



Progression and Core Knowledge in Computing

The Big Ideas in Computing

- Apply computational thinking to solve problems such as abstraction, logic, algorithms and data representation.
- Create programs and systems in a range of contexts
- Be digitally literate and responsible users

National Curriculum Objectives for KS1

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

From Teach Computing unit summaries

	FS	Y1	Y2
Algorithms and programming	Uses ICT hardware to interact with age-appropriate computer software. Children will be familiar with various electronic gadgets that take a photograph or record their voices.	Know that an algorithm is a set of instructions used to solve a problem or achieve an objective. Know that an algorithm written for a computer is called a program. Know how to write short algorithms and programs for floor robots. Predict program outcomes Design and programme the movement of a character on screen to tell stories	Know that an algorithm is used on digital devices and is a set of instructions designed to complete a task Create a simple program that achieves a specific purpose Know that programs require precise instructions Know how to debug programs Design algorithms and programs that use events to trigger sequences of code to make an interactive quiz.
Reasoning		Predict what will happen at different stages of a program	Predict what the outcome of a simple program will be Identify the parts of program that respond to specific actions. For example, writing a cause and

			effect sentence of what will happen in a program
Using Technology		Create media: Know how to choose appropriate tools in a programme to create art. Make comparisons with working non-digitally. Know how to use a computer to create and format text. Data and information: Know how to explore object labels and groups objects by properties Know how to save and retrieve work to and from a designated private space	Create media: Capture and change digital photographs for different purposes Know when to take photographs in portrait and landscape formats Data and information: Collect data in tally charts and use attributes to organise and present data as a pictogram Make comparisons with working non-digitally. Independently save and retrieve work to and from a designated private space
Uses IT beyond school	Know information can be retrieved from computers. Select and use technology for particular purposes. Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones. Recognise that a range of technology is used in places such as homes and schools.	Talk about some of the IT uses in their own home. Make a distinction between objects that use modern technology and those that do not, e.g. a microwave vs a chair.	Know how technology is used in school and outside of school. Effectively retrieve relevant, purposeful digital content using a search engine.
Use IT safely	Know that some technological devices have passwords	Use technology safely and respectfully Keep personal information (such as passwords) private Know who to tell if they see or hear something that is unkind or worrying	Use technology safely and respectfully Know who to tell if they see or hear something that is unkind or worrying

What's next in computing?

Strand	Y3	Y4
Algorithms	C3.1 know how to make logical, achievable steps and absorbing new knowledge of coding structures	C4.1 know how to trace code and use step through methods to identify errors in code and make logical attempts to correct this
Creating Programs	C3.2 know how to write programs that accomplish specific goals	C4.2 know how to create a program which accomplishes a specific goal in a simulated environment (e.g. give an 'on-screen' robot specific instructions that takes them from A to B)
Developing Programs	C3.3 know how to design and debug a sequence of instructions, including directional instructions C3.4 know how to detect errors within programs	C4.3 know how to experiment with variables to control models C4.4 know how to detect and correct errors in programs
Using Programs	C3.5 know how to use a range of software for similar purposes C3.6 know how to collect and present information	C4.5 know how to select and use software to accomplish given goals C4.6 know how to create linked content using a range of software C4.7 know how to make informed software choices when presenting information and data
Reasoning	C3.7 know how to use logical reasoning to explain how some simple algorithms work C3.8 know how to discern when it is best to use technology and where it adds time or no value	C4.8 know how to make an accurate prediction and explain why they believe something will happen (linked to programming)
Search Engines	C3.9 know how to navigate the web to complete simple searches C3.10 know how to use search technology effectively	C4.9 know how to search for specific information and know which information is useful and which is not C4.10 know how to appraise selected webpages for credibility and information at a basic level
Networks	C3.11 know what computer networks do and how they provide multiple services	C4.11 know that computer networks can provide opportunities for communication and collaboration
Safe Use	C3.12 know how to use technology safely, respectfully and responsibly C3.13 know the negative implications of failure to keep passwords safe and secure C3.14 know different ways they can get help if concerned	C4.12 know how to recognise acceptable and unacceptable behaviour using technology C4.13 know a range of ways of reporting inappropriate content and contact