St. Mary's Church of England Primary School, Fownhope

Progression of Knowledge and Skills in Computing

"What we nurture today flourishes tomorrow"

Year	Programming	Multimedia	e-Safety	Technology in our Lives	Handling Data
R	Help adults operate equipment around the school, independently operating simple equipment. Use simple software to make things happen. Explore options and make choices with toys, software and websites. Press buttons on a floor robot and talk about the movements.	Develop an interest in ICT by using age appropriate websites or programs. Use a mouse to rearrange objects and pictures on a screen. Begin to use a keyboard. Recognise text, images and sound when using ICT. Use a camera or sound recorder to collect photos or sound.	Play appropriate games on the Internet. Talk about good and bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you.	Help adults operate equipment around the school. Independently operate simple equipment. See their own work online e.g. on the school website.	Collect information as photos or sound files. Use a simple pictogram or set of photos to count and organise information.
1	Physically follow and give each other instructions to move around. Explore outcomes when buttons are pressed in sequences on a robot. Begin to identify an algorithm to achieve a specific purpose. Execute a program on a floor robot to achieve an algorithm. Begin to predict what will happen for a short sequence of instructions in a program.	Use paint programs to create pictures. Add text and images to a template document using an image and word bank. Record their own voices and play back to an audience. Use a video or stills camera to record an activity. Use paint programs to create pictures. Create sounds and simple music phrases using ICT tools. Use index fingers (left and right hand) on a keyboard to build words and sentences. Know when and how to use the SPACE BAR	Agree sensible e-safety rules for the classroom. Use a selection of websites and consider who can see the information online. Play appropriate games on the internet, including games against real people. Talk about how adults can help us, including when we see something we don't like or something makes us feel uncomfortable. Play games that reinforce the idea of personal information, including password privacy.	Identify uses of technology in the classroom, at home and in the local area. Talk about using the Internet and using resources on the local device. Explore simple information sources including age appropriate websites.	Contribute to and interpret a pictogram. Take photographs, video and record sound to record learning experiences. Look at how data is representing digitally.

	Begin to use software to create movement and patterns on a screen. Use the word debug to correct any mistakes when programming a floor robot.	(thumbs) to make spaces between words.			
2	Physically follow and give each other forward, backward and turn (right-angle) instructions. Articulate an algorithm to achieve a purpose. Plan and enter a sequence of instructions to achieve an algorithm, with a robot specifying distance and turn and drawing a trail. Predict what will happen and test results. Explore outcomes when giving instructions in a simple Logo program. Watch a Logo program execute using 'allow programming' in 2Go, debug any problems. Talk about similarities and differences between floor robots and logo on screen (Software could also be used to control a model.)	Use an increasing variety of tools and effects in paint programs and talk about their choices. Create own documents, adding text and images. Use templates to make electronic books individually and in pairs. Explore the effects of sound and music in animation and video. Use keyboard to enter text (index fingers left and right hand). Use SHIFT and CAPS LOCK to enter capital letters. Use DELETE and BACKSPACE buttons to correct text. Create sentences, SAVE and edit them later.	Agree sensible e-safety rules for the classroom. Use a selection of websites and consider who can see the information online. Play appropriate games on the internet, including games against real people. Talk about how adults can help us, including when we see something we don't like or something makes us feel uncomfortable. Play games that reinforce the idea of personal information, including password privacy.	Identify the purposes for using technology in the classroom, at home and in the world around. Find information from a technology based resource such as the Internet, DVD or files on the public drive and talk about the differences and who the information belongs to. Talk about whether information is true or not.	Ask questions and consider how they will collect information. Collect data, generate graphs and charts to find answers. Save and retrieve the data to show to others. Create paper/object decision trees and explore a branching database. Take and save photographs, video and record sound to capture learning. Use microscopes or other devices to capture and save magnified images. Investigate different types of digital data e.g. online encyclopaedias.
3	Plan and enter a sequence of instructions on a robot specifying distance and turn to achieve specific outcomes, debug the sequence where necessary.	Explore and begin to evaluate the use of multimedia (photos, video and sound) to enhance communication Create and begin to edit text and presentation documents, experimenting with fonts, size,	Agree sensible e-safety rules for the classroom. Choose a secure password for age-appropriate websites. Discuss what actions could be taken if they are	Save work on the school network, on the Internet and on individual devices Talk about the parts of a computer.	Find out information from a pre-prepared database, asking straightforward questions. Contribute towards a database.

	□ Test and improve / debug programmed sequences. □ Begin to type logo commands to achieve outcomes. □ Explore outcomes when giving sequences of instructions in Logo software. □ Use repeat to achieve solutions to tasks. □ Solve open-ended problems with a floor robot and Logo including creating simple regular polygons, making sounds and planning movements such as a dance. □ Create an algorithm to tell a joke or a simple story. □ Sequence pre-written lines of programming into order. □ Talk about algorithms planned by others and identify any problems and the expected outcome.	colour, alignment for emphasis and effect. □ Use a range of effects in art programs including brush sizes, repeats, reflections □ Explore the use of video, animation, and greenscreening. □ Use ICT tools to create musical phrases. □ Amend text and save changes. □ Use individual fingers to input text and use SHIFT key to type characters. □ Amend text by highlighting and using SELECT/DELETE and COPY/PASTE. □ Look at own work and consider how it can be improved for effectiveness.	uncomfortable or upset online e.g. Report Abuse button. □ Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time. □ Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully □ Comment and provide positive feedback on the work of classmates in school or online, or the work of others online.	□ Use appropriate tools to collaborate on-line. □ Use appropriate tools to communicate on-line. □ Use simple search tools and find appropriate websites. □ Talk about the owner of information online.	□ Construct and use a branching database □ Record data in a variety of ways. Present data for others. □ Use a data logger to monitor changes and talk about the outcomes seen.
4	□ Create and edit procedures typing logo commands including pen up, pen down and changing the trail of the turtle. □ Use sensors to 'trigger' an action such as turning the lights on using Probot if it 'goes through a tunnel', or reversing if it touches something. □ Solve open-ended problems with a floor robot, Logo and other software using efficient procedures to create shapes and letters. □ Experience a variety of resources to extend	□ Explore how multimedia (photos, video and sound) can create atmosphere and appeal to different audiences. □ Be confident in creating and modifying text and presentation documents to achieve a specific purpose. □ Use art programs and online tools to modify photos for a specific purpose using a range of effects. □ Explore the use of video, animation, and greenscreening for a specific audience. □ Use ICT tools to create music phrases for a specific purpose.	□ Agree sensible e-safety rules for the classroom. □ Choose a secure password for age-appropriate websites. □ Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button. □ Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time. □ Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully.	□ Talk about the school network and the different resources they can access, including the Internet. □ Frame questions and identify key words to search for information on the Internet. □ Consider reliability of information and ways it may influence you. □ Check who the owner is before copying photos, clipart or text.	□ Plan and create a database to answer questions. □ Identify different types of data. □ Ask questions carrying out simple searches on a database. □ Identify inaccurate data. □ Present data in appropriate format for an audience. □ Use a data logger to record and compare individual readings.

	understanding and knowledge of programming. Create an algorithm and a program that will use a simple selection command for a game. Begin to correct errors (debug) as they program devices and actions on screen, and identify bugs in programs written by others.	Use a keyboard effectively, including the use of keyboard shortcuts Use font sizes and effects such as bullet points appropriately. Know how to use a spellcheck. Look at their own, and a friend's work and provide feedback that is constructive and specific.	Comment and provide positive feedback on the work of classmates in school or online, or the work of others online.		
5	Explore procedures using repeat to achieve solutions to problems with Logo and a floor robot Talk about procedures as parts of a program. Refine procedures to improve efficiency. Use a variable to replace number of sides in a regular shape. Explore instructions to control software or hardware with an input and using if... then... commands. Explore a computer model to control a physical system. Change inputs on a model to achieve different outputs. Refine and extend a program. Identify difficulties and articulate a solution for errors in a program. Group commands as a procedure to achieve a specific outcome within a program. Write down the steps required (an algorithm) to achieve the outcome that is	Select an appropriate ICT or online tool to create and share ideas. Explore the effects of multimedia (photos, video, sound) in a presentation or video and show how they can be modified. Develop skills using transitions and hyperlinks to enhance the stricture of presentations. Use a wide range of effects in art programs and online tools, discussing the choices made and their effectiveness. Know how to use text and video editing tools in programs to refine their work. Use online tools to create and share presentations and films.	Agree sensible e-safety rules for the classroom. Discuss their own personal use of the Internet and choices they make including excessive use, personal information and password security. Discuss how to protect devices from virus threats. Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns. Explore using the safe and responsible use of online communication tools e.g. blogs, messaging	Identify different parts of computing devices. Identify different parts of the Internet. Choose appropriate tools for communication and collaboration and use them responsibly. Use effective strategies to search with appropriate search engines. Talk about the different elements on webpages. Find out who the information presented on a webpage belongs to.	Collect and record information using spreadsheets and databases. Carry out complex searches (e.g. using and/or; ≤ / ≥). Solve problems and present answers using data tools. Analyse information and question data. Identify poor quality data. . Select appropriate use of a data logger for an investigation and interpret the findings.

	wanted and refer to this when programming.				
6	□ Record in some detail the steps (the algorithm) that are required to achieve an outcome and refer to this when programming. □ Predict the outputs for the steps in an algorithm. □ Increase confidence in the process to plan, program, test and review a program. □ Write a program which follows an algorithm to solve a problem for a floor robot or other model. □ Write a program which follows an algorithm to achieve a planned outcome for appropriate programming software. □ Control on screen mimics and physical devices using one or more input and predict the outputs.	□ Identify the purpose for selecting an appropriate online tool. □ Discuss audience, atmosphere and structure of a presentation or video. □ Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience. □ Use sound, images, text, transitions, hyperlinks and HTML code effectively in presentations. □ Store presentations and videos online where they can be accessed by themselves and shared with others. □ Evaluate the effectiveness of their own work and the work of others.	□ Agree sensible e-safety rules for the classroom. □ Discuss their own personal use of the Internet and choices they make including excessive use, personal information and password security. □ Discuss how to protect devices from virus threats. □ Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns. □ Explore using the safe and responsible use of online communication tools e.g. blogs, messaging	□ Describe different services provided by the Internet and how information moves around the Internet. □ Describe different parts of a computing device and how it connects to the Internet. Connect a computing device to a keyboard, mouse or printer. □ Identify appropriate forms of online communication for different audiences. □ Use search engines as part of an effective research strategy. □ Describe how search results are selected and ranked. □ Acknowledge who resources belong to that have been found on the internet.	□ Use the whole data process – generate, process, interpret, store, and present information – realising the need for accuracy and checking plausibility. □ Select appropriate data tool. □ Identify and present results. □ Interrogate a database, refining searches to provide answers to questions. □ Plan investigations using the outcomes from a data logger to show findings.