	Year 12	**Year 13**
Unit	Fundamentals of IT	Project management
Objectives	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	Project life cycle Initiate and plan projects Execute projects Carry out project evaluations 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
Key Words	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	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)	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 **(Highlight applicable)**	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 misconceptions	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	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.

	Autumn 2	
Unit	Fundamentals of IT	Project management

Objectives	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
		Initiate and plan projects
		Execute projects
		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
		   o connected car safety devices
		• industry, e.g.:
		   o industrial smart helmet
		   o smart glasses for warehouses
		   o wireless pest monitoring
		   o smart paving capturing kinetic energy
		   o intelligent packaging
		   o smart luggage/cargo
		   o workforce driving monitors
		   o connected e-paper displays
		   o Wi-Fi cold storage monitoring
		   o smart noise sensors
		   o smart bottle labels

Key Words	==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	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)	Network manager, IT support, network engineer, e-learning developer, IT teacher	Network manager, IT support, network engineer, e-learning developer, IT teacher

Employability skills **(Highlight applicable)**	<mark>Aiming high Literacy</mark> <mark>Creativity Numeracy</mark> <mark>Leadership Independence</mark> <mark>Listening Communication</mark> <mark>Presenting Teamwork</mark> <mark>Problem solving Staying positive</mark>	<mark>Aiming high Literacy</mark> <mark>Creativity Numeracy</mark> <mark>Leadership Independence</mark> <mark>Listening Communication</mark> <mark>Presenting Teamwork</mark> <mark>Problem solving Staying positive</mark>
Common misconceptions	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	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.

Spring 1	

Unit	Fundamentals of it	Global information
Objectives	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, teamworking, 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
Key Words	<mark>**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,**</mark> Interpersonal, verbal, written, barriers, attributes, certification	<mark>**Tier 2 State, identify, describe, analyse, evaluate, compare, discuss,**</mark> 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	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	Network manager, IT support, network engineer, e-learning developer, IT teacher

Employability skills **(Highlight applicable)**	<mark>Aiming high Literacy</mark> <mark>Creativity Numeracy</mark> <mark>Leadership Independence</mark> <mark>Listening Communication</mark> <mark>Presenting Teamwork</mark> <mark>Problem solving Staying positive</mark>	<mark>Aiming high Literacy</mark> <mark>Creativity Numeracy</mark> <mark>Leadership Independence</mark> <mark>Listening Communication</mark> <mark>Presenting Teamwork</mark> <mark>Problem solving Staying positive</mark>
Common misconceptions	Struggle to identify why industrial certification is needed for IT posts.	Struggle with use of flowcharts and accuracy. Identifying correct shapes needed.
Assessment	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.

Spring 2		
Unit	Fundamentals of IT	Global information
Objectives	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
Key Words	**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	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	Network manager, IT support, network engineer, e-learning developer, IT teacher
Employability skills **(Highlight applicable)**	<mark>Aiming high Literacy</mark> <mark>Creativity Numeracy</mark> <mark>Leadership Independence</mark> <mark>Listening Communication</mark> <mark>Presenting Teamwork</mark> <mark>Problem solving Staying positive</mark>	<mark>Aiming high Literacy</mark> <mark>Creativity Numeracy</mark> <mark>Leadership Independence</mark> <mark>Listening Communication</mark> <mark>Presenting Teamwork</mark> <mark>Problem solving Staying positive</mark>
Common misconceptions	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	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.

Unit	Virtual and augmented reality	Global information
Objectives	Understand virtual and augmented reality and how they may be used Design virtual and augmented reality resources Create a virtual or augmented reality resource 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
Key Words	**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. 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)	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 **(Highlight applicable)**	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 misconceptions	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	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.

Unit	Virtual and augmented reality	
Objectives	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 applicable)	N/A	
Key Words	**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. During study periods/afterschool Completing improvements.	
Career link (Unifrog)	Computer game designer, computer game tester, VR headset designer, AR software developer, IT teacher	
Employability skills **(Highlight applicable)**	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	
Common misconceptions	Students usually struggle with the designing and creation of the AR resource, considering a range of newly developed skills. Struggle to identify 'repurposing'	
Assessment	Coursework assessed on daily basis and marked off on tracker and 'turnitinuk' to identify plagiarism across internet and from within school.	