

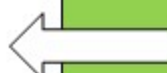
Year 9

Sandbach School Computing

# Bridging Year Computer Science Curriculum Sequence

Intent: to provide a grounding in the wide range of digital skills needs to study GCSE Computer Science and other digital skills that are a pre-requisite to success in professional IT careers

**Develop:**  
Abstraction  
Computational Thinking  
Data structures  
Security and safety  
Independence



T1	T2	T3	T4	T5	T6
<p>Components of a PC</p> <p>Python Basics</p>	<p>HTML and CSS</p>	<p>Databases with Access</p> <p>SQL</p>	<p>Python Data Structures</p>	<p>Javascript Practical Investigation</p>	<p>Cyber security</p>
<p><b>Why these topics?</b> Understanding the main components of a PC is fundamental to all the work on hardware that comes later in the course. In Year 10, pupils build on this by deconstructing the inner workings of a CPU and storage technologies – in order to do this, they first need a firm understanding of what those devices actually are. A large percentage of the marks for GCSE computer science comes from the programming content. This unit addresses much of the basic specification points for building on later in the course.</p>	<p><b>Why This Topic?</b> Although not directly on the GCSE spec, learning HTML and CSS opens up the world of web programming to students. It acts as an easy entry to text based programming, building confidence and the skills of debugging.</p>	<p><b>Why This Topic?</b> Understanding the basic concepts of databases is a pre-requisite to understanding SQL. This unit teaches the fundamentals in an approachable manner that can be attempted by learners of all abilities. Directly from the GCSE specification, students learn how to create database systems by coding in SQL.</p>	<p><b>Why This Topic?</b> A continuation of the student's programming journey, learners discover new data structures for organising data.</p>	<p><b>Why This Topic?</b> One of the most important soft skills that an IT professional can have is the resilience and belief to be able to work out problems for themselves. This investigation project forces students to build up their independence through a scaffolded, yet self-directed study of a new area of IT. Pupils will also begin to gain some experience of their second major programming language.</p>	<p><b>Why This Topic?</b> Directly from the GCSE specification, this unit focusses on the fundamentals of cyber security. Learning about how to stay safe with IT is a national curriculum objective and forms a major part of PSHE study as well.</p>
<p><b>Curriculum Links</b></p> <ul style="list-style-type: none"> <li>• Technical</li> <li>• Code</li> <li>• Algorithms</li> <li>• Abstraction</li> </ul>	<p><b>Curriculum Links</b></p> <ul style="list-style-type: none"> <li>• Code</li> <li>• Online</li> <li>• Creativity</li> </ul>	<p><b>Curriculum Links</b></p> <ul style="list-style-type: none"> <li>• Data storage</li> <li>• Code</li> </ul>	<p><b>Curriculum Links</b></p> <ul style="list-style-type: none"> <li>• Code</li> <li>• Data storage</li> </ul>	<p><b>Curriculum Links</b></p> <ul style="list-style-type: none"> <li>• Abstraction</li> <li>• Code</li> <li>• Independence</li> <li>• Resilience</li> </ul>	<p><b>Curriculum Links</b></p> <ul style="list-style-type: none"> <li>• Independence</li> <li>• Creativity</li> </ul>
<p><b>Teaching these topics here supports:</b> Learning of hardware topics during GCSE Computer Science. Programming skills necessary for GCSE Computer Science.</p>	<p><b>Teaching these topics here supports:</b> Confidence with code. Wider experiences suitable for career entry points in the wider world.</p>	<p><b>Teaching these topics here supports:</b> SQL topics at GCSE. Wider concepts of software development, system design and architecture.</p>	<p><b>Teaching these topics here supports:</b> Programming topics at GCSE. Wider concepts of software development, system design and architecture.</p>	<p><b>Teaching these topics here supports:</b> Wider experiences suitable for career entry points in the wider world. Resilience and problem solving skills crucial for success in the general subject area.</p>	<p><b>Teaching these topics here supports:</b> Behaviour and safety when using digital technologies. Wider understanding of threats and issues facing companies and organisations.</p>
<p><b>These topics feed from:</b> Building from hardware and software unit in year 8. Building from Python unit in year 8.</p>	<p><b>These topics feed from:</b> Builds from the website unit in Year 7, adding CSS functionality.</p>	<p><b>These topics feed from:</b> This is the pupil's first studying of databases and SQL.</p>	<p><b>These topics feed from:</b> Builds on previous Python units and the database unit.</p>	<p><b>These topics feed from:</b> JavaScript complements HTML/CSS but the soft skill is the driver here.</p>	<p><b>These topics feed from:</b> Threats and security unit in year 8, e safety unit in year 7.</p>

