Meden School Curriculum Planning							
Subject	BTEC Digital Information Technology	Year Group	10	Sequence No.	MTP 1	Topic	Component 1 Learning Aim A

Retrieval	Core Knowledge	Student Thinking
What do teachers need retrieve from students before they start teaching new content?	What specific ambitious knowledge do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to development of our students' thinking, encouraging them to see the inequalities around them and 'do something about them!'
In ICT / CS at Meden in KS3, pupils are taught to: • design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users • create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	In component 1, students will learn different project planning techniques that can be used to plan and deliver a project that meets a set of user requirements (needs of the user using the device). You will learn the different design principles (colours, buttons, layout, imagery) that can be used to design effective user interfaces (the point at which human users interact with a computer, website or application) and apply appropriate project planning techniques to create a user interface that meets different audience requirements. Learning outcome A: Learners will understand the use of different types of user interface and how they vary across different uses, devices and purposes. ● Types of user interface include: o text based (a user interface that is navigated by typing out commands rather than using a mouse or touch screen. o speech/natural language (a software interface that employs either human speech or simulated human speech e.g. Siri) o graphical user interface (GUI)/windows, icons, menus, pointer (WIMP)	Searching and applying for jobs in ICT, IT and computing. Learners will then be able to select appropriate project planning techniques to be able to plan and create an effective user interface that meets a set of defined user requirements. Be able to plan and design a user interface Discuss and evaluate existing user interfaces, describing current design trends. Be able to plan a project and create smart goals and objectives. Links to PD topics

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• understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns	o sensors (interface takes data collected by the sensor and outputs it to the attached device, for example, a water level sensor passing data to a radio transmitter) o menu/forms. ● Range of uses and devices, to include: o computers o handheld devices to include smartphones, tablets, laptops, e-readers o entertainment systems to include games console, home theatre system o domestic appliances to include air conditioners, dishwashers, tumble dryers, freezers, washing machines, microwave ovens o controlling devices to include security lights, central heating controllers o embedded systems (combination of computer hardware and software designed for a specific function) to include electronic parking meters, traffic lights, vending machines, fire alarms, smartwatches/digital wristwatches, robotic vacuum cleaners. ● Factors affecting the choice of user interface: o performance/response time (how quickly the interface responds to user commands) o ease of use (how easy and intuitive the system is to use by average users) o user requirements (specific needs of the user to access the interface e.g. visual needs, disabilities, braille or larger type face, audio commands may be needed) o user experience (The user experience is how a user interacts with and experiences a product, system or service.) o accessibility (How accessible and easy is the interface to use) o storage space (how much memory and information an interface stores and how this affects performance) ● Hardware and software influences:	• Which groups in society are more likely to be digitally illiterate? • How might this affect their lives?

	o operating systems/platforms o types/size of screen, to include touchscreen, traditional displays o types of user input, to include keyboard, mouse, voice, gestures o hardware resources available, to include processing power, memory o emerging technologies, to include new innovations of input techniques. Audience needs: Learners will also understand the varying needs of the audience and how they affect both the type and the design of the interface. ● Accessibility needs: o visual o hearing o speech o motor o cognitive. ● Skill level: o expert o regular o occasional o novice. ● Demographics: o age o beliefs/values o culture o past experiences. Design principles: Learners will also understand how design principles provide both appropriate and effective user interaction with hardware devices. ● Colours:	

	o use of a limited range of colours o use of organisational house style o ensuring that colours do not clash o use of textures, to include glossy, corporate textures in colours, warm, fabric-style textures. ● Font style/size: o ensuring text style/style is readable o use of sans serif fonts for screen reading o avoiding decorative fonts. ● Language: o using appropriate language for user needs, to include age-appropriate language o using language that is appropriate for user skill level. ● Amount of information: o providing appropriate amount of information for the task o making appropriate use of white space. ● Layout: o consistency throughout the whole interface o keeping the layout as close as possible to user expectations o placing important items in prominent positions o grouping related tasks together o use of navigational components to include search fields, breadcrumbs, icons o use of input controls, to include dropdown lists, tick boxes, toggles. ● User perception of: o colour, to include green to indicate go/successful interactions, orange to indicate warnings, red to indicate stop/errors o sound, to include positive high-pitched sounds, negative low-pitched sounds o symbols, to include green ticks, red crosses o visuals, to include photographs, symbols, graphics.4 ● Retaining user attention:	

| | o grabbing attention, to include pop-up messages, flashing graphics, sound, animation
o ensuring the screen is uncluttered
o clearly labelled items/features
o use of predetermined/default values for common user inputs
o use of autofill to reduce the amount of data entry needed, to include postcodes
o use of tip text to provide help if the user is unsure what buttons/tools do.

● Intuitive design:
o use graphics to denote what buttons do
o helpful pop-up messages o easy-to-use help features o ensuring consistency
o easy reversal of actions.

Designing an efficient user interface Learners will understand the techniques that can be used to improve both the speed and access to user interfaces.
● Use of keyboard shortcuts ● Informative feedback ● Easy reversal of actions ● Ensuring buttons/links are distinguishable ● Using bigger objects to influence selection and reduce selection time ● Making objects stand out to reduce focus time ● Placing related objects next to each other to reduce selection time. | |

Key Vocab

User interface, text-based, GUI, WIMP, sensor, menu, form, embedded systems, smartphones, tablets, laptops, e-readers, games console, home theatre system, air conditioners, dishwashers, tumble dryers, freezers, washing machines, microwave ovens, security lights, central heating controllers, electronic parking meters, traffic lights, vending machines, smartwatches/digital wristwatches, robotic vacuum cleaners, performance, response time, ease of use, user requirements, user experience, accessibility, storage, operating system, hardware, software, platform, touchscreen, keyboard, mouse, gestures,

processing power, memory, accessibility, font style, sans serif, serif, decorative font, search fields, breadcrumbs, icons, dropdown lists, tick boxes, toggles, pop-up messages, autofill, tip text, consistency, reversal of actions.