

Computing Curriculum Overview

INTENT

At Nanstallon, computing sits within our STEM strand, where learning is built on joy, curiosity and purpose and pupils secure strong foundational knowledge before applying it with increasing independence.

Our ambition is to develop pupils as confident digital engineers through the three big ideas of computing:

1. Computer Science
2. Information Technology
3. Digital Literacy

We want pupils to:

- Understand and apply the core principles of computer science including algorithms, logic and data representation
- Analyse problems in computational terms and write programs to solve them
- Select and use information technology to create purposeful digital outcomes
- Use technology safely, respectfully and responsibly

Across the school, we structure learning through four key concepts:

- Code
- Connect
- Communicate
- Collect

IMPLEMENTATION

Computing is taught through a carefully sequenced curriculum, underpinned by explicit teaching, clear modelling, guided practice and regular retrieval so that pupils build secure knowledge and fluency over time.

Curriculum structure

Pupils build knowledge and skills across the three strands:

1. Computer Science focuses on algorithms, programming, debugging and computational thinking
2. Information Technology focuses on purposeful creation and management of digital content, including data and multimedia
3. Digital Literacy focuses on online safety, responsible behaviour, privacy and reporting concerns

Learning is designed to be practical and creative, using a range of devices and applications, and including opportunities for physical computing and robotics, so that pupils can see how code and systems operate in the real world.

Simplified progression of skills and knowledge

Strand	EYFS and KS1 developing knowledge	KS2 deepening knowledge
Digital safety and responsibility	Screen time habits, rules, trusted adults, keeping personal information private, seeking help	Evaluating online information, scams and misinformation, secure passwords, copyright, reporting concerns, understanding digital footprints and permanence
Programming and computational thinking	Understand that an algorithm is clear instructions, create and debug simple programs, predict outcomes	Decompose problems, design and debug programs for specific goals, use repetition, selection and variables, work with inputs and outputs, explain and fix errors
Creating digital content	Create, organise, store and retrieve content, begin editing images and simple multimedia	Select and combine software to design and create content, including multimedia, presentations and digital media with attention to layout and purpose
Data, networks and digital systems	Recognise common uses of IT, identify basic hardware and how devices help us	Understand networks and the internet, use search technologies effectively and evaluate results, collect and present data, use spreadsheets, charts and graphs

Inclusion and accessibility

All pupils can succeed through:

- Unplugged approaches to teach algorithms, sequencing and debugging before moving to devices
- Scaffolds such as worked examples, word banks, guided code templates and paired programming
- Adaptive tools and accessibility features on devices, including audio support and alternative ways to record learning
- Overlearning and retrieval so key vocabulary and concepts are secured over time

Assessment

Assessment is primarily formative and based on pupils' ability to apply knowledge in practical outcomes. Evidence includes:

- Completed programs and digital products
- Teacher observation of debugging, reasoning and safe choices
- Short retrieval tasks on key vocabulary and concepts
- Discussion using shared disciplinary questions about software, hardware, purpose and audience

IMPACT

By the end of Key Stage 2, pupils leave Nanstallon able to:

- Design, write and debug programs that accomplish specific goals, including physical systems and inputs and outputs
- Select and combine digital tools to create high quality content and present information effectively
- Use search technologies with discernment and understand how results are selected and ranked
- Use technology safely, respectfully and responsibly, including knowing how to report concerns
- Explain how devices and networks connect and why this matters in everyday life

Impact is evaluated through:

- Quality and independence shown in digital outcomes over time
- Pupil voice and confidence in explaining how and why their solutions work
- Evidence of safe and respectful behaviour online in school systems and learning tasks
- Smooth transition into Key Stage 3 computing, with pupils ready for increased complexity in programming, systems and digital media