

Year 12 Computer Science Curriculum Plan							
Component 1	Core		Hinterland		NC Coverage	Assessment	Whole Education Opportunities
	Knowledge	Skills	Knowledge	Skills			
(Autumn Term 1 & 2)							
Hardware	- Structure & functions of the processor - Types of Processors. - Input Output and storage	- Defining the functions of the processor - Draw the Von Neumann computer architecture - Differentiate between input, output, and storage devices - Evaluate CISC and RISC processor	- Upgrading of RAM on computer systems to increase performance and efficiency. - Digital competence	- Setting up complete computer system (system unit, monitor, mouse, keyboard, and printer). - Connecting phones and computers to the internet and using the World Wide Web.	4CC2 4CC3	- Fortnightly exams practice answered in class - Self-assessment and whole class marking - PR's - PPE	- SMSC- this encourages students, to explore and develop their thought pattern 5C's-character, confidence, creativity, communication, and community
Computational Thinking	- Thinking abstractly - Thinking Ahead - Thinking procedurally - Thinking logically and Concurrently	- Devising an abstract model for a variety of situations - Defining the preconditions for devising a solution to a problem - Defining the logical conditions that affect the outcome of a decision	- Solving large problems by breaking down into smaller parts - Digital competence	- Develop, test, and evaluate programs. - Making judgement based on pattern recognition			
Programming techniques	- Programming basics - Selection - Iteration - Subroutines and recursion - Use of IDE - Use of object-oriented techniques	- solving complexity of algorithm - Comparing the complexity of algorithm - Sorting data using bubble, merge, and quick algorithm	Understanding of managing problems.	Using strategies in problem-solving			

Software	• System Software • Application Generation • Software development • Types of programming language	• Understanding the different methodologies of software development • Designing systems using waterfall method	• System development •	• System testing • Evaluating systems			
Spring 1 & 2							
Algorithms	• Analysis and design of algorithms • Searching algorithms • Bubble and insertion sort • Merge and quick sort • Graph traversal algorithm	Designing programs using the following construct: • Sequence • Iteration • Branching • Recursion • Functions	Understanding of managing problems.	Using strategies in problem-solving	• 4CC1 • 4CC2 • 4CC3		
Exchanging Data	• Compression • Encryption • Hashing • Databases • Internet communication • Network security and threats • HTML and CSS • Web forms and JavaScript • Client-server and Peer-to-peer	• Compression sound and image files using different applications • Interpret client - server and peer-to-peer topology. • Design websites using html, CSS tags	• Understanding data redundancy and data inconsistency • Mobile network technologies of 3G, 4G AND 5G • Compression of data	• Searching and sorting of data in a database online. • Surfing on the internet using • Modification of music files			

Data Types	• Primitive data types • ASCII and Unicode • Binary arithmetic • Floating point arithmetic • Bitwise manipulation and masks	• Define primitive data types • Represent positive integers in Binary • Using sign and magnitude and two's compliment to represent negative numbers in binary • Use character set to represent text					
Data Structure	• Arrays, tuples, and records • Queues and Stacks • List and Linked List • Hash Tables • Graphics • Trees						
Summer Term 1 & 2							
Legal, Moral, ethical issues	• Computing related legislation • Moral & ethical issues	• Define Data Protection Act 1998 • Define The computer Misuse Act 1990 • Define The Copyright Design and Patent Acts 1988. The Regulation of Investigatory Powers Act 2000 • Analyse personal information	Legal and environmental impacts.	Risk of digital technology on society.			• SMSC- Ethical way of handling files, and knowledge about plagiarism
Programming Project	Analysis of the problem	• Identification of problem and stakeholders - Research problem - Justify solution requirement	• project management.	• Defining scope of project • Gantt chart usage.			

