Develop:
Abstraction
Computational Thinking
Data structures
Security and safety
Independence

Sandbach School Computing

Year 13 Computer Science Curriculum Sequence

Intent: Studying A Level Computer Science is the top tier IT qualification at Level 3. Learners will gain a concrete understanding of a wide range of skills that are highly in demand and formulate the grounding for future thought and innovation in digital fields. Through careful study and the development of computational thinking, learners will aspire to fulfil the job roles of the next few decades.

T1	T2	T3	T4	T5	T6
Hardware, software, stages of compilation, programming paradigms	Advanced web development, managing data structures, databases, caching and concurrent processing	Storage and transmission, representation of data, problem solving techniques	Boolean logic, algorithms, Component 3 submission	Revision and exams	
Why these topics? The hardware and software learning at school is completed here. Programming paradigms is a subject literacy focussed unit where students learn to describe and explain a wide range of approaches to structuring programming code.	**Why This Topic?** The advanced web development unit looks at ranking algorithms and search engine optimisation. The final sections of the databases unit.	**Why This Topic?** The high end networking unit completes this study at school. The problem solving techniques are introduced and practiced ready for the Component 2 exam.	**Why This Topic?** The final algorithms are a fundamental part of both exams and so it is helpful to learn them just prior to these being taken. The final NEA is submitted and remaining theory completed.	**Why This Topic?** Teachers can identify gaps in students knowledge and tailor learning to their needs to best support them in the upcoming exams.	
Curriculum Links • **Technical** • **Code** • **Algorithms** • **Abstraction**	**Curriculum Links** • **Code** • **Logic** • **Responsibility**	**Curriculum Links** • **Technical** • **Computational thinking** • **Code**	**Curriculum Links** • **Code** • **Computational thinking** • **Abstraction** • **Logic**		
Teaching these topics here supports: The final hardware and software units necessary for the exams. Learners need to understand how to describe a range of programming paradigms to become expert computer scientists.	**Teaching these topics here supports**: The data structures units are fundamental to both Component 1 and Component 2. Final parts of computational thinking and databases.	**Teaching these topics here supports:** The remaining problems solving techniques formulate the basis for completing the Component 2 exam.	**Teaching these topics here supports**: The final theoretical unit ready for the summer exams. The NEA is submitted.	**Teaching these topics here supports**: Direct support for the exams.	
These topics feed from: Prior hardware, software and programming units	**These topics feed from** Previous data structures, databases and computational thinking units	**These topics feed from** Previous networking, binary and problem solving units	**These topics feed from** Previous algorithms and logic units	**These topics feed from** All prior learning culminates here.	