

Curriculum Narrative



Subject: Computing	Year: 9	Author: N. Ogu
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Key Knowledge <i>Students will know</i>	Key Skills <i>Students will be able to</i>
<u>Key Threshold Concepts:</u> Year 9 Computing prepares students for GCSE by deepening creative digital production, problem-solving and text-based programming. Students will know: - How 3D models and animations are constructed in Blender using transformation, edit mode, materials, timelines and keyframes. - How Python programs are structured using input/output, variables, data types, casting, selection and iteration. - How computers represent data using binary and hexadecimal, and how linear and binary search algorithms operate. How algorithms are designed and traced using flowcharts and logical reasoning.	<u>Subject Skills:</u> <i>By the end of Year 9, students should be able to</i> - Design, build and animate a 3D model in Blender using keyframes and timeline control. - Write structured Python programs using variables, data types, selection and iteration. - Apply binary and hexadecimal, and trace linear and binary search to compare them. Create and trace flowcharts that represent decision-making and iterative processes.

<u>Subject Specific Knowledge and Sequencing:</u> 1 lesson each two-week cycle Term 1 - 3D modelling and animation (Blender). Students develop spatial reasoning and creativity by modelling, colouring and animating a scene (a snowman), building confidence with a complex interface. Term 2 - Programming with Python. Text-based programming is placed in the reliable spring term to protect it. Students write Python using input, variables, data types, casting and selection, building GCSE readiness. Term 3 - Binary and algorithms (GCSE foundations). A theory unit placed in the exam-season summer, extending Year 7 binary with hexadecimal and two's complement, and introducing search algorithms and flowchart tracing.	<u>Prerequisites and Spiral Teaching:</u> - Students build on Year 7 and 8 knowledge of systems, binary, logic, sequencing and block-based/hybrid programming (Edublocks). - Retrieval practice reinforces prior knowledge and vocabulary. - Algorithm tracing introduced with binary directly strengthens Python debugging. - Skills developed in Blender (precision, sequencing steps, planning processes) support later algorithmic and programming work. <u>Cross-Curricular Knowledge Links</u> Art: animation principles, visual composition and creative design. Maths: binary, hexadecimal, coordinates, transformations and problem-solving. English: technical explanation and instruction writing. Science: modelling and systematic testing.
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Reading Lists / Sources / Reading around the subject recommendations:	
• Blender.org - beginner and animation guides. • NCCE KS3 Computing units -programming, data representation, algorithms. • BBC Bitesize KS3/GCSE - binary, algorithms, Python. • CS Unplugged - algorithm and logic activities.	

