Curriculum Map – Computer Science – Year 7

Immanuel College
Church of England Academy

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Key focus	Unit 1: Clear Messaging in Digital media	Unit 2: Networks	Unit 3: Using Media	Unit 4: Programming Essentials in Scratch I	Unit 5: Programming Essentials in Scratch II	Unit 6: Modelling Spreadsheets
Intent	This unit is designed to build upon learners' experience in key stage 2. It requires learners to use a range of different skills across several pieces of software. Learners will work between different applications to create a poster and slides on a given theme. The unit is designed so that learners can concentrate on applying skills that they may have previously learnt as well as those learnt in the unit. Learners are given clear tasks for which they need to first plan and then implement a solution.	This unit progresses students' knowledge and understanding of networks and associated hardware. The unit will establish a foundation understanding of how data is transmitted across networks, as well as exploring the factors that can affect performance. The unit will spend time focussing on the internet and services provided over the internet.	This unit progresses students' knowledge and understanding of licensing and legal issues surrounding the use of online sources of information. They will also gain an understanding of how to apply techniques to help determine the reliability of a source. Learners will develop practical skills in using software to make a blog that could be published online.	The aim of this unit is to build learners' confidence and knowledge of the key programming constructs. Importantly, this unit does not assume any previous programming experience, but it does offer learners the opportunity to expand on their knowledge throughout the unit. The main programming concepts covered in this unit are sequencing, variables, selection, and count-controlled iteration. All of the examples and activities for this unit use Scratch 3.	Programming II begins right where 'Programming I' left off. Learners will build on their understanding of the control structures' sequence, selection, and iteration (the big three), and develop their problem-solving skills. Learners will learn how to create their own subroutines, develop their understanding of decomposition, learn how to create and use lists, and build upon their problem-solving skills by working through a larger project at the end of the unit.	This unit progresses learners' knowledge and understanding of modelling data using a spreadsheet. Due to the transitional nature of Year 7, the unit assumes that learners have little to no experience of using spreadsheets.
Key knowledge and skills	• Explain the needs of the intended audience • Describe how design choices address the task • Recognise that content should be modified to suit different digital artefacts • Recognise that existing digital artefacts can be modified • Describe how media can be copied between applications • Explain the need for the consistent styling within a multi-page digital artefact	• Define 'protocol' and provide examples of non-networking protocols • Explain how data is transmitted between computers across networks • Compare wired to wireless connections • Describe key words such as 'protocols','packets', and 'addressing' • Explain how data travels between computers across the internet • Explain the difference between the internet, its services, and the World Wide Web • Explain the term 'connectivity'	• Identify the key features of a word processor • Demonstrate an understanding of licensing issues involving online content by applying appropriate Creative Commons licences • Apply referencing techniques and understand the concept of plagiarism • Apply referencing techniques that credit authors appropriately	• Use a block-based programming language, to solve a variety of computational problems; make appropriate use of data structures (e.g. lists, tables, or arrays); design and develop modular programs that use procedures or functions • Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem • Understand simple Boolean logic (e.g. and, or, and not) • Create, reuse, revise, and repurpose digital artefacts for a given audience, with	• Use a block-based programming language, to solve a variety of computational problems; make appropriate use of data structures (e.g. lists, tables, or arrays); design and develop modular programs that use procedures or functions • Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem • Understand simple Boolean logic (e.g. and, or, and not) • Create, reuse, revise, and repurpose digital artefacts for a given audience, with	• Design, use, and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users

		• Describe how services are provided over the internet • Explain how the IoT can collect and share information about me with or without my knowledge • Describe how internet-connected devices can affect me • Describe components (servers, browsers, pages, HTTP and HTTPS protocols, etc.) and how they work together		attention to trustworthiness, design, and usability	attention to trustworthiness, design, and usability	
Key words/ vocabulary	Search term, Screenshot, Annotate, Landscape, Portrait, Download, Heading, Subheading, Body text, Brand, Logo, Slide, Comment, Content, Licence, Present, Design choices	Network, Protocol, Mainframe, Personal computer, Stand-alone, HTTP Network cable, Hub, Server, Router, ISP, Wired, wireless 3G, 4G, 5G, WiFi, Bandwidth, bit, Megabit, Gigabit, Broadband, Buffering, Internet, Packet, Router IP address, Packet header, Packet payload, Transmission Control Protocol, Internet Protocol, Internet, World Wide Web, WWW, Internet services, Email, Voice over Internet Protocol (VoIP), Internet of Things (IoT), Spam, Privacy, Security	Application software, Word processor, Formatting, Fonts Icons, Network cable, Hub Server, Router, ISP, Credibility, Source, Audience, Plagiarism, Referencing, Citation, Paraphrase, Blog	Sequencing, Subroutines, Instructions Execute, Variables, Commands, Input, Expressions, Evaluate, Conditions, Selection, **If** statements, Process, Output, Storage, Tracing, Operators, Logic, Comparison, Iteration, Count-controlled, Condition-controlled, Debugging	Sequencing, Subroutines, Instructions Execute, Variables, Commands, Input, Expressions, Evaluate, Conditions, Selection, **If** statements, Process, Output, Storage, Tracing, Operators, Logic, Comparison, Iteration, Count-controlled, Condition-controlled, Debugging	Data, Cell, Cell reference, Row, Column, Range, Select, Drag handle, Autofill, Formula, Information, Source, Primary source, Secondary source
Assessment method	Use Canva effectively Create a fictional charity modifying a logo and fulfilling a brief Create a presentation in slides Deliver a presentation	Summative assessment testing knowledge and understanding of the everything covered in the topic	Create a blog that demonstrates an understanding of legislation and copyright Summative quiz.	Create a game that uses all the skills learnt in the unit Multiple choice questions, Summative assessment testing knowledge and understanding of programming essentials.	Create a game that uses all the skills learnt in the unit Multiple choice questions, Summative assessment testing knowledge and understanding of programming essentials.	Each lesson adds a new function onto spreadsheets, Analyse data, Collect data, Display data. Summative assessment testing knowledge and understanding of how to use and manipulate data.
Wider links	What transferrable skills have you developed?	How is ‘connectivity’ the capacity for connected devices (‘internet of things’) to collect and share information about me with or without my knowledge (including microphones, cameras and geolocation).	Creative commons licensing laws. How to copyright things, what is and isn’t illegal on the internet.	Can you write your own games? Can you write the same program but in a text based language?	Can you write your own games? Can you write the same program but in a text based language?	Using power BI to display data from spreadsheets.

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		How can internet-connected devices can affect me.				
Enrichment opportunities	Media Committee	Bebras Challenge	Media Commitee	Code Competition	Code Competition	Student Voice surveys
Careers links	Content creator, marketing	Network engineer, cyber-security specialist	Copyrighter, patent lawyer, computer law advisor, website designer	Software developer, games designer, programmer	Software developer, games designer, programmer	Data analyst, market researcher

“Perseverance produces **character,** and character, **hope**” (Romans 5:4)