Broughton Hall Catholic High School

Key Stage 3 Descriptors

Computing - Year 9

	Emerging	Developing	Secure	Exceeding
Hardware, Software & Processing	Knows that input, output and storage devices makeup a computer system. Knows some of the internal hardware in a computer system including the CPU and knows some of the CPU's characteristics. Knows some of the hardware needed to network more than one computer which includes NICs. Knows that computers have primary and secondary storage with characteristics including capacity. Knows that there are different types of networks. Knows that there are two main categories of software such as applications.	Understands that input, output and storage devices include primary and secondary storage have certain characteristics such as capacity and portability. Understands some of the internal hardware in a computer system including the CPU and some of its characteristics such as clock speed and cache size. Understands that there is hardware needed to network more than one computer including NICs and switches. Understands that there are different types of networks including LAN and PAN. Understands that there are two main categories of software including applications and systems.	Understands that input, output and storage devices include primary and secondary storage and that they have certain characteristics including capacity, reliability, durability and portability. Understands how to convert capacity measurements e.g. Kilobyte to Gigabyte. Knows some of the internal hardware in a computer system including the CPU and understands some of its characteristics such as clock speed, cache size and number of cores. Understands some of the hardware needed to network more than one computer including NICs, switches and routers.	Can distinguish between the different input, output, processing and storage devices including RAM and ROM and optical, magnetic and solid state. Understands the difference between volatile and non-volatile storage. Understands how the different characteristics of the CPU help to improve the performance of a computer. Can distinguish between applications, operating systems and utility programs. Understands that LAN's, PAN's and WAN's can be represented by

			Understands why there are different types of networks including LAN, PAN and WAN. Knows that there are two main categories of software including applications and systems and that systems software has two main categories, operating systems and utilities	topologies such as star and mesh. Understands that LAN networks can be peer to peer and client/server. Understands the server types that are available. Understands how the Internet and protocols work.
Computational Thinking/Algorithms	Knows that there are two types of algorithms. Knows that there is more than one type of sorting algorithm.	Understands how to plan a program using a flowchart or pseudocode. Knows how a computer does a bubble sort on a list of data.	Understands how to apply the theory of algorithms to create a flowchart or pseudocode. Can carry out a linear search on numbers and text.	Can independently create flowcharts and pseudocode to solve a problem. Understands that bubble and merge sorts can be programmed to search through lists of data.
Data Representation	Knows how to convert 4 bit binary numbers to decimal and vice versa. Knows that hexadecimal numbers 10 – 15 are represented by the letters A -F. Knows that computers use logic gates to make decisions.	Understands how to convert 8 bit binary numbers to decimal. Understands how to convert decimal numbers above 15 to hexadecimal. Understands that all data including text, images and sound must be converted	Knows how to convert decimal numbers to 8 bit binary and vice versa. Understands how to convert hexadecimal numbers to decimal and vice versa. Understands that text is represented by the ASCII chart.	Understands how to add two binary numbers together. Knows how to convert hexadecimal numbers to binary and vice versa. Understands that for images to be represents as binary,

		to binary to be represented on a computer. Understands that there are three basic logic gates used in decision making.	Understands that we use AND, OR and NOT gates to make decisions.	pixels are used. Understands that for sound to represented in binary, sampling is used.
Programming	Knows that there is a programming language called python. Knows that when you type certain instructions, a python program will perform a task that can output, take an input and store that input in a variable.	Understands that placing lines of code in a python program in order is one of three constructs known as sequencing and if it's done incorrectly, the program won't work. Understands that string functions can be used to manipulate text.	Understands and can create python programs that use selection and iteration. Knows that iteration in small basic is used to repeat an instruction more than once. Understands that a python function is used to keep your code organised and save time.	Understands that python lists can be used similarly to variables.
IT	Knows that there are many different types of application software. Knows how to use basic applications.	Understands how to create posters, presentations and reports.	Can choose the correct application software for a specific task.	
Digital Literacy	Can login to all of the school IT systems, without any help. Knows how to research how to stay safe online.			