



Barnes Infant Academy – Computing Progression of Knowledge, Skills and Vocabulary

Our Computing curriculum develops pupils’ ability to use technology purposefully, creatively and safely. Through structured exploration of digital tools, programming, data and online safety, pupils learn how technology works and how it can be used to create, solve problems and communicate ideas. Learning is carefully sequenced to build confidence and independence, ensuring pupils become thoughtful and responsible users of technology rather than passive consumers.

The curriculum is rooted in six key concepts — Algorithms & Computational Thinking, Programming & Debugging, Systems, Networks & Digital Devices, Creating Digital Content, Data & Information, and Online Safety & Digital Citizenship — which act as conceptual threads across Key Stage 1. Alongside substantive knowledge, pupils develop disciplinary knowledge by learning how to work as computer scientists: following and creating instructions, testing and debugging programs, organising information, making purposeful design choices, and applying safe and responsible behaviours when using technology.

This curriculum prepares pupils for Key Stage 2 by ensuring they develop secure foundations in programming, data handling, digital creativity and online safety, enabling them to move confidently into more complex systems, programming constructs and critical digital literacy.

Bridge Statement (EYFS to KS1)

In the Early Years Foundation Stage, children explore digital devices through play-based experiences, using technology to support learning, creativity and communication. These experiences build familiarity and confidence with digital tools. In Key Stage 1, pupils build on this foundation by using technology more independently and purposefully. They learn to log in, save and retrieve work, follow clear instructions, create digital content, organise information and understand how to stay safe online, developing the early habits and thinking of computer scientists.

Substantive (Sticky) Knowledge

Aspect / Strand	Year 1	Year 2
Algorithms and Computational thinking	<ul style="list-style-type: none"> – I know that instructions need to be clear and in the correct order. – I know that an algorithm is a set of instructions. – I know that changing the order of instructions changes the outcome. 	<ul style="list-style-type: none"> – I know that algorithms are used to solve specific problems. – I know that algorithms can include choices or events. – I know that algorithms can be tested and improved.
Programming and Debugging	<ul style="list-style-type: none"> – I know that a program tells a computer what to do. – I know that computers follow instructions exactly. – I know that mistakes in programs can stop them working. 	<ul style="list-style-type: none"> – I know that programs can respond to actions or events. – I know that errors in programs are called bugs. – I know that debugging means finding and fixing errors.
Systems, Networks and Digital Devices	<ul style="list-style-type: none"> – I know that technology includes digital devices such as computers and tablets. – I know that technology is used at school and at home. – I know that different devices have different purposes. 	<ul style="list-style-type: none"> – I know that technology is used in many jobs and everyday situations. – I know that digital devices work as part of systems. – I know that technology helps people communicate and work efficiently.
Creating Digital Content	<ul style="list-style-type: none"> – I know that digital content can include pictures, text and sound. – I know that digital content can be created and saved. – I know that digital work can be edited and improved. 	<ul style="list-style-type: none"> – I know that digital content can be created for a specific purpose. – I know that digital content can be refined through editing. – I know that different tools create different effects.
Data and Information	<ul style="list-style-type: none"> – I know that information can be collected to answer questions. 	<ul style="list-style-type: none"> – I know that data can be organised using tables or spreadsheets.

	<ul style="list-style-type: none"> – I know that information can be shown using pictures or symbols. – I know that digital tools can help organise information. 	<ul style="list-style-type: none"> – I know that information can be sorted and compared digitally. – I know that questions can be used to find information in databases.
Online Safety & Digital Citizenship	<ul style="list-style-type: none"> – I know that some information about me is private. – I know that passwords should not be shared. – I know that I should tell an adult if something online worries me 	<ul style="list-style-type: none"> – I know that people online are not always who they say they are. – I know that online behaviour should be respectful. – I know that there are trusted adults who can help if I feel unsafe.

Working as a Computer Scientist		
Skill	Year 1	Year 2
Following & Creating Instructions	<ul style="list-style-type: none"> – I follow simple instructions to make something happen. – I create simple sequences of instructions. 	<ul style="list-style-type: none"> – I design instructions to achieve a specific outcome. – I test and refine instructions.
Programming & Debugging	<ul style="list-style-type: none"> – I create simple programs. – I spot when a program does not work. 	<ul style="list-style-type: none"> – I create programs that respond to events. – I debug programs to improve them.
Using Digital Devices & Systems	<ul style="list-style-type: none"> – I log in and navigate digital tools. – I use devices safely and independently. 	<ul style="list-style-type: none"> – I choose appropriate digital tools for a task. – I explain how technology helps people.
Creating & Editing Digital Content	<ul style="list-style-type: none"> – I create simple digital content. – I save and retrieve my work. 	<ul style="list-style-type: none"> – I edit and improve digital content. – I make purposeful design choices.
Handling Data & Information	<ul style="list-style-type: none"> – I collect information to answer a question. 	<ul style="list-style-type: none"> – I organise data using tables or spreadsheets. – I use questioning to find information.

	<ul style="list-style-type: none"> – I organise information using pictures or symbols. 	
Staying Safe Online	<ul style="list-style-type: none"> – I keep my personal information private. – I ask for help if something worries me. 	<ul style="list-style-type: none"> – I recognise unsafe situations online. – I explain how to stay safe and respectful online.

Core Vocabulary		
Tier	Year 1	Year 2
Tier 2	create, save, retrieve, organise, safe, private, instruction, choice	design, edit, improve, compare, decide, predict, purpose, pattern
Tier 3	algorithm, program, device, digital content, password, pictogram	debug, event, data, spreadsheet, database, branching, online