

What we teach in Computer Science

At New Avenue, we teach Computer Science to equip pupils with essential digital skills for modern life. Pupils learn to use technology confidently and responsibly, develop practical programming abilities, and build problem-solving and critical thinking skills.

The curriculum follows a clear progression from Foundation Phase through to GCSE, covering topics such as digital literacy, programming (using Scratch, Python, and HTML), data handling, online safety, and the ethical impacts of technology.

We aim for pupils to understand how technology works, use it creatively and critically, and apply their skills across real-world contexts.

How we teach Computer Science

Computer Science lessons follow a consistent structure across phases:

- **Do Now** activities revisit key knowledge, vocabulary or skills from previous learning.
- **Retrieval Tasks** consolidate core skills, such as debugging, formatting, or algorithm design.
- **Mini-Lesson** introduces one new concept or tool clearly and practically.
- **Guided Practice** allows pupils to work with structured support while trying new programming, design or editing skills.
- **Independent Projects** give pupils the chance to apply their learning creatively.
- **Reflection** builds pupils' ability to evaluate digital work and explain technical processes.

Lessons are practical, collaborative and tailored to pupils' starting points, ensuring accessibility and challenge for all.

How we measure progress in Computer Science

Progress is assessed through:

- Practical projects and digital artefacts (e.g., programs, websites, data reports).
- Problem-solving and debugging tasks.
- Discussions and presentations demonstrating understanding of concepts.
- Formal assessments linked to specific programming and computing units.
- Ongoing teacher observations and peer feedback.

Assessment focuses on both technical skills and the ability to think logically, creatively and safely in digital environments.

Curriculum Overview for Computer Science

Phase	Focus	Key Topics
Foundation (Years 1–2)	Early digital literacy, basic programming and online safety	Introduction to Technology, Safe Online Behaviour, Basic Programming with Bee-Bots and ScratchJr
Phase 1 (Years 3–4)	Developing digital content and structured programming	Creating Newsletters and Websites, Programming Sequences, Repetition and Variables, Networks and Debugging
Phase 2 (Years 5–6)	Applying computing skills to real-world tasks and problem-solving	Advanced Programming, Data Handling with Spreadsheets, Search and Internet Safety, Digital Project Design
Phase 3 (Years 7–9)	Expanding computational thinking, programming depth and digital literacy	Computational Thinking, Python Programming, Networks and Cybersecurity, Data Representation, Multimedia Integration
Phase 4 (Years 10–11)	GCSE Computer Science or vocational pathways	Algorithms and Programming, Systems Architecture, Data Representation, Cybersecurity, Ethical and Legal Issues in Technology, Exam Preparation

Computer Science Long-Term Plan

Phase	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Foundation (Years 1–2)	Getting Started with Technology	Staying Safe Online	Navigating the Digital World	Algorithms and Programming Basics	Debugging and Predicting Outcomes	Combining Programming Skills
Phase 1 (Years 3–4)	Designing and Presenting Digital Content	Creating Digital Graphics (Canva)	Web Page Creation	Controlling Physical Systems	Using Networks and Online Safety	Debugging and Explaining Programs
Phase 2 (Years 5–6)	Repetition and Loops in Programming	Conditional Logic and Decision-Making	Evaluating Online Information	Data Analysis Projects	Integrating Design and Functionality	Collaborative Digital Projects
Phase 3 (Years 7–9)	Computational Thinking and Programming Fundamentals	Hardware and Software Basics	Digital Data Representation	Networks, Cybersecurity and Boolean Logic	Multimedia Projects Across Devices	Evaluating and Presenting Digital Work
Phase 4 (Years 10–11)	Algorithm Design and Advanced Programming	Systems Architecture and Boolean Logic	Communication, Networks and Security	Programming for Problem-Solving and Project Work	Exam Preparation and Consolidation	GCSE Exams

