NEWTON BLUECOAT CE PRIMARY SCHOOL

Computing
Progression of Key Learning

Nursery to Year 6 • 2026–27

CREATE • CODE • CONNECT • QUESTION • STAY SAFE

"Shine from the inside out"

Purpose

This document makes the progression from early experiences of technology in EYFS to increasingly confident, creative, critical and responsible computing in Year 6 explicit. It is organised around Computer Science, Information Technology and Digital Literacy, with online safety and computational thinking running through every stage.

Progression at a glance

Nursery – foundations through play: Encounter technology as part of everyday life; follow simple sequences and routines; make choices; explore cause and effect; communicate ideas; begin to understand that adults help us use equipment safely.

Reception – purposeful first steps: Recognise uses of technology; make good and bad choices; operate simple equipment; explore software; use a mouse and keyboard; create pictures and recordings; collect information as photos or sound; understand that technology can help us play, learn, create and communicate.

Key Stage 1 – secure foundations: Follow and create algorithms; program simple outcomes; sort and represent data; create digital content; search for information; use devices safely and understand that personal information should be kept private.

Lower Key Stage 2 – growing control: Use sequence, repeat, procedures and debugging; work with spreadsheets, databases, email, Logo and animation; develop search skills; understand networks, digital footprints, cyberbullying and reporting.

Upper Key Stage 2 – independence and criticality: Use selection, variables and increasingly complex programs; interrogate data; create for audience and purpose; understand binary and online communication; evaluate reliability, copyright, privacy and security; refine digital outcomes independently.

The Computing Journey

COMPUTE	CREATE	DATA	CONNECT	STAY SAFE
Algorithms, programming & debugging	Digital content for purpose & audience	Collect, organise, analyse & present	Devices, networks, search & communication	Responsible, secure online choices

Computer Science – algorithms, programming & debugging

Stage	Key learning
Nursery	Develop foundations through routines and play: follow simple instructions, anticipate what comes next, order familiar actions and explore cause and effect. Use language such as first, next and then in everyday contexts.
Reception	Follow and give simple instructions; recognise that actions have outcomes; operate simple equipment and explore software. Begin to sequence steps to achieve a simple outcome.
Year 1	Understand that an algorithm is a sequence of instructions. Follow, create and test simple algorithms; program simple outcomes; identify and correct straightforward errors.
Year 2	Create and explain algorithms; program sequences with increasing control; predict outcomes; test and debug code; begin to use repetition where appropriate.
Year 3	Design, write and debug programs using sequence and repeat. Use procedures and begin to work with inputs/outputs; explain how changes affect an outcome.
Year 4	Use sequence, repetition, procedures and Logo with increasing precision. Explore inputs, sensors and selection; debug systematically and explain errors.
Year 5	Design and refine programs using selection and variables where appropriate. Decompose problems, test alternatives and improve efficiency.
Year 6	Plan, program, test, debug and refine increasingly complex outcomes. Use algorithms, procedures, selection, repetition and variables appropriately and justify how a solution works.

Information Technology – creating digital content

Stage	Key learning
Nursery	Express ideas through play, mark-making, music, stories and shared experiences. Encounter adult-supported use of digital media where it naturally supports communication or reflection.
Reception	Use technology to create simple pictures and recordings. Explore software, mouse and keyboard use, and understand that technology can be used to create and communicate.
Year 1	Create simple digital content using images, text or sound. Make basic choices about tools and save work with support.
Year 2	Combine text, images and sound for a simple purpose. Make music digitally and begin to edit or improve a digital outcome.
Year 3	Develop keyboard fluency through touch typing; create and edit digital content; use email appropriately within taught contexts and make purposeful presentation choices.
Year 4	Create animation and use digital tools with greater control. Edit and improve outcomes and choose tools that suit a task.
Year 5	Use word processing and 3D modelling to create for a clear purpose. Manipulate and refine digital content with increasing awareness of audience.

Stage	Key learning
Year 6	Create and refine multimedia for purpose and audience; use text, images, sound, video, transitions or hyperlinks where appropriate; evaluate effectiveness and improve the final outcome.

Information Technology – data & information

Stage	Key learning
Nursery	Sort and group familiar objects in play; notice similarities and differences; make choices and talk about what has been found. These are pre-computing foundations rather than formal data handling.
Reception	Collect simple information using photographs or sound; group and organise information with adult support and begin to recognise that technology can store information.
Year 1	Group and sort information; create and interpret simple pictograms; begin to use spreadsheets for simple representations.
Year 2	Use spreadsheets and questioning activities to organise information, represent data and answer simple questions.
Year 3	Use spreadsheets and databases; enter, organise and retrieve information; ask questions of stored data and begin to consider accuracy.
Year 4	Use spreadsheets with greater control; organise and analyse data and select appropriate ways to present information.
Year 5	Use spreadsheets and databases to interrogate, organise and present information; refine queries and check whether data is plausible or useful.
Year 6	Use the full data process: generate, process, interpret, store and present information. Use increasingly complex spreadsheet operations and searches; identify inaccurate or poor-quality data and explain conclusions.

Digital Literacy – devices, networks & communication

Stage	Key learning
Nursery	Recognise familiar technology in everyday life through discussion and play. Learn that equipment has a purpose and should be handled carefully.
Reception	Recognise uses of technology; operate simple equipment; understand that technology can be used to play, learn, create and communicate.
Year 1	Identify common digital devices and simple uses of the Internet. Begin to save work and understand that devices can communicate or access information.
Year 2	Develop understanding of online tools and how technology supports communication. Use effective searching at an introductory level.

Stage	Key learning
Year 3	Understand that devices can be connected through networks. Use email in a taught context and develop awareness of how information can be shared.
Year 4	Develop understanding of school networks, devices and Internet components; use search and online tools more independently.
Year 5	Explain how devices and Internet services support communication and access to information. Select suitable digital tools for different purposes.
Year 6	Explain how networks and Internet services support communication and information movement. Understand binary as a way computers represent information and use online communication tools responsibly.

Digital Literacy – searching, questioning & reliability

Stage	Key learning
Nursery	Ask questions and explore with adult support. Begin to understand that adults can use technology to find or show information.
Reception	Explore information with adults and begin simple searches where appropriate. Talk about what has been found and ask questions about it.
Year 1	Use simple searches and begin to choose useful words. Know that not everything seen online should be accepted without adult help.
Year 2	Use effective searching and choose keywords. Compare simple sources and discuss whether information answers the question.
Year 3	Use keywords more deliberately; compare sources and understand that online information may be inaccurate.
Year 4	Search efficiently; compare information from different sources and begin to consider reliability and ownership.
Year 5	Evaluate sources with increasing criticality; consider reliability, influence, ownership and copyright when using online information.
Year 6	Understand that search results are ranked; refine searches; judge reliability and influence; acknowledge ownership and copyright and explain why information should be checked.

Online safety & responsible use

Stage	Key learning
Nursery	Learn safe classroom routines for equipment, take turns, care for resources and seek adult help when unsure. Begin to understand that trusted adults help keep us safe.

Stage	Key learning
Reception	Make good and bad choices when using technology; tell a trusted adult if something worries or upsets them; begin to understand that some information is private.
Year 1	Use technology safely and respectfully; keep personal information private; know to tell a trusted adult about anything concerning online.
Year 2	Develop secure online habits; understand privacy and appropriate online behaviour; know how and why to report concerns.
Year 3	Understand digital footprints and cyberbullying; communicate appropriately and know routes for reporting concerns.
Year 4	Use secure passwords; understand reporting tools, respectful communication and ways to protect personal information and devices.
Year 5	Make informed choices about privacy, communication and device security; understand online influence and the importance of responsible behaviour.
Year 6	Explain digital footprints, privacy, secure passwords, cyberbullying and reporting routes. Communicate responsibly, protect devices and personal information, and make thoughtful choices about online participation.

Computational thinking & evaluation

Stage	Key learning
Nursery	Persist with simple problems in play; try another way when something does not work; notice patterns and repeat successful actions.
Reception	Break simple tasks into steps, predict what may happen, notice when an action does not work and try again with support.
Year 1	Sequence steps, predict simple outcomes, identify errors and say whether a digital outcome has worked.
Year 2	Decompose simple problems, predict outcomes, debug and explain how a solution could be improved.
Year 3	Use decomposition, algorithmic thinking and logical reasoning more independently; identify bugs and refine solutions.
Year 4	Recognise repeated processes and use procedures/repeat to improve efficiency. Test systematically and evaluate digital outcomes.
Year 5	Use decomposition, pattern recognition, selection and variables to improve solutions; compare approaches and refine for purpose.
Year 6	Apply decomposition, algorithmic thinking, logical reasoning, debugging, pattern/efficiency and evaluation independently. Test against purpose and justify refinements.

Year-by-year curriculum map

Year 1: Online Safety • Grouping and Sorting • Pictograms • Lego Builders • Coding • Spreadsheets

Year 2: Coding • Online Safety • Spreadsheets • Questioning • Effective Searching • Making Music

Year 3: Coding • Online Safety • Spreadsheets • Touch Typing • Emails • Databases

Year 4: Coding • Online Safety • Spreadsheets • Effective Searching • Logo • Animation

Year 5: Coding • Online Safety • Spreadsheets • Databases • 3D Modelling • Word Processing

Year 6: Coding • Online Safety • Spreadsheets • Blogging • Understanding Binary • Spreadsheets

End-of-phase expectations

By the end of Nursery: Children have developed pre-computing foundations through following routines and sequences, exploring cause and effect, sorting and grouping, persevering with simple problems, caring for equipment and seeking adult help.

By the end of Reception: Children recognise uses of technology, operate simple equipment, explore software, use a mouse and keyboard, create pictures and recordings, collect simple information and make safe choices with adult support.

By the end of Key Stage 1: Pupils can create and follow simple algorithms, program and debug simple outcomes, organise and represent data, create digital content, search for information and explain basic rules for safe and private technology use.

By the end of Lower Key Stage 2: Pupils use sequence, repeat, procedures and increasingly systematic debugging; create and edit digital content; work with spreadsheets and databases; understand networks and searching; and explain digital footprints, cyberbullying and reporting.

By the end of Key Stage 2: Pupils design, test and refine increasingly complex programs; interrogate and present data; create purposeful digital content for audiences; understand networks, binary and online communication; evaluate reliability and copyright; and make secure, responsible online choices.

Think like a computer scientist

- What is the problem I am trying to solve?
- Can I break the problem into smaller steps?
- What algorithm or sequence will achieve the outcome?
- Can I predict what will happen before I run it?
- Where is the bug or error, and what evidence helps me fix it?
- Could repetition, a procedure, selection or a variable make the solution more efficient?
- How can I test whether my solution works reliably?
- Is this digital tool, information or communication safe, appropriate and effective?