Key Stage 3 Curriculum Map: Computer Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	**Digital literacy**	**Programming**		**Computing concepts**	**Computers and the law**	**Spreadsheets**
	Introduction and refresher on computer use, focusing on school systems, security, file management, e-mail, cloud storage, word processing and presentations, web searching and bias. **This unit quips all students with the digital literacy skills they need for much of their school work** *Some students have very limited exposure to general personal computer use and may only have basic digital literacy skills related to smartphone/tablet use.*	Students are introduced to sequenced programming in a block-based language. Use of basic commands and structures are built-up in a series of small challenges, with a larger project that brings these skills together to make a small game. **This unit forms the basis of problem decomposition and automation that forms the basis of the entire field of Computer Science: introducing programming formally at this point (but with reduced burden of full knowledge of syntax and command words)** *Some students will already be familiar with some basic programming, and will progress quickly through the initial work, having the chance to develop and show additional skills in the features they program into their game.*		Students begin to look at how computers represent data, including numbers, text, and images, explore the basic of hardware and software, communications and computer networks. **After the introduction of programming, the uses of computers, and with some basic digital literacy, students can begin to understand how the technology works, allowing a deeper understanding to be pursued later in the curriculum.**	Students study some key legal aspects related to computing: the computer misuse act, the copyright act, harassment, defamation, health and safety, and also issues related to social engineering. Students work with a variety of scenarios and attempt to apply and interpret the law. **Adding context for computers' place in the world and keeping students informed of the responsible use of technology**	Students learn to use spreadsheet software to store, organise, format, and process information for a specific purpose: students will create a small financial plan for a party. **Abstracting a real-world situation into data forms a key part of much of the future programming work students will complete. Managing, organising, and processing this data is also useful in a variety of other educational contexts.** *Many students will not have used/seen a spreadsheet previous to this point*
	Formative assessment of information bias	Summative assessment of programming challenges Formative assessment of game projects at half-way point Formative peer and self-assessment of final product, summative assessment from staff		Y7 exam tests this knowledge (as well as programming skills)	Summative assessment of legal scenarios Formative assessment of phishing e-mail	Summative assessment of basic skills Formative assessment of spreadsheet at half-way point

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Year 8	**Impacts of Computing**	**Mobile app development**		**Physical Computing**	**Computing concepts 2**	**Introduction to text-based programming**
	Students study the impact technology has had on society, they also consider how future technology could impact society. **Adding context for computers' place in the world and keeping students informed of the responsible use of technology**	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. Using App Lab from *code.org*, students will familiarise themselves with a new coding environment and have an opportunity to build on the programming concepts they developed in previous units before undertaking their project. Students will consider the needs of the user, decompose the project into smaller, more manageable parts, and finish off by evaluating the success of the project against the needs of the user. **This unit builds on Block-based programming from Year 7 and text-based programming from Year 8. It allows a deeper understanding to be developed through the experience of developing their own app.**		Students will gain a greater understanding of the importance of cyber security and explore the need to create a strong password before writing algorithms and programs to create their own 'strong password' generator using the micro:bit. **This unit builds on the Computer Concepts topic from Year 7. It introduces key concepts relating to cyber security and also provides practical experience of writing computer programs to solve problems.**	Students continue to look at how computers represent data, including numbers, text, and images, explore hardware and software, and communications and computer networks in more depth. **This unit builds on Computing Concepts 1 from Year 7 and allows a deeper understanding to be pursued later in the curriculum.**	This unit is an introduction to programming in a text-based language designed to make programming more approachable for beginners. It starts by introducing a virtual *turtle robot*, leading to the use of variables and loops. Simple programs using the Text window are used to introduce input, output and selection. Students will become familiar with programming statements while having fun producing coloured graphics and making a simple screensaver. **This unit builds on Block-based programming from Year 7 and the mobile-app development in Y8.**
	Summative assessment of report with whole-class formative feedback Summative and formative assessment of presentation	Summative assessment of App at midway point. Formative assessment of projects at half-way point Formative peer and self-assessment of final product, summative assessment from staff End of unit test		Summative assessment of completed programs and evaluation sheets.	Y8 exam tests this knowledge (as well as programming skills)	Summative assessment of programs at midway point. Formative assessment of programs at half-way point Formative peer and self-assessment of final product, summative assessment from staff End of unit test

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Year 9	**Procedural programming: basics**	**Procedural programming: projects #1**		**Computing concepts**	**Procedural programming: projects #2**	
	Students begin to learn programming commands and structures for a text-based programming language in a real-world development environment. **The skills in programming structure and data representation students have already seen in Y7 and Y8 are reinforced here.**	Students begin to create small programs using the skills they have learned. The focus at this stage is on implementation of the logic for automation, not decomposition or abstraction of problems. **The skills in programming structure and data representation students have already seen in Y7 and Y8 are further reinforced here.**		Students look at data representation in more depth, as well as more specific and detailed studies of the impact of key technologies on society. **These concepts begin to move the mostly-theoretical knowledge students have developed in Y7 and Y8 into real-world concepts.**	Students are introduced to fully procedural programming and the concept of data structures. **This expands on and reinforces all previous programming work and lays the final foundations for all programming work at KS4 and beyond.**	
	Summative assessment of programming tasks, with whole-class formative feedback and Directed Improvement and Reflection Time	Summative assessment of programming tasks, with whole-class formative feedback and Directed Improvement and Reflection Time		Y9 exam tests this knowledge (as well as programming skills)	Summative assessment of programming tasks, with whole-class formative feedback and Directed Improvement and Reflection Time	