Subject Curriculum Overview – Year 8 Computing

Sequencing of topics	What knowledge will students develop? (Including key terminology)	What skills will students develop? (Including literacy & numeracy)	Assessment opportunities	Homework opportunities	Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross-curricular, Careers)	Curriculum links (KS3 Computing PoS)
Autumn Term 1						
Computer Systems	• Computer Systems Basics: input process output • The components of computer systems : processor, memory, storage, input and output devices, and communication components. • Introducing the operating system, which is responsible for managing the complexity of modern computing devices • Computational Logic :bridging the gap between logic and circuits • Thinking machines : define the term 'artificial intelligence', and explore the kinds of problems that it has traditionally dealt with.	• Identify and describe the functions of the processor, memory and secondary storage of a computer system. • Identify the functions of operating systems and device drivers • how to construct simple logic circuits and write truth tables for circuits	• Mid-topic assessment • End of topic assessment • Use of questioning in class	Questions set on Satchel One once a week	Listening and attentive to the technical information shared in class **Links to History of WW2** **Opportunity to learn about the impact of Bletchley Park Code Breakers in the development of early computers** **Career path: Engineering**	understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
Autumn Term 2						
Developing a Mobile APP	• Introduction to creating a mobile app using APPLAB. How to decompose problems. • introduction to Applab Interface	• How to decompose problems in computing. • How to create an app using the features of APPLAB by adding objects to a screen	• Mid-topic assessment • End of topic assessment	Questions set on Satchel One once a week	Listening and attentive to the technical information shared in class Discerning and Joyful	create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to

	• Making the score screen using data structures in APPLAB • Exploring how user input is captured in APPLAB • App development In this lesson, we will spend time developing our apps further. We will use our decomposed steps and success criteria to help continue with this project. • Project completion and evaluation.	• How to get the app to respond to events from the user using Javascript • How to create and use variables and data in APPLAB • Developing their own apps in APPLAB	• Use of questioning in class		Students share their enjoyment by undertaking an app project of their own in APPLAB **Art and DESIGN: user RESEARCHER**	trustworthiness, design and usability

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Networks: Making web pages	• Website building blocks • The use of images and the IMG tag • Using CSS to format web pages • Searching the web using search engines • The use of Boolean operators, AND OR NOT in search engines • The spread of the web and its economic, cultural and ethical effects on society	• learners start to understand how web pages are constructed using HTML tags • Using the IMG tag to 'add' images to web pages. • advantages and disadvantages of using key words • Controlling what to search for, so that we are more likely to find what we want • exploring the exponential growth of the Internet, and issues associated with that growth	• Mid-topic assessment • End of topic assessment • Use of questioning in class	Questions set on Satchel One once a week	Listening and attentive to the technical information shared in class Courageous and resilient when overcoming problems **Leading others in pursuit of justice** when discussing he negative effects of the spread of the internet and how it can be dealt with IT and the internet: Software Tester **Opportunity to learn about Tim Berners Lee and the development of the World Wide Web**	Understand simple Boolean logic [for example, AND, OR and NOT] create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to

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Representation of data in computer systems	• The use of symbols in computing • Encoding and decoding data and instructions • Binary digits, 1s and 0s • Numbers in binary: How to convert base 10 numbers to Base 2 • Units of quantity: Bit Byte, Kilo, Mega < Giga Terra • Assessment: Turings mug	• Investigating the use of symbols to represent information • how to encode, transmit, and decode messages • The connection between information and its binary representation. • how numbers can be represented using binary. Converting between binary and decimal. • exploring the prefixes used for measuring size, such as 'kilo-', 'mega-', 'giga-', and 'tera-'.	• Mid-topic assessment • End of topic assessment • Use of questioning in class	Questions set on Satchel One once a week	Listening and attentive to the technical information shared in class Courageous and resilient when overcoming problems such as converting denary to binary numbers Links to Mathematics	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
Summer Term 1					
Introduction to Python Programming	• How to write and program basic programs in Python. • Exploring the use of arithmetic expressions including MOD and DIV • The use of the RANDOM function in Python. Selection: The use of IF, ELIF, ELSE in Python Iteration: The use of For and While as loops Extend and improve a guess the number game	How to write and execute programs in Python. How to assign a variable name, input and output data on the Python Console How to us arithmetic expression including MOD and DIV. How to use multi branch selection and while loops How to use a variable as a counter within a loop	• Mid-topic assessment • End of topic assessment Use of questioning in class	Questions set on Satchel One once a week	Listening and attentive to the technical information shared in class Courageous and resilient when overcoming problems such as finding logic and syntax errors in Python code. Links to Mathematics Career path: Computer programmer	use 2 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];

		How to use of conditional loop eg WHILE Final project to consolidate the learning that has taken place in this unit of work.				
Summer Term 2						
Vector Graphics	Get into shapes. Basic Inkscape Tools Under the hood of Vector graphics: Vector, Raster, Bitmap The use of paths in INKSCAPE Path operations union and difference Icons challenges: Bitmaps, Pixels, Resolution Extended Project: What will you make?	• Pupils will be acquainted with the basics of using Inkscape to draw geometrical shapes and manipulate them. • explore the technical aspects of vector graphics • Pupils will use path operations such as union, difference, and intersection to combine simple shapes into more complex ones • Pupils will be challenged to create famous icons from scratch. The icons range from simple ones that are straightforward to produce to more complex ones that require some creative thinking. • Final project to consolidate the learning that has taken place in this unit of work.	• Mid-topic assessment • End of topic assessment End of Year assessment	Questions set on Satchel One once a week	Discerning and Joyful Students share their enjoyment by undertaking a final summer project of their own design in Inkscape Links to Design and technology Career path: Graphic Designer	undertake creative projects that involve selecting, using, and combining multiple applications, collecting and analysing data and meeting the needs of known users