

Key Stage 3 Overview: Computer Science Year 7

	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
Year 7	University Challenge: Creative Engineering	University Challenge: F1	University Challenge: TFL	University Challenge: War	University Challenge: Sustainability	University Challenge: Community/Charity
	Context: Problem Solving: The students explore the school IT system, how to use it to create digital solutions.	Context: Data: The students design an F1 in-car system.	Context: Data: The students design an improved travel information system for a new town	Context: Software Engineering: The students explore how computer were used in WWII and they plan their own military campaign.	Context: Software Engineering: The students explore how algorithms can assist in resource management.	Context: Problem Solving: The students use problem solving techniques to design solutions to local problems.
	Skills: Access a computer and use an application on it. Login to a windows account and select applications as instructed. Open applications and perform tasks as relevant to the applications. Identify tasks that can be performed by specific applications. Create and store digital content using relevant applications. Select appropriate applications to create and store digital content. Justify the selection of appropriate applications to create and store digital content. Evaluate the effectiveness of applications to create and store digital content.	Skills: Explain what data is. Identify different types of data. Explain what information is. Identify different types of information. Explain the relationship between data and information. Explain how data is stored in computers. Identify the measurement system for measuring the size of data stored in computers. Identify the prefixes used for the data measurement system. Calculate the size of data using the most appropriate prefixes. Identify numbers systems used by computers. Explain the process of converting denary numbers into binary. Convert denary numbers into binary. Explain the process of converting binary numbers into denary. Convert binary numbers into denary numbers.	Skills: Search for information using a web browser and a search engine. Identify relevant results from search engine results. Copy information from a web page into a separate application. Identify different web browsers. Identify different search engines. Explain the difference between a web browser and a search engine. Explain what a web page is. Explain what a website is. Explain what the World Wide Web is. Explain what a computer is. Explain what a network is. Describe the main types of networks. Discuss the benefits and risks of using networks. Discuss the difference between wired and wireless networks. Compare the benefits and risks of using wired and wireless networks.	Skills: Explain what an algorithm is. Explain what a programming language is. Identify the outputs for algorithms. Create programs that output information. Identify the inputs and outputs for algorithms. Create programs that accept user input. Identify the inputs, processes and output for algorithms. Create programs that accept user input and output information based on that input. Create programs that use mathematical operators to produce output based on user input. Explain what a variable is. Create programs that store data in variables. Create programs that store data in variables and constants.	Skills: Describe pseudo-code notation. Design algorithms using pseudo-code notation. Describe flow charts symbols. Design algorithms using flow chart symbols. Explain the purpose of the selection structure. Describe the relational operators. Design algorithms that use one way selection structures. Create programs that use the if structure. Design algorithms that use multi-way selection structures. Create programs that use the if-else structure. Create programs that use the if-elseif-else structure. Create programs that use the select-case structure. Design algorithms that use nested selection structures. Create programs that use nested selection structures. Describe the Boolean operators. Design algorithms that use conditional statements with Boolean operators. Create programs that use conditional statements with Boolean operators.	Skills: Explain what a problem is. Explain what a computational problem is. Explain what a solution is. Identify the stages of the systems development life cycle. Describe the stages of the systems development life cycle. Identify alternatives to the systems development life cycle. Discuss the differences between different development life cycles. Identify possible solutions to a problem. Describe possible solutions to a problem. Compare possible solutions to a problem. Justify the selection of a solution to solve a problem.

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