Potten End C of E Primary School
Year 1 Computing Curriculum

Create	Select and use a range of digital applications purposefully on different digital devices to create, organise, manipulate, store, retrieve, review and present varied digital content (word-based, still and moving image, animation, sound etc.) for specific purposes. Combine digital materials from different sources to create digital content to achieve given goals.
Digital research	Become discerning, safe and responsible users of online technologies; derive data from a number of sources, including pictorial; use digital research tools effectively, understanding broadly how they work and considering factors affecting search results; evaluate the resulting data, refining and editing it to make it their own, respecting copyright and ownership and crediting sources.
Info… info…	Collect, organise, evaluate and analyse data to present it as information; use a range of tools including databases (branch and flat file), spreadsheets and any form of graph, chart, diagram, table or list (eg. pictograms, bar and pie charts, line graphs, Carroll and Venn diagrams, mind maps etc.); use dataloggers and sensors to monitor changes in environmental conditions collect data which they can analyse and use in other applications. Develop models to explore patterns and test hypotheses.
Digital communication	Develop an understanding of the networks and systems used for digital communication; use a range of digital tools safely and appropriately for communication and collaboration to support learning in and beyond school; keep personal information secure, respect the rights of others and demonstrate and promote good eSafe behaviour.
eWorlds	Develop an understanding of programming in the context of automated devices and systems as well as that of simulations and games. Relate this to the creation of algorithms and their implementation as programs, applying logical reasoning and precision and using decomposition to break problems into smaller parts. Design, create, test, debug and refine programs for specific purposes using different command languages and working in both onscreen and physical environments. Understand and use sequence, repetition, selection and variables appropriately to improve efficiency. Program inputs and outputs in physical and onscreen systems, including inputs from sensors and environmental monitoring. Predict the outcome of programs, using this to support good programming practice.
Ongoing aspects	**The following aspects are essential elements of the scheme and are embedded across all strands and learning themes:**

Overview

Key Stage 1	Autumn	Spring	Summer
Year 1	Let's create*	Visual information	Discovering programming

Let's Create

Key learning objectives (some objectives might be used for more than one lesson)
To understand that digital texts can include words, numbers, graphics, film and sound. Talk about ways in which technology is used in the creation of digital texts. Share some examples and discuss the contribution of the technology. Explore the differences between digital and traditional texts.
To understand that we use computer software, such as word processors and graphics programs, to create digital content. Review ways we input to a computer, including onscreen and physical keypads, keyboards, touch screens, tablets, controllers, voice recognition, fingerprint recognition etc. Focus on keyboard layout and locate letters and numbers. Display onscreen keyboards as part of phonics sessions, encouraging children to locate the letters and graphemes on which they are focusing, in both upper and lower case. ➢➢
To know that some software can read text and can include word banks to help us create and read texts. Use onscreen word banks to support writing sentences and to enhance written language. Use speech support to review and improve their work. Use sound in other applications to support their understanding of texts.
To understand that computer systems enable us to store digital content. Review the areas where work is saved and shared on the network (for example the school shared areas, the pupils' individual *My documents*, online space). Understand the need for work to be saved on a computer system as named files. Save pieces of work with simple but appropriate file names in their own document area. *Start to create folders, possibly with support, to organise their work.* ➢➢
To understand that computer software can be used to create images. Use simple tools and features of a paint program to illustrate themes and ideas, including: brush size and type; spray and fill effects; use of colour and simple shapes.
To understand that there are many different software programs which can be used to create digital images. Explore different programs beginning to compare tools and features in them. *Suggest a program to use based on its tools/features*
To know that logical reasoning can be used to predict the behaviour of simple programs. Predict what specific tools in a graphics program will do and then test their predictions. Compare different approaches to using the tools and select the most efficient (for example using a shape tool, or using line tool to draw a shapes). ➢➢
To understand that images can be accessed from many sources, including clipart, topic banks, folders on the school network etc. (Use of online image banks is not required at this level.) Choose images to support their work, recognising that not all images which can be found are appropriate.
To identify and use a range of technology (camera, visualiser, tablet, microscope etc.) to capture still and moving images. Begin to talk about how such devices operate. ➢➢ Capture everyday images and share with the class.
To recognise the need to ask permission before taking a photograph of anyone. Capture images of classroom activities to support their work. *Proactively seek to keep a record of their work.*
To understand that audio devices can capture and/or playback sound and that they help us communicate with others. Use simple sound-capture devices to record voice, music and sound effects. Playback, share and review what they have created. Talk about how they use sound at home and encourage responsible use.
To know that sounds add meaning to digital texts. Use sound banks to support their learning in phonics and other work; add appropriate sounds to simple pictures or text, etc.
To talk about the choices they have made, revisiting and refining their work in the light of the comments and suggestions from peers.
To logon on, ideally to their own space on the school network, with some support.
To be able to save, locate and edit work with some support. To consider when it is appropriate to print their work.
To use technology safely and increasingly respectfully.
To know to tell a trusted adult if anything they access or use makes them feel uncomfortable or worried.

Independent task ***– any open-ended activity (2-3 sessions) enabling the children to demonstrate their computing capability around the knowledge and understanding provided in the term***
○ To use digital tools to create a picture linked to a curriculum theme (story, poem, rhyme, song explanation etc.) ○ To use digital tools to create a simple sentence which communicates meaning, related to their picture ○ To create a digital recording related to their picture ○ To share their work with others thinking about how they might change or improve it and talking about the tools in the software which they chose to use. Other considerations: • Does the task provide for children to work at different levels? • Is there support available for children to select if they wish? • Are there opportunities for the children to review and develop their work? • Is there an opportunity for the children to evaluate the finished task?

Visual Information

Key learning objectives (some objectives might be used for more than one lesson)
To understand that information exists in many different forms. Share and compare different ways (still/moving image, number, word, sound, light, movement etc.) that technology can "tell us things" or convey information. Discuss how different technology can be helpful in providing information in a range of situations, or for people with different needs. Generate a sign or label to convey information, considering whether everyone can understand the sign/label. ➢➢
To understand that information in graphs (e.g. pictograms, bar charts etc.) can be simpler to understand than words and numbers. Consider how graphs are used in the wider world to share information visually and simply. Use a range of simple graphs linked to a curriculum area to make general statements and answer simple questions. *Explain their reasons for choosing a specific graph type to represent different sets of data.* ➢➢
To understand that the tools within graphing software can be used to present detailed information clearly. Present various sets of information as pictograms and bar charts, beginning to include titles, labels on scales, etc. ➢➢
To understand that mistakes are easy to make when gathering and recording information. Check the information in simple graphs for mistakes. Think about the advantages and disadvantages of using technology for graphing. ➢➢
To be aware of how technology can be used to show changes in environmental conditions. Consider how this technology is used in the wider world. Use a simple datalogger to observe changes in classroom sound or light levels and note how this changing data is displayed. Make statements based on the data in the graphs. ➢➢
To use a simple datalogger to gather live data. Know that the software creates a graphic representation of the data, which provides information. Draw some simple conclusions. *Compare a datalogging line graphs to other graph types.* ➢➢
To understand how objects can be sorted according to a property. Carry out a simple sorting activity using physical objects. As a class, discuss how a computer might carry out this task. Play being a computer, carrying out a repeated sort activity. (For example, for each object the computer would ask the key question and then organise that object into one of the two groups.) ➢➢
To understand that yes/no questions can provide useful information and can help us make decisions. Play yes/no questioning games to identify objects (for example twenty questions). Develop an algorithm using a repeat to carry out a yes/no questioning process. (For example, take an object and ask yes/no questions until it is uniquely identified. Repeat the process for another object.) ➢➢
To understand that branching databases can be used to organise objects and to identify them using yes/no questions. As a class, use software to create a branching database linked to a topic and use to identify a set of objects. Together, review the questions they have used and consider how they could be improved. ➢➢
To understand that computers use repeated processes to sort objects. Look at some other branching database and identify the repeat process as the yes/no questioning. Use a branching database, independently, to sort and identify objects related to an area of learning. ➢➢
To talk about the choices they have made, revisiting and refining their work in the light of the comments and suggestions from peers.
To logon on, ideally to their own space on the school network, with increasing independence.
To be able to save, locate and edit work using their space on the school network, understanding how and when to print.
To use technology safely and increasingly respectfully.
To know to tell a trusted adult if any technology makes them feel uncomfortable or worried.

Independent task** – **any open-ended activity (2-3 sessions) enabling the children to demonstrate their computing capability around the knowledge and understanding provided in the term
○ Use appropriate software to organise some existing data in a simple pictogram/chart. Use this to make some general statements about the data. ○ Use a branching database to identify specific objects. ○ Suggestive a "better" alternative for one of the questions in the branching database. Other considerations: • Does the task provide for children to work at different levels? • Is there support available for children to select if they wish? • Are there opportunities for the children to review and develop their work? • Is there an opportunity for the children to evaluate the finished task?

Discovering Programming

Key learning objectives (some objectives might be used for more than one lesson)
To begin to understand what a computing device is and how examples of such devices operate. Compare different computing devices (for example a tablet, a smart phone, games console, a desktop PC, a laptop computer). Identify the main "parts" (for example screen, mouse/touchpad/touch screen, separate or onscreen keyboard, processor etc.) and role-play how these might work together to carry out a task (for example, typing a word, saving some work etc. ➢➢
To understand that there are many programmable and automated devices in our homes, school and in the wider world. Select one or two of these, investigate them and consider how they might work. Use appropriate vocabulary to explain how they might work. Explain that these digital devices operate using set of precise commands called programs. ➢➢
To understand that an algorithm is a set of precise instructions or rules to carry out a specific task or solve a problem. As a class, create algorithms for some everyday tasks (for example getting ready for school in the morning, lining on for assembly, solving a problem in maths). *Suggest suitable tasks for new algorithms.* ➢➢
To understand that logical reasoning is an essential part of writing algorithms. For a given task, create an algorithm away from the computer/digital device, breaking the task into small steps so that each one can be tested and debugged. Discuss the fact that there could be several solutions to the problem. Test the effectiveness of their algorithms by giving them to others to carry out. *Suggest and explore alternative solutions for the algorithms.* ➢➢
To understand that computers use programs written in special programming languages. Discuss the idea that there are many different programming languages in much the same way as humans use different languages to communicate. Introduce the idea that we can create our own unplugged language to carry out our algorithms. ➢➢
To understand that programs are often written using an algorithm. As a class, recall an algorithm they have created and devise a simple programming language which they can use to create a program away from the computer, using simple commands or symbols (clap, jump, ≠, ♦ etc.). Write the program using an agreed format and test with a partner playing robot. Debug the program to correct any mistakes. Refine to improve efficiency. *Create their own language for a task.* ➢➢
To understand that digital devices operate using programs. Explore simple physical programmable devices and talk about the language that is used to control them. Investigate the effects of different commands in the language. Read given programs for the devices and predict the outcomes. Test predictions. ➢➢
To understand that precision and order are important in programming. Program physical devices and onscreen objects using standard or non-standard units to achieve agreed objectives. Record the program using an agreed format. Predict and test the effect of changing the order of program commands. *Suggest how the program could be refined.* ➢➢
To know that programs should be tested, debugged and improved. Write programs for different purposes. Test, debug and revise the programs. Read programs created by others and predict the outcomes. Test predictions. ➢➢
To understand that repetition is important in writing efficient programs. Use simple repeat commands in some programs (for example repeated sounds, forward backward moves etc.). Relate to real world applications such as lifts, sirens etc. *Explain how using repeat improves efficiency in a program.* ➢➢
To understand the need to build up a program, step-by-step, testing and debugging each individual part. ➢➢
To understand the need to use technologies including physical and/or onscreen programmable devices safely and appropriately. S ➢➢
To develop awareness of environmental issues related to the use of technologies (energy use, responsible disposal of batteries, cartridges, old technologies etc.)
To logon on, ideally to their own space on the school network, with increasing independence. S
To be able to save, locate and edit work using their space on the school network, understanding how and when to print.
To know to tell a trusted adult if anything they access or use makes them feel uncomfortable or worried. S

Independent task** – **any open-ended activity (2-3 sessions) enabling the children to demonstrate their computing capability around the knowledge and understanding provided in the term
○ Create a simple algorithm to achieve a specific objective or solve a problem. ○ Use the algorithm to write a program to instruct a physical and/or onscreen device to achieve the objective/target ○ Test and debug the program and note how it has been improved and/or developed for accuracy or efficiency. ○ Predict and test the outcome of program written by a peer. Suggest improvements to the program. Other considerations: • Does the task provide for children to work at different levels? • Is there support available for children to select if they wish? • Are there opportunities for the children to review and develop their work? • Is there an opportunity for the children to evaluate the finished task?