

St Mary's CE High School Curriculum Map 2022-23



Subject: IT & Computing

Year: 8

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
CONTENT <i>Declarative / core / powerful Knowledge – ‘Know What’</i>	Computing Systems Tour through the different layers of computing systems: from programs and the operating system, to the physical components that store and execute these programs, to the fundamental binary building blocks that these components consist of.	Media – Vector Graphics This unit offers students the opportunity to design graphics using vector graphic editing software	Intro to Python This unit introduces learners to text-based programming with Python. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration	Developing for the web In this unit, learners will explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS, learners will investigate how websites are catalogued and organised for effective retrieval using search engines	Representations This unit conveys essential knowledge relating to binary representations	Mobile App Development In a world where there’s an app for every possible need, this unit aims to take the learners from designer to project manager to developer in order to create their own mobile app
Skills <i>Procedural Knowledge – ‘Know How’</i>	Explain the difference between a general-purpose computing system and a purpose-built device Describe the function of the hardware components used in computing systems Describe how hardware components work together in order to execute programs Analyse how computer components work together to execute programs Describe AND, OR & NOT logical operators Describe how logical operators are used to form logical expressions Construct simple logic circuits Describe how hardware is built out of increasingly complex logic circuits Define what is meant by artificial intelligence	Draw basic shapes with varying properties Manipulate individual objects Manipulate groups of objects Combine paths by applying operations Convert objects to paths Draw paths Edit path nodes Combine multiple tools and techniques to create a vector graphic design Explain what vector graphics are Provide examples where using vector graphics would be appropriate Evaluate vector graphics	Describe input, process and output in programs Describe variables and use them within programs Describe what algorithms are Describe differences between algorithms and programs Use the IDE to write and execute a Python program Locate and correct common syntax errors Arrange program statements in a sequence Call functions and use the results that they return Use binary selection to control the flow of program execution Use selection to control the flow of program execution Use iteration to control the flow of program execution	Describe what HTML is Use HTML to structure static web pages Modify HTML tags to improve the appearance of web pages Display images within a web page Apply HTML tags to construct a web page structure from a provided design Describe what CSS is Use CSS to style static web pages Assess the benefits of using CSS to style pages instead of in-line formatting Describe what a search engine is Explain how search engines ‘crawl’ through the World Wide Web and how they select and rank results	List examples of representations Understand that representations are used to store, communicate and process information Provide examples of how different representations are appropriate for different tasks Describe how sequences are represented as sequences of binary digits Explain what binary digits are in terms of familiar symbols Describe how natural numbers are represented as sequences of binary digits Convert a decimal number to binary and vice versa Understand that binary digits represent all	Use a block-based programming language to create a sequence Recognise the events can control the flow of a program Use variables in an event-driven programming environment Pass the value of a variable into an object Use user input in an event-driven programming environment Identify and fix common coding errors in a block-based environment Use a block-based programming language to include selection Identify when a problem needs breaking down Apply decomposition to break down a larger program into more manageable steps Establish user needs when completing a creative project Reflect and react to user feedback

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