

# MCA Computing Assessment Framework

MCA Steps		Algorithms and Sequencing	Programming & Development	Data & Data Representation	Hardware & Processing	Online communication & Networks	Digital Literacy	Design, planning and documenting
0	0.3	Learners know that algorithm have steps	Learners know what a program is	Learners know what digital content means	Learners know what computer is.	Learners know what the world wide web is	Learners know how to use input and output devices such as mouse and keyboard	
	0.5	Learner know what an algorithm is and can express simple algorithms using symbols.	Learner know that users can write their own programs.	Learner know that digital content can be represented in many forms.	Learner know that computers have no intelligence and that computers can do nothing unless a program is run.	Learners can find content from the world wide web using a web browser.	Learners use software under the control of the teacher to create, store and edit digital content using appropriate file and folder names.	Learners demonstrate an understanding of what is required from a piece of work for a set task or identified audience.
	0.7	Learner know that computers need precise instructions.	Learner create a simple program.	Learner know the difference between some of these digital forms and can explain the different ways that they communicate information.	Learner know that all software executed on digital devices is programmed.	Learners know the importance of communicating safely and respectfully online, and the need for keeping personal information private.	Learner will know that people interact with computers.	Learner will be able to record some aspect of the process they undertook to create a digital artefact.
1	1.3	Learner show care and precision to avoid errors	Learners will run, check and change programs.			Learner will know what to do when concerned about content or being contacted.	Learner will share their use of technology in school. Learner will know common uses of information technology beyond the classroom.	Learner will identify some successes or improvements for a digital artefact of their creation.
			Learner will know that programs run by following precise instructions.				Learner will talk about their work and make changes to improve it.	
	1.5	Learners know that algorithms are implemented on digital devices as programs.	Learners use arithmetic operators, if statements, and loops, within programs.	Learners know different types of data: text, number.	Learners know that a range of digital devices can be considered a computer.	Learners navigate the web and can carry out simple web searches to collect digital content.  Learner can identify and explain a variety of HTML tags	Learners use technology with increasing independence to purposefully organise digital content.	
1.7	Learners design simple algorithms using loops, and selection i.e. if statements.	Learner will use logical reasoning to predict the behaviour of programs.	Learners will know that programs can work with different types of data.	Learner know and can use a range of input and output devices.	Learner will show use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online.	I can show an awareness for the quality of digital content collected.		

2	2.3	Learner use logical reasoning to predict outcomes.	Learner will find and correct simple semantic errors i.e. debugging, in programs.	Learners know that data can be structured in tables to make it useful.	Learner know how programs specify the function of a general purpose computer.	Learner can use of a variety of HTML tags to structure a HTML web page	Learner will use a variety of software to manipulate and present digital content: and information.	
	2.5	Learner will find and correct errors i.e. debugging, in algorithms.					Learner will share their experiences of technology in school and beyond the classroom.	
	2.7	Learner will designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else.	Learner will create programs that implement algorithms to achieve given goals.	Learner will know the difference between data and information.	Learner know that computers collect data from various input devices, including sensors and application software.	Learner will know the difference between the internet and internet service e.g. world wide web.  Learners can name the major Acts concerning computer use	Learner will collect, organise and present data and information in digital content.	
3	3.3	Learners will can use diagrams to express solutions.	Learners will declare and assign variables.	Learners will know why sorting data in a flat file can improve searching for information.	Learners will know the difference between hardware and application software, and their roles within a computer system.	Learners will show an awareness of, and can use a range of internet services e.g. VOIP.  Learners can Describe in detail some of the dangers of putting personal data on social networking sites	Learners will create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. blogging.	
	3.5	Learners will use logical reasoning to predict outputs, showing an awareness of inputs.	Learners will I can use post-tested loops e.g. 'until', and a sequence of selection statements in programs, including an if, then and else statement.	Learners will use filters or can perform single criteria searches for information.		Learners will know what is acceptable and unacceptable behaviour when using technologies and online services.	Learners will make appropriate improvements to solutions based on feedback received, and can comment on the success the solution.	
	3.7	Learners will show an awareness of tasks best completed by humans or computers.	Learners will know the difference between, and appropriately I can use if and if, then and else statements.	Learners will perform more complex searches for information e.g. using Boolean and relational operators.	Learners will know why and when computers are used.	Learners will know how to effectively use search engines, and I know how search results are selected, including that search engines use 'web crawler programs'.	Learners will make judgements about digital content when evaluating and repurposing it for a given audience.	

4	4.3	Learners will designs solutions by decomposing a problem and creates a sub-solution for each of these parts (decomposition).	Learners will use a variable and relational operators within a loop to govern termination.	Learners will analyses and evaluates data and information, and I know that poor quality data leads to unreliable results, and inaccurate conclusions.	Learners will know the main functions of the operating system.	Learners will selects, combines and I can use internet services.	Learners will know the audience when I am designing and creating digital content.	
	4.5	Learners will know that different solutions exist for the same problem.	Learners will design, write and debug modular programs using procedures.	Learners will know that a procedure can be used to hide the detail with sub-solution (procedural abstraction).	Learners will know the difference between physical, wireless and mobile networks.	Learners will show responsible use of technologies and online services, and I know a range of ways to report concerns.	Learners will know the potential of information technology for collaboration when computers are networked.	
			Learners can list some of the Health and Safety hazards associated with computer use				Learners will use criteria to evaluate the quality of solutions and can identify improvements making some refinements to the solution, and future solutions.	
4.7	Learners know that iteration is the repetition of a process such as a loop.	Learners know that programming bridges the gap between algorithmic solutions and computers.	Learners know that digital computers use binary to represent all data.	Learners know the function of the main internal parts of basic computer architecture.	Learners is know how search engines rank search results.	Learners is evaluate the appropriateness of digital devices, internet services and application software to achieve given goals.	Learner is able to analyse a project brief or scenario to identify key stakeholders, their needs and requirements documenting this in an appropriate format.	
5	5.3	Learners know that different algorithms exist for the same problem.	Learners have practical experience of a high-level textual language, including using standard libraries when programming.	Learners know how bit patterns represent numbers and images.	Learners know the concepts behind the fetch-execute cycle.	Learners know how to construct static web pages using HTML and CSS.	Learners can recognise ethical issues surrounding the application of information technology beyond school.	Learner is able to plan and document a solution for said brief using a number of planning/design tools and methods.
	5.5	Learners can represent solutions using a structured notation.	Learners can use a range of operators and expressions e.g. Boolean, and applies them in the context of program control.	Learners know that computers transfer data in binary.	Learners know that there is a range of operating systems and application software for the same hardware.	Learners know data transmission between digital computers over networks, including the internet i.e. IP addresses and packet switching.	Learners can design criteria to critically evaluate the quality of solutions, I can use the criteria to identify improvements and can make appropriate refinements to the solution.	Learner is able to implement a planned solution using a number of software tools and digital skills with ongoing testing and documentation of the process.
	5.7	Learners can identify similarities and differences in situations and can use these to solve problems (pattern recognition).	Learners can select the appropriate data types.	Learners know the relationship between binary and file size (uncompressed). Learners can define data types: real numbers and Boolean.				Learner is able to test and evaluate an implemented solution for functionality and appropriateness towards stakeholder needs.

			Learners can query data on one table using a typical query language.					
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