

	<u>Topic</u>	<u>Key concept – what do I want the students to learn from this unit?</u>	<u>What knowledge will they acquire? (taken from Nat Curr)</u>
Half-term 1	<u>Binary</u>	<p>How are numbers represented in binary?</p> <p>Be able to add in binary</p> <p>Be able to convert binary and denary into hexadecimal numbers</p> <p>Be able to multiply and divide in binary, using left and right binary shifts</p>	<ul style="list-style-type: none"> understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits
Half-term 2	<u>Python 2</u>	<p>What are the 3 main programming constructs of sequencing, selection and iteration?</p> <p>Be able to program sequences of code</p> <p>Be able to program selection using IF statements and using the correct comparison operators</p> <p>Be able to program iteration – both FOR and WHILE loops</p>	<ul style="list-style-type: none"> use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions
Half-term 3+4	<u>Digital Imaging</u>	<p>How do I create a digital image for a specific client brief?</p> <p>Be able to identify the needs of the client and the audience</p> <p>Be able to plan, gather and edit digital assets and repurpose them for a specific audience</p> <p>Be able to identify the legal and technical constraints when developing a digital image</p>	<ul style="list-style-type: none"> 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, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
Half term 5	<u>Computer Networks</u>	<p>What is a computer network and how do they work?</p> <p>Be able to explain what a network and the benefits of using them</p> <p>Be able to explain the difference between a LAN and WAN, and topologies</p>	<ul style="list-style-type: none"> understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems

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		Be able to identify the hardware needed to connect to a LAN Be able to explain how data is sent across a network.	
Half term 6	<u>Game Design</u>	How can I develop an inclusive game? Be able to program Kodu characters and objects and develop the environment Be able to plan and develop a game for a specific purpose Be able to evaluate and refine a game	<ul style="list-style-type: none"> 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