Computer Science Year 11 Curriculum Overview

What is the Year 11 Computer Science curriculum aiming to achieve?		
What do we want our Year 11 Computer Scientists to be like?	How are we building on prior learning?	How can parents/carers support their child's learning?
• Be a confident and resilient with their approach to problems • Be willing to experiment and explore programming problems • Have a range of problem solving skills to approach computational tasks • Start making links between specification content	• Building upon earlier investigations to develop their skills on the more technical aspects of the curriculum • Introducing further programming skills, once students have mastered the fundamentals • Creating links between the units within the specification	• Encourage students to use IT programs available outside of lesson • Encourage students to explore and trouble shoot when using IT devices • Talk to students about their homework and their learning • Encourage students to purchase the revision material available

How are we organising the Year 11 Computer Science curriculum?						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	1.3.2 Networks: protocols and layers 2.2.2 Programming fundamentals 2.1.3 Searching and programming 2.1.3 Sorting and programming	2.2.3 String manipulation 2.2.3 Arrays 2.3.1 Defensive design 2.2.3 SQL	1.1.1 Von Neumann architecture 2.5.1 Languages 2.5.2 The integrated Develop Environment	1.1.2 CPU performance 1.1.3 Embedded systems 2.3.2 Testing and refining algorithms Binary and Boolean Revision Storage and memory Revision Systems software Revision	1.1 Systems Architecture Revision 1.2 Data representation, binary and Boolean revision 1.3 Network, connections and protocols revision 2.2 Programming	
Threshold Concepts	Understanding how networks are structured and standardised. Understand searching, sorting algorithms and be able to apply an algorithm to a data set.	Understand how strings can be manipulated, at minimum calculating their length, slicing and forcing case. Exploration of 1D and 2D arrays. Application of defensive design Develop SQL programming ability.	Understand CPU architecture. Levels of programming language and the tools available in an IDE.	Understanding what impacts CPU performance. Understand embedded systems and their use. Types of testing and the context of use.	Consolidation of particularly technical units within the specification with a focus of exam technique	
Skills	Understand TCP/IP stack. Apply searching and sorting algorithms to data sets.	Using arrays. Use SQL. Manipulate strings within programs.	Little Man Computer. Trace through CPU instruction sets. Identify low and high level language.	Able to testing and debug programs to consider user error.	Exam technique	
Enrichment within the curriculum	Students will have the opportunity to develop their computational thinking across the curriculum in different situations. Students complete independent work, paired work and group tasks throughout their time in Computer Science. Much of year 11 is about consolidating their programming ability and then extending it into further problem solving.					
Cross curricular links	• Computer Science is indeed a science where students work through and anticipate problems and solutions • Mathematics is another core foundation of Computer Science with many of the topics being data based and logic based; this is an excellent subject for developing your mathematical problem solving. • Within most units of work students have the opportunity to develop their use of technical vocabulary					
Extra-curricular opportunities	Throughout an academic year students could have the opportunity to take part in various external Computer Science schemes within the school coding club. Students are encouraged to use various online sources to develop their computational thinking skills.					

	There is also the use of revision café at particular times of the year. Support is also available during Tuesday and Wednesday lunch times.

What are the intended outcomes of the Year 11 Computer Science curriculum?						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Opportunities to show progress (Assessments)	End of Unit assessments	End of Unit assessments. PPEs	End of Unit assessments	End of Unit assessments. PPEs	End of Unit assessments	
Impact on personal development (SMSC)	*Students develop their resilience to approaching Computational tasks, they consider the wider implications of technology and the impact these have within society. Programming is sometimes delivered in a paired: driver and navigator style of delivery reinforcing inclusion and their idea of supporting their peers.*					
Preparation for the next stage of education	*There is a large focus within year 11 of component 2 which should form the foundations required for the step up into A Level Computer Science whereby students further develop their programming skills, develop their use of different programming languages.*					