



Holy Family Catholic High School



Subject	Year	Term
Computer Science	13	Spring
Topic		
Legal, moral, ethical, algorithms		
Content - Intent		
Prior Learning (Topic)	Networks, algorithms, coursework	
<p>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.</p>		
Future Learning	Revision	
What Knowledge and Skills will be Taught (Implementation)	How will your understanding be assessed and recorded (Impact)	
<p>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.</p>	<p>Worksheets and homework sheets sourced from PGonline, in the style of exam questions. End of unit assessment. Regular assessment to test previous learning through the use of past papers</p>	
<p>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.</p>	<p>Worksheets and homework sheets sourced from PGonline, in the style of exam questions. End of unit assessment. Regular assessment to test previous learning through the use of past papers</p>	
How can parents help at home?		
<p>Ensure homework is completed on time. Class notes are being finished and summarised at home. There is preparation for final exams.</p>		



Helpful further reading and discussion (Including reading and Vocabulary List)

Reading

Theory textbook –

ISBN 978-1910523056

OCR AS and A Level Computer Science, by
Heathcote and Heathcote

Programming Textbooks-

ISBN - 978-1910523193

Tackling A Level Projects in Computer Science for
OCR H446

ISBN - 978-1484260463

Modern C++ for Absolute Beginners

ISBN - 978-1838648572

Beginning C++ Game Programming

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