



Nythe Primary School Computing Curriculum

Technology is the pen and paper of our time, and the lens through which we experience much of our world.' David Warlick

Intent

Why do we teach this? Why do we teach it the way we do?

Computers are now a key part of children's everyday lives at both home and school. It is our intent that children will leave Nythe Primary School not just confident using a range of devices and applications but also with an understanding of how they work. As children's lives increasingly move online, we want the children to know how to keep themselves safe and how to make the most of the digital tools at their fingertips. We want to kindle in the children a knowledge and enjoyment of computer science and STEM learning which they can take forward into their future learning.

Implementation

What do we teach? What does this look like?

Computing at Nythe Primary School is taught weekly and follows the '**Teach Computing**' scheme, which was developed by The National Centre for Computing Education (NCCE) and is funded by the Department for Education. The scheme has been carefully curated by a consortium made up of STEM Learning, the Raspberry Pi Foundation and BCS, The Chartered Institute for IT. The vision

of the scheme is for every child in every school in England to have a world-leading computing education; which is something we value at Nythe too. The scheme champions diversity and inclusion within lessons; which is integral to the planning, programmes and materials used.

In recent years at Nythe, significant investment has been made in our IT and technology. This provides the children with aspirations that will support and guide them when they enter the ever-changing world of the future workplace. Technology changes daily and it is our aim at Nythe to ensure every child is confident and proficient in their use of modern-day technology.

There are four distinct strands to our computing curriculum. Each strand has its own clear skills progression. The strands are taught through a mixture of discrete, subject specific computing lessons and as part of other blocks of learning. The four strands are:

- Programming
- Computer Systems and Networks
- Creating Media
- Data and Information

The whole curriculum has been designed with input from secondary colleagues to ensure a smooth transition through KS1 and KS2 and on into KS3.

Programming

This strand, which incorporates computational thinking, is mainly taught as discrete computing sessions, although some curriculum links will exist where appropriate. Children begin in EYFS with exploring technology in everyday life through their play and using programmable toys such as Beebots. In KS1 children use Beebots with a specific goal to complete tasks, they begin plan their code and debug where necessary. Children also begin to use on screen coding applications, such as the use of Scratch Jr and other apps. In KS2 children begin to use Scratch as a block programming tool. They learn to use repeats, selection, variables and mathematical operators to achieve a specific task. Their computational thinking is also developed as they plan their code using flow charts. By the end of KS2 children are confident and competent using block programming tools with a solid understanding of the principles that make their code up. They have a chance in upper KS2 to apply this to physical devices using Lego Mindstorms robots and BBC Microbits – using different visual block programming languages, but the same principles.

Computer Systems and Networks

This strand is about introducing children to some of the concepts behind the technology they use. These are taught in a few dedicated, discrete lessons throughout the year, although teachers will be able to regularly reinforce concepts through the children's everyday use of the internet and technology. Learning includes how the internet works, how computers work together in the school network, how search engines work and what is inside a computer.

Creating Media

This strand is usually taught as part of other areas of the curriculum, although it may start with a 'tinkering' session to familiarise children with an app, process or specific tool. The wider curriculum provides the focus and task aspect (for example make a podcast, digital publication or animation to showcase your learning about Ancient Greeks). Through KS1 and KS2 children will learn word processing, desktop publication, presentation, digital publishing, animation, audio content creation and video creation tools and skills. They will also learn to combine these, for example adding their own video or animation to an ebook. Throughout the school children are encouraged to make choices about layout, format and content to suit audience and purpose. By upper KS2, children are also encouraged to make choices about which apps and tools they want to use and combine. These choices are again based on the purpose and audience for their content.

Data and Information

The Data and Information strand is again taught once a year, progressing in both skills and software. Key Stage 1 uses simplified age-appropriate software platforms, progressing to more industry focused software in upper Key Stage 2.

Online Safety

We teach online Safety using the resources and lessons on www.projectevolve.co.uk These take the 350 statements from the UKCIS (UK Council for Internet Safety) framework "Education for a Connected World" and provide resources for each. These cover the following strands of online safety:

- Self-Image and Identity
- Online Relationships

- Online Reputation
- Online Bullying
- Health, Well-being and Lifestyle
- Privacy and Security

Online safety is an all year, ongoing focus, which is constantly returned to – teachers will use Project Evolve resources to support their online safety teaching and messages throughout the year. These online safety lessons are taught alongside Computing and there is also an overlap into our Scart PSHE curriculum as well.

Impact

What will this look like?

At the end of a block of learning on a specific strand, teachers identify children who did not achieve the skills and knowledge set out in the curriculum. They also identify children who demonstrated they were working beyond the age-related expectations of the curriculum.

Computing Long Term Overview

Year	Autumn	Spring	Summer
1	Term 1: Computing Systems and Networks – Technology all around Us/Online Safety Term 2: Creating Media – Digital Painting	Term 3: Programming A – Moving a Robot Term 4: Data and Information: Grouping Data/Online Safety	Term 5: Creating Media – Digital Writing Term 6: Programming B: Introduction to Animation
2	Term 1: Computing Systems: IT around us/Online Safety Term 2: Creating Media: Digital photography	Term 3: Programming A: Robot Algorithms Term 4: Data and Information: Pictograms/Online Safety	Term 5: Creating Media: Making Music/Online Safety Term 6: Programming B: An introduction to quizzes.
3/4	Term 1: Computing Systems and Networks: The Internet Term 2: Creating Media: Audio Editing/Online Safety	Term 3: Programming A: Repetition in Shapes Term 4: Data and Information: Data logging	Term 5: Creating Media: Photo Editing Term 6: Programming B: Repetition in Games

5	Term 1: Computing Systems and Networks: Sharing Information	Term 3: Programming A: Selection in Physical Computing	Term 5: Creating media: Flat-file databases
	Term 2: Creating Media: Video Production/Online Safety	Term 4: Data and Information: Flat-file databases	Term 6: Programming B: Selection in Quizzes
6	Term 1: Computing Systems and Networks: Communication	Term 3: Programming A: Variables in games	Term 5: Creating Media: 3D Modelling
	Term 2: Creating Media: Web page creation/Online Safety	Term 4: Data and Information: Spreadsheets	Term 6: Programming B: Sensing

E-Safety Long Term Overview (to be taught alongside of each computing unit, using the resources from Project Evolve)

Year	Autumn	Spring	Summer
1	Term 1: Self-Image and Identity- Term 2: Online Relationships	Term 3: Online Reputation Term 4: Online Bullying	Term 5: Health, Well-Being and Lifestyle Term 6: Privacy and Security
2	Term 1: Self-Image and Identity Term 2: Online Relationships	Term 3: Online Reputation Term 4: Online Bullying	Term 5: Health, Well-Being and Lifestyle Term 6: Privacy and Security
3/4	Term 1: Self-Image and Identity	Term 3: Online Reputation	Term 5: Health, Well-Being and Lifestyle

	Term 2: Online Relationships	Term 4: Online Bullying	Term 6: Privacy and Security
5	Term 1: Self-Image and Identity Term 2: Online Relationships	Term 3: Online Reputation Term 4: Online Bullying	Term 5: Health, Well-Being and Lifestyle Term 6: Privacy and Security
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