Assessment Ladder - Computer Science & ICT

Level	Computational Thinking	Computer Systems	Digital Literacy
P1	I know what an algorithm is. I know that users can write their own programs. I can create a simple program. I can look at a problem and identify parts that are appropriate for a computer-based solution	I have little understanding of the purpose of a small range of computer applications. I show a limited knowledge of the characteristics of hardware, software, and communications devices.	I can identify the audience when I am designing and creating digital content and have shown an awareness that different audiences have different requirements. I can navigate the web and can carry out simple web searches to collect digital content.
P2	I know that computers need precise instructions. I am starting to show an understanding for the need for accuracy in programs. I can design a simple solution, and document it to a limited extent	I show a limited understanding of the risks of computer use including ethical, social, economic and legal issues.	I can recognise ethical issues surrounding the application of information technology beyond school. I can use pre-determined criteria to evaluate the quality of solutions and can identify improvements making some refinements to the solution, and future solutions. Be able to use technology with increasing independence to purposefully organise digital content. Show an awareness for the quality of digital content collected. Be able to use a variety of software to manipulate and present digital content and information.
P3	I can recognise basic key components of an algorithm. I can choose hardware and software with which to solve a problem	I have little understanding of the need to organise data and process it to solve problems using computers.	I know the potential of information technology for collaboration when computers are networked. I can evaluate the appropriateness of digital devices, internet services and application software to achieve given goals.
P4	I can declare, assign and call variables. I can show some understanding of the need to use a step-by-step approach when developing solutions to problems.	I have a limited knowledge of techniques used to create solutions. I understand that there are different programming languages and can give examples.	I can show use of computers safely and responsibly, knowing a range of ways to report unacceptable content and contact when online. I can talk about my work and make improvements to solutions based on feedback received.

P5	I can use arithmetic operators, if statements, and loops, within programs. I understand the difference between = and == I can look at a fairly straightforward problem and identify the parts that are appropriate for a computer-based solution	I have a basic understanding of the purpose and characteristics of some computing applications. I have a basic knowledge of characteristics of a range of hardware, software, and communication components of computer systems.	Be able to collect, organise and present "data" and "information" in digital content. Be able to select an appropriate software package to achieve a given goal.
P6	I can use post-tested loops e.g. 'until', and a sequence of selection statements in programs, including an if, then and else statement. I can design a workable solution and document it to some extent	I have some understanding of the risks of current uses of computing, including a range of economic, social, legal, and ethical issues.	I can select, combine and use internet services. Be able to create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. blogging. Be able to make appropriate improvements to solutions based on feedback received, and comment on the success the solution.
P7	I know the difference between, and can appropriately use if and if, then and else statements. I can use a variable and relational operators within a loop to govern termination. I can choose and justify some appropriate hardware and software with which to solve a problem,	I understand the need to organise data appropriately and process it in order to solve problems using computers.	Be able to make judgements about digital content when evaluating and repurposing it for a given audience. Know the audience when designing and creating digital content.
P8	I understand the need to adopt a systematic approach when developing solutions to problems.	I have basic knowledge of appropriate techniques to implement solutions, including the use of a programming language.	I can show responsible use of technologies and online services. Know the potential of information technology for collaboration when computers are networked.

1	I can analyse a complex problem and identify the parts that are appropriate for a computer-based solution	I have a good understanding of the purpose and characteristics of a range of computing applications. I can demonstrate knowledge of the characteristics of the main hardware, software and communication components of computer systems and can compare alternatives	Be able to use criteria to evaluate the quality of solutions, identify improvements and make some refinements to the solution, and future solutions.
2	I can design an effective solution and document it appropriately	I can demonstrate a critical understanding of the consequences of current uses of computing, including economic, social, legal and ethical issues.	To be able to evaluate the trustworthiness of digital content and consider the usability of visual design features when designing and creating digital artefacts for a known audience.
3	I can choose and justify appropriate hardware and software with which to solve a problem, including the use of a programming language	I understand the need to organise data appropriately and process it efficiently and accurately in order to solve problems using computers and am able to interpret the results.	Be able to justify the choice of and independently combine and use multiple digital devices, internet services and application software to achieve given goals.
4	I understand the need to adopt a systematic approach when developing good quality solutions to problems	I show knowledge of appropriate techniques to implement solutions, including the use of different programming languages.	To be able to design criteria for users to evaluate the quality of solutions, be able to use the feedback from users to identify improvements and can make appropriate refinements to the solution.To be able to identify and explain how the use of technology can impact on society.
5	I can work out the user and information requirements of a system to solve a problem	I demonstrate a thorough understanding of the purpose and characteristics of a wide range of computing applications. I have an extensive knowledge of the characteristics of a wide range of hardware, software and communication components of computer systems and how they work	To be able to undertake creative projects that collect, analyse, and evaluate data to meet the needs of a known user group. To be able to effectively design and create digital artefacts for a wider or remote audience.

6	I can select and use appropriate techniques to develop an effective solution with suitable data structures and algorithms	I have an in-depth understanding of the consequences of current uses of computing, including a wide range of economic, social, legal and ethical issues and can identify the appropriate legislation currently in use.	To be able to consider the properties of media when importing them into digital artefacts. To be able to document user feedback, the improvements identified and the refinements made to the solution.
7	I can implement an efficient solution, testing and documenting it thoroughly	I have a thorough understanding of the need to organise data appropriately and process it efficiently and accurately in order to solve problems using computers and justify reasons for my choices.	To be able to explain and justify how the use of technology impacts on society, from the perspective of social, economical, political legal, ethical and moral issues.
8/9	I can demonstrate a thorough understanding of the need to adopt a systematic approach when developing high quality solutions to problems	I can show an extensive knowledge of appropriate techniques to implement solutions, including the advanced use of various programming languages and interfaces.	Understand the ethical issues surrounding the application of information technology. Know about the existence of legal frameworks governing its use e.g. Data Protection Act, Computer Misuse Act, Copyright etc.