Sir Thomas Wharton Academy	INVEST in the power of the written word	EXPERIENCE a range of cultures, histories and beliefs	EXPLORE the shared values of civilisation	SHAPE society and our place within it	GROW as instinctive readers, writers and orators	PURSUE English beyond the classroom

Curriculum Sequencing Grid

Subject	OCR A-Level Computer Science			Year	12	
	Term 1		Term 2		Term 3	
	HT1	HT2	HT3	HT4	HT5	HT6
Component	1.1 System Architecture 1.2 Software and Software Development 2.2 Programming	1.3 Exchanging Data 2.2 Programming	1.4 Data types, data structures and algorithms 1.5 Legal, moral, cultural and ethical issues 2.2 Programming	2.1 Computational Thinking 2.2 Programming	2.3 Algorithms 2.2 Programming	2.2 Programming 3.0 NEA
Developing Cultural Capital	In Depth look at university and career/apprenticship opportunities in the subject.LMC programming will introduce Embedded Systems and Single board computers, used in most modern devices.	OOP Programming will be completed making games, this will give students an idea of modern indie game development, looking at Pygame and Makecode Arcade. During the Website development students will be given a in local context project to create a website for a local business.	Students will create Ethernet cables and use these to develop their own managed network, locally allowing them to communicate between multiple devices.	Look into modern day legislation and how this sits in socitey, focuses on looking at real world Cyber Crimes. Students will look at Artifical Intelligence, how it is used and regulated.	Students will be looking at solving real world problems with computers, as part of a year long project they take from start to finish.	Students will visit higher education institues to look at possible further study and careers.
Substantive Knowledge/ Disciplinary Knowledge	**Substantive Knowledge**: >CPU Structure > CPU Performance > FDE Cycle, Registers and Buses > Parallel Processing > RISC and CISC > SIMD and MIMD > Haravard vs Von Neumann > System Software and Oss > ISR impacts on FDE > Scheduling of Processes >Types of Operating Systems > Memory Management > BIOS > Virtual Machines >Stages of Compilation > Linkers, Loaders and Libraries >Software Development Methodologies > LMC Programming > OOP Programming **Disciplinary Knowledge**: > Procedural Programming	**Substantive Knowledge**: > Abstraction > Inheritance > Polymorphism > Encapsulation > Compression Lossy, lossless, Run length and Dictionary > Encryption > Hashing Algorithms > Flat File Databases > Relational Databases > Normalisation of Databases > SQL > ACID Transactions >Network Protocols > Network Layering >Packet Switching > Circuit Switching > DNS > Network Hardware > Network Security and Threats > HTML, CSS and JavaScript > Search Engines > Client Server vs Peer to Peer **Disciplinary Knowledge**: > OOP paragdigm programming > Multipage Website development	**Substantive Knowledge**: > Basic Data Types > Binary Positive Images > Sign and Magintude > Twos Complement > Hexadecimal > Floating Point numbers > Normalisation fo Floating Point numbers > Bit wise Manipulation > Binary Shifting > Character Sets > Arrays (1D, 2D and 3D) > Data Structures (Trees, Graphs and Linked Lists) > Data Structure Traversal, Add Remove > Boolean Logic > Truth Tables and Karnaugh Maps > Boolean Simplification Rules, De Morgan's Law, Distribution, Association, Commutation, Double negation >D-Type FlipFlops >Half and Full Adders **Disciplinary Knowledge**: > Constructors for Classes	**Substantive Knowledge**: > Data Protection Act 1998 >Computer Misues Act 1990 > Copyright, Design and Patents Act 1988 > Regulation of Investigator Powers Act 2000 >Ethics in Computer Science >Social issues in Computer Science >Environmental Issues in Computer Science > Thinking Abstractly > Thinking Ahead > Thinking Procedurally > Thinking Logically > Thinking Concurrently > Programming Techniques > Computational Methods **Disciplinary Knowledge**: > Global and Local Variable > Recursion > Modularity > OOP Techniques	**Substantive Knowledge**: > FlowCharts > Structure Diagrams > Time and Space Efficency > Big O Notation > Sorting and Searching algorithm run throughs. **Disciplinary Knowledge**: > Getters > Setters	**Substantive Knowledge**: > NEA Analysis > NEA Design > NEA Development > NEA Testing > NEA Evaluation **Disciplinary Knowledge**: > OOP Methods > Attribute Obscuring
Cross Curricular Links	Problem Solving Logical Thinking Post-16 Career links	Problem Solving Logical Thinking Post-16 Career links ICT	Problem Solving Logical Thinking Post-16 Career links Maths	Problem Solving Logical Thinking Post-16 Career links Business Law	Problem Solving Logical Thinking Post-16 Career links Maths	Problem Solving Logical Thinking EPQ and Dissetaion work Post-16 Career links
Vocabulary	Examination command words published and used by OCR and Vocabulary List by OCR throughtextbooks, noted in a list:					**Link**
Assessments	1.1 SPA 1.2.1,1.2.2,1.2.3 SPA	1.2.4 SPA 1.3 SPA	1.4 SPA 1.5 SPA	Paper 1 shortened Trial 2.1 SPA	Programming SPA	Paper 1 Trial