SITHNEY PRIMARY SCHOOL

Computing Progression of Skills

Computer Science	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
National Curriculum **30-50 months** • Knows how to operate simple equipment, e.g. turns on CD player and uses remote control. • Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. **40-60 months** • Completes a simple program on a computer Uses ICT hardware to interact with age-appropriate computer software. **Early Learning Goals** • Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.		1. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions 2. Create and debug simple programs 3. Use logical reasoning to predict the behaviour of simple programs		4. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts 5. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output 6. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 7. Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web 8. Appreciate how [search] results are selected and ranked			
Progression	**Junior Explorers (CS 1,2 and 3)** Children able to match correct	**Walking with Dinosaurs (CS 1 and 2)** Children able to understand and	**Code-tastic (CS 1,2 and 3)** Understand that algorithms are precise	**My First Program (CS 4,5 IT 3)**	**We Built This City (CS 4,5,6 and DL 5)** Identify the uses of simulators	**Website designers (CS 7, 8 IT 3)** Identify what types of digital content	**Let's Learn A Language (CS 4)** Understand that coding is the use of

	directional language words with symbols Children able to recognise, use and understand directional language and begin to sequence instructions. Children able to perform a simple program on the floor robot (Bee-Bot). Children able to recognise that a string of instructions or commands placed together can create a simple program. Without this programme then the robot would not move.	explain algorithms and the importance of order and accuracy. Children able to identify algorithms in everyday life. Children are able to break down tasks into a sequence of steps and understand the order of sequence. Children are able to use a simple app on an iPad to create a word algorithm. Children are able to follow and deliver word algorithms.	instructions that are followed. Follow a simple algorithm. Devise a simple algorithm. Children are familiar with variables and 'debugging' programs.	Children understand what a sprite is. Children understand what a stage is. Children understand and can explain how variables and inputs are used. Children understand and can explain how loops and random numbers are used. Children understand and can explain how conditional statements are used. Children understand and can explain how operators are used.	and the advantages and disadvantages of using one. Children build something using a basic build program. Children can produce an algorithm.	can be used in websites. Be able to identify which software can produce which type of content. Children understand how Google works and are able to post their findings to google classroom. Identify which websites they can safely share content from. Create and sign up for a free website. Create a site map for their site. Plan content for each page. Ensure all links work.	programming languages to make games, programs and computers things. Children are able to sample and complete Javascript challenges. Children can open and save Python files. Children understand 'Print' command Children understand that the term 'Debug' means to fix code or solve a problem with code. Children understand the 'Run' button plays the code.

	Children able to program a floor robot without the help of an adult and record (in symbols) the program used.	Children understand the term algorithm and are able to use a simple app on the iPad, unaided, to reinforce this learning.				Ensure all content is correct. Ensure all spelling and grammar is corrected. Ask others to test their site.	Children understand the input command. Children can use the random command and understand it's function. Children are able to work independently to solve coding problems.
Information Technology	**EYFS**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
National Curriculum **30-50 months** • Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones. **40-60 months** • Completes a simple program on a computer Uses ICT hardware to interact with age-appropriate computer software. **Early Learning Goals** Children recognise that a range of technology is used in places such as homes and schools. They select and		1. Use technology purposefully to create, organise, store, manipulate and retrieve digital content		2. Use search technologies effectively 3. 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			

use technology for particular purposes.							
Progression	**Little Computers (IT 1 DL 1)** Play a variety of games that teach mouse control and techniques. Use a simple paint program to produce a digital drawing. Retrieve and open digital files. Use print function to print work.	**Young Investigators (IT 1, DL2)** Understand the different kinds of content you can find in a website i.e. words, pictures, films, animations, games and quizzes. Children can search for and find information on the internet.	**Super Sci-fi (IT 1, DL2)** Children are able to create their own 'space invader' style game. Children understand the elements that make up a computer game. Children can use a drawing app to create characters and graphics for a game. Children are able to share their drawings. Determine parameters for game play. Use advanced	**Going for Gold (DL 5 IT 3)** Use Chatterkid app to record their app and import into their e-book. Using the Eat-And-Move-O-Matic app to find out how long it will take to burn off the food they like. Create an e-book.	**Final Score (IT 2, DL 4, 5)** Identify types of media reports. Create some notes, share and access on-line documents.	**Let's change the World – Inventors (IT 3)** Children are able to film using a flipcam / iPad. Children are able to produce their own short animation. Children can add music and sound effects to compliment their movies.	**Young Authors (IT 2,3 DL 5)** Children to add pictures to e-book Children to make changes to font, colour and style. Children to add audio and publish their books. Children present their eBooks and evaluate their performance.

			features to create levels and more complex settings. Children record their own podcast. Children are able to enhance their podcast with photos, music and sound effects. Children are able to export their podcast.				
Digital Literacy	**EYFS**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
National Curriculum **30-50 months** • Knows that information can be retrieved from computers **40-60 months** • Completes a simple program on a computer Uses ICT hardware to interact with age-appropriate computer software. **Early Learning Goals** Children recognise that a range of technology is used in places such as		1. Recognise common uses of information technology beyond school 2. 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		3. Understand the opportunities [networks] offer for communication and collaboration 4. Be discerning in evaluating digital content 5. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact			

homes and schools. They select and use technology for particular purposes.							
Progression	**Little Computers (IT 1 DL 1)** Become familiar with what a computer is and what they can be used for. Understand that devices respond to commands. Talk about their use of ICT and other ways of finding information. Understand that in addition to touch screens, a keyboard and mouse are tools for navigating a computer and entering text.	**Young Investigators (IT 1, DL2)** Demonstrate basic web skills. **Digital Citizenship and Technology: Year 1 (e-Safety)** To understand what is meant by personal information. To be able to identify what is personal information To know that when they need help online children would speak to a trusted adult. Children can identify adults they can trust.	**Super Sci-fi (IT 1, DL2)** Children search on the internet using an advanced search to find a large image. **Digital Citizenship and Technology: Year 2 (e-Safety)** Children know what is meant by personal information and develop awareness of why it is special. Children understand the need for keeping personal information	**Going for Gold (DL 5 IT 3)** Understand what health data is. **Digital Citizenship and Technology: Year 3 (e-Safety)** Children develop awareness of online protocols, in order to stay safe on the web. Children learn how to use the internet safely and responsibly Children are aware of the risks associated with online gaming.	**We Built This City (CS 4,5,6 and DL 5)** Children can understand and create ground rules for in game behaviour. **Final Score (IT 2, DL 4, 5)** Determine what factors would influence commentary including bias. Children are able to 'proof' their own documents. **Digital Citizenship and Technology: Year 4 (e-Safety)** Children develop awareness of	**Digital Citizenship and Technology: Year 5 (e-Safety)** Children are able to discuss the risks of using the internet and identify ways of protecting themselves. Children are aware of social networking sites and are able to protect themselves if they choose to use them. Children understand what cyberbullying is. Children know how to report any concerns they may have. Children are able to identify who they	**Digital Citizenship and Technology: Year 6 (e-Safety)** Children recognise what is acceptable and unacceptable behaviour when using technologies and online services Children understand what is meant by a 'Digital Footprint' Evaluate their use of technology including the use of email, social networking, online gaming and mobile phones and consider how they present themselves online Children can demonstrate

	Digital Citizenship and Technology: Reception (e-Safety) Understand what personal information is. To be able to understand the importance of asking for help from an adult when on the internet	Children are aware that technology can be used for communicating.	private – whether online or offline. Children know what to do when concerned about content or being contacted online. Children know they can use the Internet to communicate with family and friends. Children can understand the importance of communicating safely and respectfully online.		online protocols in order to stay safe on the web. Children learn how to use the internet safely and responsibly. Children begin to use a range of online communication tools, such as forums, email and polls in order to formulate, develop and exchange ideas. Children are able to demonstrates they are able to report unacceptable content and contact when online	should talk to online Children can explain what is meant by copyright Children can recognise risks to playing online games and are able to protect themselves.	responsible use of technologies and online services, and know a range of ways to report concerns Children understand what cyberbullying is. Children know how to report any concerns they may have. Children can explain what is meant by copyright

					Children understand that good online research involves processing the information (rather than copying) and interpreting it for others. Children recognise issues of copyright and the importance of acknowledging sources		
Key Computing vocabulary	**Simple Program:** A sequence of instructions to perform a task. **Peripherals:** These are the external accessories to computers such as printers.	**Algorithm:** An algorithm is a sequence of instructions and/or set of rules. **Conditional Language:** can also be described as a *Conditional Expression,* they are features of coding that perform different computations or actions depending on a specified condition being either *True* or *False.* For example using the		**Sprites**: A sprite is a 2D image that is integrated into a computer game in a layered effect. **Conditional Statements**: Can also be described as a *Conditional Expression,* they are features of coding that perform different computations or actions depending on a specified condition being either *True* or *False.* For example using the		**Green screen:** (in film and video) a subject is filmed in front of a green background which allows a separately filmed background/image to be added to the final video in the editing phase. **Sequencing:** A set of actions or events that must be carried out in the same order every time.	

	Operating system: The program that enables the computer to start and access different sorts of software on the computer, examples include Microsoft Windows and iOS for Mac. **Memory:** This is the name for the electronic holding place for instructions and data that a computer's microprocessor can reach quickly. **Inputs:** These are the means of communicating with computers e.g. keyboard and mouse **Outputs:** These are the means	***if then else*** construct, **If** t*he following Condition* is *True* **Then** do t*he following instructions* **Else** *do these different instructions*. **Sequencing**: A set of actions or events that must be carried out in the same order every time. **Sprite:** a sprite is a 2D image that is integrated into a computer game in a layered effect. **Debugging**: This is the process of finding errors or problems with your code and trying to fix it. Sometimes code will be in the wrong order or there could be bits of code missing, the process of fixing the code is called debugging. **Mnemonic:** a system such as a pattern of letters, ideas, or associations which assists in remembering something. **Podcast:** Podcasts are shows, similar to radio or TV shows that are produced and posted to the Internet for download and listening or viewing.	***if then else*** construct, **If** t*he following Condition* is *True* **Then** do t*he following instructions* **Else** *do these different instructions*. **Looping**: A loop is a sequence of instructions that will be continually repeated until a ***Conditional Statement*** is reached or becomes true. Using loops is a way of asking a question until something (*conditional statement*) becomes true. **Variables**: Variables are used to store information within computer code, each Variable will have a unique name and it will hold a known or unknown quantity or value. For example the number of points scored by each player would be stored in a variable. **eBook** An electronic version of a printed book which can be read on a computer or a specifically designed handheld device. **Simulation**: The technique of representing the real world by a computer program	**Storyboard:** a sequence of drawings, representing the shots planned for a film. **Python:** Is an object-oriented coding language, meaning everything in the program is treated as an object. **eBook:** an electronic version of a printed book which can be read on a computer or a specifically designed handheld device.

	by which the computer relays information e.g. printer or monitor **CPU:** This is the part of the computer that turns your commands in actions **Control:** In ICT Terms, this means the commands placed in a sequence to perform a desired task. **Directional language:** Forwards, backwards, left and right. **Sequencing:** A set of actions or events that must be carried out in the same		**Algorithm:** An algorithm is a sequence of instructions and/or set of rules. **Flowchart:** a diagram of the sequence of movements or actions	

	order every time. **Simple Program:** A sequence of instructions to perform a task.			