



Computing

Progression of knowledge and skills

Strand	EYFS (ELG#s)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum Computer Science (CS)	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	<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. Appreciate how (search) results are selected and ranked. 			
Knowledge	Complete a simple program on a computer (40-60)	Know that an algorithm is a set of rules or sequence of instructions to perform a specific task. Know that algorithms need to be precise and accurate.	Understand how computer programs actually run, how a computer follows a sequence of instructions and what to do when a program goes wrong. Understand what code does and the commands used to create your own code. Understand what 'debugging' means. Be familiar with variables and	Know what goes into games design. know what an algorithm is and apply to real life situation. Understand and explain the meaning of algorithms and the importance of order and accuracy. Understand how to create and give a computer a set of instructions to follow using Lightbot App .	Understand the concept of simulations and what they are used for. Identify the uses of simulators and evaluate the advantages and disadvantages of using one. Understand how to write an algorithm using flowchart methods. Understand what a sprite is and how to	Know how to create a 2-player game. Understand how to move sprites and how to control them through keyboard input. Understand how sensors work to detect sprites position. Understand variables and how to create multiple variables. Understand computer networks and know	Know what the job of a coder is, using prior learning of coding and what it is. Learn and know about JavaScript and Python. Learn and know the fundamentals of visual coding and problem solving. Be able to follow a coding tutorial to achieve complex outcomes.



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			'debugging' programs.	Understand the basics of visual coding.	animate one in a game. Understand and explain what artificial intelligence is. Understand why scores and timers are important in a game. Understand that HTML is the language used to create files which can be read by internet browsers. Understand algorithms and code instructions.	what a website is and why we use them. Know what types of digital content can be used in websites. Understand what codes are used for and the concept of deciphering code. Understand and can identify what QR code is and what it is used for. Understand the concept that still images create a moving scene when played in rapid sequence.	Know what Scratch is and how it is used. Know what sprites, sensors and variables are and how to make your own. Know what Conditional Statements and Operators are and how they are used in Scratch. Know how to design and build a virtual robot using Algodoo.
Skills		Write and become comfortable writing simple algorithms. Write a set of commands on a program and to find and fix mistakes (debug).	Use a range of apps to create their own code <i>i.e. Daisy the Dino, Hopscotch and Turtle</i> Use a range of apps to design their own game.	To be able to decompose an algorithm and game into smaller parts. To be able to improve or alter an algorithm.	To be able to build something using a basic build program. Write an algorithm, using a flowchart.	Use Scratch to create multiple sprites. Create a game that includes racing cars and a track.	Use JavaScript to write and adapt programmes. Write and adapt programmes using Python.



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		<p>Use a simple app on an iPad with sequential actions using directional language. <i>i.e. Daisy the Dino</i></p> <p>Program a floor robot <i>i.e. Bee Bot</i></p> <p>Use Scratch to develop their coding skills.</p>	<p>Identify the key components of a computer program.</p> <p>Create their own sprite and stage in Scratch and program their sprite to move.</p> <p>Identify where code goes wrong and debug lines of code.</p>	<p>Create a basic game using a range of inputs and selection within an algorithm. (Using Hopscotch)</p> <p>Use a programmable toy to support learning <i>i.e. Bee Bot</i>. Can program a floor robot by sequencing instructions.</p> <p>Write an algorithm using an app such as Pureflow.</p> <p>Create a computer game in Scratch; including creating a Sprite/graphics and background images.</p>	<p>Plan what and how to build a city in Minecraft.</p> <p>Create a computer game using Scratch. To design and create a sprite and background.</p> <p>Build artificial intelligence into their game. Identify how games can be improved and make improvements in their game.</p> <p>Build scores and timers in their games.</p> <p>Create a HTML file.</p>	<p>Create a website using a free template such as WordPress.</p> <p>Plan content and a theme for a website.</p> <p>Can explain what binary code is and what it is used for.</p> <p>Can create their own QR codes and decipher code.</p> <p>Produce a solar system game and learn about debugging.</p> <p>Create a radio play using a Podcast.</p>	<p>Create a game guided by an online tutorial using Touch Develop.</p> <p>Use XCode to make a simple game.</p> <p>Create a simple app for Android.</p> <p>Use Scratch to create a Heroes and Villains style game.</p> <p>Build and test a simple bot in Algodoo.</p>
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National Curriculum Information Technology (IT)	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. (ELG's)	<ul style="list-style-type: none"> Use technology purposefully to create, organise, store, manipulate and retrieve digital content. 		<ul style="list-style-type: none"> Use search technologies effectively. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information 			
Knowledge	Use ICT hardware to interact with age-appropriate computer software. (40-60)	Learn basic web navigation skills. Know how to search on the internet in relation to a specific topic. Know what a database is i.e. they are a means of arranging things to make them easier to find.	Understand the elements that make up a computer game. Know what a Podcast is and record their own. Know the fundamental skills of desktop publishing. Understand what is meant by 'data' and how it can be stored, retrieved and manipulated.	Know how to create an e-book. Know how to design and input their own illustrations. To be able to evaluate each other's work using an online survey.	Know how to use search engines effectively. Know how to share their work online via Dropbox. Know how to use online research to create a 'match' report. Learn about different technologies new and old. Know about the different	Be able to identify which software can produce which type of content. Know what copy right protection is. Know how to use Green Screen as a later edit to their news report. Reflect upon the process of making a news report, identifying how they might do it differently next time.	Know how to use Book Creator and Brushes to create an eBook with text, illustrations and audio. Know that 'Wearable Technology' is clothing incorporating computer and advanced technologies. Know and understand that HCI – Home-Computer-Interfaces are the means by which you control and interact with apps.



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			<p>Know how technology has advanced over the years.</p> <p>Learn about the history of different types of animation.</p>		<p>components of a computer.</p> <p>Know what a blog is.</p> <p>Know the link between hard and software.</p>	<p>Understand that Augmented Reality (AR) is a technology used to superimpose a computer-generated image or video on a user's view of the real world.</p> <p>Learn how to find images using the web and refine their research skills.</p> <p>Understand that QR are triggers that QR reader use to find content.</p> <p>Understand the fundamentals of basic filming, video editing and saving video.</p> <p>Can film an animated sequence using the app 'I can animate'</p>	
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						<p>Can export animation into iMovie.</p> <p>Create props and 3d sets and produce a storyboard.</p> <p>Add sound effects and music to enhance animation.</p> <p>Use Google Sketch-up design a building.</p>	
Skills		<p>Develop web skills when given the task of researching <i>i.e. an historical figure</i>.</p> <p>Use Google Earth to travel around the world</p> <p>Produce a e-book or presentation, including key terminology.</p> <p>Use simple app to sequence events</p>	<p>Create a simple space invader game using Sketch Nation app.</p> <p>Create and export digital graphics to use in game play.</p> <p>Present findings using tally charts and graphs.</p> <p>Interpret and compare data from graphs.</p> <p>Create an e-book based upon</p>	<p>Create an e-book re-telling a story, including illustrations that they have created.</p> <p>Use a mind mapping app such as Popplet to develop an action plan.</p> <p>Plan and create resources using a range of digital</p>	<p>Produce a report, from their online research, using word.</p> <p>Proof read and amend using a range of tools such as use of fonts for a headline.</p> <p>Create a multimedia presentation using a range of tools such as iPad photos, films etc.</p>	<p>Use WordPress to plan, create and build a website.</p> <p>Test and amend their site by ensuring content is correct, links work, spellings and grammar correct and site is free from any copy right images.</p> <p>Use a Green screen to add footage or an image to their final</p>	<p>Plan and create a story using a storyboard and structured tools.</p> <p>Generate a mind map of ideas using Popplet.</p> <p>Use Book Creator app to create an eBook.</p> <p>Add illustrations, text and audio to eBook.</p> <p>Design their own 'Wearable Technology'.</p> <p>Create a mock-up of their interface using software</p>



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		<p>in a digital storytelling format.</p>	<p>research findings, enhance with images, audio and video.</p> <p>Create and produce an animation using an iPad app.</p>	<p>applications such as Word or Pages.</p> <p>Create an animation to promote awareness and use peer evaluations.</p>		<p>news report background.</p> <p>Use iMovie to add content and edit introductions, film, music and text to their news report.</p> <p>Use word processing apps to gather research from the internet and save images.</p> <p>Use a paint app to express different artists styles of self-portraits.</p>	<p>such as powerpoint, paint, photoshop, Poplet, iDraw etc.</p> <p>Create and produce an advert to demonstrate their design.</p> <p>Manipulate images, audio and video.</p>
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National Curriculum Digital Literacy (DL)	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. (ELG's)	<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"> Understand the opportunities (networks) offer for communication and collaboration. Be discerning in evaluating digital content Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 			
Knowledge		Know the main functions and buttons of a digital camera. Know that we are all connected and contactable via access to the Internet. Know that search engines help us find things.	Know how to use email to communicate with real people within school, families and community. Understand how emails are sent. Know what is acceptable information to share. Know how search engines work and learn about the	Know what the concept of democracy is. Know how the use of technology can make an impact on decision making.	Understand a need for ground rules in game behaviour. Know about inventors of key technologies. Know about the key factors in producing good footage using a flipcam or iPad . Know how to import film clips into iMovie. Understand how video can be used to help solve a relevant global issue.	Know what content would be appropriate for different kinds of websites. Be aware of the different content available on websites. Know how news can be communicated using technologies. Understand the difference between local and national news.	Understand the stock market and how to analyse data, make informed choices, present and critique their decisions.



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			<p>different parts of a web browser.</p> <p>How to search for images sensibly and effectively, using a search engine.</p>			<p>Know that there are different roles and responsibilities when making a news report.</p>	
Skills		<p>Use the features of a digital camera or an app on an iPad to capture their own shots.</p>	<p>Send an email to another person and obey rules of good communication.</p> <p>Use digital film making and photography to evidence work and findings.</p>	<p>Evaluate each other's work, completing a survey to express their views.</p>	<p>Create ground rules for game behaviour.</p> <p>Analyse and discuss sports reports from the internet.</p> <p>Research inventors of key technologies online, using Edmodo</p> <p>Use devise a storyboard for a short film.</p> <p>Import and organise and edit film clips using iMovie.</p> <p>Produce a themed video using a range of multimedia tools.</p>	<p>Present their website and state their rational behind their decision making.</p> <p>In groups plan a news report with each child fulfilling a role i.e. news reporter, interviewer, producer and camera operator.</p>	<p>Interpret data given to them.</p> <p>Create a presentation explaining their reasons for an investment on stocks and shares.</p> <p>Evaluate the performance of their investment.</p> <p>Compare and contrast different sites and programming languages for coding.</p>