

Year 9

In year nine we start teaching text based programming using Python. This builds upon their year seven experience of using block based coding in Scratch and using micro bits in year eight. Python is a high-level programming language used for general-purpose software engineering. It is modeled after the English language, eliminating unnecessary syntax to make it easier to read and write than other programming languages. Just to name a few of its most common uses, Python is used in Data Mining, Data Science, AI, Machine Learning, Gaming, the list goes on. Students will write code to complete a range of projects for example, chatbot, dice game, quiz etc. Programming helps students to learn to solve problems. The ability to solve problems will equip them with valuable skills that they can use to overcome any adversity they face. It provides them with a challenge and helps them to develop resilience. They can try and try again until they succeed and produce the results they are looking for. For each project, students will write and test their code by checking if it performs the functions as intended. Students get the opportunity to debug and refine their code to remove any errors within the code or increase the efficiency. They need to be able to see the large picture and break it down into smaller manageable tasks in order to complete the project in an effective manner. This gives the students an idea of the type of work to be carried out in GCSE Computer Science.

As the students in year 9 will make their choices for GCSE options, we want them to experience all the subjects we offer and the type of work that they will do for those subjects. The programming section is aimed to promote the study of Computer Science and Animation aimed to promote the study of ICT.

In the spring term students start planning an animation. This builds upon their skills developed in the graphics unit in year seven. In this unit they produce digital products that are aimed at a particular target audience to meet requirements set out by the client brief. They recognise that digital publications can be represented in many forms. They use their research skills from the previous unit to obtain content from the world wide web and apply filters to narrow down their searches to select appropriate content. They will show an awareness for the quality of digital content collected and use a variety of animation techniques such as frame by frame animation, motion and shape tweening, appear/disappear, entrance/exit etc to manipulate and present digital content to achieve given goals. They make adjustments when evaluating and redeveloping based upon feedback they receive.

Later in the spring term students learn about 'Real news vs Fake news'. This unit aims to help year 9 students to examine critically information they receive online through websites, social media, pictures and data and to develop skills and methods to help determine what is real. These lessons are adapted from BBC's young reporter's real news unit. Students learn about the purpose of fake news, how to identify fake or real news and what questions to ask to identify them. This unit prepares students to make their choices based upon factual, real information and not from fake or manipulated information from unreliable sources. This unit links to the previous units of word processing and image editing in year 7 and web development in year 8.

In the summer term we introduce binary number systems. This unit builds upon students' general understanding of the decimal number system that they learn in maths lessons. The computer system uses

binary to represent all data and information including numbers, text, image, sound and video. In this unit students will learn about how numbers are stored as binary numbers. Binary numbers are made out of 0's and 1's. As the computer's brain is made out of transistors which is like a switch, it can only be in two states - ON representing 1 and OFF representing 0. This will allow students to understand how computers process information and how it converts all information into digital format or in other words into binary. They will be able to use this skill into data representation chapters for GCSE.

In the last part of the summer term students move into image processing where they learn about conveying meaning through the use of a variety of text fonts and graphics editing. This unit builds upon the skills they learnt in year 7 about image processing and by evaluating existing digital publications such as film posters. They recognise that digital publications can be represented in many forms. They use their research skills from the previous unit to obtain content from the world wide web and apply filters to narrow down their searches to select appropriate content for their target audience. They will show an awareness for the quality of digital content collected and use a variety of image processing software to manipulate and present digital content to achieve given goals. They make adjustments when evaluating and repurposing it for different audiences. Students will produce digital graphics of different types of film posters with advanced graphics editing techniques such as removing background, scaling, glitch, focus, disperse, creative filters, trendy Text Styles. These skills can be transferred into creative projects if they choose to do GCSE ICT, Arts or media studies.

Overall in key stage 3 students gain experience in using a variety of software tools that they can use to further study a GCSE Computer Science or ICT subject or they can transfer their skills into any other subject to solve problems, research and present their findings in an aesthetically pleasing way. They become increasingly confident to try new software, be creative and independent.