

Develop:
 Abstraction
 Computational Thinking
 Data structures
 Security and safety
 Independence

Sandbach School Computing

Year 10 Computer Science Curriculum Sequence

Intent: Studying GCSE Computer Science is the entry point to a career in IT. Learners will gain a foundational 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
System architecture Primary and secondary storage	Sequence, Selection and Iteration Exam reference language, flow charts, trace tables	Data Representation binary, hexadecimal, images, sound, character sets	Wired and Wireless Networks Subprograms	Networks, Topologies, Protocols and Layers System Security	Data structures
Why these topics? The first unit of the specification contains some crucial knowledge that underpins many others so it makes sense to complete this first. This unit is a continuation of the work on hardware. Students will use the knowledge of the fetch execute cycle gained in Unit 1 to understand the importance of different types of primary storage.	Why This Topic? Keeping programming fresh is crucial otherwise concepts can be forgotten. This unit is the first chance to interleave the content with the theoretical content studied so far in year 10. There an additional focus on formalising their knowledge and understanding. Practical programming is a requirement of the course.	Why This Topic? Understanding what binary is and how to convert to/from binary underpins understanding for computing in general. Pupils will be able to gain a deep level of cognitive abilities in determining how the hardware studied to date stores the data used in practical applications.	Why This Topic? Continuing the learning of Component 1, learners are introduced to networking. Having already gained an excellent understanding of hardware, they are well prepared to take on knowledge of new hardware devices. The second programming unit this year, continuing the approach of interleaving programming with theoretical content.	Why This Topic? This second networking unit builds on the understanding of Unit 5 and develops this to a more detailed and technical level. The system security unit builds on the knowledge from Year 9 and completes the cyber security content for the course.	Why This Topic? A chance for students to express themselves and to provide an opportunity for deep learning with some open-ended and highly differentiated programming challenges.
Curriculum Links <ul style="list-style-type: none"> • Technical • Hardware • Career focussed 	Curriculum Links <ul style="list-style-type: none"> • Code • Abstraction • Computational thinking 	Curriculum Links <ul style="list-style-type: none"> • Code • Numbers • Computational thinking 	Curriculum Links <ul style="list-style-type: none"> • Technical • Hardware • Code • Computational thinking 	Curriculum Links <ul style="list-style-type: none"> • Technical • Hardware • Safety • Responsibility 	Curriculum Links <ul style="list-style-type: none"> • Code • Abstraction • Computational thinking
Teaching these topics here supports: Grounding of the required hardware knowledge to access the remainder of the GCSE course.	Teaching these topics here supports: Continued interleaving driving improvement in programming skills	Teaching these topics here supports: Understanding of binary and how numbers, characters, images and sound are represented in computer systems. Fundamental knowledge to understand how computers process data.	Teaching these topics here supports: Grounding of networking. Continued interleaving driving improvement in programming skills	Teaching these topics here supports: Completing the skillset in grounding required for the GCSE. Completing the cyber security required for the GCSE.	Teaching these topics here supports: Continued interleaving driving improvement in programming skills
These topics feed from: Previous hardware units in years 8 and 9	These topics feed from Python learning from year 8	These topics feed from Basic binary featured in Year 7	These topics feed from First look at networking. Ongoing improvement in programming skills.	These topics feed from Previous networking unit. eSafety and security / threats units in previous years.	These topics feed from Ongoing improvement in programming skills.

