



Key Concepts: coding, communication, creativity, responsibility, problem solving

Reception Year

	Computer Science - problem solving - programming - logical thinking	Digital Literacy - using IT beyond the school - e-safety	Information Technology - creating content
Pre-school The children will have opportunities to:	*use storyphones and how to use them via function buttons *use the interactive whiteboard for a range of activities - Ten Town/Top Marks etc *use the Ipads for educational games such as CBeebies learning to turn them on, etc and completing a simple game *use remote control cars *use torches - to use switches *operate a CD player		
Reception Year The children will have opportunities to:	*play with Beebots and explore programming them to move from one point to another *use metal detectors to locate metallic objects hidden in the sand tray *use the interactive whiteboard for a range of purposes *use i-pads to access educational software such as Doodle Maths E-safety lesson: Smartie the Penguin *that the internet can be used to learn new things. *the importance of asking for help from an adult when using the internet.		

Year One

Children will be taught:	Computer Science - problem solving - programming - logical thinking	Digital Literacy - using IT beyond the school - e-safety	Information Technology - creating content
We are treasure hunters: use programmable toys - Beebots	*that algorithms are sequences of instructions in everyday contexts. *to take real-world problems and then plan a sequence of steps to solve these: giving directions to move a partner around the classroom, moving a Bee Bot from one point to another. *to create a Bee Bot program using a sequence of instructions before running it using the Go button.	Project Evolve Online Relationships: 2, 3 & 4 Online Bullying: 1 Self-image and Identity: 2 Online Reputation: 2	
We are storytellers: create an animation (Link with Let's Play – mapping work)		Project Evolve Health, Wellbeing and Lifestyle: 1 Managing Online Information: 3 Privacy and Security: 3	*to create original content using digital technology: make an animation of a journey.
We are TV chefs: film children evaluating their recipes on iPads (Link with keeping healthy PHSE)		*that IT is used for communication beyond school, for example, online recipe demonstrations (BBC smoothie demonstration) *that information stored on the web or transmitted via the internet is available to other people. E.g. that the images they find online can be found by others too, and that the queries they type in can be seen by those who run the search engine they use and the school's network.	*to create original content using digital technology: film each other evaluating their recipes.

Year Two

Children will be taught:	Computer Science - problem solving - programming - logical thinking	Digital Literacy - using IT beyond the school - e-safety	Information Technology - creating content
We are programmers: use Scratch Jnr on iPads and use of BBC Bitesize KS1	*that common sequences of instructions or sets of rules can be thought of as algorithms – milkshake recipe (video) and writing an algorithm to direct a friend across the classroom *to create programs on screen as sequences of instructions using ScratchJr. *to create a simple program on screen using ScrathJr with a goal or purpose in mind (examples include moving a car across the city, getting the sun and moon to rise...) *how to debug any errors in their code as they create their programs on ScratchJr	Project Evolve Self-image and Identity Privacy and Security	
We are Botanists: record plant hunt data (Link with The World Around Us)		*that there are a number of purposes for which IT is used beyond school, for example, that the web is made up of information shared by people and organisations; that scientists use computers when collecting and analysing data. *how to keep themselves safe when using digital technology. E.g. They should know to use filtered SafeSearch when looking for images on the web and that they should close the lid of a laptop (or similar action) if they find inappropriate images. They should know to respect others' rights, including privacy and intellectual property when using computers, so should not look at someone else's work or copy it without permission and acknowledgement. Project Evolve Online Relationships and Online Reputation Managing Online Info and Copyright Ownership	*to use a range of digital technologies to retrieve, organise and store digital content – ipads to photograph plants *to use questions to sort and classify objects. *to create and edit original content for a given purpose using digital technology – take, select and edit photographs of plants (link to science unit) and other items of interest to the children
We are games testers: explore how computer games work using Light Bot on iPads or Chromebooks	*to explain what a program will do under given circumstances based on logical reasoning. *to explain why a program does what it does. *that common sequences of instructions or sets	Project Evolve Health, Wellbeing and Lifestyle Online Bullying	

	of rules can be thought of as algorithms – children draw a monster and then direct a partner to draw it. *to create programs as sequences of instructions when programming on screen, using Light Bot (prepared sprites). *to debug any errors in their own code.		
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Year Three

Children will be taught:	Computer Science - problem solving - programming - logical thinking	Digital Literacy - using IT beyond the school - e-safety	Information Technology - creating content - searching
We are data collectors: collect data and use it to produce graphs and presentations (Link to animals and humans)	*to develop an outline plan for an online survey-based project.	*how to keep themselves safe when using digital technology. For example, If responding to online surveys, they should do so anonymously, thinking carefully about information they give out. *to recognise unacceptable behaviour when creating or completing online surveys. *how to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. Project Evolve Online Bullying and Online Relationships Health, Wellbeing and Self-image	*to use Google Slides and Google sheets on chromebooks with a degree of independence. *to plan and then write survey questions. *to collect survey results. *to plan and create a presentation about the survey results.
We are internet users: explore computer networks and how to communicate safely on the internet; use the internet for research (Link to Romans – research)	*that computer networks transmit information in a digital (binary) format. *that any information has to be converted to numbers before it can travel through computer networks. *that this conversion happens according to an agreed system or code. *that information is communicated through the internet in a binary code. *that email and video-conferencing also take place through transmitting binary information. *that email messages are sent and received through servers connected to the internet. *to use videoconferencing to communicate with another class in the school across the school's internal network	*to use video-conferencing as part of the class. *how to keep themselves safe when using digital technology. For example, they should show respect for others when filming and should not normally post videos online. They should treat links and attachments in emails with caution. *to recognise what would be unacceptable or inappropriate behaviour when using the internet, particularly email. *how to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. *to know how to post comments in an appropriate way (Google classroom) Project Evolve Managing Online Information Online Reputation	
We are programmers: use Hour of Code website for programming and for	Work through Hour of Code activities Extension - Scratch *to design and write a program using a block	*how to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they	

correcting bugs	language, without user interaction. *to investigate on-screen simulations of physical systems. *to create an on-screen program with a sequence of commands or blocks in an appropriate order. *to create a program that produces output on screen *to be able to explain a simple, sequence-based algorithm in their own words. *to identify errors in programs by reasoning logically about the program code.	can discuss any concerns they have with their teacher or other trusted adults in school. Project Evolve Privacy and Security Copyright and Ownership	
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Children will be taught:	Computer Science - problem solving - programming - logical thinking	Digital Literacy - using IT beyond the school - e-safety	Information Technology - creating content - searching
We are animators: make an animation with music using iPads, 'I Can Animate' and 'GarageBand' (Link to Vikings and Anglo-Saxons)		*to consider whether digital content is relevant for a given purpose or question. For example, selecting appropriate music for their animation. *the difference between acceptable and unacceptable behaviours when using digital technology for filming and the use of others' original content, such as music samples . *to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. *to report any concerns over, or inappropriate behaviour with, digital technology to their parents, their teacher or with another trusted adult. Project Evolve Self-image and Identity Online Relationships	*how to plan and execute a project in which they use software on an iPad to create an animation with sound with some degree of independence. *to use multiple programs on an iPad to record audio and use this in their animation.
We are programmers: use Hour of Code to develop coding skills and Scratch to apply skills	*to write a program for a game in Scratch in which the user has to provide some input by using key presses or the mouse. *to create a Scratch program to simulate a simple physical system – traffic lights. *to plan a project as part of a team, breaking the project down into a set of tasks. *to use sequence and repetition in their game created in Scratch, including sequences of commands or blocks and some repetition. Repetition will typically be for a fixed number of times, but might also include exit conditions (e.g. repeat...until...). *to write a program that accepts keyboard input and produces on-screen output. In Scratch write a program that displays a question, accepts typed input and responds in an appropriate way to	*to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. (Using Scratch online) Project Evolve Online Bullying	

	what is typed. *to use logical reasoning to identify and explain how an algorithm, using both sequence and repetition works. Repetition is likely to be 'forever' or for a set number of times, although end conditions (e.g. repeat...until...) could be used. *to identify and give reasons for errors that they find in programs using their knowledge of program code. *to correct errors using logical reasoning and explain how they have fixed them. *to confirm that they have fixed errors by testing the new version of their program.		
We are virtual architects: create a virtual representation using Sketchup (Link to Habitats)	*to use logical reasoning to detect errors in algorithms. *how take a complex problem (how create a 3D representation of landscapes/structures), identify component parts, use decomposition to break this problem down and then plan how they can solve the problem by working through the elements they have identified.	Project Evolve Health, Wellbeing and Lifestyle	*to create a 3D computer model *to create a virtual representation of an urban/rural landscape.

Year Five

Children will be taught:	Computer Science - problem solving - programming - logical thinking	Digital Literacy - using IT beyond the school - e-safety	Information Technology - creating content - searching
We are internet researchers and evaluators: research and evaluate information in order to produce an Ancient Egypt Google Slides presentation (Link to Early Islamic Civilisation)	*how data packets, including web pages, are routed from one computer to another on a separate network, which is also connected to the internet.	*to evaluate whether particular content, such as a web page, is reliable and whether it has been written from a neutral point of view, without bias. *about the importance of encrypted (HTTPS) connections when browsing the web and of using strong passwords to protect their identity online. *about the likely or possible consequences of particular behaviours when using digital technology to search for information, such as using cryptography and passwords. *to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. *that they can also report inappropriate behaviour to those running websites which they regularly use, and to ChildLine, CEOP or to the police. Project Evolve Self-image and Identity Online Reputation Online Relationships	*to evaluate the quality of information located (text, audio, images and video), looking for bias or questioning assumptions that have been made. BBC Bitesize – Should I trust everything I read on the web? *to use a common search engine effectively, to search for particular information on the web. *to use built-in search tools to filter their results, such as by time, location or reading level. *to use the above skills to be discerning in their selection of information for the content and format of their Ancient Egypt presentation *how to use features of Google Slides
We are designers: design and make a computer-controlled product (Link to DT – computer-controlled product)	*how a rule-based algorithm works and what it does so that they can explain it in their own words. (Revision to introduce unit.) *how to design, write, test and debug a program using a block language based on their own ideas using Lego WeDo. *to use simple computer control with products they make in design and technology, using Lego WeDo kits. *to plan a solution to a problem using decomposition. *to use sequence, selection and repetition in	Project Evolve Online Bullying Managing Online Information	

	programs. Repetition might include exit conditions (e.g. repeat...until...). Selection would normally be of an if...then or if...then...else type. *to combine repetition with selection. *to use logical reasoning to detect and explain errors in algorithms.		
We are web designers: make a web page Google Sites? (Link to WWII topic)	*how HTML is used to create a web page and how it is transmitted as packets of digital data over the internet. *how simple HTML tags (such as <h1> and <p>) are used for marking up a web page. *how take a complex problem (how to make a webpage), identify component parts, use decomposition to break this problem down and then plan how they can solve the problem by working through the elements they have identified. *to use sequence and repetition in the construction of the code for their webpage *to use logical reasoning to detect errors in algorithms.	*to work in collaboration with others to develop a shared web page and blog. *the importance of encrypted (HTTPS) connections when browsing the web and of using strong passwords to protect their identity online. *how to act responsibly when creating, editing or commenting on web pages or blog posts. *about the likely or possible consequences of particular behaviours when using digital technology to create web pages or write blog posts. Project Evolve - Privacy and Security - Copyright - Health, Wellbeing and Lifestyle	*to use multiple digital devices (chromebooks, ipads) to take photographs and films to be uploaded to their webpages. The devices will include web servers, allowing them to use cloud-based applications. *to evaluate the quality of information located (text, audio, images and video), looking for bias or questioning assumptions that have been made. BBC Bitesize – What makes a good webpage? *to summarise information for use in their own web page *to use a common search engine effectively, to search for particular information on the web. *to use built-in search tools to filter their results, such as by time, location or reading level.

Year Six

Children will be taught:	Computer Science - problem solving - programming - logical thinking	Digital Literacy - using IT beyond the school - e-safety	Information Technology - creating content - searching
We are app designers: research, design, make, market and pitch a mobile phone app. Market research using internet, make using PowerPoint, use Green Screen technology to make an advert, pitch in a 'Dragon's Den' scenario. (Link to PSHE social media topics and PSHE/maths money matters topic) Year-long project	*to design, write and debug a program using a second programming language based on their own ideas (block coding/javascript), using App Lab (Studio code website) *to keep a log, recording the bugs that they identified and how they fixed them. *to take a complex problem (design a smartphone app), identify component parts, use decomposition to break the problem down and then plan how they can solve the problem by working through the elements they have identified. *to use their plan to solve the original problem. *to use a combination of sequence, selection, repetition and variables in designing their smartphone app. (Sequences of commands or blocks, repetition, selection and variables. Repetition will include exit conditions (e.g. repeat...until...) and a counter-variable for iteration. Selection would normally be of an if...then or if...then...else type.) *to be able to describe what a given algorithm does and, using logical reasoning, give precise explanations of how it works. *how to detect and correct errors in a rule-based algorithm for a smartphone app, explaining through logical reasoning why there are errors and how to correct them.	*to evaluate, with justification, the effectiveness of a range of apps. They should take into account the intended audience and purpose of the content. *to work in collaboration with others to plan and carry out a project to design, make and market an app. *about the likely and potential consequences of their actions when developing a smartphone app. *the principles underpinning acceptable use of digital technologies, with a focus on smartphones *to report inappropriate behaviour when using technology in school to their teacher, the network manager or another trusted adult, and that they can discuss any concerns they have with their teacher or other trusted adults in school. *that they can also report inappropriate behaviour to those running websites which they regularly use, and to ChildLine, CEOP or to the police. Project Evolve Term 1 - Privacy and Security Term 2 - Online Bullying Term 3 - Health, Wellbeing, Lifestyle and Self-image Term 4 - Online Information Term 5 - Online Relationships, Reputation Term 6 - Copyright and Ownership	*to select, use and combine a range of media packages to market their app (PPT, ipads and Green Screen technology) *to design and create a smartphone app, taking into account input, output and connectivity, the operating system, the algorithms, code and user interface of their own program. *to analyse and evaluate data collected when conducting market research for their smartphone app. *to use a range of search engines appropriate to finding information about smartphone apps. This will include different search technologies, including alternatives to Google (such as Bing) and site-specific search engines (such as those for the App Store or Google Play).