Broughton Hall Catholic High School **Key Stage 3 Descriptors**

Computing - Year 8

	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. Knows some of the hardware needed to network more than one computer. Knows that there are different types of networks. Knows that there are two main categories of software.	Understands that input, output and storage devices are essential parts of a computer system. Understand that the performance of a computer relies on the CPU. Understands that there are many networking devices that are used to create a LAN. Know the different types of networks that are used. Understands the difference between application software and systems software.	Recognises and understands that a computer can take input from a user, store that data and that data is processed by the CPU. Understands that there are certain characteristics, such as clock speed that effect the performance of the CPU. Understands how to create a simple LAN simulation. Understands that systems software has two categories, operating systems and utilities.	Understands the CPU's relationship with RAM, secondary storage, input and output devices. Understands that computers can only interpret data and instructions when converted to binary/machine code.
Computational Thinking/Algorithms	Knows that there are two types of algorithms. Knows that there is more than one type of searching algorithm.	Understands how to plan a program using a flowchart or pseudocode. Knows how a computer does a linear search 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 linear and binary searches 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.	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 to binary to be represented on a computer.	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.	Knows how to convert hexadecimal numbers to binary and vice versa. Understands that for images to be represents as binary, 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.	Can understand and write python code that includes sequencing, selection and iteration. Understands when to use count controlled iteration (for loops) or condition controlled iteration (while loops). Understands how to use comparison operators in selection.
IT	Knows that all computer devices need a user interface. Knows that user interfaces can take many forms. Knows that there are principles that need to be followed when designing a user interface. Knows that an IT project can follow a set of rules. Know that there are certain factors that will effect an IT project being delivered on time. Knows that applications software (apps) are used on computers. Knows that you can use spreadsheets to organise data/information.	Understands the devices that use a user interface are varied. Knows that traditional text and graphical user interfaces are the most commonly used. Understands that there are many user interface design principles that can be used in a software project including visual elements. Understands that a software project follows a project life cycle including analysis and design. Understands some of the constraints a that may effect a project e.g. time and budget. Understands how to implement their user interface using spreadsheet software.	Understands different examples of different computer devices that use a use interface e.g. computers and entertainment systems. Understands that speech can also be used as a user interface. Understands that user interfaces have rules about the use of text and layout. Understands that there are different project life cycles that can be used to create a user interface, e.g. waterfall. Understands that when designing a user interface, different tools can be used, e.g. Gantt charts, wireframes and storyboards. Understands that constraints and risks need to be planned for to stop a project's deadline slipping.	Can create a user interface for a computer device that includes text and graphics. Includes and follows UI principles for visual elements, text and layout. Can project management the design of a user interface to include analysis, design, implementation, testing, evaluation. Understands the importance of considering project constraints and risks in all projects. Understands spreadsheets application concepts and features such as rows, cells, cell referencing, formatting, formulae, functions to produce a functioning user interface.
Digital Literacy	Can login to all of the school IT systems, without any help. Knows			

	how to research how to stay safe online.			