Manchester Academy
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Year 9 Big Picture – Computer Science

Autumn Weeks 2-15 *7 Lessons*	*Spring Weeks 16-27* *4 Lessons (2 lessons allocated to BT & CFS)*	*SUMMER Weeks 27-39* *4 Lessons (2 lessons allocated to BT & CFS)*
Cyber Security This unit takes the learners on an eye-opening journey of discovery about techniques used by cybercriminals to steal data, disrupt systems, and infiltrate networks. The learners will start by considering the value of their data to organisations and what they might use it for. They will then look at social engineering techniques used by cybercriminals to try to trick users into giving away their personal data. The unit will look at the more common cybercrimes such as hacking, DDoS attacks, and malware, as well as looking at methods to protect ourselves and our networks against these attacks.	**Data Representation** First, learners look at binary and hexadecimal numbering systems, how they work, and how to convert between bases. Then, learners explore different coding systems and find out how text, images, and sound are represented in computers.	**Developing Assets** **In this unit, learners will first develop pre-production skills used in the digital media industries. They will learn the importance of understanding the client's requirements, planning, developing timeframes and deadlines, and the techniques involved in these processes** **Students will be introduced to Vocational Assessment and will create Digital Content**

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KNOWLEDGE • Recognise how human errors pose security risks to data • Define hacking in the context of cyber security • Explain how a DDoS attack can impact users of online services • Explain the need for the Computer Misuse Act • List the common malware threats • Examine how different types of malware causes problems for computer systems • Explain how networks can be protected from common security threats • Identify the most effective methods to prevent cyberattacks **SKILLS: Comparison/Analysis** • Implement strategies to minimise the risk of data being compromised through human error • Identify strategies to reduce the chance of a brute force attack being successful	**Knowledge:** ● Explain that computers use binary to represent all data and instructions ● Explain what a character set is ● Explain why analogue sound data needs to be converted into binary digits ● Describe the concepts of sampling, sample rate, and sample resolution ● Describe what a pixel is and how pixels relate to bitmap images ● Describe colour depth and resolution ● Define 'metadata'	**KNOWLEDGE** • Describe the term 'pre-production' • Compare planning tools available for pre-production • Name associated file formats for types of digital graphics • Identify the resources required for creating digital graphics • Recognise the legislation regarding use of digital graphics • Discuss the features and properties of websites **SKILLS** • **Utilise open source software to create both types of digital graphics** • **Utilise the software required for digital video creation** • **Create a multi-page website using open source tools** • **Create media artefacts**
	Big Test 1 in Weeks 16/17	**Big Test 2 Week 35/36**

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