Bishop Heber High School

Subject	Year	Term
Computer Science	13	2

Topic

Legal, moral, ethical, algorithms

Content (Intent)

Prior Learning (Topic) Networks, algorithms, coursework

The main algorithms to sort and search data, and the Big O of them in both space and time. How to calculate Big O for a given algorithm. Use algorithms to traverse binary trees, trees and graphs. Why different traversal methods are necessary in different circumstances, e.g to compile code, to output data in order or in hierarchy. The use of queues and stacks to accomplish different traversals. Apply heuristic methods and dijkstra algorithms to find shortest route/best route and its application to wide range of contexts such as internet, satnav, CPUs

The four main Acts and the way in which digital communication, storage and reproduction have inspired them. The intersection of computer science with the philosophy of ethics and the implications of digital technology on human lives and the environment. The balance between freedom of expression, and limiting harm or offence, in the context of digital media and its distribution over the internet. It also explores cultural issues around the presentation of information.

Future Learning (Topic) Revision

What Knowledge and Skills will be taught (Implementation)	How will your understanding be assessed & recorded (Impact)
Legal, moral, ethical issues. Environmental and ethical considerations of the use of technology, including power generation, waste disposal, the impact of the Digital Divide across the world and within nations, the difference between Open Source and Proprietary software and the constraints on use and development.	Worksheets and homework sheets sourced form PG-online, in the style of exam questions. End of unit assessment. Regular assessment to test previous learning through the use of past papers
The main algorithms for sorting and searching, big O complexity, traversing and searching trees and linked list, dijkstra and A*. How the use of heuristic techniques such as A* can help improve performance of algorithms.	Worksheets and homework sheets sourced form PG-online, in the style of exam questions. End of unit assessment. Regular assessment to test previous learning through the use of past papers

How can parents help at home?

Ensure students revise for class tests

Helpful further reading/discussion (including Reading and Vocabulary Lists)

Reading

Course textbook ISBN 978-1910523056
OCR AS and A Level Computer Science, by Heathcote and Heathcote
PG-online unit resources 9, 12

Vocabulary Lists

Data
Information
Computer Misuse Act
Data Protection Act
Copyright and Patents act
Environment
Ethics
Linked lists
Recursion
Laws
Traversal
Depth first
Breadth first