

# Landau Learner Curriculum Overview

Subject: Computer Science

Director of Learning: SDC Year: 9

Curriculum organisation				
Students are taught in mixed ability for the equivalent of six single lessons per fortnight. These sessions are split between 2 staff 3:2 split between SDC and IA				
What topics will students be studying this year? Includes links to National Curriculum, Curriculum Intent and Prior Related Learning*				
Term 1:	Term 2:	Term 3:	Term 4:	Term 5:
<ul style="list-style-type: none"> <li>Programming - Development of skills</li> <li>Algorithms</li> <li>Programming Techniques – Variables, Inputs, Outputs and Storage</li> </ul>	<ul style="list-style-type: none"> <li>Computational Logic</li> <li>Binary – representation and addition</li> <li>Hexadecimal</li> <li>Programming Techniques – Sequence, Selection, Iteration, Operators and Comments</li> </ul>	<ul style="list-style-type: none"> <li>Data representation – text, number, image and sound</li> <li>Operating System</li> <li>Programming - Development of skills</li> </ul>	<ul style="list-style-type: none"> <li>Systems software – role of the operating system</li> <li>Systems Hardware - Components of the CPU</li> <li>Programming - Development of skills game developing and introduction of learning algorithms, searching and sorting algorithms</li> </ul>	<ul style="list-style-type: none"> <li>Systems Hardware - Components of the CPU application to the Fetch – Decode - Execute cycle.</li> <li>Social, Moral and ethical implications of computing on society</li> <li>Programming - Development of skills</li> </ul>
<p><b>Prior learning KS:</b> Programming Y7 T1, T3, Y8 T1. Computational thinking Y7 T5.</p> <p><b>National Curriculum:</b></p> <p>Computational abstractions and the development of programming and algorithms. Understand several key algorithms that reflect computational thinking. Use two or more programming languages. Use modular programs including procedures or functions. Understand the hardware and software components that make up computer systems. Understand how instructions are stored and executed within a computer system; Undertake creative projects.</p> <p><b>Curriculum Intent:</b></p> <p>This enables students develop their programming understanding and application to program and game development process that would be used in industry. This develops their digital literacy and starts them on the mind-set of a computer scientist.</p>	<p><b>Prior learning:</b> Computational thinking Y7 T5. Programming Y7 T1, T3, Y8 T1. Binary Representation Y7 T1, Y8 T4, Y9 T1.</p> <p><b>National Curriculum:</b></p> <p>Computational abstractions and the development of programming and algorithms. Understand several key algorithms that reflect computational thinking. Use two or more programming languages. Use modular programs including procedures or functions. Understand the hardware and software components that make up computer systems. Understand how instructions are stored and executed within a computer system; Undertake creative projects. Understand simple Boolean logic and some of its applications. Understand how numbers can be represented in binary</p> <p><b>Curriculum Intent:</b></p> <p>This enables students develop their programming understanding and application to program and process that would be used in industry. This develops their digital literacy and starts them on the mind-set of a computer scientist.</p>	<p><b>Prior learning:</b> Binary Representation Y7 T1, Y8 T4. Computer components Y7 T1. Programming Y7 T1, T3, Y8 T1, Y9 T1, 2,</p> <p><b>National Curriculum:</b></p> <p>Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</p> <p>Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems.</p> <p>Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users.</p> <p><b>Curriculum Intent:</b></p> <p>This enables students develop their programming understanding and application to program and game development process that would be used in industry. This develops their digital literacy and develops the mind-set of a computer scientist.</p>	<p><b>Prior learning:</b> Computer components Y7 T1. Programming Y7 T1, T3, Y8 T1, Y9 T1, 2, 3.</p> <p><b>National Curriculum:</b></p> <p>Computational abstractions and the development of programming and algorithms. Understand several key algorithms that reflect computational thinking. Use two or more programming languages. Use modular programs including procedures or functions. Understand the hardware and software components that make up computer systems. Understand how instructions are stored and executed within a computer system; Undertake creative projects.</p> <p><b>Curriculum Intent:</b></p> <p>This enables students develop their programming understanding and application to program and game development process that would be used in industry. This develops their digital literacy and developing their mind-set of a computer scientist. Additionally, this allowing them to understand at greater depth how the computer work.</p>	<p><b>Prior learning:</b> Computer components Y7 T1 Legislation Y8 T3, T5 Programming Y7 T1, T3, Y8 T1, Y9 T1,2,3,4</p> <p><b>.National Curriculum:</b></p> <p>Computational abstractions and the development of programming and algorithms. Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems. Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</p> <p><b>Curriculum Intent:</b></p> <p>This enables students to develop a holistic application of how computing impacts on their wider life. In the largest growing sector computing is applied to a number of now ethical and moral dilemmas in the real world. This enables students to develop a breadth of understanding of the digital world and how this contributed to a digital society.</p>

<p><b>Equipment needed for sessions:</b></p> <ul style="list-style-type: none"> <li>Cambridge Elevate Textbook (Provided by College)</li> <li>Computer Science Exercise book (IA/SDC)</li> <li>Computer and internet access (provided by College)</li> <li>Lesson resources (Digital and physical provided by the learning tutor)</li> </ul>	<p><b>What can you do to support your child?</b></p> <ul style="list-style-type: none"> <li>Encourage your student to engage with their homework and complete it on time and to a high standard, asking them to show you the finished work.</li> <li>Take an interest in what you child is learning and talk to them about Computing in the real world</li> <li>Encourage them to watch television shows, documentaries and films that include computer science and developing technology.</li> </ul>
<p><b>How will learning be assessed and progress measured?</b></p> <ul style="list-style-type: none"> <li>End of Topic assessment</li> <li>Marking of written and practical work is carried out on a regular basis in line with the College policy</li> <li>End of year summative assessment.</li> <li>Regular peer and self-marking.</li> </ul>	<p><b>Extension and enrichment activities:</b></p> <ul style="list-style-type: none"> <li>Robotics and Coding Club (Thursday with IA)</li> <li>The National Museum of Computing/Bletchley Park/ Manchester's Museum of Science &amp; industry</li> <li>At-Bristol Science Centre / National Space Centre</li> <li>The Science Museum / National Media Museum/ Jodrell Bank</li> <li>Leicester Retro Computer Museum</li> </ul>