

COMPUTING: Key Skills, Knowledge and Concepts

Year 1



Pupils can name a range of digital devices in the home and at school. They can explain what the basic parts of a computer are used for, e.g. mouse, screen, and keyboard. They use a mouse, touchscreen or appropriate access device to target and select options on screen and input simple text.



Pupils can apply simple edits to digital content to achieve a particular effect, e.g. change the size of text for emphasis. They combine media with support to present information, e.g. they choose images to accompany text from a selection.



Pupils can recognise charts and tables, and understand why we use them. Pupils can independently collect data and present it using text and images. They explain information shown in a simple chart, pictogram or infographic.



Pupils understand what an algorithm is and they understand that the order of instructions is important. They understand that computers have no intelligence and we have to program them to do things. Pupils can create a simple algorithm and program e.g. to control a floor robot. They can debug an error in and predict the outcome of a simple program or algorithm.



Pupils recognise what is personal information and understand the need to keep it private. They know who to tell if concerned about content or contact online. They use a simple password when logging on. They understand that digital images belong to the person that created them.

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Year 2



Pupils recognise and use a range of input and output devices, e.g. mouse, keyboard, microphone / printer, speakers, monitor. They recognise that a range of devices contain computers, e.g. washing machine, car, laptop. They know where to save and open work at school. Pupils understand that we can find out information online using a search engine.



Pupils plan out digital content, and present ideas and information by combining media independently. They talk about what makes digital content good or bad and make simple edits to improve content.



Pupils understand that the questions you ask when collecting data are important. They can evaluate a given branching database or chart and suggest improvements. Pupils start to explain how different formats e.g. text, images, audio, communicate information and their benefits.



Pupils understand that the instructions need to be clear and unambiguous in an algorithm. They can evaluate the success of an algorithm or program, and identify and correct errors (debugging).



Pupils remember a username and password for logging on, and understand why this is important. They understand that all devices, programs, websites, apps and games are designed and manufactured by real people to fulfil specific tasks. They understand what makes a good online friend and the need to be kind and thoughtful online as in the real world. Pupils understand that the digital content we make belongs to us and others need to ask permission to use it. They understand that our personal information belongs to us and why we shouldn't share it with everybody.

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Year 3



Pupils can open and save a file to an appropriate folder, and use suitable file names when saving work. They understand that school computers can be connected and they may use a shared area for saving work. Pupils use a search engine to find information using simple searches.



Pupils use a variety of software to combine media in order to present information. They evaluate existing and their own digital content and edit content to improve it according to feedback. They design and create digital content for a specific purpose.



Pupils understand the benefits of using a computer to create charts and databases. They can design a questionnaire and collect a range of data, enter data into a database package and test. Pupils draw conclusions from information stored in a database.



Pupils use repetition to make programs more efficient using count controlled loops. They start to use forever loops in programs. They use diagrams or computing vocabulary to write algorithms, and can evaluate the effectiveness of their algorithm by testing it using an appropriate program. Pupils understand that we can decompose a problem into smaller steps to make it simpler. They can predict the outcome of a block-based program, and can remix and change an existing program.



Pupils understand that people can give permission for others to use their content e.g. using Creative Commons. They know different ways of reporting unacceptable content and contact online. They understand when to share personal information and when not to.

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Year 4



Pupils understand that you can organise files using folders, and can delete, move and copy files. They type using all fingers. They use right-click, left-click and double-click appropriately on a mouse. Pupils use a search engine to find specific information, and know how to copy text and images from a web page into a document.



Pupils collect, organise and present information effectively using a range of media. They design and create digital content for a specific purpose. They use a range of tools to edit and enhance media for a particular effect.



Pupils understand that school computers are connected together in a network. They understand that we use a web browser to access information stored on the Internet and can explain simply how the Internet works. Pupils can present data in a number of different ways to convey information.



Pupils can create a program using a range of events/inputs to control what happens. They understand and use selection in algorithms and programs, i.e. *if... then...*, and can combine with forever loops to make something happen in a program when a condition is met. They can plan out a program, decomposing the problem and creating an algorithm or design for each part.



Pupils remember an individual password. They understand that the media can portray groups of people differently. They can age rate a game or film they have made and explain their rating. They are aware that some people lie about who they are online, and recognise the benefits and risks of different apps and websites. Pupils understand that when we share content online, we might not be able to delete it.

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Year 5



Pupils use the keyboard confidently to type at a suitable pace, and can use common keyboard shortcuts, e.g. Ctrl + C (copy); Ctrl + V (paste). They organise their files using folders and appropriate file names.



Pupils identify and use appropriate hardware and software to fulfil a specific task. They remix and edit a range of existing and their own media to create content. They recognise the audience when designing and creating digital content, and the benefits of using technology to collaborate with others. They are aware of a range of Internet services, e.g. email, VOIP, World Wide Web, and what they do.



Pupils understand the difference between physical, mobile and wireless networks. They can explain the difference between the World Wide Web and the Internet. They understand the basics of how search engines work, and that different search engines may give different results. Pupils perform complex searches for information using advanced settings in search engines.



Pupils predict what will happen in a program or algorithm (e.g. change of output) when the input changes (e.g. sensor, data or event). They create programs including repeat until loops and recognise variables in a program. Pupils create simple variables, e.g. to keep score or remove lives in a game and use *if... then... and if... then... else...* selection in their programs. They understand the importance of planning out programs, together with the testing and evaluation of the code as the project develops.



Pupils create and use a strong password where appropriate. Pupils demonstrate responsible use of online services and technologies, and know a range of ways to report concerns. They critically evaluate websites for reliability of information and authenticity. Pupils know where to find copyright free images and audio, and why this is important. They become increasingly savvy online consumers: know that algorithms are used to track online activities with a view to targeting advertising and information

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Year 6



Pupils understand that different devices can have different operating systems, and can give examples, e.g. Windows, iOS, Android. They understand the main functions of an operating system (i.e. it determines the look and feel of the interface, the programs that run on the computer, and manages the hardware connected to it). They use more advanced searching techniques when using a search engine.



Pupils identify success criteria for creating digital content for a given purpose and audience. They evaluate their own content against success criteria and make improvements accordingly. They recognise common file types and extensions



Pupils understand what a spreadsheet is and what it is used for. They can collect, organise and present data independently in a spreadsheet. They produce graphs from data in a spreadsheet and evaluate the information shown. Pupils understand that there are different tools for analysing data. They recognise that poor quality data leads to unreliable results.



Pupils understand the difference between and use *if... then... and if... then... else...* statements effectively. They can combine a variable with relational operators ($< = >$) to determine when a program changes. Pupils can design a physical computing system that uses sensors.



Pupils can explain why films have certain ratings. They are responsible and critical users of the internet, with a good understanding of the risks and benefits of going online.