

Digital Citizenship

- I can recognise some ways in which the internet can be used to communicate.
- I can identify rules that help keep us safe and healthy in and beyond the home when using technology

Digital Literacy

- I can name items we control in the everyday environment

Computer Science

- I know that an algorithm is a set of instruction that can solve a problem

Information Technology

- I can identify devices I could use to access information on the internet.
- I know that work I create belongs to me.
- I can name the parts of a computer and know what they are used for: Mouse, Monitor, Printer, Keyboard, DVD/CD Rom, USB

Knowledge Progression in Computing

National Curriculum	<ul style="list-style-type: none"> • Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs • Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. 		
Year 1	<p>We are mappers</p> <ul style="list-style-type: none"> • Know that a programmable toy can be controlled by inputting a sequence of instructions. • Know how to develop and record sequences of instructions as an algorithm. • Know how to debug their programs. • Predict how their programs will work. 	<p>We are TV chefs</p> <ul style="list-style-type: none"> • Know why they should break down a process into simple, clear steps, as in an algorithm. • Know the features of a video camera. • Know how to use a video camera to capture moving images. • Know how to develop collaboration skills. • Know how their work can be improved. 	<p>We are painters</p> <ul style="list-style-type: none"> • Know how to use the web safely to gather ideas for an illustration. • Know how to create and change images on the computer. • Know that ICT differs from using paint and paper. • Know how to save, retrieve and change their work. • Reflect on their work and act on feedback received.
	<p>We are collectors</p> <ul style="list-style-type: none"> • Know how to find and use pictures on the web. • Know what to do if they encounter pictures that cause concern. • Know how to group images on the basis of a binary (yes/no) question. • Know how to organise images into more than two groups according to clear rules. • Know how to ask and answer binary (yes/no) questions about their images. 	<p>We are storytellers</p> <ul style="list-style-type: none"> • Know that sound can be recorded using sound recording equipment to record sounds. • Know how to save and store sounds on the computer. • Know how to develop collaboration skills. • Know how a talking book differs from a paper-based book. • Talk about and reflect on their use of ICT • Share recordings with an audience. 	<p>We are celebrating</p> <ul style="list-style-type: none"> • Know basic keyboard skills, through typing and text. • Know basic mouse skills. • Know how to use the web to find and select • Begin to know about storing and retrieving files. • Begin to know about combining text and images. • Discuss their work and think about whether it could be improved.

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Year 2	<p>We are route planners</p> <ul style="list-style-type: none"> • Know that algorithms are sequences of instructions. • Know how to convert simple algorithms to programs. • Understand how to predict what a simple program will do. • Know how to spot and fix (debug) errors in their programs. 	<p>We are games testers</p> <ul style="list-style-type: none"> • Know how to describe carefully what happens in computer games. • Know how to use logical reasoning to make predictions of what a program will do. • Know how to test these • Know how to think critically about computer games and their use. • Know how to use games safely and in balance with other activities. 	<p>We are photographers</p> <ul style="list-style-type: none"> • Consider the technical and artistic merits of photographs. • Know how to use a digital camera or camera app. • Know how take digital photographs. • Know how to rate the images they take. • Know how to edit and enhance their photographs. • Know how to select their best images to include in a shared portfolio.
	<p>We are researchers</p> <ul style="list-style-type: none"> • Know how to research through searching for information on the internet. • Know about copyright when using information • Know how to select and insert an image into a presentation. • Know how to insert and manipulate text. • Develop presentation skills through creating and delivering a short multimedia presentation. 	<p>We are detectives</p> <ul style="list-style-type: none"> • Know that that email can be used to communicate. • Know how to open, compose and send emails. • Know how to open and listen to audio files on the computer. • Know the appropriate language in emails. • Know how to edit and format text in emails. • Be aware of online safety issues when using email. 	<p>We are botanists</p> <ul style="list-style-type: none"> • Know how to sort and classify a group of items by answering questions. • Know how to collect data using tick charts or tally charts • Know how to use simple charting software to produce pictograms and other basic charts. • Know how to take, edit and enhance photographs. • Know how to record information on a digital map.

National Curriculum	<ul style="list-style-type: none"> • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • use sequence, selection, and repetition in programs; work with variables and various forms of input and output • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 		
Year 3	<p>We are programmers</p> <ul style="list-style-type: none"> • Know how to create an algorithm for an animated scene in the form of a storyboard. • Know how to write a program in Scratch to create the animation. <p>Know how to correct mistakes in their</p> <ul style="list-style-type: none"> • animation programs. • Know about a significant person in computing – Ada Lovelace 	<p>We are bug fixers</p> <ul style="list-style-type: none"> • Begin to know a number of strategies for finding errors in programs. • Build up resilience and strategies for problem solving. • Increase their knowledge and understanding of Scratch. • Know a number of common types of bug in software 	<p>We are presenters</p> <ul style="list-style-type: none"> • Know how to shoot live video, using framing shots, holding the camera steady, and reviewing. • Know how to edit video, including adding narration and editing clips by setting in/out points • Know the qualities of effective video, such as the importance of narrative, consistency, perspective and scene length.
	<p>We are vloggers</p> <ul style="list-style-type: none"> • Know how to use a search engine to learn about a new topic. • Know how to plan, design and deliver an interesting and engaging presentation. • Know how to search for and evaluate online images. • Know how to create a video slide cast of a narrated presentation. • Begin to know how the search engines work. 	<p>We are communicators</p> <ul style="list-style-type: none"> • Know basics of how email works. • Know how to use email. • Be aware of broader issues surrounding email, including netiquette’ and online safety. • Work collaboratively with a remote partner. 	<p>We are opinion pollsters</p> <ul style="list-style-type: none"> • Know some elements of survey design. • Know some ethical and legal aspects of online data collection. • Know how to use the web to facilitate data collection. • Know how to use charts to analyse data. • Know how to interpret results.

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Year 4	<p>We are software developers</p> <ul style="list-style-type: none"> • Know how to develop an educational computer game using selection and repetition. • Understand and use variables. • Begin to know how to debug computer programs. • Know what is user interface design, including consideration of input and output. 	<p>We are toy designers</p> <ul style="list-style-type: none"> • Know how to design and make an on-screen prototype of a computer-controlled toy. • Know different forms of input and output (such as sensors, switches, motors, speakers). • Know how to design, write and debug the control and monitoring program for their toy. 	<p>We are musicians</p> <ul style="list-style-type: none"> • Know one or more programs to edit music. • Know how to create and develop a musical composition, refining their ideas through reflection and discussion. • Develop collaboration skills. • Begin to know how their composition can enhance work in other media.
	<p>We are HTML editors</p> <ul style="list-style-type: none"> • Know some technical aspects of how the internet makes the web possible. • Know what HTML tags are for elementary mark up. • Know how to code up a simple web page with useful content. • Know some of the risks in using the web. • Know about an important person in computing – Sir Tim Berners-Lee 	<p>We are co-authors</p> <ul style="list-style-type: none"> • Know the conventions for collaborative online work. • Know their responsibilities when editing other people’s work. • Know the potential problems with sites such as Wikipedia. • Know how to write for a target audience. • Develop collaboration skills. • Develop proofreading skills. 	<p>We are meteorologists</p> <ul style="list-style-type: none"> • Know different measurement techniques for weather, both analogue and digital. • Know how to use computer-based data logging to automate the recording of some weather data. • Know how to use spreadsheets to create charts • Know how to analyse data, explore inconsistencies in data and make predictions • Begin to know using presentation software and, optionally, video.

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Year 5	<p>We are game developers</p> <ul style="list-style-type: none"> • Know how to create original artwork and sound for a game. • Know how to design and create a computer program, which uses sequence, selection, repetition and variables. • Know how to detect and correct errors in their computer game. • Know how to make and test a series of small changes to improve their game. • Know about an important person in computing – Sophie Wilson 	<p>We are cryptographers</p> <ul style="list-style-type: none"> • Know semaphore and Morse code. • Know the need for private information to be encrypted. • Know how to encrypt and decrypt messages in simple ciphers. • Know why we use complex passwords and to keep them secure. • Begin to know some understanding of how encryption works on the web. 	<p>We are artists</p> <ul style="list-style-type: none"> • Know the links between geometry and art. • Know the tools and techniques of a vector graphics package. • Develop an understanding of turtle graphics. • Know computer-generated art, in particular fractal-based landscapes.
	<p>We are web developers</p> <ul style="list-style-type: none"> • Know what information is appropriate. • Know some elements of how search engines select and rank results. • Know issues in the plausibility and quality of information. • Know further issues of online safety and responsible use of technology. 	<p>We are bloggers</p> <ul style="list-style-type: none"> • Know what blogs are • Know how to create a sequence of blog posts on a theme. • Know how to incorporate additional media. • Know what is the right way to comment on the posts of others. • Develop a critical, reflective view of a range of media, including text. 	<p>We are architects</p> <ul style="list-style-type: none"> • Know the work of architects, designers and engineers working in 3D • Begin to know how to use a simple CAD computer aided design) tool. • Develop spatial awareness by exploring and experimenting with a 3D virtual environment. • Develop greater aesthetic awareness.

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	Year 6	<p>We are toy makers</p> <ul style="list-style-type: none"> • Know how computers use stored programs to connect input to output • Know how to generate and evaluate designs in response to a brief • Know how to plan a complex project by decomposing it into smaller parts • Know how to design and write a program for an embedded system • Know about an important person in computing – Alan Turing 	<p>We are computational thinkers</p> <ul style="list-style-type: none"> • Know how to write down the algorithms. • Know how to program, debug and refine the code. • Know how to use random, linear and binary search to play the ‘Guess my number’ game. • Know how to use Google Maps to find the shortest or fastest route between two places. •
	<p>We are connected</p> <ul style="list-style-type: none"> • Know about appropriate rules or guidelines for a civil online discussion. • Know how search results are selected and ranked • Know how to judge the reliability of an online source • Know some strategies for dealing with online bullying. 	<p>We are advertisers</p> <ul style="list-style-type: none"> • Know about an important person in computing – Banu Musa • Know about intellectual property rights • Know how to edit the assembled content to make an effective advert. • Know how to storyboard a film including different types of shot. 	<p>We are AI developers</p> <ul style="list-style-type: none"> • Know how decision trees can be trained automatically to classify data. • Know how speech recognition works. • Know how a neural net recognises images. • Know how to train a machine learning system to identify sentiments. • Know some ethical principles in designing AI systems.