



Subject		Year	Term
Computer Science		12	1
Topic			
Computational Thinking, Data Types And System Architecture			
Content (Intent)			
Prior Learning (Topic)		GCSE Computer Science	
<p>Be able to use a range of computational techniques in order to solve a problem, including the use of procedural and object-orientated programming, data analysis, top down design. Introduce a range of data structures, both static and dynamic, and ways that these can be interrogated in theory and in code.</p> <p>The modern computer architecture, including the use of the registers, using the LMC as a low-level language to demonstrate how the processor does calculations. The range of architectures, including Von Neuman, Harvard and parallel and where each of these can be applied.</p>			
Future Learning (Topic)		Databases and networks (Use and transmission of data)	
What Knowledge and Skills will be taught (Implementation)		How will your understanding be assessed & recorded (Impact)	
<p>In depth understanding of how to use Python to build applications, including the use of classes, objects and tkinter. Use of Python to solve a series of problems using a variety of data structures. Breaking problems down to programmable components.</p>		<p>A series of questions and worksheets that accompany each section. Advice and help will be given to perfect programming solutions and suggestions for how to better solve the problem.</p>	
<p>How the processor uses registers and buses to execute instructions using LMC. Classification of the different architectures, the various OS. Understand how high-level language routines are translated into low level processor instructions, and what those low-level instruction look like.</p>		<p>Worksheets and practice questions to demonstrate the depth that students need to attain in their learning.</p>	
How can parents help at home?			
Ensure homework is completed on time.			
Helpful further reading/discussion (including Reading and Vocabulary Lists)			
<p>Reading Course textbook ISBN 978-1910523056 OCR AS and A Level Computer Science, by Heathcote and Heathcote</p>		<p>Vocabulary Lists</p> <ul style="list-style-type: none"> Abstraction Procedures Classes Objects Caching Concurrency Sequence Selection Branching Local & Global Variables 	
		<ul style="list-style-type: none"> Functions Procedures Parameters Decomposition Divide & Conquer Program Counter Accumulator Memory Address Register Memory Data Register Current Instruction Register 	