Computational Thinking

Year	NC Objectives	Skills/Knowledge	Apps and Links
EYFS	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	• I can follow simple oral algorithms • I can spot simple patterns • I can sequence simple familiar tasks	Beebots
1	Co2/1.1 understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Co2/1.2 create and debug simple programs Co2/1.3 use logical reasoning to predict the behaviour of simple programs	• I understand what algorithms are • I can write simple algorithms • I understand the sequence of algorithms is important • I understand that algorithms are implemented as programs on digital device	Beebots, Scratch junior
2		•I can write algorithms for everyday tasks • I can use logical reasoning to predict the outcome of algorithms • I understand decomposition is breaking objects/processes down • I can implement simple algorithms on digital devices (Bee Bots, Apps: Daisy the Dino)	Turtle Logo, Scratch
3	Co2/1.1 design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Co2/1.2 use sequence, selection, and repetition in programs; work with variables and various forms of input and output Co2/1.3 use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Co2/1.4 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	• I can create algorithms for use when programming • I can decompose tasks (such as animations) into separate steps to create an algorithm • I understand abstraction is focusing on important information • I can identify patterns in an algorithm .	Turtle Logo, Scratch
4		•I can use abstraction to focus on what's important in my design • I can write increasingly more precise algorithms for use when programming. •I can use repetition in algorithms • I can use simple selection in algorithms	Turtle Logo, Scratch
5		• I can solve problems by decomposing them into smaller parts • I can use selection in algorithms • I can recognise the need for conditions in repetition within algorithms • I can use logical reasoning to detect and correct errors in program	Scratch
6		• I can use logical reasoning to explain how a variety of algorithms work • I can evaluate my work and identify error • I can use logical reasoning to detect and correct errors in algorithms	Scratch

Year	NC Objectives	Coding/Programming Skills/Knowledge	Apps and Links
EYFS	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	• I can use a mouse, touch screen or appropriate access device to target and select options on screen • I can input a simple sequence of commands to control a digital device with support (Bee Bot)	Beebot, Daisy the Dinosaur
1	Co2/1.1 understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Co2/1.2 create and debug simple programs Co2/1.3 use logical reasoning to predict the behaviour of simple programs	• I can create a simple program e.g. sequence of instructions for a Bee Bot • I can use sequence in programs I can locate and fix bugs in my program	Beebots, Scratch junior
2		• I understand programs execute by following precise and unambiguous instructions • I can create programs on a variety of digital devices • I can debug programs of increasing complexity • I can use logical reasoning to predict the outcome of simple program	Turtle Logo, Scratch
3	Co2/1.1 design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Co2/1.2 use sequence, selection, and repetition in programs; work with variables and various forms of input and output Co2/1.3 use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Co2/1.4 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	• I can design and create programs • I can write programs that accomplish specific goals • I can use repetition in programs I can work with various forms of input.	Turtle Logo, Scratch
4		• I can use simple selection in programs • I can work with various forms of output • I can use logical reasoning to systematically detect and correct errors in programs • I can work with various forms of output.	Turtle Logo, Scratch
5		• I can create programs by decomposing them into smaller parts • I can use selection in programs • I can use conditions in repetition commands	Scratch
6		• I can work with variables • I can create programs that control or simulate physical systems • I can evaluate my work and identify error.	Scratch

		Computer Networks - KS2 only	
Year group	NC Objectives	Skills/Knowledge	Apps and Links
3	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	• I understand that computers in a school are connected together in a network • I understand why computers are networked • I understand the difference between the Internet and the World Wide Web (WWW)	Twinkl
4		•I understand that servers on the Internet are located across the planet • I understand how email is sent across the Internet • I understand how the Internet enables us to collaborate	Twinkl
5		• I understand how we view web pages on the Internet • I use search technologies effectively	Twinkl
6		• I understand that web spiders index the web for search engines • I appreciate how pages are ranked in a search engine	Twinkl