COMPUTING

THE FOXTON CURRICULUM

Foxton Primary School

2023/24

Gallow Field Road. Foxton
Leicestershire, LE16 7QZ

01858 545 328
www.foxton.leics.sch.uk

The similarities between humans and computers are more numerous than the differences
– P.A. Scott

At Foxton Primary School, we are digitally literate and confident users of technology.

Our Computing Curriculum

Computing and technology play a significant part in society today. At Foxton, we follow a structured scheme of work to ensure that the children cover the skills required to meet the aims of the National Curriculum and become digitally literate and confident users of technology.

The Teach Computing curriculum, created by the National Centre for Computing Education, is centred around a high-level taxonomy of ten strands, ordered alphabetically below:

- **Algorithms -** Be able to comprehend, design, create and evaluate algorithms

- **Computer networks -** Understand how networks can be used to retrieve and share information, and how they come with associated risks
- **Computer systems -** Understand what a computer is, and how its constituent parts function together as a whole
- **Creating media -** Select and create a range of media, including text, images, sounds and video
- **Data and information -** Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- **Design and development -** Understand the activities involved in planning, creating, and evaluating computing artefacts
- **Effective use of tools -** Use software tools to support computing work
- **Impact of technology -** Understand how individuals, systems, and society as a whole interact with computer systems
- **Programming -** Create software to allow computers to solve problems
- **Safety and security -** Understand risks when using technology, and how to protect individuals and systems

Each theme is revisited regularly, and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. In addition to the 'safety and security' strand, the children at Foxton also receive termly standalone e-safety reminders, further supplementing the e-safety strand of our PSHE curriculum.

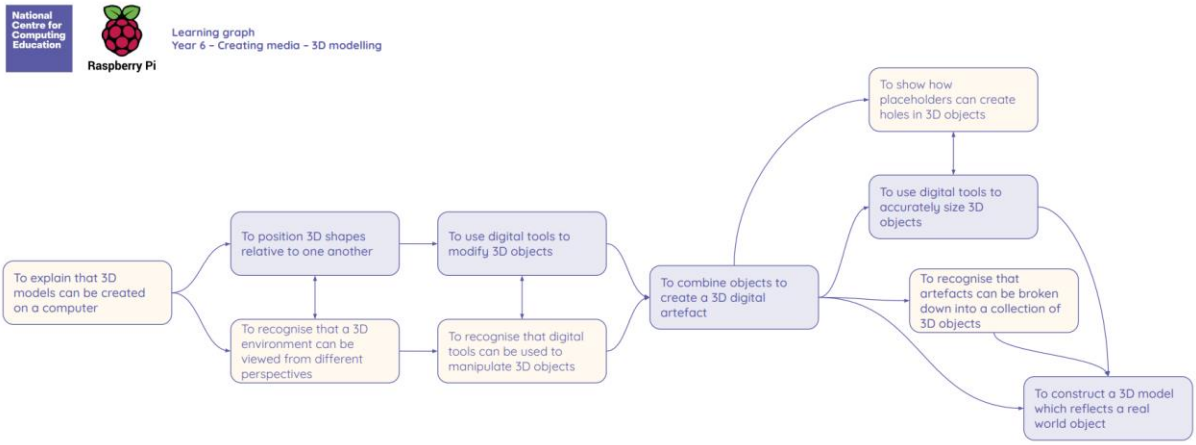
Because the Teach Computing curriculum starts in Year 1, we have thought carefully about the knowledge and skills children need to acquire during their time in Fox Cubs so that they are well-prepared and can access the curriculum in Key Stage 1. This includes developing resilience and perseverance in the face of challenges, knowing and talking about sensible amounts of screen time, developing their fine motor skills so they can use a range of tools competently, safely and confidently, as well as exploring the expressive arts and design to express ideas and feelings. In the summer term, children begin to use Bee-Bots and experiment using navigational language. Throughout the year, the children also learn how to use the interactive whiteboard, various apps on the iPad and enjoy roleplaying with phones and a shop till.

Overview

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rabbits Year 1 & 2	Cycle A	**Computing systems and networks**	**Computing systems and networks**	**Creating Media**	**Programming A**	**Programming A**	**Creating Media**
		Technology around us (1.1)	Information technology around us (2.1)	Digital painting (1.2)	Moving a robot (1.3)	Robot algorithms (2.3)	Digital writing (1.5)
	Cycle B	**Creating Media**	**Data and Information**	**Data and Information**	**Creating Media**	**Programming B**	**Programming B**
		Digital Photography (2.2)	Grouping data (1.4)	Pictograms (2.4)	Digital music (2.5)	Programming animations (1.6)	Programming quizzes (2.6)
Otters Year 3 & 4	Cycle A	**Creating Media**	**Programming A**	**Data and Information**	**Data and Information**	**Creating Media**	**Programming B**
		Stop-frame animation (3.2)	Sequencing sounds (3.3)	Branching databases (3.4)	Data logging (4.4)	Desktop publishing (3.5)	Events and actions in programs (3.6)
	Cycle B	**Computing systems and networks**	**Computing systems and networks**	**Creating Media**	**Programming A**	**Creating Media**	**Programming B**
		Connecting computers (3.1)	The internet (4.1)	Audio production (4.2)	Repetition in shapes (4.3)	Photo editing (4.5)	Repetition in games (4.6)
Badgers Year 5 & 6	Cycle A	**Computing systems and networks**	**Creating Media**	**Programming A**	**Creating Media**	**Creating Media**	**Programming B**
		Systems and searching (5.1)	Video production (5.2)	Selection in physical computing (5.3)	Introduction to vector graphics (5.5)	3D modelling (6.5)	Selection in quizzes (5.6)
	Cycle B	**Computing systems and networks**	**Creating Media**	**Programming A**	**Data and Information**	**Data and Information**	**Programming B**
		Communication and collaboration (6.1)	Webpage creation (6.2)	Variables in games (6.3)	Flat-file databases (5.4)	Introduction to spreadsheets (6.4)	Sensing movement (6.6)

Progression of Knowledge and Skills

The entire Teach Computing curriculum is mapped in order to help teachers understand how every lesson, learning objective and set of success criteria build upon each other. In addition, each unit also has a learning graph such as the example below, which illustrates a child's intended progression and learning journey across a series of lessons.



Knowing more and remembering more

Every computing lesson starts with retrieval practice in order to combat the forgetfulness curve. For example, when children in Class 2 begin a unit of programming, they will be asked questions to recall knowledge from their previous programming units as well as from what they have learnt more recently. Through responsive teaching, staff continuously monitor pupils' progress against expected attainment for their age and provide in-lesson feedback in order to move the learning forward. Additional support and challenge is provided as required. Every unit also comes with an assessment rubric to support teachers in making accurate assessment judgements throughout each unit.

Learning in computing is enjoyed across the school and quality evidence is presented in a variety of forms, sometimes saved electronically on our network and other times printed as hard copies. Children use digital and technological vocabulary accurately, alongside their progression in technical skills. Children become confident using a range of hardware and software and produce high-quality purposeful products. Children leave Foxton seeing the digital world as part of their world, extending beyond school, and understand that they have choices to make in the future.

A Global Curriculum

At Foxton, we hold a vision where every child emerges as a confident and respectful digital citizen, equipped to lead fulfilling and healthy digital lives. Our computing curriculum is a cornerstone of our global educational approach, facilitating access to diverse content, opinions, and resources that transcend geographical boundaries. Rooted in the UN Sustainable Development Goals (SDGs), our curriculum aligns with several key objectives. It embodies Goal 4: Quality Education by fostering digital literacy and responsible online behaviour, enabling students to navigate the digital landscape securely. In the pursuit of Goal 9: Industry, Innovation, and Infrastructure, our curriculum cultivates technological competence and proficiency, positioning our students to engage with evolving global challenges.

Our aspirations extend beyond borders as we endeavour to establish connections with contrasting schools around the world. Through this initiative, learning exchanges with students and educators from diverse backgrounds embody the spirit of Goal 17: Partnerships for the Goals. This engagement with perspectives differing from our own enriches our students' understanding of the world and promotes global citizenship.

Moreover, our commitment to safe and skillful technology use resonates with our enquiry projects and case studies, highlighting the relevance of technology in research (SDG 4). As our students explore topics and seek solutions, they become adept at harnessing digital resources responsibly.

Within the broader context of our global curriculum, computing at Foxton emphasizes the significance of sustainability. Concepts such as recycling and clean, affordable energy, vital components of Goal 12: Responsible Consumption and Production and Goal 7: Affordable and Clean Energy, find connections within our computing curriculum. This holistic approach equips our students with a well-rounded understanding of how technology intersects with sustainability and encourages them to apply digital innovation to address pressing global concerns.

In essence, our primary computing curriculum stands as a testament to our commitment to nurturing well-rounded digital citizens and fostering sustainable solutions that contribute to a better future for all.

Appendix 1

National Curriculum

Purpose of study
A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims
The national curriculum for computing aims to ensure that all pupils: • can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation • can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems • can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems • are responsible, competent, confident and creative users of information and communication technology.

Subject content	
Key stage 1 Pupils should be taught to: • 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.	**Key stage 2** Pupils should be taught to: • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • use sequence, selection, and repetition in programs; work with variables and various forms of input and output • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

	• select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.