Year 9 Computing Curriculum Overview

Poynton High School and Performing Arts College

	What will I learn?	How will I learn it?	Why is it important that I learn this?	Why am I learning this now?
Year 9 HT 1	**Python Programming** Students will familiarise themselves with an entirely different programming environment than the block-based one that they may be accustomed to. They will learn the following: • Variables • Arithmetic expressions • Selection • Branching • iteration	Through exploring the python interface. Individual activities to enable the students to familiarise themselves with programming in a text-based language. Links to support on the NCCE website. Python application available on the school network and through the replit website for practising skills outside of the classroom.	Coding is a basic literacy in the digital age, and it is important for students to understand and be able to work with and understand the technology around them. Having students learn coding at a young age prepares them for the future.	To prepare students for the digital age and also give them a flavour of the programming techniques and skills they can develop further at GCSE.
Year 9 HT 2	**Animation** Films, television, computer games, advertising, and architecture have been revolutionised by computer-based 3D modelling and animation. In this unit students will discover how professionals create 3D animations using the industry-standard software package, Blender. There will also be the opportunity to use the Adobe Animate package helping them to understand that there are many ways to create animations	Students will learn by exploring their experiences of animations and then using both Blender and Adobe Animate to create, design and develop animations and videos.	By completing this unit students will gain a greater understanding of how this important creative field is used to make the media products that we consume. Sessions will take students through the basics of modelling, texturing, and animating; outputs will include 3D models, short videos, and VR. Links are made throughout to computer science, computational thinking, and the world of work. Tools and techniques learnt in this unit can also be used for 3D printing.	To introduce the students to one of the creative industries that will offer opportunities for them in the future. Students can explore this further on our Creative iMedia course.

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	Students will learn a wide range of animation skills and techniques including: • Add, delete, and move objects • Scale and rotate objects • Use material to add colour to objects • Add, move, and delete keyframes to make basic animations • Play, pause, and move through the animation using the timeline • Create useful names for objects • Join multiple objects together using parenting			
Year 9 HT 3	**Representations going audio visual** Students will focus on digital media such as images and sounds, and discover the binary digits that lie beneath these types of media. Students will learn about pixels', 'resolution', and 'colour depth' Describe how an image can be represented as a sequence of bits There will be opportunities to edit and manipulate images using Graphics software. Using audio software, they will also experiment with sound and bit rates	Activities and worksheets with individual tasks. Research activities using the world wide web Use of the following software to explore and develop student's knowledge and skills; Audacity, GIMP, Photoshop NCCE website and resources	Builds on knowledge from Year 8 – Representations from clay to Silicon Supports their knowledge of media and how the images and sounds students come into contact with today are held and manipulated.	This module supports and underpins knowledge and skills for both Computer Science and iMedia qualifications.

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Year 9 HT 4	**Photoshop and Comic Strips** Students will learn some of the basics in using the photoshop application; creating and manipulating graphics in the application, exporting images in different file types for both print and online purposes. Using the images in a comic strip. They will be introduced to Comic Life 3 and develop an understanding of why and how comics are produced. Opportunity to produce a comic style activity for a client.	Teacher led activities to develop the student's skills Online video tutorials Activity tasks Simulated brief – students produce a solution to the brief using photoshop and Comic life applications	An opportunity to develop creativity skills and learn a new application Working to an assignment brief. Develop independent learning; planning designing and implementing a project to a deadline	This is an important skill in both Computing and Creative iMedia
Year 9 HT 5	**Cybersecurity** Students will learn about techniques used by cybercriminals to steal data, disrupt systems, and infiltrate networks. The students will start by considering the value of their data to organisations and what they might use it for. They will then look at social engineering techniques used by cybercriminals to try to trick users into giving away their personal data. The unit will look at the more common cybercrimes such as hacking,	Teacher presentations Video input Individual and group activities Online response forms	Knowledge of up to date threats and how to protect against these. Understanding that there are different sorts of hackers and the opportunities that are available in this field. Some really good opportunities in this area for young people. Computer Science and IT qualifications may be the route forward with this.	This is a life skill in todays digital age and it is important that students are aware of all the dangers and the opportunities.

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	DDoS attacks, and malware, as well as looking at methods to protect ourselves and our networks against these attacks.			
Year 9 HT 6	**Python Programming 2** This unit introduces the students 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: students will process solar system planets, book texts, capital cities, leaked passwords, word dictionaries, ECG data, and more.	Teacher presentations Video input Individual and group activities Online response forms Students will experience a range of techniques in their learning including; paired programming, live coding, and worked examples.	Extends the students programming knowledge form the basic text programming completed at the start of the year. Experience a range of techniques used in the real world.	Prepares students for techniques they may use in future employment. Develops their programming knowledge and skills Prepares them for skills needed in Level 2 qualifications.