

St Cuthbert's CE Primary School
Computing Milestones and Endpoints

	Milestone 1	Milestone 2	Endpoint
Computer Science	<ul style="list-style-type: none"> • Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • Create and debug simple programs. • Use logical reasoning to predict the behaviour of simple programs. 	<ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection and repetition in programs; work with variables and various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration. 	<ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selection and repetition in programs; work with variables and various forms of input and output. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.
	<ul style="list-style-type: none"> • Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. • Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. • Children's program designs display a growing awareness of the need for logical, programmable steps. Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program. 	<ul style="list-style-type: none"> • When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs. • Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. • Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately. • Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to 	<ul style="list-style-type: none"> • Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. • Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem. • Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. • Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. • Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the Internet in school.



St Cuthbert's CE Primary School
Computing Milestones and Endpoints

		understand the online safety implications associated with the ways the internet can be used to provide different methods of communication improving.	
Digital Literacy	<ul style="list-style-type: none">• Recognise common uses of information technology beyond school.• Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	<ul style="list-style-type: none">• Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.	<ul style="list-style-type: none">• Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concerns about content and contact.
	<ul style="list-style-type: none">• Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. 2Publish example template.• Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.• Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.	<ul style="list-style-type: none">• Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.• Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.	<ul style="list-style-type: none">• Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others• Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety.