EPCHS Computing Department: Year 9 Programme of Study

To deliver lessons that cover a variety of different topics that appeal to all pupil interests. The priority for KS3 is to keep pupils interested, engaged, and to most importantly develop skills that will be built upon throughout their school career. Year 9 content will be delivered using Microsoft Teams.

Year/Term	Unit of Work	Intent
Autumn	eSafety	To promote safe and positive use of digital technologies, including: • the Internet, • Social Media, • being aware of strangers online.
	Cybercrime	To look, in more detail, at the different crimes that can be committed when using the internet. Covering issues such as: • hacking, • logic bombs, • Trojan horse, • DDOS, • phishing, • malware, • viruses.
	Data Science	To consider how data is collected and what it means to gather big data. To look at what big data can be used for, how it is used, who collects it, and what can be done with the data. To collect own samples of big data and utilise it.
Spring	Animation	Films, television, computer games, advertising, and architecture have been revolutionised by computer-based 3D modelling and animation. In this unit learners will discover how professionals create 3D animations using the industry-standard software package, Blender. By completing this unit learners will gain a greater understanding of how this important creative field is used to make the media products that we consume. Sessions will take learners through the basics of modelling, texturing, and animating; outputs will include 3D models and short videos.

	Python Programming	This unit introduces learners to how data can be represented and processed in sequences, such as lists and strings. The lessons cover a spectrum of operations on sequences of data, that range from accessing an individual element to manipulating the entire sequence. Great care has been taken so that the selection of problems used in the programming tasks are realistic and engaging: learners will process solar system planets, book texts, capital cities, leaked passwords, word dictionaries, ECG data, and more. A range of pedagogical tools are employed throughout the unit, with the most prominent being pair programming, live coding, and worked examples. The Year 7 and 8 Programming units are prerequisites for this unit. It is assumed that learners are already able to write Python programs that display messages, receive keyboard input, use simple arithmetic expressions, and control the flow of program execution through selection and iteration structures.
Summer	Physical Programming	This unit applies and enhances the learners' programming skills in a new engaging context: physical computing, using the BBC micro:bit. In the first half of the unit, learners will get acquainted with the host of components built into the micro:bit, and write simple programs that use these components to interact with the physical world. In the process, they will refresh their Python programming skills and encounter a range of programming patterns that arise frequently in physical computing applications. In the second half, learners will work in pairs to build a physical computing project. They will be required to select and design their project purposefully, apply what they have learnt by building a prototype, and keep a structured diary throughout the process. The Year 8 and 9 programming units are prerequisites for this unit. It is assumed that learners are already able to write Python programs that use variables and data structures to keep track of information. They are also expected to be able to combine sequence, selection, iteration, and function/method calls to control the flow of program execution.

	Going Audio-Visual	In this unit, learners will focus on making digital media such as images and sounds, and discover how media is stored as binary code. You will draw on familiar examples of composing images out of individual elements, mix elementary colours to produce new ones, take samples of analogue signals to illustrate these ideas, and then bring all these things together to form one coherent narrative. The unit has a significant practical aspect; you will use design software (GIMP and Audacity in this case) to manipulate images and sounds. This will help you to understand how the underlying principles of digital representations are applied in real settings.