**Tier 2 analyse, evaluate, compare, discuss,** Input, output, variable, array, integer, data, greater than, less than, equals to, IF statements, strings quotation marks, indent, nested, loops statements	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Open source, closed source, bespoke, shareware, productivity software, developmental, utility software, operating systems, communications, protocols, troubleshooting, servers, virtualisation, networking, peer to peer, client server, MIS, procedures	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Methodologies, project, Prince2, DMAIC, CPM, Agile, scrum, principles, financial, risk, acceptance, quality, resource, closure, plan, meeting, report, importance, evaluate, improvement, recommend
Homework	Topic based recall questions and past paper exam questions	Combination of homework activities that focus directly on the gaps in students learning. Recap and consolidate learning from lessons.	Literacy using key vocabulary and applying to context-based scenarios. Listening and or reading current news stories and analysing the business concepts that apply to this	Working on coursework within school. Either at lunch/after school. Completing improvements.	Directed learning challenges focusing on coding challenges booklet.	Regular work set individually/group work focusing on covered content and adding extra facts to already covered content to develop understanding. (Revision)	Working on coursework within school. During study periods/afterschool Completing improvements.
Career link (Unifrog)	User interfaces – programmer, cyber security specialist, computer game designer, web developer, security specialist, computer programmer, software application developer, computer system engineer Public needs – MP, Councillor,	Computer games developer, computer programmer, forensic computer analyst, software developer, network engineer, IT systems architect, CNC machinist	https://www.unifrog.org/teacher/resources/sort/save-the-planet-week-2022	Maths – spreadsheets, graph work, suitable charts for purposes, Logical THINKING, data types, integers, ratio, coordinates, cell referencing Geography – temperature charts, sea levels and comparisons between countries. English - audience	Photonics engineers, quantitative analyst, software developer, app designer	Network manager, IT support, network engineer, e-learning developer, IT teacher	Network manager, IT support, network engineer, e-learning developer, IT teacher
Employability skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
Common misconceptio	Students struggle to identify that risks can potentially put a project behind. Risks need to be identified and minimised prior to project beginning.	Students may have forgotten some of the roles of the different components within a computer system.	Different concepts relating to motivation	Incorrectly inserting data into spreadsheet, wrong formula used for purpose, incorrect links between sheets to dashboard.	Students may have previous misconceptions that have been built into their learning from previous years. Ensuring that all students stick to set	Students always struggle with protocols and the different ones. Never been asked before for each protocol within exam paper but preparing for when this happens.	Students struggle to understand the concepts of using a range of project management techniques to compete set task.
Assessment	Homework and in class activities.	Students will create a key facts sheet that will identify all the different types of storage. This will be a large project that will then be used as a display within the classroom. All concept will need covering within working document.	Weekly examination questions and feedback on business concepts	Students will be completing an entirety of a piece of coursework. They will all be working to aim for Distinction level with all the necessary tasks to be completed. Each student will constantly be given updated task sheets in which they need to complete to attain next grade.	Challenge booklet to students. Given set programming challenges on weekly basis. Mock series will also be completed for both Unit 1 & 2.	Half termly unit class mock. This will cover content to date to ensure students have fully understood tasks given and to ensure all students become familiar with command words identified within spec. Questions taken from OCR exam builder from previous tests.	Coursework assessed on daily basis and marked off on tracker and 'turnitinuk' to identify plagiarism across internet and from within school.
Half term 3							
Unit	Legal, moral, ethical impacts of IT for cybersecurity	Components of a computer system	The elements of the marketing mix: price, product, promotion and place (4Ps)	Create a dashboard using data manipulation tools	Algorithms	Fundamentals of it	Global information

Objectives	Risks to information held on computers Accidental damage Unintended disclosure by incorrectly assigned access levels Malicious software Physical protection Biometrics Location of hardware Back ups Security staff Security policies Staff responsibilities Disaster recovery Acceptable policy Moral and ethical issues effecting computer use: Privacy and security Cookies and data collection Monitoring Impact of data loss GDPR DPA computer misuse Act Communications Act Regulation of investigatory powers	The need for secondary storage Common types of storage Optical Magnetic Solid state Suitable storage devices and storage media of a given application The advantages/disadvantages of different storage devices and storage media relating to these characteristics Capacity Speed Portability Durability Reliability Cost The units of date storage Bit Nibble (4 bits) Byte (8 bits) Kilobyte (1000 bytes or 1 KB) Megabyte 1000 KB) Gigabyte (1000 MB) Terabyte (1000 GB) Petabyte (1000 TB) How data needs to be converted into a binary format to be processed by a computer. Data capacity and calculation of data capacity requirements. How to convert positive denary whole numbers to binary numbers (up to and including 8 bits) and vice versa How to add two binary integers together (up to and including 8 bits) and explain overflow errors which may occur How to convert positive denary whole numbers into 2-digit hexadecimal numbers and vice versa How to convert binary integers to their hexadecimal equivalents and vice versa • Binary shifts	To understand price skimming and price penetration. To understand the impact these pricing decisions will have on the business. To understand competitive pricing, loss leader and cost-plus pricing. To understand the impact these pricing decisions will have on the business. To recognise the factors, internal and external, which might influence the pricing decision, particularly as businesses grow and expand. To evaluate the factors and use them to assess the suitability of pricing methods for a given business. To understand the basic relationship between price and demand. To understand the benefits and risks of developing new products. To understand the importance of product design, image and the needs of the target market when designing new products.	To understand how data can be imported from an external source. They will then explore how to apply data processing methods. These include: data manipulation methods: importing data, e.g. from other files, the internet formulae, e.g. add, divide, subtract, multiply decision-making functions, e.g. IF, WHATIF, SUMIF lookup functions, e.g. VLOOKUP, HLOOKUP string operation functions, e.g. LEFT, RIGHT count functions, e.g. COUNTBLANK, COUNTIF logical operators, e.g. NOT, AND, OR sorting, e.g. sorting multiple columns and values outline, e.g. group, ungroup, subtotal filtering, e.g. greater than, less than, equals, contains, begins with, ends with text to columns, e.g. delimited, fixed width. Other processing methods: o absolute and relative cell referencing, e.g. use of dollar sign ($) and named cells macros, e.g. for automatic navigation, change graph options, change data ranges data validation, e.g. list check, type check, length check multiple and linking worksheets, e.g. for dashboard and raw data cell comments alternative views, e.g. hiding/unhiding cells, freezing planes conditional formatting, e.g. data bars, colour scales, icon sets To use a dashboard to select and display information summaries based on a given large data set. To draw conclusions on the data set, using their dashboard in order to make recommendations. To assess how well they have used the presentation features, to ensure they do not lead to:	Standards searching algorithms Binary search Linear search Standard sorting algorithms Bubble sort Merge sort Insertion sort The use of variables, constants, operators, inputs, outputs and assignments The use of three basic programming constructs used to control the flow of a program Sequence Selection Iteration (Count – and condition-controlled loops) The common arithmetic operators The common Boolean operators AND, OR and NOT To use of data types: Integer Real Boolean Character and string Casting The use of basic string manipulation the use of basic file handling operations Open Read Write Close The use of records to store data The use of SQL to search for data The use of arrays (or equivalent) when solving problems, including both one-dimensional (1D) and two-dimensional arrays (2D) How to use sub programs (functions and procedures) to produce structured code Random number generation	Understand employability and communication skills used in an IT environment 4.1 Communication skills, i.e.: • interpersonal skills (i.e. eye contact, body language) • questioning techniques • verbal (i.e. meetings, telephone, group discussions) • written (i.e. reports, letters, emails, social networking) • non-verbal (i.e. body language) • barriers (i.e. language, distraction, noise, lack of concentration) • appropriate use of language (i.e. formal, informal, technical, non-technical) 4.2 Communication technology, i.e.: • presentation software • word processing • email • web • blogs/vlogs • instant messaging • use 4.3 Personal attributes (i.e. self-motivation, leadership, respect, dependability, punctuality, problem solving, determination, independence, time management, team working, written numerical and verbal skills, planning and organisation skills) 4.4 Ready for work, i.e.: • dress (i.e. appropriate clothing depending on situation) • presentation (i.e. personal grooming, appearance etc.) • attitude (i.e. can do attitude, responsive) 4.5 Job roles, i.e.: • Network manager • IT technician • Programmer • Web designer • Animator • Key skills required for each	Understand where information is held globally and how it is transmitted Understand the styles, classification and the management of global information Understand the use of global information and the benefits to individuals and organisations Understand the legal and regulatory framework governing the storage and use of global information Understand the process flow of information 1.1 Holders of information, i.e.: • categories of holders (individual citizens, businesses, educational institutions, governments, charities, healthcare services and community organisations) • location (e.g. developing country, developed country, urban, rural, home, workplace) • comparison of technologies available and access issues across the global divide (e.g. between developed and developing countries) 1.2 Types of information storage media, i.e.: • paper (e.g. forms, handwritten notes, maps, telephone directories) • optical media (e.g. CD and DVD) • magnetic media (e.g. magnetic hard drives and tapes) • solid state media (e.g. SSD hard drives, memory 2.1 Information styles and their uses, i.e.: • text (different character sets, e.g. Western, Cyrillic, Arabic, etc.) • graphic (e.g. logo, photograph, diagram) • video (e.g. instructions on how to carry out a software update, live broadcast of a music festival) • animated graphic (e.g. pop-up book character, operation of the human heart) • audio (e.g. spoken instructions, music track) • numerical (e.g. profit, date and time) • Braille text (e.g. written report printed on a Braille printer) • tactile images (e.g. NASA's Hubble Space Telescope images converted into tactile images for people who cannot explore the images by sight) • subtitles (e.g. translated speech for a film in a foreign language) • boolean (e.g. yes or no answer on a form) • tables and spreadsheets (e.g. simple database tables and spreadsheets) • charts and graphs (e.g. identifying trends, making comparisons) 2.2 Information classification, i.e.: • sensitive • non-sensitive • private • public • personal
NC links (where	B1, B2, B3	A5, A6, A8, B1		B1, B2, B3	A1, A2, A3, A4, A6	N/A	N/A
Key Words	**Tier 2 identify, describe, explain, analyse** Ethical, moral, legislation, privacy, policy, disclosure	**Tier 2 identify, describe, explain, analyse** Binary, decimal, hexadecimal, shift, array, overflow, megabyte, gigabyte, terabyte, petabyte, durability, portability, capacity, reliability	**Tier 2 State, identify, describe, evaluate, discuss** Benefits, risk, skimming, target audience, influences, expansion.	**Tier 2 analyse, evaluate, compare, discuss,** Importing, formulae, sorting, filtering, macros, relative cell referencing, conditional formatting, budget allocation, dropdown menus.	**Tier 2 analyse, evaluate, compare, discuss,** Input, output, variable, array, integer, data, greater than, less than, equals to, IF statements, strings quotation marks, indent, nested, loops statements, Boolean, AND, OR, NOT, SQL injection, search, storing, functions, procedures	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Interpersonal, verbal, written, barriers, attributes, certification	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Location, developing, optical, solid state media, shared devices, WWW, graphic, sensitive, non-sensitive, manipulating, consequences, organisations, marketing, management, legislation, regulation, protection, data types, espionage

Homework	Homework and in class activities.	Conversion tasks focused between: binary, decimal and hexadecimal. Looking at converting each.	Literacy using key vocabulary and applying to context-based scenarios. Listening and or reading current news stories and analysing the business concepts that apply to this	Working on coursework within school. Either at lunch/after school. Completing improvements.	Directed learning challenges focusing on coding challenges booklet.	Regular work set individually/group work focusing on covered content and adding extra facts to already covered content to develop understanding. (Revision)	Regular work set individually/group work focusing on covered content and adding extra facts to already covered content to develop understanding. (Revision)
Career link (Unifrog)	Computer games developer, computer programmer, forensic computer analyst, software developer, network engineer, IT systems architect, CNC machinist	Computer games developer, computer programmer, forensic computer analyst, software developer, network engineer, IT systems architect, CNC machinist	https://www.unifrog.org/teacher/resources/sort/enterprise-and-employability-challenge-session-2	Maths – spreadsheets, graph work, suitable charts for purposes, Logical THINKING, data types, integers, ratio, coordinates, cell referencing Geography – temperature charts, sea levels and comparisons between countries. English - audience	Photonics engineer, quantitative analyst, software developer, app designer, programmer	Network manager, IT support, network engineer, e-learning developer, IT teacher	Network manager, IT support, network engineer, e-learning developer, IT teacher
Employability skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
Common misconceptio	Confusing different legislation, particularly GDPR and DPA.	Students become mixed up with the different sizes of TB, MB, GB, PB		Incorrectly inserting data into spreadsheet, wrong formula used for purpose, incorrect links between sheets to dashboard.	Students may have previous misconceptions that have been built into their learning from previous years. Ensuring that all students stick to set	Struggle to identify why industrial certification is needed for IT posts.	Struggle with use of flowcharts and accuracy. Identifying correct shapes needed.
Assessment	Homework and in class activities. Past exam paper questions assessed against exam board marking criteria.	Multiple conversion questions between different data types. Exam questions taken from OCR exam builder.	Weekly examination questions and feedback on business concepts	Students will be completing an entirety of a piece of coursework. They will all be working to aim for Distinction level with all the necessary tasks to be completed. Each student will constantly be given updated task sheets in which they need to complete to attain next grade.	Challenge booklet to students. Given set programming challenges on weekly basis. Mock series will also be completed for both Unit 1 & 2.	Half termly unit class mock. This will cover content to date to ensure students have fully understood tasks given and to ensure all students become familiar with command words identified within spec. Questions taken from OCR exam builder from previous tests.	General non-focused exam questions. Not related to pre-release. Questions that can be answered individually without any prior supporting evidence needed.
Half term 4							
Unit	The cultural and personal, environmental impact of ICT	Data representation	Product differentiation	Draw conclusions based on the data	Design, testing and IDEs	Fundamentals of IT	Global information

Objectives	Learners will understand: Employment patterns retraining Changes in working practices Teleworking Homeworking Videoconferencing Effect on transport Effect in traditional media Drones Green IT and non-green IT e-waste rare earth element mining global production lines the digital divide social media including cyberbullying and fake news net neutrality addiction mental health emerging technologies	The use of binary codes to represent characters The term 'character set ' The relationship between the number of bits per character in a character set, and the number of characters which can be represented, e.g.: ASCII Unicode How an image is represented as a series of pixels, represented in binary Metadata The effects of colour depth and resolution on: The quality of the image The size of the image file How sound can be sampled and stored in digital form The effect of sample rate, duration and bit depth on: The playback quality The size of the sound file The need for compression Types of compression Lossy Lossless Common prevention methods Penetration testing Anti-malware software Firewalls User access levels Passwords Encryption Physical security	To understand the significance of having a USP in a competitive market. To understand the importance of a good brand image. To understand the product life cycle. To be able to demonstrate how the demand for a product or service might change over time. To understand what is meant by an extension strategy. To evaluate the effectiveness of extension strategies and when they would be suitable. To understand how and why businesses might broaden and balance their product portfolio using the Boston Matrix. To be able to identify and explain the four categories of the Boston Box.	To draw conclusions on the data set, using their dashboard in order to make recommendations. To assess how well they have used the presentation feature.	Defensive design considerations: o Anticipating misuse Authentication Input validation Maintainability: Use of sub programs Naming conventions Indentation Commenting	Understand ethical and operational issues and threats to computer systems 5.1 Ethical issues, i.e.: • whistle blowing • disability/gender/sexuality discrimination • use of information • codes of practice • staying safe online • bias 5.2 Operational issues, i.e.: • security of information • health and safety • disaster planning and recovery • organisational policies (i.e. acceptable use policy, code of conduct, etc.) • change management • scale of change: o drivers (i.e. change in business practice, legislation, competition)	Understand where information is held globally and how it is transmitted Understand the styles, classification and the management of global information Understand the use of global information and the benefits to individuals and organisations Understand the legal and regulatory framework governing the storage and use of global information Understand the process flow of information 3.1 Data versus information, i.e.: • data-raw, unorganised facts that needs to be processed information-data which is processed, organised and structured into a meaningful context. 3.2 Categories of information used by individuals, i.e.: • communication (e.g. to send an email to a relation living overseas) • education and training (e.g. by a student to check their current grades on a hand written feedback sheet from their teacher) • entertainment (e.g. to read a film review in a magazine) • planning (e.g. to use a shared electronic diary to arrange meeting dates) • financial (e.g. to use a bank statement to help plan saving for a holiday) • research (e.g. to look up a recipe online) • location dependent (e.g. to search for emergency dental care when on holiday) • benefits and limitations 3.3 Categories of information used by organisations, i.e.: • knowledge management and creation (e.g. to create an accurate model of key markets) • management information systems (MIS) (e.g. to monitor staff training in a hospital; the location and contact details of each charity worker in a disaster area; personnel record of all staff) • marketing, promotion and sales (e.g. to identify patterns or trends in sales figures) • financial analysis and modelling
NC links (where	B1, B2, B3	A5, A6, A8, B1		B1, B2, B3	A1, A2, A3, A4, A6, B2	N/A	N/A
Key Words	**Tier 2 identify, describe, explain, analyse** Cyberbullying. Net neutrality, collaboration, hot desk, trends, patterns	**Tier 2 identify, describe, explain, analyse** Units, binary, denary, hexadecimal, overflow, bitmap, vector, pixel, resolution, metadata, analogue, digital	**Tier 2 State, identify, describe, evaluate, discuss** Literacy using key vocabulary and applying to context-based scenarios. Listening and or reading current news stories and analysing the business concepts that apply to this	**Tier 2 analyse, evaluate, compare, discuss,** Pivot tables, trends, patterns, misinterpreted, recommendations, biased	**Tier 2 analyse, evaluate, compare, discuss,** Input, output, variable, array, integer, data, greater than, less than, equals to, IF statements, strings quotation marks, indent, nested, loops statements, Boolean, AND, OR, NOT, SQL injection, search, storing, functions, procedures, sub programs, testing, IDE, errors	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Whistle blowing, discrimination, codes of practice, operational, ethical, threats, physical digital, permissions, biometrics, interception, phishing, legislation, electromagnetic	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Location, developing, optical, solid state media, shared devices, WWW, graphic, sensitive, non-sensitive, manipulating, consequences, organisations, marketing, management, legislation, regulation, protection, data types, espionage
Homework	Working on coursework within school. Either at lunch/after school. Completing improvements.	Multiple everlearner tasks and OCR exam builder questions built around topic.	Weekly exam questions and scenario-based comprehension activities.	Working on coursework within school. Either at lunch/after school. Completing improvements.	Programming challenges booklet from OCR. Exam question taken from OCR exam builder to develop understanding.	Regular work set individually/group work focusing on covered content and adding extra facts to already covered content to develop understanding. (Revision)	Regular work set individually/group work focusing on covered content and adding extra facts to already covered content to develop understanding. (Revision)

Career link (Unifrog)	Network manager, IT support, network engineer, e-learning developer, IT teacher	Data entry clerk, data analyst, clinical data manager, database administrator, quantitative analyst	https://www.unifrog.org/teacher/resources/sort/women-in-stem	User interfaces – programmer, cyber security specialist, computer game designer, web developer, security specialist, computer programmer, software application developer, computer system engineer Spreadsheet – admin assistant, accountant, cost estimator, financial analyst, sales manager, teacher, sales/marketing manager, quality surveyor, analyst, receptionist	Photonics engineer, quantitative analyst, software developer, app designer, programmer	Network manager, IT support, network engineer, e-learning developer, IT teacher	Network manager, IT support, network engineer, e-learning developer, IT teacher
Employability skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
Common misconceptio	Students will be unfamiliar that different organisations collect and use data on wide scale to make judgements and decisions.	Students get mixed up between lossy/lossless	Students will find the concept of boston box difficult and how this can affect the consumers experience.	Not able to draw conclusions or cross relate data with other focus.	Students struggle with some programming and being abke to complete independently.	Occasionally get physical and digital security measures mixed up. CCTV always an issue.	Struggle with use of flowcharts and accuracy. Identifying correct shapes needed.
Assessment	Green ICT written assessment – to assess designing a long answer question focusing on analysis and evaluative elements on the exam specification	Exam questions taken from OCR exam builder.	Weekly examination questions and feedback on business concepts	Students will be completing an entirety of a piece of coursework. They will all be working to aim for Distinction level with all the necessary tasks to be completed. Each student will constantly be given updated task sheets in which they need to complete to attain next grade.	Challenge booklet to students. Given set programming challenges on weekly basis. Mock series will also be completed for both Unit 1 & 2. OCR exam builder questions.	Half termly unit class mock. This will cover content to date to ensure students have fully understood tasks given and to ensure all students become familiar with command words identified within spec. Questions taken from OCR exam builder from previous tests.	Regular assessments using pre-release for upcoming exam. Using information needed to answer forthcoming official exam.

Half term 5

Unit	Unit 2 -ICT in context Coursework unit	Components of a computer systems	The purpose and methods of market research	Draw conclusions based on the data	Design, testing and IDEs	Virtual and augmented reality	Global information
Objectives	2.1.1 Planning and designing a database Analyse requirements to a specified client brief Identify success criteria Identify the different entities within a specified client brief Design and database structure including tables, relationships, forms, queries, reports fields, primary and foreign keys, data types, field properties, validation rules, minimising data redundancy. Justification for field types Justification of validation rules 2.1.2 Creating and adding tables Creating a primary key Assigning correct data types Error messages Importing data from a CSV file	The purpose and functionality of operating systems: User interfaces Memory management and multitasking Peripheral management and drivers User management File management The purpose and functionality of utility software Utility system software Encryption software Defragmentation Data compression Types of network: LAN (Local area network) WAN (Wide area network) Factors that affect the performance of networks The different roles of computers in a client-server and peer-to-peer network The hardware needed to connect standalone computers into a local area network Wireless access point Routers Switches	Reasons for conducting market research include to identify market opportunities and to get a better insight into their customers and competitors. Market research collects information about demand, competition and the target market Methods include questionnaires, surveys, interviews and focus groups. To be able to interpret and use qualitative and quantitative market research findings to help make appropriate decisions for different types of business. Exam preparation and practice	To draw conclusions on the data set, using their dashboard in order to make recommendations. To assess how well they have used the presentation feature.	The purpose of testing Types of testing: Iterative Final/terminal Identify syntax and logic errors Selecting and using suitable test data: Normal Boundary Invalid/Erroneous Refining algorithms Simple logic diagrams using the operators AND, OR and NOT Truth tables Combining Boolean operators using AND, OR and NOT Applying logical operators in truth tables to solve problems	Understand virtual and augmented reality and how they may be used Be able to design virtual and augmented reality resources Be able to create a virtual or augmented reality resource Be able to predict future applications for virtual and augmented reality.	Understand where information is held globally and how it is transmitted Understand the styles, classification and the management of global information Understand the use of global information and the benefits to individuals and organisations Understand the legal and regulatory framework governing the storage and use of global information Understand the process flow of information

NC links (where	B1, B2, B3	A5, A6, A8, B1		B1, B2, B3	A1, A2, A3, A4, A6, B2	N/A	N/A
Key Words	**Tier 2 identify, describe, explain, analyse** Importing, formulae, sorting, filtering, macros, relative cell referencing, conditional formatting, budget allocation, dropdown menus.	**Tier 2 identify, describe, explain, analyse** Software, system software, OS, utility software, defragmentation, network, topology, cloud, DNS	**Tier 2 State, identify, describe, evaluate, discuss** Supply, demand, recruitment, selection, retention	**Tier 2 analyse, evaluate, compare, discuss,** Pivot tables, trends, patterns, misinterpreted, recommendations, biased	**Tier 2 analyse, evaluate, compare, discuss,** Input, output, variable, array, integer, data, greater than, less than, equals to, IF statements, strings quotation marks, indent, nested, loops statements, Boolean, AND, OR, NOT, SQL injection, search, storing, functions, procedures, sub programs, testing, IDE, errors	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Virtual, augmented, repurposed, proposed, architecture, simulations, training, software, hardware, quality, financial, resource, budget, trigger, develop, testing, evaluate, deviate	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Location, developing, optical, solid state media, shared devices, WWW, graphic, sensitive, non-sensitive, manipulating, consequences, organisations, marketing, management, legislation, regulation, protection, data types, espionage
Homework	Working on coursework within school. Either at lunch/after school. Completing improvements.	The everlearner tasks – set online All focused towards current topic – watch video, make notes, question paper	Literacy using key vocabulary and applying to context-based scenarios. Listening and or reading current news stories and analysing the business concepts that apply to this	Working on coursework within school. Either at lunch/after school. Completing improvements.	Programming challenges booklet from OCR. Exam question taken from OCR exam builder to develop understanding.	Working on coursework within school. During study periods/afterschool Completing improvements.	Regular work set individually/group work focusing on covered content and adding extra facts to already covered content to develop understanding. (Revision)
Career link (Unifrog)	Maths – spreadsheets, graph work, suitable charts for purposes, Logical THINKING, data types, integers, ratio, coordinates, cell referencing Geography – temperature charts, sea levels and comparisons between countries. English - audience	Computer games developer, network engineer, electricity distribution worker, IT systems architect, IT project manager, Head of IT	https://www.unifrog.org/teacher/resources/sort/your-superhero-cv	User interfaces – programmer, cyber security specialist, computer game designer, web developer, security specialist, computer programmer, software application developer, computer system engineer Spreadsheet – admin assistant, accountant, cost estimator, financial analyst, sales manager, teacher, sales/marketing manager, quality surveyor, analyst, receptionist	Photonics engineer, quantitative analyst, software developer, app designer, programmer	Computer game designer, computer game tester, VR headset designer, AR software developer, IT teacher	Network manager, IT support, network engineer, e-learning developer, IT teacher
Employability skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving Literacy Numeracy Independence Communication Teamwork Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving Literacy Numeracy Independence Communication Teamwork Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving Literacy Numeracy Independence Communication Teamwork Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving Literacy Numeracy Independence Communication Teamwork Staying positive
Common misconceptio	Lack of previous experience of using databases to edit data.	Students are unfamiliar with concept and technical vocabulary gaps in learning from others units covered to date.	Pricing methods and reasoning	Not able to draw conclusions or cross relate data with other focus.	Students struggle with some programming and being abke to complete independently.	Students usually struggle with the designing and creation of the AR resource, considering a range of newly developed skills. Struggle to identify 'repurposing'	Struggle with use of flowcharts and accuracy. Identifying correct shapes needed.
Assessment	Students will be completing an entirety of a piece of coursework. They will all be working to aim for Distinction level with all the necessary tasks to be completed. Each student will constantly be given updated task sheets in which they need to complete to attain next grade.	Exam questions taken from OCR exam builder.	Examination questions MCQ and key vocabulary used in the correct context will be assessed weekly	Students will be completing an entirety of a piece of coursework. They will all be working to aim for Distinction level with all the necessary tasks to be completed. Each student will constantly be given updated task sheets in which they need to complete to attain next grade.	Challenge booklet to students. Given set programming challenges on weekly basis. Mock series will also be completed for both Unit 1 & 2. OCR exam builder questions.	Coursework assessed on daily basis and marked off on tracker and 'turnitinuk' to identify plagiarism across internet and from within school.	Regular assessments using pre-release for upcoming exam. Using information needed to answer forthcoming official exam. Along with standalone questions not related to pre-release too.
Half term 6							
Unit	Interrogating a database	Networks			Design, testing and IDEs	Virtual and augmented reality	

Objectives	Creating and selecting queries, suing a query builder including single table/criteria: multiple tables/ criteria: wildcard, parameter and calculations. Produce reports from queries, with at least one report showing customisation for fitness of purpose.	Modes of connection: Wired Ethernet Wireless Wi-Fi Bluetooth Encryption IP addressing and MAC addressing Standards Common protocol The concept of layers Forms of attacks Malware Social engineering e.g. phishing, people as the 'weak point' Brute force attacks Denial of service attacks Data interception and theft The concept of SQLinjection Common prevention methods: Penetration testing Anti-malware software Firewalls User access levels Passwords Encryption Physical security			Characteristics and purpose of different levels of programming language: High-level languages Low-level languages The purpose of translators The characteristics of a compiler and an interpreter Common tools and facilities available in an Integrated Development Environment (IDE): Editors Error diagnostics Run-time environment Translators	Understand virtual and augmented reality and how they may be used Be able to design virtual and augmented reality resources Be able to create a virtual or augmented reality resource Be able to predict future applications for virtual and augmented reality.	
NC links (where	B1, B2, B3	A1,A2, A4, A5			A1, A2, A3, A4, A6	N/A	
Key Words	**Tier 2 identify, describe, explain, analyse** Query, report, criteria, error, outputs, wildcard, parameter	**Tier 2 identify, describe, explain, analyse** Network, topology, hardware, encryption, brute force attack, penetration testing, layers, Bluetooth			**Tier 2 analyse, evaluate, compare, discuss,** ASCII, translator, compiler, interpreter, integrated development environment, GUI, debugging, breakpoints	**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,** Virtual, augmented, repurposed, proposed, architecture, simulations, training, software, hardware, quality, financial, resource, budget, trigger, develop, testing, evaluate, deviate	
Homework	Working on coursework within school. Either at lunch/after school. Completing improvements.	The everlearner tasks – set online All focused towards current topic – watch video, make notes, question paper			Programming challenges booklet from OCR. Exam question taken from OCR exam builder to develop understanding.	Working on coursework within school. During study periods/afterschool Completing improvements.	
Career link (Unifrog)	User interfaces – programmer, cyber security specialist, computer game designer, web developer, security specialist, computer programmer, software application developer, computer system engineer	Computer games developer, network engineer, electricity distribution worker, IT systems architect, IT project manager, Head of IT			Photonics engineer, quantitative analyst, software developer, app designer, programmer	Computer game designer, computer game tester, VR headset designer, AR software developer, IT teacher	
Employability skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive			Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	
Common misconceptio	Not able to draw conclusions or cross relate data with other focus.	Students may be unfamiliar with the different network topologies covered from previous years.			Students struggle with some programming and being abke to complete independently.	Students usually struggle with the designing and creation of the AR resource, considering a range of newly developed skills. Struggle to identify 'repurposing'	

Assessment	Students will be completing an entirety of a piece of coursework. They will all be working to aim for Distinction level with all the necessary tasks to be completed. Each student will constantly be given updated task sheets in which they need to complete to attain next grade.	Exam questions taken from OCR exam builder.			OCR exam builder questions. Past exam papers	Coursework assessed on daily basis and marked off on tracker and 'turnitinuk' to identify plagiarism across internet and from within school.	