Computer Science Department - Year 7

Shirley High Curriculum Map

The Emerging Computer Scientist will learn and understand how computers were developed, the basics of file management, to recognise online dangers, the key elements of computational abstractions, problem solving, and types of images.

	Autumn 1 - Autumn 2	Spring 1 - Spring 2	Summer 1	Summer 2
	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill: .
	File Management Online Safety History of Computers	Control Systems with Flowol	Micro:bit	Data representation – Images
Why now?	This unit will provide a solid introduction to file management by enabling the learners to efficiently manage and organise their computer folders/files, including how to find, download, copy, rename, and recover. Continue to reinforce from KS2 ways that technology can be used, for what reasons and in what manner (safely, respectfully, responsibly, and securely), including protecting their online identity and privacy. Have an insight on the History of Computers and key people and their contributions.	The learners will continue using symbols they learnt in KS2 on Computational Thinking Concepts & Approaches. By using appropriate symbols to represent a process in a flow diagram, which will be linked to the flowchart of a sequence within the models given.	To build up on the block-based visual programming language (Scratch) learned in KS2 the learners will be introduced to the online IDE which provides a simple interface for writing, compiling, and sharing projects. The learners will learn on how to create their own programs using Micro:bit.	To continue learning the key points of the History of Computers the learners will understand that images need to be converted into binary for a computer to process them so that they can be seen on our screens. Distinguish between the different types of images, where they are used and why.
Fundamental Concepts	Folders and File structure Social Network/Cyberbullying Types of Social Media Well-known brand devices Relate facts to the History of Computers Important people in the History of Computers	The main Flowchart symbols Input, process and output	Visual Programming (Scratch) Blocks Based Visual Programming Sequencing Input, process and output	The key points in the History of Computers The different types of images
Students will learn	o Basic file management techniques to create folders, save, copy, move, rename and delete files and folders and make backup copies of files. o To keep their files in well organised and appropriately named folders. o To explain what constitutes a "strong" password for an online account. o To describe a code of conduct. o To list some of the dangers and drawbacks of social networking sites. o To list some possible responses to cyberbullying. o To describe how to minimize the danger of having their computer infected by a virus. o To describe methods of Reducing Online Dangers. o To identify key people and their contributions explain what they did to help in the development of computers. o To identify a few key points in the development of computers.	o To identify control flowchart symbols and understand how they are used to describe systems. o To develop a control flowchart solution for a simple problem. o Why a control system might fail and explain the impact this could have on safety. o To develop a control solution for a system that uses two flowcharts operating in sequence. o To identify common types of sensors used in control systems. o To use decision symbols in a flowchart. o To develop a control solution for a system that uses multiple sensors.	o The purpose of the micro:bit and what it can do. o How to use micro:bit to develop understanding of creating programs. o To use the micro:bit to develop understanding of problem solving and application documentation. o The safety features the micro:bit. o To write a program with the block editor. o To transfer a program to the micro:bit. o To produce scrolling (moving) text. o To implement pauses. o To display images.	o Different types of images. o What is a bitmap image and its advantages and disadvantages. o That bitmap images are Binary Representations and are made up of individual pixels o To draw a representation of a bitmap image. o What is a vector image and its advantages and disadvantages. o That vector images are graphical representations and what they are made from. o To draw a representation of a vector image.
Language for Life (Key terms /Vocabulary)	o File Management o Social Networking o Drawbacks	o Sensors o Flowchart symbols	o Micro:bit o Problem solving o Implement o Application documentation	
Extended writing Opportunities	Create posters to represent the dangers and drawbacks of social networking.			An Evaluation on types of images
Maths Across the Curriculum	The use of calculators	Flowcharts Solving equations shapes	Problem solving Logical Operators	Vector Straight Line Graphs
Links to careers/ aspirations	Administrator Office	Programmer Developer	Programmer Developer	
Cultural Capital	Review how computers were developed, understand the various file management systems, and why they should be protected. Understand how different cultures view the development of computers. Ethical and privacy considerations supporting online safety.	Learners will appreciate the importance of controlling real-world systems and how control can be modelled using Flowol. Consider the environmental and legal impact of some control techniques.	Use Micro-bit to create a small program and control it using online code editors. Diverse sets of skills to be applied.	Appreciate that images can be represented in binary code so that a computer can process and display them. Understanding that image representation can have an impact in various cultures and potential ethical issues.
Practical Application of Skills	Written Assessment	Assessment	Assessment	Represent bitmap images by using the binary system.