Welbourn CE Primary School Computing Overview

Concept	Stand	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Digital Literacy	Using technology CS: Computing systems NW: Networks IT: Impact of technology	**Exploring hardware** To recognise technology in the home and at school. To access and use simple activities using touch technology with increasing control (including cameras, video, microscopes and tablets) Play videos and become familiar with play, pause and stop buttons. To know how to use a shortcut on an iPad to access a program or website.	**Technology around us** To identify technology and how it helps us. To know the main parts of a computer. To use a mouse in various ways. To know how to use a keyboard to type and edit a text. To know how to use technology responsibly. To know how to log on to a laptop and shut down. To know how to use the internet to find images.	**Information technology around us** To recognise uses and features of information technology. To know the purpose of information technology in the home, at school and beyond. To know how technology benefits us. To know how to make good choices when using information technology. To know how to log on, save and shut down. To know how the internet works and how it is useful in the modern world. To know how to use search engines safely including using key words. To carry out simple note taking from online sources.	**Connecting computers** To know how digital devices function. To identify input and output devices. To know how digital devices can change the way we work. To know how a computer network can be used to share information. To know how digital devices can be connected. To know the physical components of a network. To know how to open, compose and reply to emails. To use the internet for research and use Microsoft Word to create a document, including downloading images.	**The internet** To know how networks are physically connected. To know how different network devices make up the internet. To know how websites are stored and created online. To know how content is protected and how to find the creators of content. To evaluate the reliability of content online. To research and record concise information from online searching, including advanced searches. To use PowerPoint and MS word to present learning.	**Sharing information** To know that computers can be connected together to form systems. (including inputs, outputs and processes) To know the benefits of a computer system and identify the human elements. To know how information is transferred over the internet using unique addresses and agreed methods. To know that we can access shared files online to enable us to work collaboratively. To evaluate different ways of working online (including public or private). To use Word, PowerPoint and Publisher to present learning.	**Communication** To know how to use a search engine and refine my search. To know that search engines select results using tools such as web crawlers and index. To explain how search results can be ranked. To know why an order of results is important and that some have limitations. To recognise and use a range of ways to communicate using technology. To evaluate different methods of online communication. To present work using a range of software.

		Introduction to data	Grouping data	Pictograms	Branching databases	Data logging	Flat-file data bases- J2E	Spreadsheets – excel
Data and information DI: Data & Information		To use technology to sort objects such as those with a certain colour or shape. With assistance, make a simple pictogram.	To label objects. To count objects. To describe objects in different ways. To count objects with the same properties. To compare groups of objects. To answer questions about groups of objects.	To count and compare objects using tally charts. To enter data onto a computer and view it in different formats, including pictures. To know how to create a pictogram. To select objects by attributes and make comparisons. To explain how to present data safely and in different ways.	To know what branching databases are. To create questions with Yes/No answers. To identify the object attributes needed to collect relevant data. To know how to create a branching database. To compare branching database structures.	To know that data collected over a period of time can be used to answer questions. To know how to use a digital device to collect data automatically. To collect data using suitable places and intervals. To import data and interpret it. To identify and collect data to answer a question.	To know how to use a form to record information. To sort data using fields, records and databases. To group and sort data according to a line of enquiry. To use tools to select specific data. To know how to use filters and compare data visually. To follow my own line of enquiry and present my findings.	To identify relevant questions which can be answered using data. To know that objects can be described using data. To apply a number format to a cell. To construct a formula in a spreadsheet to produce calculated data. To apply formulas to data and duplicate it. To create a spreadsheet to plan an event. To present data and use suitable ways to do so.

	Communicating, presenting and creating media CM: Creating media DD: Design & Development	Keyboard skills To know how to use the keyboard and mouse. To write my name using the keyboard. Using a tinker tray Explore ways to making and listening to sounds using simple programs and devices.	Digital painting using paint To describe and explain what different paint tools do. To know how to use shape and line tools for effect. To select appropriate colours and tools to create a picture. To explain choices. To compare a picture on paper and on the computer. Digital writing- word To know how to use a computer to write. To add and remove text on a computer. To change the text and explain my choices. To compare writing on paper and by hand.	Digital photography – using photo editor Pixlr To know what devices can be used to take photographs. To use a digital device to take a photograph and adapt the format. To know what makes a good photograph and retake it. To use tools to change an image. To apply a range of skills to capture a photo. Making music – using chrome music lab To describe how music makes us feel and identify differences. To identify and create patterns in music. To know how to create music in different ways, including experimenting with pitch and duration.	Stop-frame animation – Scratch To know that a flip book- animation is a sequence of drawings or photographs. To relate animated movement with a sequence of images. To plan and create an animation using a series of frames. To review and improve my animation by adding other media. Desktop publishing To know that text and images can convey information. To edit text, font style, size, colour and layout for a given purpose. To choose appropriate setting and create a template for a purpose. To add content to a desktop	Audio Editing – Audacity To know that sound can be digitally recorded using inputs and outputs. To know how to use a digital device to record sound and play it back. To know that digital recordings can be stored as a file (podcast) To combine audio using editing tools. To evaluate and edit choices. Photo editing – get pait.net To know how editing can effect an image and that they are not always real. To change the composition of an image. To know how images can be changed for different uses. To make good choices when selecting	Vector drawing – publisher To know that different tools produce different outcomes and investigate these. To know how to create a vector drawing by combining shapes. To use tools for a desired effect. To create layers in a vector drawing. To evaluate my vector drawing.	Webpage design To review existing websites and their structure. To know that websites are written in HTML. To plan the features of a web page. To know and consider the ownership and use of images. To know about copyright. To know how to add content to my webpage. To edit and review my webpage. To know how to use navigation paths and hyperlinks. 3D modelling – using tinkercad To use a computer to create and manipulate a 3D digital object. To select, move and delete a 3D object. To change the colour and

				To create music for a purpose. To review and refine my music.	publishing publication. To use different layouts for different purposes. To compare and evaluate my work.	different tools to retouch an image. To evaluate and compare original, fake and adapted images.		resize a 3D object. To compare working digitally with 2D and 3D graphics. To construct a 3D model of a physical object. To position, rotate and duplicate an object. To group and create a collection on shapes. To design and construct a digital model by combining objects. To develop and evaluate my model.

Coding	Algorithms and Programs PG: Programming AL: Algorithms ET: Effective use of tools	Programming Beebots and exploring instructions To use a range of control toys and devices such as beebots. To explore simple control devices in role play such as tils,	Moving a robot To know how to control a moving object. To follow instructions and commands. To combine forwards and backwards commands to make a sequence. To combine 4 direction commands. To plan a simple program. To find more than one solution to a problem. Programming animations – ScratchJr To know how to use Scratch Jr to carry out a task To choose a command for a purpose. To join a series of commands together. To identify the effect of changing a value.	Robot Algorithms To describe a series of instructions as a sequence. To know what happens when we change the order of instructions using a range of algorithms. To use logical reasoning to predict the outcome of a series of commands. To design an algorithm, To explain choices for codes and artwork. To know how to create and debug a program that I have written. Quizzes – ScratchJr To create a sequence with a start. To change the outcome of a command. To create a program using	Sequence in music – Scratch To know, identify and name components and attributes on a programming environment. To create and edit a sprite. To create a sequence of connected commands. To combine sound and notes to make a sequence. To change the appearance and design. To create instruments and sounds. To create a project from a task description. Events and actions – Scratch To know how a sprite moves and the relationship between an event and an action. To create a program to	Repetition in shapes – editing a screen turtle To investigate codes and commands, using accuracy. To know how to create a program using text-based language. To use repetition and loops. To modify a count-controlled look to produce a given outcome. To decompose a program into parts. Repetition in games – scratch To develop the use of count-controlled loops. To modify loops, including using infinite loops. To know how to create a design which has two or more looks at the same time. To design and create a project with repetition	Selection in physical computing – Crumble software To know how to control a simple circuit connected to a computer. To create a program that includes count-controlled loops. To know that a loop can stop when a condition is met. To know how to program a microcontroller to respond to an input. To know that a loop can be used to check whether a condition has been met. To design a physical project that includes selection. To create a controllable system that includes selection Selection in quizzes – scratch To know how selection is used in computer	Variables in games – Scratch To know that a variable is something that can change or hold numbers or letters. To know why a variable is used in a program To improve a game by choosing variables. To select artwork and create algorithms for a project. To design and create a game project. To test the code that I have written. To evaluate and extend my game. To share my game with others. Sensing – microbit To create a program to run on a controllable device.

			To explain how a sprite can be changed. To design parts of a project. To use an algorithm to create a basic program and choose a sprite to match the design.	a design and adapt it. To use my own design using blocks and images	move a sprite in 4 directions. To adapt a program to a new context. To develop a program and add features. To identify and fix bugs. To design and create a maze-based challenge.	to create a game.	programs using conditions. To know that a conditional statement connects to an outcome. To know how selection directs the flow of a diagram. To design and create a program which uses selection. To evaluate my program.	To control the flow of a program To update a variable with a user input. To use a conditional statement to compare a variable to a value. To design a project that uses inputs and outputs on a controllable device. To develop a program to use inputs and outputs on a controllable device.

E Safety	E Safety SS: Safety and security	To know that information should be kept private (such as your name, school, address) To know how to handle a piece of equipment safely.	To know how to handle a piece of ICT equipment safely. To identify how computers make our lives more simple in a modern world. To know how to keep information private.	To know and understand what personal information is and that it should not be shared. To identify a trusted adult who I can talk to if I see something online that I don't like. To know about cyber bullying and how to tackle it. To know how to behave online. To know I have the right to say no. To show how to use information technology safely and responsibly.	To know what information is appropriate and not appropriate to share online. To know how to protect your privacy online. To know how to create a strong password. To know how to treat others online.	To know about phishing scams and bots as a way to steal people's data and how to protect yourself from this. To recap the key aspects of cyberbullying and how to be an up stander and not a bystander. To know how to get help online if you experience cyberbullying. To know about digital enhancement and how this distorts perceptions.	Recap how to create strong passwords and customise privacy settings. To know and understand how encryption works and become familiar with systems, including Morse code. To know about age restrictions and how to stay safe on social media. To recap how to get help online from cyberbullying.	To know that communication on the internet isn't always private. To learn how to respond to cyberbullying and recap the concept of upstanders and bystanders. To know about being a digital citizen and how to have safe practices for communicating. To know about targeted advertising and gender stereotyping online. To recap phishing, scams and catfishing. To recap how to respond to cyberbullying.