

Skills Progression in Computing

	KS1	LKS2	UKS2
Computer science	Explain 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 Design simple programs, showing an awareness of the need to be precise with their algorithms so that they can be successfully converted into code Work out what is wrong with a simple algorithm when the steps are out of order and write a simple algorithm Know that an unexpected outcome is due to the code they have created and make logical attempts to fix the code When looking at a program, read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program Identify the parts of a program that respond to specific events and initiate specific actions	Turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts, showing they are thinking of the desired task and how this translates into code Identify an error within their program that prevents it following the desired algorithm and then fix it, making more intuitive attempts as they progress Experiment with timers to achieve repetition effects in their programs and begin to understand the difference in the effects between a timer command and a repeat command. Eventually become more logical when integrating timers in program designs Understand how variables can be used to store information while a program is executing and use and manipulate the value of variables Understand 'if statements' for selection and attempt to combine these with other coding structures Use user inputs and outputs such as 'print to screen' Show through their designs that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures Trace code and use step-through methods to predict outcomes and identify errors in code, making logical attempts to correct these List a range of ways that the internet can be used to provide different methods of communication and use some of them, e.g. open, respond to and attach	Attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts Test and debug programs as they go and use logical methods to identify the approximate cause of any bugs, eventually demonstrating a systematic approach to try to identify a particular line of code causing a problem Turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs Translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions Begin to think about code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables Understand the value of computer networks and be aware of the main dangers Recognise what personal information is and can explain how this can be kept safe

		files to emails. Understand the online safety implications associated with these methods Recognise the main component parts of hardware which allow computers to join and form a network	Select the most appropriate form of online communications contingent on audience and digital content Understand and explain in some depth the difference between the internet and the World Wide Web; know what a WAN and LAN are and describe how they access the internet in school
Information technology	Sort, collate, edit and store simple digital content, e.g. name, save and retrieve work and follow simple instructions to access online resources or use Purple Mash programs Demonstrate an ability to organise data using a database such and retrieve specific data for conducting simple searches Edit more complex digital data such as music compositions Use a range of media in their digital content including photos, text and sound	Carry out simple searches to retrieve digital content, understanding that to do this, they are connecting to the internet and using a search engine Understand the function, features and layout of a search engine and appraise selected webpages for credibility and information at a basic level Collect, analyse, evaluate and present data and information using a selection of software, considering what software is most appropriate for a given task Use a range of software to create purposeful content to attach to emails or to share within their digital community	Search with greater complexity for digital content when using a search engine and explain in some detail how credible a webpage is and the information it contains Readily apply filters when searching for digital content Compare a range of digital content sources and rate them in terms of content quality and accuracy Use critical thinking skills in everyday use of online communication Make appropriate improvements to digital solutions based on feedback received and confidently comment on the success of the solution Collaboratively create content and solutions using digital features within software such as collaborative mode Make clear connections to the audience when designing and creating digital content including blogs Use criteria to evaluate the quality of digital solutions and identify improvements, making some refinements

Digital literacy	Understand what is meant by technology and identify a variety of examples both in and out of school Make a distinction between objects that use modern technology and those that do not e.g. microwave vs. a chair Effectively retrieve relevant, purposeful digital content using a search engine Make links between technology they see around them and the coding and multimedia work they do in school Understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons Take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash. Know the implications of inappropriate online searches Begin to understand how things are shared electronically such as posting work to the Purple Mash display board Develop an understanding of using email safely by using and know ways of reporting inappropriate behaviours and content to a trusted adult	Demonstrate the importance of having a secure password and not sharing this with anyone else. Explain the negative implications of failure to keep passwords safe and secure Understand the importance of staying safe and the importance of their conduct when using familiar communication tools Know more than one way to report unacceptable content and contact Help others to understand the importance of online safety	Have a secure knowledge of common online safety rules and apply these by demonstrating the safe and respectful use of a few different technologies and online services Implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others Identify more discreet inappropriate behaviours through developing critical thinking Recognise the value in preserving their privacy when online for their own and other people's safety
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