# Draft Performance Bands (Revised Sept 2002)

## Software Design and Development

**The typical performance in this band:**

| Band 6 | • demonstrates a thorough understanding of the phases of the software development cycle in producing a solution relevant to client needs and concerns  
• uses appropriate development methodologies and project management techniques to analyse a problem and design a complete software solution  
• develops well-constructed algorithms for a variety of unfamiliar problems using appropriate control structures and data structures  
• effectively uses appropriate resources, tools and documentation to manage the development and to communicate the essential features of software solutions  
• designs an effective software solution to a problem reflecting a sophisticated understanding of the interrelationships between hardware and software  
• critically evaluates the social and ethical issues related to the development of software solutions and the impact on society of the use of computer-based solutions  
• analyses the effects of historical developments on current and emerging technologies and practices, and the development process |
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| Band 5 | • demonstrates an understanding of the phases of the software development cycle in producing a solution recognising client needs and concerns  
• uses development methodologies and project management techniques to analyse a problem and design a relevant software solution  
• develops algorithms for a variety of problems using appropriate control structures and data structures  
• uses a variety of resources, tools and documentation to manage the development and to communicate the essential features of software solutions  
• designs a software solution to a problem reflecting an understanding of the interrelationships between hardware and software  
• makes informed judgement about the social and ethical issues related to the development of software solutions and the impact on society of the use of computer-based solutions  
• relates knowledge and understanding of historical developments to current and emerging technologies and practices, and the development process |
| Band 4 | • outlines the phases of the software development cycle required to produce a solution to a specified problem  
• uses development methodologies and project management techniques to design a software solution  
• develops an algorithm for a specified problem showing some understanding of control structures and data structures  
• uses a limited number of resources, tools and documentation to develop and communicate some features of software solutions  
• modifies a software solution to a problem reflecting knowledge of the interrelationships between hardware and software  
• gives a clear explanation of the impact on society of the use of computer-based solutions  
• demonstrates knowledge and understanding of historical developments and current and emerging technologies |
| Band 3 | • demonstrates a basic understanding of the phases of the software development cycle  
• designs a partial software solution recognising the need for project management techniques  
• reads, interprets and modifies simple algorithms that use a variety of data structures  
• recognises and describes some resources, tools and documentation used to develop and communicate software solutions  
• demonstrates a basic knowledge of the interrelationships between hardware and software  
• describes some issues related to the impact on society of the use of computer-based solutions  
• shows some knowledge of historical developments and current technologies and recounts isolated emerging technologies |
| Band 2 | • identifies the phases of the software development cycle  
• recognises some development methodologies and project management techniques  
• reads and interprets simple algorithms that use simple data types  
• recognises some resources, tools and documentation used in software development  
• distinguishes between hardware and software components  
• identifies some issues related to the impact on society of computer-based solutions  
• identifies examples of current technologies |
| Band 1 | --- |