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| **Year 10 ICT** | | | | | | |
| **Curriculum intent** | The curriculum has been designed to challenge, inspire and engage all students, offering them an insight into the inner workings of ICT solutions. The aim is to allow students to develop functional skills in IT, for example, planning and developing a spreadsheet, planning and developing a database and how to integrate documents together. Running along side the practical skills, students will learn about networks, storage solutions, internal components, software, and AI | | | | | |
| **Term** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Knowledge** | **To be able** to  Identify the various storage devices and select the appropriate one for a given scenario. Understand and identify components of a computer, differentiate between hardware and the different types of software (application, utility and system)  To understand what is meant by artificial intelligence and machine learning.  To identify the features of a mobile phone and understand the benefits to using them.  To understand how smart technology can control systems such as heating, lighting and security.  To identify examples of wearable technologies and the benefits to usingthem.  To be able to Identify the different types (categories) of social networking sites.  Identify the advantages and disadvantages to using social networking sites.  Provide a summary into a social networking site of your choice.. Identify the purpose and uses of image capture technologies such as: drones, head cameras and webcams.  Identify the advantages to using each technology mentioned above.  Explain how image capture technology is being used by individuals and businesses intheir everyday lives. Identify what is meant by an e-commerce service and how it benefits businesses and individuals. | Know how mail is handled and understand how organisations use technology to enhance their service.  To understand the purpose of a registration system and why it’s considered over a paper-basedsystem. To understand what is meant by blockchain technology and Internet of Things (IoT)  To illustrate how the Internet of Things is used in real-life computer systems.  To identify the advantages and disadvantage to using blockchain technology and Internet of Things. Tounderstand how data becomes information and then knowledge.  To understand the purpose of GIGO (Garbage In Garbage Out) to find accurate data.  To understand the purpose of encoding data and the benefits and drawbacks of doing so.  To identify the characteristics associated with a LAN and a WAN.  To identify the characteristics associated with a client-server and **a** peer-to-peer network.  To identify a range of factors that can have an impact on the performance of a network. Identify a range of hardware used to connect and/or create networks.  To understand the difference betweena MAC address and an IP address.  To understand the differences and similarities associated with different types of network hardware. To identify the characteristics of a star, bus and ring network topology.  To identify the advantages and disadvantages **to** using each network topology.  To identify and justify the most suitable topology for a given scenario.  To be able to Identify a range of hardware used to connect and/or create networks.  To understand the difference between a MAC address and an IP address.  To understand the differences and similarities associated with different types of network hardware. To identify a range of network protocols.  To understand the role of each network protocol and in particular, packet switching.  To understand how data can be intercepted over a network and strategies that can be used to minimise the risk To be able to explain what is meant by ‘computer network operation’. | To demonstrate an awareness of emerging technologies: virtual networks, 5G networks and edge computing. Learners should know and understand: connection methods, short range wireless connection (802.11 Bluetooth), near-field communication (NFC) and radio-frequency Identification (RFID)  Learners should know and understand: connection methods, short range wireless connection (802.11 Bluetooth), near-field communication (NFC) and radio-frequency Identification (RFID)  Learners should know and understand; medium range wireless connection (3G/4G/5G), long range wireless connection (microwave, satellite), ethernet, USB, micro USB and USB C. To know what is meant by social engineering.  To understand how different social engineering techniques work such as: blagging, phishing and shouldering.  To identify ways to prevent becoming a victim of this type of attack. To know the difference between white hat, black hat and grey hat hackers.  To understand the impact each type of malware can have on a computer system.  To identify prevention methods used to avoid being a victim of malware To understand a range of threats posed to a network.  To understand the methods used to identify and prevent vulnerabilities.  To identify the most suitable prevention method(s) to identify/prevent a threat to the network. To understand a range of emerging threats to cyber security.  To understand the impact these emerging threats are having on individuals and society.  To identify ways these emerging threats can be prevented. To understand a range of emerging threats to cyber security.  To understand the impact these emerging threats are having on individuals and society.  To identify ways these emerging threats can be prevented. To understand a range of logical and physical protection methods.  To understand how different protection methods work and how they can protect data. | To identify similarities and differences between different methods of protection To understand a range of logical and physical protection methods.  To understand how different protection methods work and how they can protect data.  To identify similarities and differences between different methods of protection.  To be able to understand different ways the privacy of our data can come under threat.  To identify the advantages and disadvantages to monitoring individuals.  To understand the impact of data loss can have on individuals and businesses. To understand the purpose of each ICT-based legislation.  To identify what each piece of legislation allows and prohibits.  To be able to interpret a range of scenarios to identify which legislation has been breached/broken .To understand key terms such as: e-waste, Internet of Things (IoT) and Green IT.  To identify the negative impact technology is having on the environment.  To identify the positive impact technology is having on the environment. To understand key terms such as: digital divide, net neutrality and fake news.  To identify the impact the digital divide is having locally and globally.  To understand how technology can have an impact on our mental health. To understand key terms such as: digital divide, net neutrality and fake news.  To identify the impact the digital divide is having locally and globally.  To understand how technology can have an impact on our mental health. To understand key terms such as: streaming, downloading and Video on Demand (VoD)  To identify the devices we can use to consume media.  To explain how technology has had an effect on traditional media. To understand what is meant by a digital footprint and how it can impact users.  To identify the difference between active and passive digital footprint.  To understand how our online identity can impact our reputation and the data we choose to store.  . | SBL – understand the functionality of excel, access and word.  How to create databases, complex search queries and user interfaces How to create workbooks and use formulas and functions in the creation of a spreadsheet. | Repeat and recall previous learning putting into practice skills developed in the completion of a mock controlled assessment |
| **Skills** | Recall of knowledge.  Application of knowledge. | Recall of knowledge.  Application of knowledge. | Recall of knowledge.  Application of knowledge. | Recall of knowledge.  Application of knowledge. | Recall of knowledge.  Application of knowledge. | Recall of knowledge and skills, the application of knowledge |
| **Assessments** | Exam questions  with feedback and RAMP | Exam questions  with feedback and RAMP | Exam board questions with feedback and RAMP  End January | Exam board questions with feedback and RAMP opportunities | Practical challenges based around the controlled assessment  Feedback and RAMPs | Practical challenges based around the controlled assessment  Feedback and RAMPs |
| **Curiosity** | cyber security  [youtube.com/watch?v=sdpxddDzXfE](https://www.youtube.com/watch?v=sdpxddDzXfE)  [(193) The ethical dilemma of self-driving cars - Patrick Lin - YouTube](https://www.youtube.com/watch?v=ixIoDYVfKA0)  [(182) Explaining Solid State Disks - YouTube](https://www.youtube.com/watch?v=viac3j6MeII&t=232s)  [(182) We 3D Printed Our Heads To Bypass Facial Recognition Security And It Worked | Forbes - YouTube](https://www.youtube.com/watch?v=ZwCNG9KFdXs) | Collecting data and turning into knowledge  <https://www.youtube.com/watch?v=sIjSY05JE9Q>  [What Is 5G? - YouTube](https://www.youtube.com/watch?v=gEel4cBO5UE)  [(191) What is edge computing? - YouTube](https://www.youtube.com/watch?v=3hScMLH7B4o)  [(191) Hub, Switch, & Router Explained - What's the difference? - YouTube](https://www.youtube.com/watch?v=1z0ULvg_pW8&t=164s)  [Wireless Access Point vs Wi-Fi Router - YouTube](https://www.youtube.com/watch?v=OxiY4yf6GGg) | encryption <https://www.youtube.com/watch?v=sMOZf4GN3oc>  [(191) Facial recognition cameras to be turned on in London - YouTube](https://www.youtube.com/watch?v=IIO62H3HXd0)  [(191) What is Social Engineering? - YouTube](https://www.youtube.com/watch?v=Vo1urF6S4u0) | Data to information  <https://www.youtube.com/watch?v=SUqKuCOltdw>  [(191) What is a Digital Footprint? - YouTube](https://www.youtube.com/watch?v=CfICOt2uI80)  [(191) What is Identity Theft? - YouTube](https://www.youtube.com/watch?v=kDFeSUUwRnA) | [(191) Internet of Things (IoT) | What is IoT | How it Works | IoT Explained | Edureka - YouTube](https://www.youtube.com/watch?v=LlhmzVL5bm8&t=2s)  [(191) How does a blockchain work - Simply Explained - YouTube](https://www.youtube.com/watch?v=SSo_EIwHSd4) |  |