Concepts	Milestone 1	Milestone 2	Milestone 3
Main Area: Computer Science *and the development of computational thinking.* **Control, programming** Analysing and solving problems, exploring how machines work, writing algorithms, debugging algorithms, controlling physical devices **Computational Thinking** Activities that teach the key processes of computational thinking: decomposition, pattern recognition, abstraction and algorithms, as well as understanding of the theory of computer science and how machines work	Understand what algorithms are and how they are implemented on digital devices Create a set of sequences on the computer. Use logical reasoning to predict the behaviour of simple programs. Look at a set of instructions and predict what will happen. Understand the word algorithm and can create and edit a set of instructions. Understand that programs execute by following precise and unambiguous instructions Debug programs by using logical reasoning to predict the actions instructed by code Test and edit a robot to make instructions more effective.	Recognise familiar forms of input and output devices and how they are used. Use other input devices such as cameras or sensors. Make efficient use of familiar forms of input and output devices. Understand what servers are and how they provide services to a network. (Y4) Understand that computer networks enable the sharing of data and information. Write an algorithm to reach a simple goal. Program a robot to complete a task or reach a goal. Decompose programs into smaller parts. Pick apart a programme to reveal how it works.	Design, input and test an increasingly complex set of instructions to a program or device. Detect and correct errors in algorithms and programs. Write a simple code. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. Understand how inputs and outputs work. Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated. Design, write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user. Include use of sequences, selection and repetition with the hardware used to explore real world systems.

		Use logical reasoning to detect and correct errors in algorithms and programs. Understand how simple coding works. Program a robot using a sequence and repetition to complete a task.	Use variables, sequence, selection and repetition in programs Create an algorithm to create a simulation or game Solve problems by decomposing them into smaller parts. Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently. Test and edit programs

Concepts	Milestone 1	Milestone 2	Milestone 3
Main Area: ICT & Digital Literacy *(using, applying and demonstrating understanding using IT in different digital forms)* **Information, data, the web and technology** Safe and smart digital research, how computers work, how the internet works, searching, data handling, databases, data storage.	Recognise common uses of information technology in the home, school environment and beyond. Use technology purposefully to create, organise, store, manipulate and retrieve digital content comparing the benefits of different programs. Open, edit and save ideas and use a variety of different programmes.	Use email and other tools to communicate online. Select, use and combine a variety of software on a range of digital devices to accomplish given goals. Use collaborative programmes and the internet to share and present ideas. Understand that the internet is a large network of computers and	Begin to use internet services within his/her own creations to share and transfer data to a third party. Understand the need to only select age appropriate content. Use filters in search technologies effectively and appreciates how results are selected and ranked. Know which information sources are reliable.

Text, Graphics, Multimedia and storytelling Word processing and desktop publishing, presenting and storytelling with text, images, sound and video and animation. **Digital Imagery, Graphical Modelling and art** Digital paint packages, 3D digital design, photo editing, digital representations of real things. **Sound** Recording, editing, creating sounds and music digitally. **Animation and video** Animating drawings, animating figures (storytelling links), planning, creating and editing videos. **Communication and collaboration** Safe and responsible use of technology and the web. Email, online collaborative tools, digital citizenship.		that information can be shared between computers. Understand how results are selected and ranked by search engines Understand how a website is organised.	Discover if a website is trusted and reliable. Understand how computer networks enable computers to communicate and collaborate. Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information. Design and create a range of programs, systems and content for a given audience. Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information.

Main Area: Digital Literacy *(use technology safely, respectfully and responsibly)*	• Understand that some content or contact on the internet or other online technologies is unsuitable for children • Know how to keep personal information safe; • Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	• Use technology safely and respectfully, keeping personal information private. • Know how to talk appropriately on the internet • Recognise acceptable and unacceptable behaviour; • Identify a range of ways to report concerns about content and contact;	• Use technology respectfully and responsibly. • Recognise acceptable and unacceptable behaviour; • Identify a range of ways to report concerns about content and contact in and out of school;