



THOMAS ALLEYNE'S HIGH SCHOOL

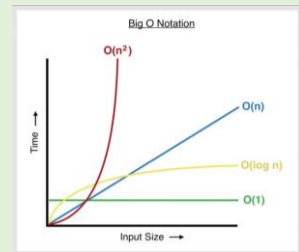
Computer Science: KS5

LEARNING JOURNEY

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3 <head>
4 <meta charset="UTF-8">
5 <title>Title goes here</title>
6 </head>
7 <body>
8
9 </body>
10 </html>
```

The Alevel has 2 examinations both 2.5 hours and on paper

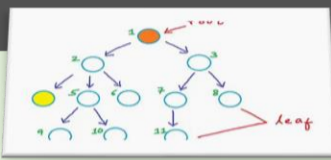
SLR26 Algorithms.
Revision lessons will start in this part of the course with exam technique focus.
Determining the efficiency of different algorithms, Big O notation.
Comparison of the complexity of algorithms.
Algorithms for data structures.



SLR15, 16, 17, 18, 19, 20, 21 and 23 recap plus expand to full A level coverage.
Plus SLR 22 Thinking concurrently.

University/Apprenticeships/Work

POST-18 PATHWAY



NEA project lessons will take place throughout year 13. These will build upon learning in year 12 about system development life cycles, data types, data structures and algorithms. In addition there will be a significant programming element that will bring together programming learning to showcase their skills in solving their chosen problem.

SLR11, 12, 13 and 14. Recap plus expand to full A level coverage. Network hardware, network security, threats and firewalls. Search engine indexing. PageRank algorithm. Server side and client side processing. Floating point arithmetic, addition and subtraction. Bitwise manipulation.
How to create, traverse, add data to and remove data from data structures including stack, queue, trees and hash tables.

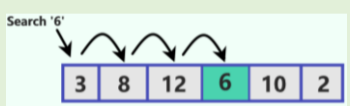
Year 13

The Alevel has 2 an NEA component that will be worked on throughout year 13

Project definition SLR1, 2, 3, 5, and 6 recaps. SLR7 types of programming languages. SLR9 Compression, encryption and hashing. SLR10 Pipelining, GPUs, Stages of compilation, Linkers and loaders, Use of libraries. Assembly language, the use of addressing memory. Review object orientated methods. Compression, encryption, hashing, normalisation and SQL.



SLR24 Computational methods. Features that make a problem solvable using computational methods. Problem recognition and decomposition. Use of divide and conquer. Using abstraction. This knowledge will need applying to backtracking, data mining, heuristics, data modelling, pipelining and visualisation. Standard algorithms to be expanded to include Dijkstra's shortest path and A* algorithms.



SLR16 Computer related legislation
SLR5 Application generation.
SLR6 Software development
SLR18 Thinking abstractly.
SLR10 Databases

Exploring the NEA. Students will be given the opportunity to explore previous projects and their write ups. We will look at the documentation involved and develop some computer games.

SLR11 Networks, SLR12 Web technologies, SLR17 Ethical, moral and cultural issues, SLR14 Data Structures, Characteristics of networks. Protocols and standards. The TCP/IP stack, DNS, layering, packet switching and circuit switching. Client server and Peer to Peer. HTML, CSS and JavaScript. Lossy and lossless compression. Ethical, moral and cultural issues will include censorship and the internet, monitoring behavior, analysing personal information and privacy and offensive communications amongst many more outlined in the syllabus. The properties of stacks and queues.



SLR19 Thinking ahead
SLR20 Thinking procedurally
SLR21 Thinking logically
SLR25 Algorithms



SLR11 Networks
SLR12 Web technologies
SLR17 Ethical, moral and cultural issues.
SLR14 Data Structures

Dedicated programming lessons are done throughout year 12. These are a mix of programming tasks on repl.it, object orientated lessons on Python IDLE, SQL and Defold game tutorials.



WELCOME

Year 12

Y11 Taster Sessions / Transition days

SLR3 Input, output and storage. SLR13 data types. SLR15 Boolean algebra. SLR3 System software. How different input, output and storage devices are more appropriate to solve a variety of problems. The use of magnetic, flash and optical storage. RAM, ROM and virtual storage. Primitive data types, integer, real, float, character, string and Booleans. How to represent positive binary number.

Introduction to the course. SLR1 Structure and function of the processor. SLR2 Types of processor
In these units we will explore the different types of processor and their uses. We will look at the Fetch-Decode-Execute cycle in depth and how it uses the different registers. We will then move onto CISC and RISC processors. Before analysing the speed of processing on multicore and parallel systems.