

COMPUTING Year 7 Curriculum End Points and Key Vocabulary

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Ethos Links	<p>STEM – developing problem solving when creating secure passwords and responding to online threats, applying digital literacy skills through effective use of applications and email, and planning structured presentations using technology to meet audience needs</p> <p>Environmental Sustainability – promoting responsible use of technology and online platforms to reduce misuse and waste, encouraging efficient and safe digital practices that support sustainable working and communication</p> <p>Character – resilience in dealing with online threats and cyberbullying, responsibility in following computing lab rules and practising respectful communication, critical thinking in recognising dangers of social networking, and professionalism in producing clear and effective presentations</p>	<p>Milton Keynes – exploring how computing has shaped the city’s development as a hub for technology and innovation, recognising the historical importance of computing (e.g. Colossus) in shaping the UK’s technological identity, and linking advances in computer performance to opportunities in local industries</p> <p>STEM – problem solving through understanding the Fetch–Execute cycle, applying knowledge of processor speed and binary representation, interpreting Moore’s Law and its implications, analysing storage devices and their strengths/weaknesses, and exploring how data is physically represented on optical media</p> <p>Environmental Sustainability – evaluating the environmental impact of changing computer technologies, considering issues such as electronic waste, lifespan of storage devices, and the sustainability of rapid hardware development predicted by Moore’s Law</p> <p>Character – resilience in learning complex abstract concepts such as binary and processor cycles, critical thinking in comparing different storage technologies, responsibility in applying accurate technical knowledge, and professionalism in understanding the history and evolution of computing</p>	<p>STEM – problem solving when constructing and testing formulae, applying knowledge of relative and absolute referencing, using functions such as SUM, AVERAGE, MAX, MIN, COUNT and IF, applying conditional formatting to highlight data, and presenting information clearly through graphs and charts</p> <p>Character – perseverance when developing accuracy in formulae and functions, critical thinking in interpreting and presenting data, responsibility in handling data appropriately, and professionalism in creating clear and purposeful spreadsheets</p>	<p>STEM – problem solving when identifying the hardware required for networks, applying knowledge of protocols and their functions, comparing wired and wireless connections, analysing the impact of bandwidth on performance, and explaining how data travels across the Internet</p>	<p>STEM – problem solving when identifying and preventing malware and scams, applying knowledge of data protection and copyright, evaluating the impact of breaches, developing digital literacy around intellectual property, and applying health and safety knowledge to safe computer use</p> <p>Character – critical thinking in evaluating risks such as hacking and identity theft, resilience in learning how to protect against cyber threats, responsibility in handling data ethically, and professionalism in following health, safety, and legal regulations</p>	<p>STEM – problem solving through designing and implementing algorithms, applying knowledge of variables, operators, loops, and procedures, using comments to improve code readability, testing programs effectively with specific and measurable tests, and developing computational thinking skills through practical programming</p> <p>Character – creativity in designing original games and animations, perseverance when debugging and refining programs, critical thinking in developing and testing algorithms, responsibility in writing clear, well-documented code, and professionalism in sharing and presenting digital work</p>

<p style="text-align: center;">Learning End Points</p>	<p>Impact of Technology By the end of this unit students will know and understand:</p> <ul style="list-style-type: none"> • How to create a secure password • Understand the rules of the computing lab • Find personal documents and common applications • Recognise a respectful email • Construct an effective email and send it to the correct recipients • The possible dangers of social networking sites • How to respond to threats on the internet • Describe cyberbullying • Explain the effects of cyberbullying • Plan effective presentations for a given audience 	<p>Understanding Computers By the end of this unit students will know and understand:</p> <ul style="list-style-type: none"> • The verb 'to compute' can be applied to any mathematical calculation • That there are many ways to compute • That the modern electronic computer was developed to carry out computations at enormous speed • The first electronic computer • The role of Colossus in World War II • How Colossus made use of valves, rewiring and paper tape • How computers changed over the decades in their looks, function and purpose • Moore's Law • That computer technology has developed and changed over time • The three stages in the Fetch Execute Cycle • How processor speed affects computation time • The meaning of Hz, kHz, MHz and GHz • Why all computer data is represented in binary • The typical capacities, strengths and weaknesses of different storage devices • Three types of optical storage device • How data is stored on an optical disc • How 0s and 1s are represented by pits and lands on an optical disc 	<p>Spreadsheets By the end of this unit students will know and understand:</p> <ul style="list-style-type: none"> • How to write basic formulae in a spreadsheet • The concept of replication and the uses of relative and absolute cell referencing • How to write a range of basic functions including SUM, AVERAGE, MAX, MIN, COUNT, and IF • How to use conditional formatting • How to use data in a spreadsheet to create graphs and charts 	<p>Networks By the end of this unit students will know and understand:</p> <ul style="list-style-type: none"> • What a computer network is • What a protocol is and be able to give examples • What hardware is necessary for connecting devices to networks • The difference between wired and wireless connections • What bandwidth is • What the Internet is • How data travels between computers across the Internet • The difference between the Internet and the World Wide Web 	<p>Computer Crime & Cyber Security By the end of this unit students will know and understand:</p> <ul style="list-style-type: none"> • Explain the Computer Misuse Act and what computer activities are illegal • Explain what is meant by hacking • Describe different types of malware • Describe ways to protect yourself from malware • Explain what personal data is • Describe who holds personal data and why they need to hold it • Explain what identity theft is • Describe how to minimise the risk of identity theft • Explain the effects of computer crime • Explain how a dictionary attack works • Describe different types of email scam including: <ul style="list-style-type: none"> ○ Phishing ○ Trojan horse and malware ○ Advanced fee fraud ○ Virus generated spam • Explain the term copyright including: <ul style="list-style-type: none"> ○ What works are covered ○ How long it lasts • Describe the damages that breaches cause • Describe some of the common health and safety problems associated with computer use • Describe ways of avoiding these problems • Describe Health and Safety regulations 	<p>Scratch Game Development By the end of this unit students will know and understand:</p> <ul style="list-style-type: none"> • That Scratch is a programming environment that allows you to create games, animations and other simulations • What is meant by an algorithm • What a variable is • The purpose of comments in a program • The purpose of repeat loops and procedures ("broadcasts") • What each of the operators in the Scratch Green block menu does • The use of the operators <, =, >, and, or, not. • The purpose of testing • What makes a specific and measurable test
<p style="text-align: center;">Key Vocabulary</p>	<ul style="list-style-type: none"> • Impact of Technology Keywords 	<ul style="list-style-type: none"> • Understanding Computers Keywords 	<ul style="list-style-type: none"> • Spreadsheets Keywords 	<ul style="list-style-type: none"> • Networks Keywords 	<ul style="list-style-type: none"> • Computer Crime & Cyber Security Keywords 	<ul style="list-style-type: none"> • Scratch Games Development Keywords