Year 11 Subject Curriculum Overview per Term

Subject: Computer Science		Year Group: 11	AUTUMN TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Algorithms	• To explain abstraction • To explain decomposition • To plan an algorithm • To compare and contrast standard search algorithms • To compare and contrast standard sort algorithms	Abstraction Decomposition Algorithm Search algorithm Sort algorithm Bubble sort Merge sort Insertion sort Binary search Linear search	Students will be assessed formatively through the completion of recall homework tasks along with a formal end of unit assessment completed under exam conditions. The assessment will be based on past paper questions. Testing on 60% of content from the unit just covered and 40% of all other topics covered in the subject to date.
Programming Techniques	• To be able to read/write Pseudocode • To be able to read/create flowcharts • To be able to manipulate external files from within python • To be able to read/write SQL • To explain why 1D & 2D arrays are used to store data	Pseudocode Flowcharts High level language Low level language SQL Array 2D Array	
Producing Robust Programs	• Understanding of the issues a programmer should consider to ensure that a program caters for all likely input values • Understanding of how to deal with invalid data in a program • Authentication to confirm the identity of a user • Practical experience of designing input validation and simple authentication (e.g. username and password) • Understand why commenting is useful and apply this appropriately	Authentication Misuse Programmer Validation Naming conventions	

Year 11 Subject Curriculum Overview per Term

Subject: Computer Science		Year Group: 11	SPRING TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Computing Logic	• Knowledge of the truth tables for each logic gate • Recognition of each gate symbol • Understanding of how to create, complete or edit logic diagrams and truth tables for given scenarios • Ability to work with more than one gate in a logic diagram	Truth table Gate symbol Truth table Logic diagram Logic gate AND OR NOT XOR	Students will be assessed formatively through the completion of recall homework tasks along with a formal end of unit assessment completed under exam conditions. The assessment will be based on past paper questions. Testing on 60% of content from the unit just covered and 40% of all other topics covered in the subject to date.
Translators	• Knowledge of the tools that an IDE provides • How each of the tools and facilities listed can be used to help a programmer develop a program • Practical experience of using a range of these tools within at least one IDE • The differences between high- and low-level programming languages • The need for translators • The differences, benefits and drawbacks of using a compiler or an interpreter	IDE Editor Translator Errors Run-time environment	
Data Representation	• Understand the binary counting system. • Be able to add 2 binary numbers. • Be able to convert between base 2 and base 10. • Understand the Hex counting system. • Be able to convert between base 2 and base 16. • Be able to convert between base 10 and base 16 – usually using base 2 as intermediary stage. • Be able to use an ASCII table to encode and decode strings.	Binary Hexadecimal Denary ASCII Encoding Decoding	

Year 11 Subject Curriculum Overview per Term

Subject: Computer Science	Subject Leader: L Kenvyn	Year Group: 11	SUMMER TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Revision for exam			In this term we work through past papers. Custom papers are also created from previous exam questions based around the classes weakness to help strengthen up all areas of understanding. A lot of focus is put on how to best answer essay based questions, and how to structure technical writing.

How parents can support learning in the subject this academic year

Students can be supported at home by encouraging them to undertake programming projects on topics that interest them. That could be making mods for a game, or randomiser for what outfit to wear.

Recommended Reading

- Revision of theory topics covered - https://www.bbc.co.uk/bitesize/examspecs/zmtchbk
- Beginner Python concepts - https://www.w3schools.com/python/
- Advanced Python concepts - https://www.w3resource.com/python/python-tutorial.php
- Step by step guide to Python - https://www.programiz.com/python-programming

Points to note

All students were provided with a “GCSE OCR Computer Science Complete revision and practice guide” at the start of the year 10, for them to take home for revision purposes. The last term of the year is used to recap the subject as a whole, and reteach any areas that the cohort as a whole underperform in that have been identified through assessment.