



The landscape for computing and ICT

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Are we introducing the curriculum or are we now embedding the curriculum?



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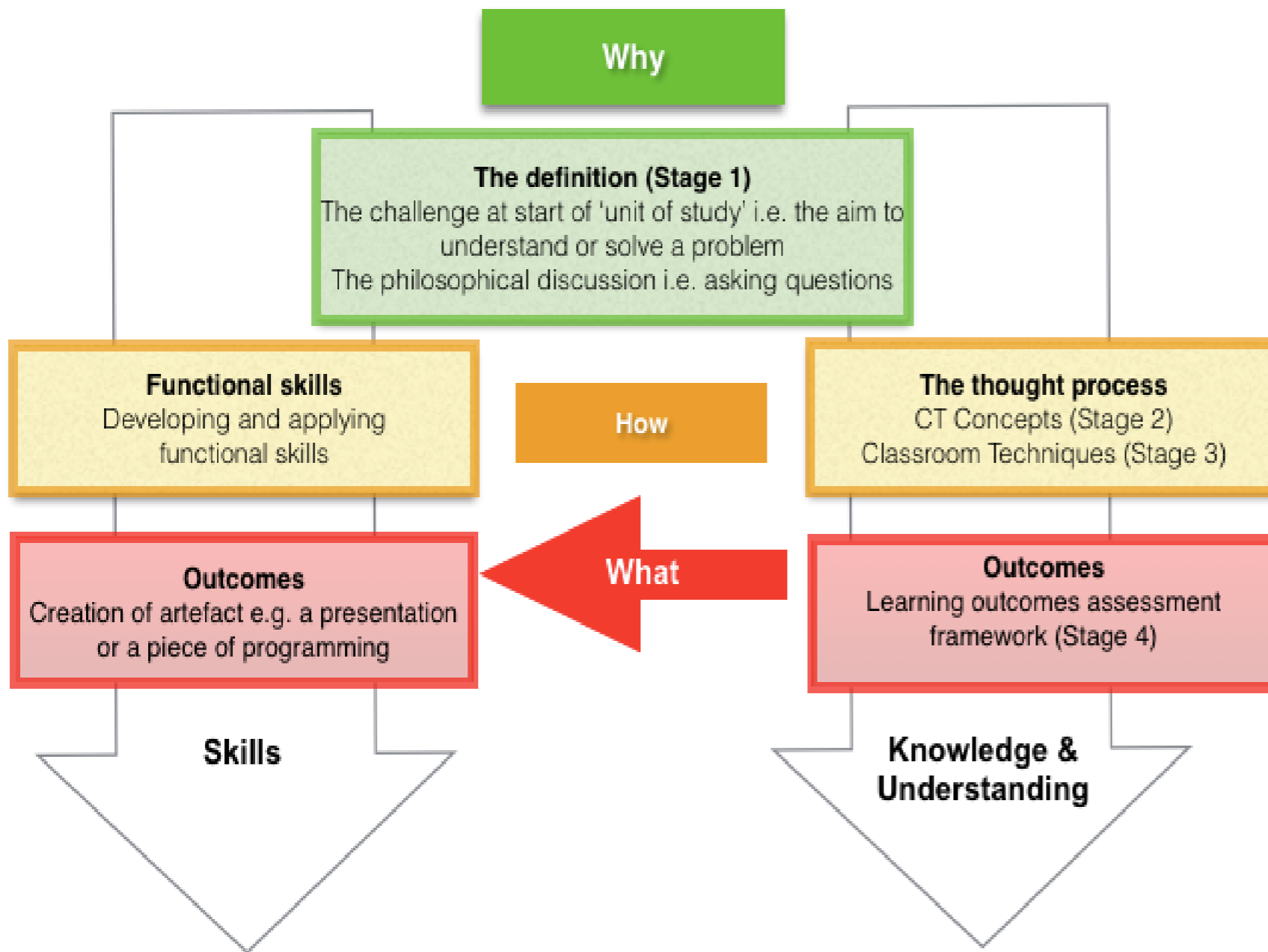
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Pupil Progression	Algorithms	Information Technology
↓	Understands what an algorithm is and how to express simple linear (non-branching) algorithms symbolically. Understands that computers need precise instruction. Demonstrates care and precision to avoid errors.	Uses ICT to create applications that perform tasks beyond and above what is possible with traditional work.
↓	Understands that algorithms are implemented on digital devices as programs. Designs algorithms using loops, and selection (if) statements. Uses logical reasoning to predict outcomes. Detects and corrects errors (debugging) in algorithms.	Uses ICT to manipulate and present digital content, data and information. Shares their experiences of technology in school and beyond the classroom. Talks about their work and makes improvements to solutions based on feedback received.
↓	Designs solutions (algorithms) that use repetition and two-way selection (i.e. if, then, else). Uses diagrams to express solution logical reasoning to predict outputs, show an awareness of inputs.	Collects, organises and presents data and information in digital content. Creates digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience (e.g. blogging). Makes appropriate improvements to solutions based on feedback received, and can comment on the success of the solution.
↓	Shows an awareness of tasks best completed by humans or computers. Designs solutions by decomposing a problem and creates a sub-solution for each of these parts (decomposition). Recognises that different solutions exist for the same problem.	Makes judgements about digital content when evaluating and repurposing it for a given audience. Recognises the audience when designing and creating digital content. Understands the potential of information technology for collaboration when computers are networked. Uses criteria to evaluate the quality of solutions, can identify improvements making some refinements to the solution, and future solutions.
↓	Understands that different problems (representing different solve) can be solved using the same algorithm.	Evaluates the appropriateness of digital devices, internet services and application software to achieve given goals. Recognises ethical issues surrounding the application of information technology beyond school. Designs criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution.
↓	Understands that some problems share the same characteristics and use the same algorithm to solve them (generalisation). Understands the notional performance for algorithms and appreciates that some algorithms have different performance characteristics for the same problem.	Justifies the choice of and independently combines and uses multiple digital devices, internet services and application software to achieve given goals. Evaluates the trustworthiness of digital content and considers the usability of visual design features when designing and creating digital artefacts for a known audience. Identifies and explains how the use of technology can impact on society. Designs criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution.
↓	Recognises that the design of an algorithm is distinct from its expression in a programming language (which will depend on the programming constructs available). Evaluates the effectiveness of algorithms and methods for similar problems. Recognises when information can be filtered out in general problem solutions (abstraction). Uses logical reasoning to explain how an algorithm works. Represents algorithms using structured language.	Undertakes creative projects that collect, analyse, and evaluate data to meet the needs of a known user group. Effectively designs and creates digital artefacts for a wider or remote audience. Considers the properties of media when importing them into digital artefacts. Documents user feedback, the improvements identified and the refinements made to the solution. Explains and justifies how the use of technology impacts on society, from the perspective of social, economical, political, legal, ethical and moral issues.
↓	Designs a solution to a problem that can be broken down into smaller instances of the problem (recursion). Understands that some problems cannot be solved computationally.	Understands the ethical issues surrounding the application of information technology, and the existence of legal frameworks governing its use (e.g. Data Protection Act, Computer Misuse Act, Copyright etc).
↓	Understands the difference between 'While' loop and 'For' loop, which uses a loop counter. Understands and uses two dimensional data structures.	
↓	Understands the need for data compression, and performs simple compression methods. Knows what a relational database is, and understands the benefits of storing data in multiple tables.	
↓		Understands Moore's Law. Understands and can explain multitasking by computers.
↓		Understands how to work, including MAC addresses.





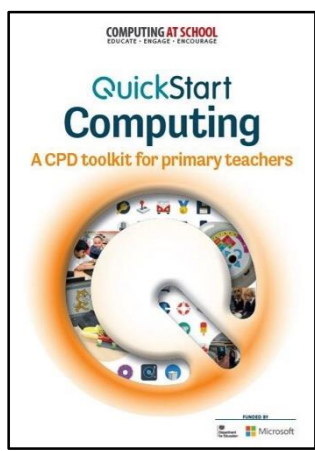




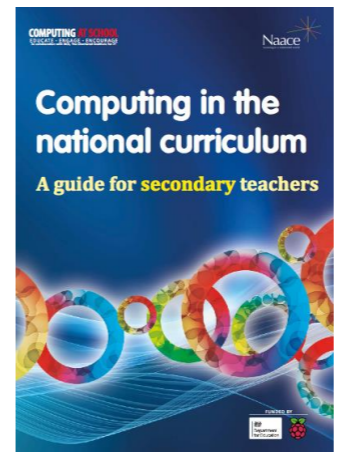
 NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

 **Barefoot Computing**  **UEA**
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teachprimarycomputing.org.uk
Free resources for teaching the new Computing Curriculum



Year	Algorithms	Programming & Development	Data & Data Representation	Hardware & Processing	Communication & Networks	Information Technology
Year 1
Year 2
Year 3
Year 4
Year 5
Year 6



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