Computing Curriculum Plan – (Secondary)

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|  | **Information Technology** | **Digital Literacy** |
| **Year 11** | Develop their capability, creativity and knowledge in information technology.  Develop and apply their analytic, problem-solving, and design skills  ***Students will learn***  ***ICT Functional Skills Level 2***  ***Students learn more advanced skills and concepts for Office Applications. They learn to be more indepemdent users.***  ***AQA Unit Awards***  ***(eg Word Processing, Desktop Publishing, Spreadsheets, Simple Video Game development)*** | Develop their capability, creativity and knowledge in digital media.  Understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.  ***Students will learn***  ***E Safety and the Law*** |

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|  | **Information Technology** | **Digital Literacy** |
| **Year 10** | Develop their capability, creativity and knowledge in information technology  Develop and apply their analytic, problem-solving, and design skills  ***Students will learn***  ***ICT Functional Skills Level 1***  ***Students learn about Office Applications (eg Word Processing, Desktop Publishing, Spreadsheets) as well as use of Email and some general ICT such as Choosing a Password, ICT Trouble Shooting and Computer Viruses*** | Develop their capability, creativity and knowledge in digital media.  Understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.  ***Students will learn***  ***E Safety and Safeguarding*** |

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| **Year 9** | Use two or more programming languages, at least one of which is textual to solve a variety of computational problems  ***Students will learn***  ***Python and C Programming***  Make appropriate use of data structures [for example, lists, tables or arrays]  Design and develop modular programs that use procedures or functions  Achieve challenging goals, including collecting and analysing data and meeting the needs of known users.  ***e.g.***  ***Create a Hi Score List for a late 70s style Video Game.***  ***e.g***  ***Program an Arduino Microcontroller to Control a 7-Segment LED Display***  ***Design, use and evaluate computational*** abstractions that model the state and behaviour of real-world problems and physical systems.  ***Advanced programming skills*** | Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices,  ***Students will learn***  ***DTP Skills***  ***Presentations covering***  ***Flyers***  ***Information Sheets***  ***Leaflets***  ***Students will learn***  ***Development of the Computer, from Mechanical to Electronic***  ***Transistors, Integrated Circuits and Miniaturisation. The Microprocessor*** | Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.  ***Students will learn***  ***E Safety. Scammers and the tactics they use*** | |
| **Year 8** | Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem.  ***Students will learn***  ***Sequential search.***  ***Binary Search***  Understand how instructions are stored and executed within a computer system;  Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;  ***Students will learn***  ***Initial Level***  ***Advanced programming using the Python Programming Language.***  ***Dealing with Text Input and Output***  ***Display and positioning on screen***  ***Programming of the Arduino Micro Controller to control LED’s.***  ***(Use of Loops and variables as a way of shortening programs. Use of Procedures/Functions to split up tasks.)***  understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.  **Bitmap Image Editing** | Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.  ***Students will***  ***Re-purpose the Binary to Decimal Converter, into a Decimal to Binary converter.***  ***Re-use of images via editing***  ***Re-use of Program Code via Program Functions and Procedures***  Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems  ***Students will learn***  ***Computer Systems eg TCAS***  ***Microcontroller systems examples.***  ***e.g as used on Motor Vehicles*** | | recognise inappropriate content, contact and conduct and know how to report concerns.  ***Students will learn***  ***E Safety. Internet Content*** |
| **Year 7** | Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;  ***Students will learn***  ***Text Based programming using the Python Programming Language.***  ***Basic sequential programming and use of common instructions. Limited use of variables.***  ***Scratch Block Programming***  ***Simple Animation. eg, editing of images to give the illusion of movement.***  ***Detecting Keyboard input and using selection to move Sprite Images***  ***Students will learn***  ***Basic “C” Programming***  ***How to drive single LED’s by programming the Arduino***  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].  ***Students will learn***  ***What computer Memory is like***  ***What is the Binary Number System***  ***Binary to Decimal Conversion*** | Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems.  ***Students will learn***  ***Computer System Hardware***  ***Input Process and Output***  ***Introduction to Basic Electronics***  ***Introduction to Microcontrollers***  ***Electronic Systems and Components***  ***Terminology***  ***Connecting***  ***Use of these for example, on a Motor Vehicle Digital Display*** | | Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy;  ***Students will learn***  ***E Safety. Keeping your Personal Data Safe*** |
|  | **Computing** | **Information Technology** | | **Digital Literacy** |