Our Computing Adventure

Progression of Computing Knowledge and Skills

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Programming	Control simple everyday devices to make them produce different outcomes. Children know that an algorithm is a set of instructions used to solve a problem or achieve an objective. Know that an algorithm written for a computer is called a program.	Control a device, on and off screen, making predictions about the effect their programming will have. Children can show a growing awareness of the need for logical, programmable steps and the requirement to plan ahead.	Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen. Begin to identify and fix errors within a program.	Begin to understand more complex commands in programming. Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify.	Predict, test and refine their programming. Use control software to control devices (using output commands) or to simulate this on screen.	Design, build, test, evaluate and modify a program, ensuring that it is fit for purpose. Solve open-ended problems in a variety of programming languages.
Networks & the internet	Show awareness of the range of devices and tolls they encounter in everyday life.	Begin to understand how things are shared electronically. Show an awareness of a range of inputs to a computer (IWB, mouse touch screen, microphone, keyboard, etc.)	Begin to show discernment in their use of computing devices and tools for a particular purpose and explain why their choice was made.	Make choices about the devices and tools they use for specific purposes and explain them in relation to the context. Show an understanding of the school network and how it links computers to resources in school and beyond.	Begin to show an awareness of specific tools used in working life.	Understand how a computer works and know the component parts of a computer. Show an understanding of how filtering and monitoring tools affect their use of the school network and Internet and compare this with their experience of access outside school.
Text and Multimedia	Work with others and with support to contribute to a digital class resource which includes text, graphic and sound. Use a keyboard to type name and simple texts, changing the font, size and colour of the text.	Generate their own work (with help where appropriate with multimedia), combining text, graphics and sound. Save and retrieve and edit their work.	MS Powerpoint: record and present information integrating a range of appropriate media, combining text and graphics in printable form, and sound for on-screen presentations. Learn initial touch-typing skills.	MS Publisher: edit and manipulate font and media to create quality publications. Begin to show an awareness of the intended audience and seek feed-back.	MS Word: use advanced tools in word processing such as tabs, appropriate text formatting, line spacing, templates etc. appropriately to produce quality documents. Maintain MS Powerpoint & Publisher skills; insert hyperlinks and sound.	Multimedia work shows restrained use of effects that help to convey meaning rather than impress. Use full range of editing skills. Confident use of MS Word, Powerpoint and Publisher as well as other multimedia software.

				Maintain MS Powerpoint skills; develop touch-typing skills.		Design and create digital content that can be collaborated on and shared with a specific audience.
Digital Images (photos, paint, animation)	Use a range of simple tools in a paint package/ image manipulation software to create/ modify a picture.	Use a range of simple tools in a paint package/ image manipulation software to create/ modify a picture to communicate an idea. Create a simple animation to tell a story.	Manipulate digital images within multimedia using a range of tools in appropriate software.	Make a short film/ animation from images (still and/or moving) that they have sourced, captured or created.	Manipulate auto-shapes to create 2D or 3D graphical models to convey a specific mood or idea.	Use images that they have sourced/ captured/ manipulated as part of a bigger project (e.g. presentation or document)
Sound and Music (inc. sound recorders)	Choose suitable sounds from a bank to express their ideas. Record short speech.	Compose music from icons. Produce a simple presentation incorporating sounds the children have captured or created.	Use sounds within their presentations, either from a bank or ones which have been created.	Create a composition that contains a variety of sounds.	Use sounds within their publications/ presentations to convey a specific mood or idea.	Restrained use of sounds within publications/ presentations to help convey meaning rather than impress
Handling information (databases, graphs and data loggers)	As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness/ one to one correspondence.	Use a graphing package to collect organise and classify data, selecting appropriate tools to create a graph and answer questions. Enter information into a simple branching database, database or word processor and use it to answer questions.	Children create a simple branching database to enter and save information on a given subject. Sort and organise data into a graph; solve an investigation and present the results in graphic form. Begin to use a data logger to sense physical data (sound, light, temperature).	Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. Interpret the results and use these in their investigations. Talk about their experiences of using ICT to process data compared with other methods.	Children work as a class or group to create a data collection sheet and use it to set up a straight forward database to answer questions. Enter information and interrogate it (by searching, sorting, graphing, etc) Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered. Children are able to identify their own opportunities for data logging and carry out their own experiments. They check and question results and are able to spot trends in data and identify	Discuss the need for accuracy in data collection, as well as strategies for spotting implausible data. Children should be able to talk about issues relating to data protection and the need for data security in the world at large (e.g. health, police databases) Link to Science: Create own branching databases, graphs and other data tables to organise and sort information.

					when problems may have occurred.	
Modelling and simulations (spreadsheets, simulations)	Make simple choices to control a simple simulation programme.	Children are able to play an adventure game and use a simple simulation, making choices and observing the results.	Use models and simulations to find things out and solve problems. Recognise that simulations are useful in widening experience beyond the classroom.		Set up and use a spreadsheet to model to explore patterns and relationships. Make predictions. Know how to enter simple formulae to assist this process. Make simple use of a spreadsheet to store data and produce graphs.	Set up and use their own spreadsheet, which contains formulae to investigate mathematical models. Ask 'what if...' questions and change variable in their model. Understand the need for accuracy when creating formulae and check regularly for mistakes, by questioning results. Relate their use of spreadsheets to model situations to the wider world.
Understanding Technologies	Show an awareness that what they create on a computer or tablet device can be shown to other via another device (e.g. printer, projector, iPad mirroring). Understand what is meant by technology and identify a variety of examples both in and out of school.	Begin to show an awareness that computers can be linked to share resources. Use websites and demonstrate an awareness of how to manage their journey around them (e.g. using the back/forward button, hyperlinks). Develop an understanding of using email.	Show an awareness of where passwords are critical in everyday use (e.g. parents accessing bank details) Show an awareness that not all the resources/tools they use are resident on the device that they are using. Learn how to use email safely and understand the importance of staying safe.	Make choices about the devices and tools they use for specific purposes and explain them in relation to the context. Begin to show an awareness of specific tools used in working life. Begin to show an understanding of URLs.	Show an understanding of the school network and how it links computers to resources in school and beyond. Compare this with other networks they may encounter at home or in the wider world (e.g. banks).	Evaluate the tools available to them including any that are unfamiliar or new and use them to solve problems. Demonstrate an awareness of the appropriateness of outcomes depending on choices regarding tools and devices.
Research and E-safety	As a class exercise, children explore information from a variety of sources (electronic, paper based, observations of the world around them, etc.). They show an awareness of different forms of information.	Children use a search engine to find specific relevant information to use in a presentation for a topic. They save and retrieve their work.	Using another curriculum area as a starting point, children ask their own questions then use ICT sources to find answers, making use of search engines, an index, menu, hyperlinks as appropriate.	Show an understanding that not all information on the internet is accurate. Develop a growing awareness of how to stay safe when using the internet (in school and at home) and that they	Perform a search using different search engines and check the results against each other, explaining why they might be different. Make use of copy and paste, beginning to understand the	Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic.

	Undertake simple searches on the internet. Understand the importance of keeping information safe.	Know the implications of inappropriate online searches, showing an emerging understanding of internet safety.	Begin to understand the need to abide by school e-safety rules.	abide by the school's internet safety policy.	purpose of copyright regulations and the need to repurpose information for a particular audience. Search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. Understand how to stay safe when using the internet and other communication devices. Know why they must abide by the school e-safety rules.	Use appropriate methods to validate information and check for bias and accuracy. Demonstrate the safe and respectful use of a range of different technologies and online services. Explain why they must abide by the school e-safety rules.