## Hexham Middle School

## Progression of Age-Related Expectations

Computing	Year 5	Year 6	Year 7	Year 8
Computer Science	I can design a program on my own ideas and write this in a block- based language such as Scratch.	I can describe how early computing helped with codebreaking.	I can identify and explain the function of computer hardware components.	I can define a network. I can identify the roles of common network hardware.
	I can experiment with computer control applications and use simple computer control and/or sensors with products like micro:Bits	I can explain the historical importance of Bletchley Park in WWII.	I can describe the interaction between storage, memory, and processors.	I can explain the components of a network and how they interact.
	I can plan a solution to a problem using decomposition.	I can identify key figures in computing history and their contributions	I can compare different types of hardware and their uses.	I can differentiate between wired and wireless networks and their advantages.
	I can use sequence, selection and repetition in programs.	I can discuss some ways in which data is stored,	importance and application of Boolean logic based on	I can describe the role of network protocols in
	I can write a program that accepts keyboard and mouse input and produces output on screen and through chook or	world use cases and simple applications.	computer naroware and now logic gates are used in computing processes.	communication.
	l can explain a rule-based algorithm in my own words.	I can describe the role of RFID, barcodes and QR coded in data management.	I can identify the outputs on AND, OR and NOT gates given their inputs.	conditionals.
	I can use logical reasoning to detect errors in algorithms.	I can provide examples of how big data is used in decision-	I can produce block-based code using sequence, selection,	simple linear Python code for specific functions.
	I can understand how data can be represented and transmitted.	making.	repetition, and variables.	I can convert numbers and text into binary.
		addresses and data packets work.	existing Scratch programs. I can plan, design, and implement a game using Scratch programming.	I can explain how large data sets are represented and managed.

		I can encode and decode messages using basic cipher techniques. I can create my own cipher and challenge others to decode it.	I can test my game with others and incorporate feedback.	I can explain why binary is used in computing
Greater Depth	I can independently design and debug a range of programs, and support others.	I can confidently explain the role and function of ciphers, both in history and current day situations.	I can confidently discuss the function of computer hardware components.	I can confidently discuss my understanding of computer networks, their components and features.
	I can explain how data can be represented and transmitted.	I can confidently discuss a range of ways in which data is stored, transmitted and used in real-world cases and simple applications.	debug a range of code, supporting others in my class (block-based) and can make the transition to text-based.	I can independently code and debug a range of code, supporting others in my class (text-based). I can explain how to convert
				and process a range of types of data.
Information Technology	I can use and combine a range of programs on multiple devices to achieve particular goals.	I can create a simple digital presentation using presentation software	I can use spreadsheets to organise and analyse data.	I can use web publishing software to create a website with meets a design brief.
	I can design and create products on a computer in response to a given goal.	I can design and modify simple 3D objects using CAD software such as TinkerCAD.	I can apply formulas and functions to perform quick calculations and manage datasets.	I can create a simple web page using foundational HTML elements.
	I can analyse and evaluate information working with text, audio, images or video. I can analyse information, perhaps summarising this	I can create a 3D model of an existing object.	I can create charts and graphs to visually represent data.	I can optimize web pages for navigation and user experience.
	I can use good keywords and filters to make more effective use of a standard search engine.	on a planned design from a specification.		

	I understand that search engines use a copy of the web to select and rank results. I can reflect on the importance of citing all sources and how to write bibliographical citations for online sources.			
Greater Depth	I can confidently use a range of software tools to produce quality responses to a brief. I can use a range of search tools effectively and efficiently.	I can confidently use a range of software tools to produce quality responses to a brief.	I can independently use a range of tools in a spreadsheet to analyse a variety of data.	I can independently plan and create a high-quality website which meets all the needs of clients and potential users.
Digital Literacy	I can demonstrate that I can act responsibly when using the internet which includes using strong passwords to protect my identity online. I can discuss the consequences of particular behaviours when using digital technology. I know what spam is, the forms it takes, and then identify strategies for dealing with it. I know that photos can be altered digitally. I consider the creative upsides of photo alteration, as well as its power to distort our perceptions of beauty and health. I understand that video is really a series of still images.	I can explain the importance of encryption in modern technology. I can describe strategies to protect against brute force attacks. I can explain the importance of strong passwords in cybersecurity. I can evaluate and improve the effectiveness of digital communication. I can create digital posters and presentations with clear messaging.	I can discuss potential applications and implications of AI and wearable tech. I can assess digital artefacts for their credibility. I can create a blog to promote a cause, ensuring accurate and ethical use of sources. I can identify the primary function of key pieces of software.	I can develop a Python project that solves a real-world problem or serves a useful function. I can understand what UX (User experience) and good design principles are and how to apply them to creating a digital website. I can evaluate the ethical implications of technology use, including privacy and data security. I can explain the concept of the digital divide and propose solutions to address it.

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		I can use design principles to make digital content		I can discuss the importance of responsible online behaviour
		appealing.		and its impact on others.
		I can explain how collaboration		
		tools enable shared working.		
		I can collaborate on shared		
Greater Depth	I understand our digital world and can teach others how to stay safe.	I understand our digital world and can teach others how to stay safe.	I understand our digital world and can teach others how to stay safe.	I understand our digital world and can teach others how to stay safe.
				l can implement a high quality
		I can create high quality	I can independently select the	UX (user experience) ina range
		effective digital products to	best software for a given task.	of situations/applications.
		both independently and in		
		collaboration with others.		
				I can independently develop a
				coded solution to a real-world problem.