MILLFIELDS CE PRIMAR

Knowledge and Skills Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	Functional Skills
Nursery (F1)	• Begin to follow a set of verbal instructions to complete a task.	• Explore and identify different types of technology; through role play, the interactive whiteboard, iPads and programmable toys. • Identify and understand the purpose of technology in the environment e.g. pelican crossing, self-serve scanner in supermarkets.	• Know that they must ask an adult before using the internet/accessing games/websites. • Know that adults can help us to use the internet safely.	• Know that they must ask an adult before using the internet/accessing games/websites. • Know that adults can help us to use the internet safely. • Know that information can be retrieved from technological devices and the internet. • Understand directional symbols when using programmable toys (forwards, backwards, turn, stop).
Reception (F2)	• Follow a sequence of instructions to complete a task (using first, next, then). • Encourage children to speculate on why things happen or how things work.	• Select and use technology for a purpose. • Recognise that a range of technology is used at home and in school.	• Understand the need to keep safe when using IT. • Identify ways that we use the internet i.e. watch TV shows/videos, play games, find out information and help us learn at home. • Know that they must not click/access unfamiliar programs or icons. • Know that personal information must not be shared.	• Understand that different icons can cause things to happen in a computer program. • Develop understanding of directional symbols when using programmable toys, computer programs and apps.

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Year 1	• Be able to say what an 'algorithm' is. • Be able to use the appropriate keys or commands to make a virtual or floor robot go forward, backward, left and right. • Be able to program a bot or sprite by giving simple sequences of commands with an immediate outcome. • Can use basic symbols to record directional instruction and attempt to identify a bug in their code. • Be able to use a developing range of language and styles of control e.g. tilt and turn/instructional to direct a robot.	• Can produce text, adding and making basic edits to text in appropriate software or app. • Be able to explore a range of simple tools within a digital art package, to create and alter the appearance of an image. • Be able to use simple video or animation software. • Can use a sound recorder to store information as sound, and create sounds or music by arranging sound markers. • Be able to use suitable on-screen graphing software to represent information using pictographs.	• Be able to access information on the internet and navigate a website using a QR code or links. • Be able to use a search engine or in-app search to search for and save images, using keywords provided by the teacher. • Be aware of some of the dangers of online activity and know to tell an adult if they feel something they see online is inappropriate or hurtful.	• Be able to enter text using single fingers, beginning to use more than one hand. • Be able to log into and out of an account on a computer or program independently, and shut down a device at the end of a session. • Be able to save and retrieve work with support.
Year 2	• Be able to give control devices instructions that contain numerical data (e.g. move 2 steps etc). • Can use the repeat command (loops) to program more efficiently. • Can use logical reasoning to predict the outcome of a sequence of instructions and test the sequence, amending if necessary. • Is able to make use of simple events e.g. mouse clicks/tap on screen. • Be able to find a bug in simple code and attempt to debug errors.	• When producing text, can add and edit text, considering style, colour, layout and font. • Be able to use simple tools within age-appropriate software to create digital art or alter an image, using tools such as crop, resize, and flip, and exploring effects such as symmetry. • Be able to sequence and arrange images and text for a purpose. • Be able to select and record musical phrases, sound-effects or voice-overs to enhance multimedia work. • Can make use of different types of graphs (pictographs and bar charts) to represent data collected.	• Be able to independently navigate to the right information on a website using links or buttons. • Be able to use a search engine to search for given information, if necessary using keywords provided by the teacher. • Be able to explain online danger and begin to be responsible for their actions online including saying what personal information should be kept private and explain why it is important to discuss their use of technology with an adult.	• Be able to enter text using more than one finger, beginning to use both hands • Be able to use basic keyboard keys e.g. backspace, space bar, and return. • Be able to save, retrieve and begin to organise work with support. • Be able to use a range of methods of interacting with a program e.g. right click, drag and drop, long tap etc. Use double click or tap, pinch to zoom, swipe etc.

Year 3	• To sequence a list of commands/blocks to produce an output e.g. a light comes on or a robot follows a defined route. • Is able to use 'repeat' and 'repeat until' loops when appropriate. • Can use simple conditional statements (if and when commands) and understands the importance of time within a program (e.g. using wait), with support. • Can make use of an input 'event' within a simple program e.g. when the start button is clicked. • Be able to find errors in a simple program, and successfully debug to make the program work.	• Be able to format the text to indicate relative importance, including bold, italic, underline and strikethrough. • Be able to select and use appropriate editing tools in an image-editing package for a specific purpose. • Be able to enter data into a graphing package and use it to create a range of graphs.	• Be able to identify and use links within a web page to answer questions. • Independently, be able to use a search engine to search for specific information. • Be aware of some of the consequences of their online actions and be able to explain the importance of balancing game and screen time with other parts of their lives.	• Be able to use more than one hand to enter text, using the keyboard. • Be able to use cut, copy and paste tools by right clicking or using the edit toolbar. • With support, be able to save work effectively navigating a folder system e.g. Shared Drive, iPad camera roll, Google Drive or OneDrive. • When using a mouse or trackpad, be able to use left/right/double click and scroll.
Year 4	• Design, test and amend programs to achieve an intended objective, including controlling an external output. • Be able to use nested loops to increase the efficiency of a program. • Can use conditionals including 'if' and 'else'. • Understands a wider range of 'events' such as sprite interactions and button presses, and can use them within programs. • Be able to find errors in a program of their own design, and successfully debug to achieve a specific goal.	• Can use a range of features of layout and design such as text boxes, columns and borders, to control the layout and presentation of a document. • Be able to create and add text, video, sound and other graphic effects to a video presentation for an audience, using editing techniques such as crop and trim. • Can locate, record, save and retrieve sounds in multimedia software.	• When searching for information online, be able to evaluate how appropriate a website is. • Be able to search for and select relevant information (pictures and text) to use in other software, sorting by text, pictures, sound and video. • Be aware of ways in which we interact with online communities and be able to suggest and use strategies for dealing with cyberbullying.	• When typing, be able to use more than two fingers to enter text. • Know and be able to use keyboard function keys e.g. shift, caps lock, num lock, space bar, return. • Be able to rename a previously saved digital document or file appropriately. • If appropriate, be able to print a document.

Year 5/6	• Be able to use logical operations (not, or, and) to alter and control the outcome of a series of commands. • Can use variables efficiently. Be able to create their own variable and use this within a computer program to manipulate data. • Can demonstrate an understanding of what subroutines (e.g. functions and procedures) are, and be able to create them within a computer program to store and retrieve data. • Be able to use a wider range of events (such as broadcasts) and use them efficiently within programs to start and stop scripts. • When debugging, can use abstraction to filter out extraneous detail and debug the program.	• Be able to make appropriate use of text and hyperlinks to produce a non-linear presentation or document. • Be able to create videos that include greenscreen or animated footage. Edit footage with different effects such as slow-motion, cutaway, picture in picture. • Be able to import sounds into audio editing software, layering and editing to refine their work.	• Be able to identify irrelevant, implausible and inappropriate information, when searching for information online. • Be able to demonstrate an understanding of media bias and strategies for ensuring a balanced view, including gender stereotypes. • Be able to explain how to develop positive online relationships and have strategies to prevent and stop negative situations and manage their private information.	• When typing, be able to use more than two fingers to enter text, with increasing speed and accuracy. • Be able to independently create suitably named folders to organise documents, using appropriate file paths.