

Learning Programme

Fundamentals of Algorithms – GCSE

Topic/Content	Objectives/Skills	Homework	Assessment	Stretch & Challenge (Thirst for Learning)
Representing algorithms	<ul style="list-style-type: none">• Understand and explain the term algorithm.• Understand and explain the term decomposition• Understand and explain the term abstraction• Use a systematic approach to problem solving and algorithm creation representing those algorithms using pseudo-code and flowcharts.• Explain simple algorithms in terms of their inputs, processing and outputs.• Determine the purpose of simple algorithms.	Homework sheets on creating algorithms using pseudocode and flowcharts	Searching algorithm worksheet Sorting algorithm worksheet End of topic test	Students will create algorithms for their programming projects
Efficiency of algorithms	<ul style="list-style-type: none">• Understand that more than one algorithm can be used to solve the same problem.• Compare the efficiency of algorithms explaining how some algorithms are more efficient than others in solving the same problem.	Trace Tables Homework sheet		
Searching algorithms	<ul style="list-style-type: none">• Understand and explain how the linear search algorithm works.			

	<ul style="list-style-type: none">• Understand and explain how the binary search algorithm works.• Compare and contrast linear and binary search algorithms.			
Sorting algorithms	<ul style="list-style-type: none">• Understand and explain how the merge sort algorithm works.• Understand and explain how the bubble sort algorithm works.• Compare and contrast merge sort and bubble sort algorithms.	Computational Thinking Tasks		