Progression in Computing at Radford Semele C of E Primary School

Early Years:

In Reception, children begin to explore technology and build computing skills. Computing in Reception is centred around activities that focus on building children's curiosity, creativity and problem solving, whilst introducing them to technology.

Children at the expected level of development will:

- Personal, social and emotional development (Managing self): Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.

- Personal, social and emotional development (Managing self): Explain the reasons for rules, know right from wrong and try to behave accordingly.

- Expressive arts and design (Creating with materials): Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Key Concepts:

- **Algorithms —** Be able to comprehend, design, create, and evaluate algorithms
- **Computer networks —** Understand how networks can be used to retrieve and share information, and how they come with associated risks
- **Computer systems —** Understand what a computer is, and how its constituent parts function together as a whole
- **Creating media —** Select and create a range of media including text, images, sounds, and video
- **Data and information —** Understand how data is stored, organised, and used to represent real-world artefacts
- and scenarios
- **Effective use of tools —** Use software tools to support computing work
- **Impact of technology —** Understand how individuals, systems, and society as a whole interact with computer systems
- **Programming —** Create software to allow computers to solve problems
- **Safety and security —** Understand risks when using technology, and how to protect individuals and systems

	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Algorithms and programming	Follow instructions involving several ideas or actions.	**Moving a robot** Writing short algorithms and programs for floor robots, and predicting program outcomes. **Programming animations** Designing and programming the movement of a character on screen to tell stories.	**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz. **Debugging** Identifying problems in simple code sequences and fixing them, creating and debugging own simple programs	**Sequencing sounds** Creating sequences in a block-based programming language to make music. **Programming drawing** Using Logo and Scratch to code and debug programs that will draw simple images, using commands including the repeat function.	**Repetition in games** Using a block-based programming language to explore count-controlled and infinite loops when creating a game. **Debugging** Altering code to complete the requirements of a given criteria, testing to check progress.	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz. **Drawing images** Coding programs to draw shapes, using different colours and filling in as well as producing text.	**Variables in games** Exploring variables when designing and coding a game. **Selection in physical computing** Exploring conditions and selection using a programmable microcontroller.
Computing Systems and networks		**Technology around us** Recognising technology in school and using it responsibly.	**Information technology around us** Identifying IT and how its responsible use improves our world in school and beyond.	**Connecting computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	**The internet** Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	**Systems and searching** Recognising IT systems in the world and how some can enable searching on the internet.	**Communication and collaboration** Exploring how data is transferred by working collaboratively online.
Creating Media	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Use a range of small tools including scissors, paintbrushes and cutlery.	**Digital painting** Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally. **Digital writing** Using a computer to create and format text, before comparing to writing non-digitally. **Using and applying skills** Demonstrating a growing understanding of key skills such as typing, saving files and editing work.	**Digital photography** Capturing and changing digital photographs for different purposes. **Computing and presentation skills** Using basic computer skills to open folders and format a simple presentation with text and images	**Desktop publishing** Creating documents by modifying text, images, and page layouts for a specified purpose. **Stop-frame animation** Capturing and editing digital still images to produce a stop-frame animation that tells a story.	**Photo editing** Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled. **Word processing** Use formatting to create an effective layout; insert and format a table into a document; change a page layout and add hyperlinks.	**3D modelling** Planning, developing, and evaluating 3D computer models of physical objects **Audio production** Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation. **Video production** Planning, capturing, and editing video to produce a short film

Data and information			**Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer.	**Branching databases** Building and using branching databases to group objects using yes/no questions.	**Data logging** Recognising how and why data is collected over time, before using data loggers to carry out an investigation.	**Flat-file databases** Using a database to order data and create charts to answer questions.	**Spreadsheets** Enter data and formulae into a spreadsheet, editing and calculating data; solving problems using a spreadsheet.
Effective use of tools	Choose the appropriate tools from their environment for a purpose.	Formatting simple text and saving a file; create an image with appropriate tools; create short algorithms with blocks of code and robots.	Designing simple programs and debugging problems; choosing framing and filters for photographs; formatting presentations; organising data	Editing and formatting text and images for a purpose; creating databases to group items; creating music through coding.	Create and edit a layout for a purpose, adding hyperlinks and tables; use data loggers; edit digital images; create games through coding.	Recognising different uses for programming software and using it for a purpose; creating audio and choosing how to edit.	Choosing how to present data for a purpose; decide which variables to use when designing a game; edit a webpage layout from a variety of tools.
Impact of technology	Begin to recognise uses of technology around us, both physical and digital.	Understanding different forms of technology around us and how it can be used to create documents, pictures, programs.	Recognising how technology can benefit the world around us; understanding how information can be presented digitally in different ways.	Understand how devices respond to input and are programmed to show output; using different ways of coding for similar purposes; using technology to format work.	Recognise the internet as a system of networks; understand how layouts can be used to create visual impact; know how photos can be edited for a purpose.	Using software as CAD and recognising how it can be used in the design industry; recognising how data can be ordered and presented; creating quizzes using programming.	Recognise the importance of data transfer when working collaboratively; understand how spreadsheets can be used to present data; consider aesthetics in webpage layouts.
Safety and security	Eight strands taken from the UK Council for Internet Safety's document '**Education for a Connected World'**, taught progressively throughout the school: - Self-image and identity - Online relationships - Online reputation - Online bullying - Managing online information - Health, well-being and lifestyle - Privacy and security - Copyright and ownership						