Fairchildes Computing Curriculum Overview 2022-23
(Based on NCCE Teach Computing)

Intent

Strong computing skills are vital in today's high-tech world. We believe it is essential that our pupils become not only competent users of technology, but that they are taught to confidently create, analyse and share digital content. Our broad, knowledge based curriculum encompasses computer science, information technology and digital literacy. Through developing skills in computational thinking, data handling, and digital media creation, pupils are equipped to use technology in a wide range of situations, allowing them to develop not only their logical and analytical skills, but also their creativity. In line with our school values, we hope that other competencies developed through computer science, such as perseverance and collaboration, help to ensure success across the entire curriculum. We aim to make effective use of both tablets and laptops, plus physical computing devices, to ensure that pupils are aware of a wide range of tools and applications. We recognise the role technology can play in providing accessibility opportunities, and we want all pupils to be able to share their learning in creative ways. We encourage staff to embed computing in all areas of the curriculum, and we hope that as pupils progress they are able to make more informed choices about the best way to complete given tasks and challenges. We understand that it is vital that pupils are taught to use technology safely, respectfully and responsibly. We aim to educate children in the benefits of using the internet, whilst being aware of potential issues and what to do to limit or resolve them, and we model positive use of social media and online communications.

Implementation

We have created a comprehensive curriculum overview for staff to follow, based on the NCCE Teach Computing model, to best embed and cover every element of the computing curriculum. The knowledge and skills taught build year on year to deepen and challenge our learners, while providing for repetition and over-learning as needed.

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Key Stage 1 NC Objectives:

- 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.

(Lower) Key Stage 2 NC Objectives:

- design, write and debug programs that accomplish specific goals; … solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs;
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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.

(Upper) Key Stage 2 NC Objectives:

- 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.

For Online Safety see also Fairchildes Online Safety Overview, in conjunction with PSHE and RSE overviews.

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EYFS	**Programming concepts to be taught in EYFS (through unplugged activities) include: developing logical thinking, pattern spotting, sequencing, following instructions (algorithms) and abstraction.** **See https://www.barefootcomputing.org/earlyyears for detailed plans (also saved to the Drive – Computing>Teaching Resources>EYFS).**	
	Activities that link EYFS Framework/ELGs/Development Matters to Computing	
	Communication and language	Unplugged activities, such as giving precise instructions verbally, e.g. the sandwich making robot. Children could explain verbally what happens when they press the buttons on a Beebot/remote control car. Children help each other with technology in the classroom, developing communication skills. Story time from CBeebies.
	Physical Development	Use of computers and tablets can help develop fine motor skills. Dance Mat Typing could be used to specifically develop typing skills.
	Personal, Social and Emotional Development	Begin to introduce Online Safety through videos and discussion: https://www.childnet.com/resources/smartie-the-penguin (from Nursery) https://www.thinkuknow.co.uk/professionals/resources/jessie-and-friends/ (Episode 1 should be shown in Reception)
	Literacy	Bee Bots/Blue Bots - Children could create a story about the Bee Bot's journey, or they could be used to help sequence events within a story being studied – for example visiting the three little pigs. Puppet Pals App (iPads) to be used for telling/retelling stories orally, with animations. Phonics Apps.
	Mathematics	Controlling Beebots/remote control cars to develop directional language, including 'left' and 'right'.
	Understanding the World	Children should have the opportunity to explore a range of technology, including: remote control cars, Beebots, interactive whiteboards, iPads and laptops, digital cameras, voice recorders, old/broken/model devices.
	Expressive Arts and Design	Children could use iPads to create digital art (Doodle Buddy App/j2e suite). Children could create maps and 'outfits' for Beebots.

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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	General ICT skills Online Safety	Computing systems and networks - Technology around us	Creating Media - Digital Painting	Programming A - Moving a robot	Creating Media – Digital Writing	Programming B – Introduction to animation
Year 2	IT Around Us Online Safety	Creating Media – Digital Photography	Programming A - Robot Algorithms	Data and Information - Pictograms	Creating Media – Making Music	Programming B – Programming Quizzes
Year 3	Online Safety Computing systems and networks – Connecting Computers	Creating Media 1 - Animation	Programming A - Sequence in music	Data and Information – Branching Databases	Creating Media – Desktop Publishing	Programming B - Events and actions
Year 4	Online Safety	Computer systems and networks – the internet	Programming A - Repetition in shapes	Data Handling - Data loggers (c.c. Science)	Creating Media – Photo Editing	Programming B - Repetition in games
Year 5	Online Safety Computing systems and networks – systems & searching	Creating Media – Introduction to Vector Graphics	Programming A – Selection in Physical Computing (c.c. DT)	Data and Information - Flat file databases	Programming B - Selection in quizzes	Creating Media 2 - Video production
Year 6	Online Safety (covered in PSHE) Computing systems and networks	Creating Media - web page creation	Programming A - variables in games	Data and information - spreadsheets	Creating Media - 3D modelling	Programming B – Sensing Movement