Savile Park Primary School
Progression in Computing

Aspect	Phase 1 Reception	Phase 2 Year 1 and 2	Phase 3 Years 3 and 4	Phase 4 Years 5 and 6
Computer science	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes - Explore toys that simulate control devices e.g., traffic lights, scanner, microwave, cash tills, with the intention of finding out how it works. - Explore the commands needed to control a range of electronic toys. - Explore simple simulations and find out what happens if. - Use a variety of electronic toys in play situations, e.g., dance mats, Bee-bots, and remote control toys, using basic directional language. - Be aware that digital devices e.g., thermometers, metal detectors, and sound monitors can be used to show external changes.	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. - Understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. - Know that a computer program turns an algorithm into code that the computer can understand. - Explain that an algorithm is a set of instructions to complete a task. -When designing simple programs, show an awareness of the need to be precise with algorithms so that they can be successfully converted into code.	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	
			- Turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Designs show that they are thinking of the desired task and how this translates into code. - Identify an error within their program that prevents it following the desired algorithm and then fix it. - Designs show that they are thinking of the required task as well as how to accomplish this in code using coding structures for selection and repetition. - Make more intuitive attempts to debug their own programs.	- Attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. - Test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code. - 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. - 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.
		Create and debug simple programs.	**Use sequence, selection and repetition in programs; work with variables and various forms of input and output.**	
		- Work out what is wrong with a simple algorithm when the steps are out of order and can write their own simple algorithm, - Know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code - Create a simple program that achieves a specific purpose. - Identify and correct some errors, e.g. Debug -Program designs display a growing awareness of the need for logical, programmable steps.	- Demonstrate the ability to design and code a program that follows a simple sequence. - Experiment with timers to achieve repetition effects in programs. - Begin to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. - Understand how variables can be used to store information while a program is executing. - Use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. - 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.	- Translate algorithms that include sequence, selection and repetition into code with increasing ease 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. - Combine sequence, selection and repetition with other coding structures to achieve an algorithm design. - 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.

				- As well as understanding how variables can be used to store information while a program is executing, use and manipulate the value of variables. - Make use of user inputs and outputs such as 'print to screen'.	
		Use logical reasoning to predict the behaviour of simple programs.	**Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.**		
		- When looking at a program, read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. - 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.	- Design programs that 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. - Make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. - In programs such as Logo, 'read' programs with several steps and predict the outcome accurately.	- Begin to think about code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables. - 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.

			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.	
			- List a range of ways that the internet is used to provide different methods of communication. - Use some of these methods of communication, e.g. being able to open, respond to and attach files to emails. - Describe appropriate email conventions when communicating in this way.	- Understand the value of computer networks but are also aware of the main dangers. - Recognise what personal information is and can explain how this can be kept safe. - Select the most appropriate form of online communications contingent on audience and digital content. - Understand and explain, in some depth, the difference between the internet and the World Wide Web. - Know what a WAN and LAN are and can describe how they access the internet in school.

Information technology	**technology they encounter at home and school** (e.g. role play toys, photocopiers, automatic doors, dismantling old phones and laptops etc.)	**Use technology purposefully to create, organise, store, manipulate and retrieve digital content.** - able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources. **-** demonstrate an ability to organise data using, for example, a database and can retrieve specific data for conducting simple searches. - able to edit more complex digital data such as music compositions.	**Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.**	
			- carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines - understand the function, features and layout of a search engine. - appraise selected webpages for credibility and information at a basic level.	- search with greater complexity for digital content when using a search engine. - readily apply filters when searching for digital content. - explain in detail how credible a webpage is and the information it contains. - compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. - use critical thinking skills in everyday use of online communication.
	how technology has changed over time and **how it differs across cultures** sharing artefacts, photos and videos, and asking others.	- confident when creating, naming, saving and retrieving content. - use a range of media in their digital content including photos, text and sound	**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.**	
			- collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database, using software such as 2Graph. - consider what software is most appropriate for a given task.	- make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief

			- create purposeful content to attach to emails. - be able to make improvements to digital solutions based on feedback. - make informed software choices when presenting information and data. - create linked content using a range of software - share digital content within their community, i.e. using Virtual Display Boards.	- objectively review solutions from others. - collaboratively create content and solutions using digital features within software such as collaborative mode. - able to use several ways of sharing digital content, i.e. Blog, Display Boards and Email. - make clear connections to the audience when designing and creating digital content. - design and create their own blogs to become a content creator on the internet. - use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.

Digital literacy	**explore their environment** using multimedia equipment, including digital and video cameras, microscopes, webcams and visualisers to **capture still and moving images**. With help, they will **play back their captured recordings**, demonstrating confidence and increasingly in control. They will be encouraged to explore ways of **making and listening to sounds** using simple programs, apps and devices, e.g., karaoke machines, music mats and age appropriate apps.	**Recognise common uses of information technology beyond school.** - understand what is meant by technology and can identify a variety of examples both in and out of school. - make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair. - effectively retrieve relevant, purposeful digital content using a search engine. - apply their learning of effective searching beyond the classroom and share this knowledge. - make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.		
E-Safety	**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.**			
	Key e-safety messages will be conveyed through **guided use**, **continuous provision** and **adult modelling**. Additionally, and importantly, this will be **alongside and with the involvement of parents and carers** at home.	- Understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. - take ownership of their work and save this in their own private space.	- Demonstrate the importance of having a secure password and not sharing this with anyone else. - explain the negative implications of failure to keep passwords safe and secure.	- 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. - implicitly relate appropriate online behaviour to their right to

Listen to young children talking about their online world and use this overheard talk to **engage with them** and **find out more about their practice and behaviour**.	- know the implications of inappropriate online searches. - begin to understand how things are shared electronically such as posting work to display boards. - develop an understanding of using email safely and know ways of reporting inappropriate behaviours and content to a trusted adult.	- understand the importance of staying safe and the importance of their conduct when using familiar communication tools. - explore key concepts relating to online safety using concept mapping. - help others to understand the importance of online safety. - know a range of ways of reporting inappropriate content and contact.	personal privacy and mental wellbeing of themselves and others. - identify more discreet inappropriate behaviours through developing critical thinking. - recognise the value in preserving their privacy when online for their own and other people's safety.