Progression of skills in Computing

EYFS Links	Communication and Language	Expressive Arts and Design	Maths
	Understand how to listen carefully and why listening is important.	Explore, use and refine a variety of artistic effects to express their ideas and feelings.	Continue, copy and create repeating patterns.
	Retell a story once they have developed a deep familiarity with the text; some as exact repetition and some in their own words.	Create collaboratively sharing ideas, resources and skills.	Link the number symbol (numeral) with its cardinal number value.
	Ask questions to find out more and to check they understand what has been said to them.	Explore and engage in music making and dance, performing solo or in groups.	Discuss different ways children might record quantities.
	Articulate their ideas and thoughts in well-formed sentences.		

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ICT Skills	Use technology purposefully to create, manipulate, organise, store and retrieve digital content. 1.2: We are TV chefs 1.3: We are digital artists 1.4: We are publishers 1.5: We are rhythmic 1.6: We are detectives	Purposefully use a range of digital technologies to create, manipulate, organise, store and retrieve their own original digital content for a given purpose. 2.3: We are photographers 2.4: We are safe researchers 2.5: We are animators 2.6: We are zoologists	Select, use and combine a variety of software effectively (including Internet services) on a range of digital devices with some degree of independence. Search for information within a single site and appreciate how search results are selected and ranked. The pupil can understand that search engines select multiple pages according to keywords found in the content. Design and create a range of programs, systems and content that accomplish given goals. Also, collect, analyse, evaluate and present data and information. 3.3: We are presenters 3.4: We are who we are 3.5: We are co-authors 3.6: We are opinion pollsters	Select, use and combine a variety of software (including Internet services) on a range of digital devices. Use multiple programs on laptop or tablet computers to design and create a range of programs, systems and content that accomplish given goals. Plan and execute a project in which they use software on a laptop or tablet to create digital content with some degree of independence. Collect, analyse, evaluate and present data and information (including numerical) and present this to an audience. Use search technologies effectively to search for particular information on the web, such as answers to questions they identify in a research project and appreciate how search results are selected and ranked. 4.3: We are musicians 4.4: We are bloggers 4.5: We are artists 4.6: We are meteorologists	Select, use and combine a variety of software and programs (including Internet services) on a range of digital devices. On a computer, design and create a range of programs, systems and content that accomplish given goals, writing this in a block-based language. Collect, analyse, evaluate and present data and information, working with text, audio, images and video. Analyse and summarise this information. Use search technologies effectively and use filters to make more effective use of a standard search engine, appreciating how search results are selected and ranked. 5.3: We are architects 5.4: We are web developers 5.5: We are adventure gamers 5.6: We are VR designers	The pupil can choose for themselves from a range of available programs on laptops, tablets or cloud-based services to achieve particular goals. Design and create a range of programs, systems and content that accomplish given goals, using a system with multiple, interrelated components to achieve that given goal. Collect, analyse, evaluate and present data and information, including numerical data. Decide on the extent to which it is affected by systematic or random errors. Analyse the data, produce summary statistics, and look for relationships, trends and exceptions. Make effective use of a range of search engines appropriate to finding information that is required. Appreciate how search results are selected and ranked and appreciate that search engines rank pages based on the number and quality of in-bound links. 6.3: We are publishers 6.4: We are connected 6.5: We are advertisers 6.6: We are AI developers
Digital Literacy	Use technology safely and respectfully, whilst keeping personal information private. Identify where to go for help and support when concerned about content or contact on the Internet or other online technologies. Recognise common uses of information technology beyond school. 1.2: We are TV chefs 1.3: We are digital artists	Keep safe whilst using technology respectfully and show respect to others while using digital technology. Understand to keep personal information private and not share personal information online. Identify where to go for help and support when concerned about content or contact on the Internet or other online technologies.	Use technology safely, respectfully, and responsibly, recognising acceptable/unacceptable behaviours, and showing respect for others when working online. Identify what would be unacceptable or inappropriate behaviour when using digital technology in a range of contexts. Be discerning in evaluating digital content and know a range of ways to report concerns and inappropriate behaviour.	Use technology and demonstrate that they can act safely, respectfully, and responsibly. Recognise acceptable/unacceptable behaviour and discuss the difference between these when using digital technology in a range of contexts. Know a range of ways to report concerns and inappropriate behaviour and who to report these to both at home and in school.	Use technology safely, respectfully, and responsibly demonstrating that they understand the importance of encrypted (HTTPS) connections when browsing the web and of using strong passwords to protect their identity online. Recognise acceptable/unacceptable behaviour, discussing the likely or possible consequences of particular behaviours when using digital technology in a range of contexts.	Use technology safely, respectfully, and responsibly. Recognise acceptable/unacceptable behaviour and show that they can think through the consequences of their actions when using digital technology. Know a range of ways to report concerns and inappropriate behaviours. Know and feel confident in who to report these behaviours to;

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	1.4: We are publishers 1.6: We are detectives 2.1: We are astronauts 2.2: We are games testers 2.3: We are photographers 2.4: We are safe researchers 2.5: We are animators 2.6: We are zoologists	Recognise and show an awareness of common uses of information technology beyond school.	Decide whether a web page is relevant for a given purpose or question. Understand the opportunities networks offer for communication and collaboration. Use email and videoconferencing in class. 3.3: We are presenters 3.4: We are who we are 3.5: We are co-authors 3.6: We are opinion pollsters	Be discerning in evaluating digital content and decide whether it is relevant for a given purpose or question. Understand the opportunities networks offer for communication and collaboration. The pupil can work collaboratively with classmates on a shared wiki. 4.3: We are musicians 4.4: We are bloggers 4.6: We are meteorologists	Know how to report concerns and inappropriate behaviour in a range of contexts, including through websites that they regularly use. Be discerning in evaluating digital content and discussing whether particular content (such as a web page, other pupils' pages, or blog posts) is reliable and whether it has been written from a neutral point of view. They should be able to spot some examples of bias in digital content. Understand the opportunities networks offer for communication and collaboration, working productively and positively with others when developing a shared website or contributing to a class blog. 5.2: We are cryptographers 5.3: We are architects 5.4: We are web developers	including in school, outside of school, to those running websites which they regularly use, Childline, CEOP or the police. Be discerning in evaluating digital content, considering the intended audience and purpose of the content. Pupils can form a judgement as to, and provide reasons for, the extent to which they consider digital content to be effective. Understand the opportunities networks offer for communication and collaboration. Use online tools to plan and carry out a collaborative project. 6.3: We are publishers 6.4: We are connected 6.5: We are advertisers
Computer Science	Understand what algorithms are. Understand how algorithms 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. 1.1: We are treasure hunters 1.2: We are TV chefs	Understand that algorithms are sequences of instructions or sets of rules in everyday contexts. Understand how algorithms are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. The pupil can program on screen using sequences of instructions to implement an algorithm, whilst creating and debugging simple programs. The pupil can correct any errors within these programs and use logical reasoning to predict the behaviour of them. 2.1: We are astronauts 2.2: We are games testers 2.3: We are photographers	Design, write and debug programs that accomplish specific goals, using block language, without user interaction. Control or simulate physical systems and explore simulations of physical systems on screen. Solve problems by decomposing them into smaller parts. Develop an outline plan for a project in computing, involving multiple steps and resources. Use sequence, selection and repetition in programs; work with variables. Work with various forms of input and output. Use logical reasoning to explain how some simple algorithms work and detect and correct errors in both algorithms and programs. Understand computer networks including the Internet and how these transmit information in a digital (binary) format. Understand how networks can provide multiple services, such as the World Wide Web. 3.1: We are programmers 3.2: We are bug fixers 3.5: We are co-authors 3.6: We are opinion pollsters	Design, write and debug programs that accomplish specific goals, using a block language to a given brief, including simple interaction. Control or simulate physical systems and develop their own simulation of a simple physical system on screen. Solve problems by decomposing them into smaller parts. Work with others to plan a project. Use sequence, selection and repetition in programs and work with variables. Work with various forms of input and output including programs that accepts keyboard input and produce on-screen output. Use logical reasoning to explain how some simple algorithms work, including how they use sequence and repetition, in their own words. Use logical reasoning to detect and correct errors in algorithms and programs giving well-thought through reasons for errors they find, explaining how they fix these. Understand computer networks including the Internet and how this transmits information as packets of data. Understand how networks can provide multiple services, such as the World Wide Web, and how the internet makes the web possible. 4.1: We are software developers 4.2: We are makers 4.3: We are musicians 4.4: We are bloggers 4.5: We are artists 4.6: We are meteorologists	Design, write and debug programs that accomplish specific goals, using a block language based on their own ideas. Control or simulate physical systems and experiment with computer control applications. Take a complex problem, identify component parts, use decomposition to break this problem down and then plan how they can solve the problem by working through the elements they have identified. Use sequence, selection, and repetition in programs and work with variables. Include sequences of commands or blocks, some repetition and selection. Write a program that accepts keyboard and mouse input and produces output on screen and through speakers. Use logical reasoning to detect and correct errors in algorithms and programs, explaining a rule-based algorithm in their own words including what it does and how it works. Understand computer networks including the internet and give a coherent explanation of how data packets are routed from one computer to another on a separate network, which is also connected to the Internet. Understand how networks can provide multiple services, such as the World Wide Web, and understand how web pages are created and transmitted. 5.1: We are game developers 5.2: We are cryptographers 5.3: We are architects 5.4: We are web developers 5.6: We are VR designers	Design, write and debug programs that accomplish specific goals, using a second programming language based on their own ideas. Control or simulate physical systems, and design, write and debug their own computer control application. Take a complex problem, identify component parts, use decomposition to break this problem down and then plan how they can solve the problem by working through the elements they have identified. They can then use their plan to solve the original problem. Use sequence, selection and repetition in programs and work with variables, combining these where possible. Work with various forms of input and output and write a program that accepts inputs other than keyboard and mouse and produces outputs other than screen or speakers. Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs. Give clear and precise logical explanations of a number of algorithms. When given an algorithm for a particular purpose, use logical reasoning to identify possible errors in the algorithm, explaining why they believe the algorithm is incorrect. Then, use logical reasoning to suggest possible corrections to the algorithm, explaining why these would correct the bug they identified. Understand computer networks including the Internet and how mobile phone or other networks operate. Understand how networks can provide multiple services, such as the

Vocabulary						
						World Wide Web. Also, understand how domain names are converted into IP addresses on the Internet. 6.1: We are toy makers 6.2: We are computational thinkers 6.3: We are publishers 6.4: We are connected 6.6: We are AI developers
	1.1: We are Treasure Hunters: computer, bug, debug, logical reasoning, program, robot **1.2: We are TV chefs**: algorithm, audio, pattern, recipe, narration **1.3: We are digital artists**: digital, effect, pixel, undo, zoom **1.4: We are publishers**: audio, font, images, safe search, filter **1.5: We are rhythmic**: microphone, repetition, sample, sequencer, virtual **1.6: We are detectives**: database, field, form, record, sort	**2.1: We are astronauts**: algorithm, event, input, output, repetition **2.2: We are games testers**: abstraction, remix, source code, algorithm, sprite **2.3: We are photographers**: camera roll, crop, filter, pixel, sensor **2.4: We are safe researchers**: Google, mind map, presentation, search engine, Wikipedia **2.5: We are animators**: animation, background, frame, prop, soundtrack **2.6: We are zoologists**: binary, pixels, database, data, geolocation	**3.1: We are programmers**: abstraction, code, iterative development, parallel processing, storyboard **3.2: We are bug fixers**: bug, code, debug, sequence, variable **3.3: We are presenters**: colour value, green screen, resolution, rushes, search engine **3.4: We are who we are**: comments, Creative Commons, data centre, outline, personal information **3.5: We are co-authors**: algorithm, hyperlinks, wiki, debug, Hypertext mark-up language (HTML) **3.6: We are opinion pollsters**: data centre, data protection, digital footprint, filter, survey	**4.1: We are software developers**: program, repeat loop, Scratch, sequence, variable **4.2: We are makers**: accelerometer, Bluetooth, LED, simulator, source code **4.3: We are musicians**: beat sequencer, live loops, sample, stave, tracks **4.4: We are bloggers**: hyperlinks, Uniform, Resource Locator (URL), web server, internet **4.5: We are artists**: abstraction, fractal, bitmap, tessellation, transform **4.6: We are meteorologists**: analogue, digital, field, filter, interface	**5.1: We are game developers**: background, logical reasoning, program, Scratch, sprite **5.2: We are cryptographers**: cipher, codes, cryptography, decrypt, encode **5.3: We are architects**: Computer Aided Design (CAD), creative commons, photorealistic, render **5.4: We are web developers**: Internet Protocol (IP) addresses, network switch, protocol, tag, packets of data **5.5: We are adventure gamers**: colour value, abstraction, MP3, pixel, safe search **5.6: We are VR designers**: augmented reality (AR), global positioning system (GPS), QR code, virtual reality (VR), photosphere	**6.1: We are toy makers**: decomposition, edge connector, micro: bit, microprocessor, simulator, system **6.2: We are computational thinkers**: binary search, decomposition, linear search, search algorithm, selection sort **6.3: We are publishers**: creative commons, desktop publishing (DTP), eBook, ePub, portable document format (PDF) **6.4: We are connected**: anchor tag bias, blog, fake news, neutral point of view, cyberbullying **6.5: We are advertisers**: export, final cut, rough cut, rushes, storyboard **6.6: We are AI developers**: artificial intelligence, machine learning, image recognition, speech recognition, neural network, node