Computing Curriculum

Cooperative Education East

Aims of Computing at the Cooperative Education East Trust

Please refer to our Curriculum and Rationale document which can be found on our schools' websites.
https://banham.cee.coop/, https://bunwell.cee.coop/, https://thompson.cee.coop/

Our aim, at the Cooperative Education East Trust, is for children to develop a sense of enjoyment around using technology and to develop their appreciation of its capabilities and the impact it has on everyday life. It is also important that children understand the opportunities that technology offers to create, manage, organise and collaborate with others.
We promote a healthy respect and understanding of technology and its uses. Children are taught to recognise the positive impact it can have on everyday life whilst also understanding the online dangers, addiction and healthy balance, the complications of sharing things with others and safety rules they can follow.

Working with, and developing an understanding of, a range of software and programs forms a core part of the aim of our curriculum as we want to develop the confidence children have when encountering new technology, which is a vital skill in everyday life due to the ever-changing landscape of technology. Through our curriculum, it is our aim that every child is digitally competent and has a range of transferable skills that can be used in the future workplace. Additionally, we feel it is important that children are taught how to be responsible online citizens, who can keep themselves safe in a digital world.

In order to achieve our aims, we have chosen to follow the mixed age curriculum developed by Kapow. This scheme of work enables pupils to meet the end of key stage attainment targets outlined in the National Curriculum, while ensuring that the overall aims also align with those in the National Curriculum. When used in conjunction with our PSHE curriculum (for example on-line safety), the computing scheme also satisfies the objectives of the DfE's Education for a Connected World framework. This guidance was created to help equip children for life in the digital world, including developing their understanding of appropriate online behaviour, copyright uses, understanding how to consume online information critically and lastly, how to use technology in a healthy way.

At the Cooperative Education East Trust, we follow the National Curriculum for Computing which can be found here:

https://assets.publishing.service.gov.uk/media/5a7c576be5274a1b00423213/PRIMARY_national_curriculum_-_Computing.pdf

We have taken the National Curriculum attainment targets for Computing and grouped them into learning lenses in order to align them with our C.A.R.E. vision. As a Trust we ensure we C.A.R.E. and that our children will be Confident, Able to meet future challenges, Responsible members of the community and Effective Learners.

In order to describe Computing across the school we have developed a shared language to be used with all learners across each class and year group.

The 4 learning lenses in computing that we use are:

- Computer science - Principles, concepts, practical applications and problem solving
- Information technology - Applying and evaluating
- Digital literacy - Responsible, confident and competent users
- Online safety - Being aware, keeping safe and managing threat

Curriculum Map

<u>**Cycle A**</u>

	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Reception	Basic online safety	Computing systems and networks 1: Using a computer	Programming 1: All about instructions	Computing systems and network 2: Exploring hardware	Programming 2: Programming Bee-Bots	Data handling: Introduction to data
Year 1/2	Improving mouse skills	Algorithms unplugged	Rocket to the moon	What is a computer?	Algorithms and debugging	Word processing
Year 3/4	Emailing	Programming: Scratch	Video trailers	Website design	Further coding with Scratch	Computational thinking
Year 5/6	Micro:bit	Stop motion animation	Search engines	Inventing a product	History of computers	Introduction to Python

<u>**Cycle B**</u>

	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Reception	Basic online safety	Computing systems and networks 1: Using a computer	Programming 1: All about instructions	Computing systems and network 2: Exploring hardware	Programming 2: Programming Bee-Bots	Data handling: Introduction to data
Year 1/2	Bee-Bots	Digital imagery	Introduction to data	Scratch JR	Stop-motion	International Space Station
Year 3/4	Networks and the internet	Comparison cards	Journey inside a computer	Collaborative learning	Investigating weather	HTML
Year 5/6	Mars Rover 1	Bletchley Park	Mars Rover 2	Big Data 1	Big Data 2	Programming: music

Early Years Curriculum

The EYFS framework is structured across seven areas of learning rather than subject areas. Below is a table highlighting how skills taught in Reception feed into the National Curriculum subjects. Computing is taught in discrete lessons but is also planned for in continuous provision to allow children the opportunity to practise and embed their learning. The EYFS framework states that children should be allowed to foster an understanding of a technologically diverse world. The Kapow curriculum, units covered highlighted below, allow children in the EYFS to explore a range of technology ready to build on these skills in KS1. The units covered are an excellent precursor to the coding, programming and more complex computing found in Year 1. Kapow states that:

'Topics and concepts are introduced in imaginative and easy-to-understand ways, ensuring that children acquire a solid foundation of understanding and make a smooth transition to the KS1 scheme of work. Both the EYFS and Year 1 computing schemes feature a unit all about programming a Bee-Bot. While the Year 1 lessons focus on programming the Bee-Bots to follow set paths and getting to grips with the finer points of algorithms, the EYFS Bee-Bot unit begins simply with understanding arrows. This is because in order to understand algorithms (sets of instructions) and programming, children first need to know how to give simple instructions and what directional arrows mean. It is in this way that our schemes work together in perfect symbiosis - the EYFS scheme building the foundations and bridging the gaps so that children can enter Year 1 with all the building blocks in place to continue their computing journey.'

Computing unit	Learning Lenses	When is it taught?	Links to KS1 and KS2
Computing systems and networks 1: Using a computer	Computer science Digital literacy Online safety	Autumn 2	KS1 Cycle A Spring 2 - What is a computer KS2 Year 3/4 Cycle B Autumn 1 - Networks Year 3/4 Cycle B Spring 1 - Journey Inside a Computer Year 5/6 Cycle A Summer 1 - History of Computers
Programming 1: All about instructions	Computer Science Digital literacy	Spring 1	KS1 Cycle A Autumn 2 - Algorithms unplugged Cycle A - Summer 1 - Algorithms and debugging Year 3/4 Cycle A Autumn 2 - Programming: Scratch Year 3/4 Cycle A Summer 1 - Further Coding with Scratch Year 3/4 Cycle A Summer 2 - Computational Thinking Year 5/6 Cycle A Autumn 1 - Micro:Bit Year 5/6 Cycle A Summer 2 - Introduction to Python Year 5/6 Cycle B Summer 2 - Programming: Music
Computing systems and networks 2: Exploring hardware	Computer science Digital literacy Information technology	Spring 2	KS1 Cycle A Autumn 1 - Improving mouse skills Cycle A Summer 2 - Word processing Cycle B Autumn 2 - Digital imagery Cycle B Summer 1 - Stop-motion KS2 Year 3/4 Cycle A Spring 1 - Video Trailers Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Spring 1 – Mars Rover 2
Programming 2: Programming Bee-Bots	Computer science Digital literacy	Summer 1	KS1 Cycle A Autumn 2 - Algorithms unplugged Cycle A - Summer 1 - Algorithms and debugging

| | | | Year 3/4 Cycle A Autumn 2 - Programming: Scratch
Year 3/4 Cycle A Summer 1 - Further Coding with Scratch
Year 3/4 Cycle A Summer 2 - Computational Thinking
Year 5/6 Cycle A Autumn 1 - Micro:Bit
Year 5/6 Cycle A Summer 2 - Introduction to Python
Year 5/6 Cycle B Summer 2 - Programming: Music |
| Data handling: Introduction to data | Computer science Information technology | Summer 2 | KS1 Cycle B spring 1 - Introduction to data
KS2 Year 3/4 Cycle B Autumn 2 - Comparison Cards
Year 3/4 Cycle B Summer 1 - Investigating Weather
Year 5/6 Cycle B Autumn 2 - Bletchley Park |

Key Stage 1

National Curriculum	**Learning Lenses**	**When is it taught?**	**Links to EYFS and KS2**
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	Computer Science	Cycle A Autumn 2 - Algorithms unplugged Cycle A Spring 1 - Rocket to the moon Cycle A - Summer 1 - Algorithms and debugging Cycle B Autumn 1 - Bee-bots Cycle B Spring 2 - Scratch Jr	EYFS Spring 1 - Programming 1 EYFS Summer 1 - Programming 2 KS2 Year 3/4 Cycle A Autumn 2 - Programming: Scratch Year 3/4 Cycle A Summer 1 - Further Coding with Scratch Year 3/4 Cycle A Summer 2 - Computational Thinking Year 3/4 Cycle B Spring 1 - Journey Inside a Computer Year 5/6 Cycle A Autumn 1 - Micro:Bit Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle B Autumn 2 - Bletchley Park
Pupils should be taught to: create and debug simple programs	Computer Science	Cycle A Autumn 2 - Algorithms unplugged Cycle A - Summer 1 - Algorithms and debugging Cycle B Autumn 1 - Bee-bots Cycle B Spring 2 - Scratch Jr	EYFS Spring 1 - Programming 1 EYFS Summer 1 - Programming 2 KS2 Year 3/4 Cycle A Autumn 2 - Programming: Scratch Year 3/4 Cycle A Spring 1 - Video Trailers Year 3/4 Cycle A Summer 1 - Further Coding with Scratch Year 3/4 Cycle A Summer 2 - Computational Thinking Year 3/4 Cycle B Spring 1 - Journey Inside a Computer Year 3/4 Cycle B Summer 1 - Investigating Weather Year 3/4 Cycle B Summer 2 - HTML Year 5/6 Cycle A Autumn 1 - Micro:Bit Year 5/6 Cycle A Autumn 2 - Stop Motion Animation

			Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 2 - Introduction to Python Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Summer 2 - Programming: Music
Pupils should be taught to: use logical reasoning to predict the behaviour of simple programs	Computer Science	Cycle A Autumn 2 - Algorithms unplugged Cycle A Spring 2 - What is a computer Cycle A - Summer 1 - Algorithms and debugging Cycle B Autumn 1 - Bee-bots Cycle B Autumn 2 - Digital imagery Cycle B Spring 2 - Scratch Jr	EYFS Spring 1 - Programming 1 EYFS Summer 1 - Programming 2 KS2 Year 3/4 Cycle A Autumn 2 - Programming: Scratch Year 3/4 Cycle A Summer 1 - Further Coding with Scratch Year 3/4 Cycle B Spring 1 - Journey Inside a Computer Year 3/4 Cycle B Summer 1 - Investigating Weather Year 5/6 Cycle A Autumn 1 - Micro:Bit Year 5/6 Cycle A Autumn 2 - Stop Motion Animation Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 2 - Introduction to Python Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Summer 2 - Programming: Music
Pupils should be taught to: use technology purposefully to create, organise, store, manipulate and retrieve digital content	Digital literacy	Cycle A Autumn 1 - Improving mouse skills Cycle A Spring 1 - Rocket to the moon Cycle A Spring 2 - What is a computer Cycle A Summer 2 - Word processing Cycle B Autumn 1 - Bee-bots Cycle B Autumn 2 - Digital imagery	EYFS - Autumn 2 - Networks and systems 1 EYFS Spring 2 - Computer systems and networks 2 EYFS Summer 1 - Programming 2 KS2 Year 3/4 Cycle A Autumn 1 - Emailing Year 3/4 Cycle A Spring 1 - Video Trailers Year 3/4 Cycle B Autumn 2 - Comparison Cards Year 3/4 Cycle B Summer 1 - Investigating Weather Year 5/6 Cycle A Spring 1 - Search Engines Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 1 - History of Computers Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Spring 1 - Mars Rover 2
Pupils should be taught to: recognise common uses of information	Information technology	Cycle A Autumn 1 - Improving mouse skills Cycle A Spring 2 - What is a computer Cycle A Summer 2 - Word	EYFS Spring 2 - Computer systems and networks 2 EYFS Summer 2 - Introduction to data KS2

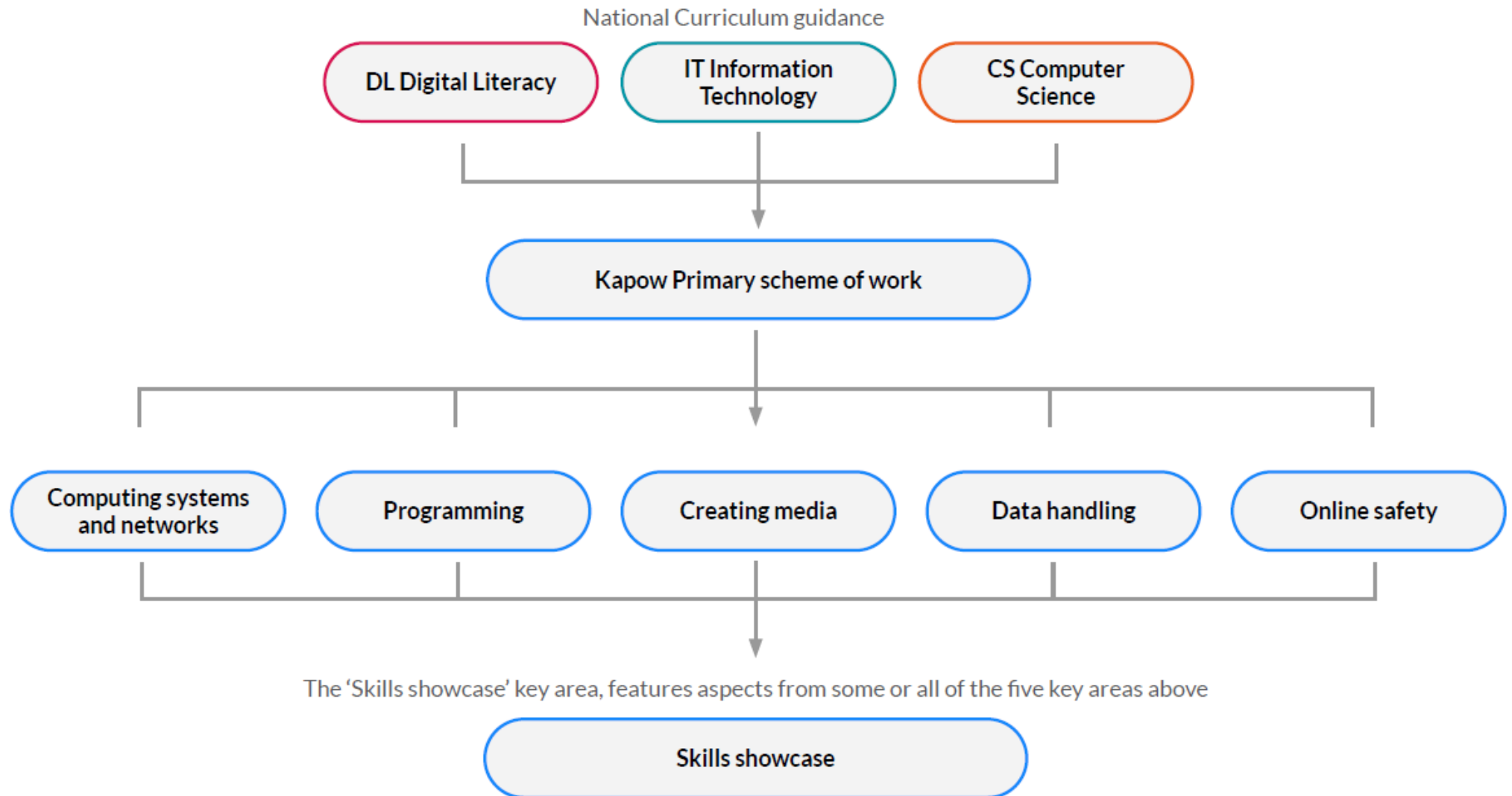|		processing	
technology beyond school		Cycle B Autumn 2 - Digital imagery Cycle B spring 1 - Introduction to data Cycle B Summer 1 - Stop-motion	Year 3/4 Cycle A Autumn 1 - Emailing Year 3/4 Cycle A Spring 2 - Website Design Year 3/4 Cycle B Autumn 1 - Networks Year 3/4 Cycle B Autumn 2 - Comparison Cards Year 3/4 Cycle B Spring 2 - Collaborative Learning Year 3/4 Cycle B Spring 2 - Collaborative Learning Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 1 - History of Computers Year 5/6 Cycle B Autumn 1 - Mars Rover 1 Year 5/6 Cycle B Spring 1 - Mars Rover 2 Year 5/6 Cycle B Spring 2 - Big Data 1 Year 5/6 Cycle B Summer 1 - Big Data 2
Pupils should be taught to: 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.	Digital literacy Online safety	Cycle A Autumn 1 - Improving mouse skills Cycle A Summer 2 - Word processing Cycle B Autumn 2 - Digital imagery Cycle B Summer 1 - Stop-motion	EYFS - Autumn 2 - Networks and systems 1 EYFS Spring 2 - Computer systems and networks 2 EYFS Summer 1 - Programming 2 KS2 Year 3/4 Cycle A Autumn 1 - Emailing Year 3/4 Cycle A Spring 1 - Video Trailers Year 3/4 Cycle A Spring 2 - Website Design Year 3/4 Cycle B Autumn 2 - Comparison Cards Year 3/4 Cycle B Spring 2 - Collaborative Learning Year 3/4 Cycle B Summer 1 - Investigating Weather Year 5/6 Cycle A Spring 1 - Search Engines Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle B Autumn 2 - Bletchley Park

Key Stage 2

National Curriculum	**Learning Lenses**	**When is it taught?**	**Links to EYFS and KS1**
Pupils should be taught to: design, write and debug programs that accomplish specific goals, including controlling or simulating physical	Computer Science	Year 3/4 Cycle A Autumn 2 - Programming: Scratch Year 3/4 Cycle A Spring 1 - Video Trailers Year 3/4 Cycle A Summer 1 - Further Coding with Scratch Year 3/4 Cycle A Summer 2 - Computational Thinking Year 3/4 Cycle B Spring 1 -	EYFS Spring 1 - Programming 1 EYFS Summer 1 - Programming 2 KS1 Cycle A Autumn 2 - Algorithms unplugged Cycle A - Summer 1 - Algorithms and debugging Cycle B Autumn 1 - Bee-bots Cycle B Spring 2 - Scratch Jr

systems; solve problems by decomposing them into smaller parts		Journey Inside a Computer Year 3/4 Cycle B Summer 1 - Investigating Weather Year 3/4 Cycle B Summer 2 - HTML Year 5/6 Cycle A Autumn 1 - Micro:Bit Year 5/6 Cycle A Autumn 2 - Stop Motion Animation Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 2 - Introduction to Python Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Summer 2 - Programming: Music	
Pupils should be taught to: use sequence, selection, and repetition in programs; work with variables and various forms of input and output	Computer Science	Year 3/4 Cycle A Autumn 2 - Programming: Scratch Year 3/4 Cycle A Summer 1 - Further Coding with Scratch Year 3/4 Cycle B Spring 1 - Journey Inside a Computer Year 3/4 Cycle B Summer 1 - Investigating Weather Year 5/6 Cycle A Autumn 1 - Micro:Bit Year 5/6 Cycle A Autumn 2 - Stop Motion Animation Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 2 - Introduction to Python Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Summer 2 - Programming: Music	KS1 Cycle A Autumn 2 - Algorithms unplugged Cycle A Spring 2 - What is a computer Cycle A - Summer 1 - Algorithms and debugging Cycle B Autumn 1 - Bee-bots Cycle B Autumn 2 - Digital imagery Cycle B Spring 2 - Scratch Jr
Pupils should be taught to: use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	Year 3/4 Cycle A Autumn 2 - Programming: Scratch Year 3/4 Cycle A Summer 1 - Further Coding with Scratch Year 3/4 Cycle A Summer 2 - Computational Thinking Year 3/4 Cycle B Spring 1 - Journey Inside a Computer Year 5/6 Cycle A Autumn 1 - Micro:Bit Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle B Autumn 2 - Bletchley Park	EYFS Spring 1 - Programming 1 EYFS Summer 1 - Programming 2 KS1 Cycle A Autumn 2 - Algorithms unplugged Cycle A Spring 1 - Rocket to the moon Cycle A - Summer 1 - Algorithms and debugging Cycle B Autumn 1 - Bee-bots Cycle B Spring 2 - Scratch Jr Cycle A Spring 2 - What is a computer Cycle B Autumn 2 - Digital imagery

Pupils should be taught to: 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	Digital Literacy Information Technology	Year 3/4 Cycle A Autumn 1 - Emailing Year 3/4 Cycle A Spring 2 - Website Design Year 3/4 Cycle B Autumn 1 - Networks Year 3/4 Cycle B Autumn 2 - Comparison Cards Year 3/4 Cycle B Spring 2 - Collaborative Learning Year 3/4 Cycle B Spring 2 - Collaborative Learning Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 1 - History of Computers Year 5/6 Cycle B Autumn 1 - Mars Rover 1 Year 5/6 Cycle B Spring 1 - Mars Rover 2 Year 5/6 Cycle B Spring 2 - Big Data 1 Year 5/6 Cycle B Summer 1 - Big Data 2	EYFS Spring 2 - Computer systems and networks 2 KS1 Cycle A Autumn 1 - Improving mouse skills Cycle A Spring 2 - What is a computer Cycle A Summer 2 - Word processing Cycle B Autumn 2 - Digital imagery Cycle B spring 1 - Introduction to data Cycle B Summer 1 - Stop-motion
Pupils should be taught to: use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	Digital Literacy Information Technology	Year 3/4 Cycle A Autumn 1 - Emailing Year 3/4 Cycle A Spring 1 - Video Trailers Year 3/4 Cycle B Autumn 2 - Comparison Cards Year 3/4 Cycle B Summer 1 - Investigating Weather Year 5/6 Cycle A Spring 1 - Search Engines Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 1 - History of Computers Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Spring 1 - Mars Rover 2	KS1 Cycle A Autumn 1 - Improving mouse skills Cycle A Spring 1 - Rocket to the moon Cycle A Spring 2 - What is a computer Cycle A Summer 2 - Word processing Cycle B Autumn 1 - Bee-bots Cycle B Autumn 2 - Digital imagery Cycle B spring 1 - Introduction to data Cycle B Spring 2 - Scratch Jr Cycle B Summer 1 - Stop-motion Cycle B Summer 2 - International space station
Pupils should be taught to: select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range	Computer Science Information Technology	Year 3/4 Cycle A Autumn 1 - Emailing Year 3/4 Cycle A Spring 1 - Video Trailers Year 3/4 Cycle B Autumn 1 - Networks Year 3/4 Cycle B Autumn 2 - Comparison Cards Year 3/4 Cycle B Autumn 2 - Comparison Cards	

of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information		Year 3/4 Cycle B Spring 1 - Journey Inside a Computer Year 3/4 Cycle B Spring 2 - Collaborative Learning Year 3/4 Cycle B Summer 1 - Investigating Weather Year 5/6 Cycle A Spring 1 - Search Engines Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle A Summer 1 - History of Computers Year 5/6 Cycle B Autumn 1 - Mars Rover 1 Year 5/6 Cycle B Autumn 2 - Bletchley Park Year 5/6 Cycle B Spring 1 - Mars Rover 2 Year 5/6 Cycle B Spring 2 - Big Data 1 Year 5/6 Cycle B Summer 1 - Big Data 2 Year 5/6 Cycle B Summer 2 - Programming: Music	
Pupils should be taught to: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy Online Safety	Year 3/4 Cycle A Autumn 1 - Emailing Year 3/4 Cycle A Spring 1 - Video Trailers Year 3/4 Cycle A Spring 2 - Website Design Year 3/4 Cycle B Autumn 2 - Comparison Cards Year 3/4 Cycle B Spring 2 - Collaborative Learning Year 3/4 Cycle B Summer 1 - Investigating Weather Year 5/6 Cycle A Spring 1 - Search Engines Year 5/6 Cycle A Spring 2 - Inventing a Product Year 5/6 Cycle B Autumn 2 - Bletchley Park	EYFS - Autumn 2 - Networks and systems 1 EYFS Spring 2 - Computer systems and networks 2 EYFS Summer 1 - Programming 2 KS1 Cycle A Autumn 1 - Improving mouse skills Cycle A Summer 2 - Word processing Cycle B Autumn 2 - Digital imagery Cycle B Summer 1 - Stop-motion

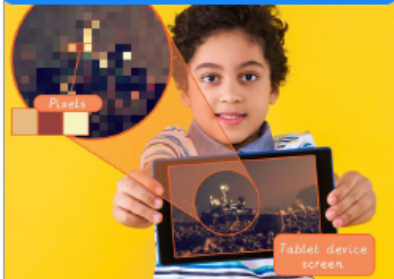# How is Kapow Primary's Computing scheme of work organised?

National Curriculum guidance

- DL Digital Literacy
- IT Information Technology
- CS Computer Science

Kapow Primary scheme of work

- Computing systems and networks
- Programming
- Creating media
- Data handling
- Online safety

The 'Skills showcase' key area, features aspects from some or all of the five key areas above

Skills showcase

Key areas

We have categorised our lessons into the five key areas below, which we return to in each year group making it clear to see prior and future learning for your pupils and how what you are teaching fits into their wider learning journey.

Computing systems and networks	Programming	Creating media	Data handling	Online safety
Identifying hardware and using software, while exploring how computers communicate and connect to one another.	Understanding that a computer operates on algorithms, and learning how to write, adapt and debug code to instruct a computer to perform set tasks.	Learning how to use various devices — record, capture and edit content such as videos, music, pictures and photographs.	Ensuring that information is collected, recorded, stored, presented and analysed in a manner that is useful and can help to solve problems.	Understanding the benefits and risks of being online — how to remain safe, keep personal information secure and recognising when to seek help in difficult situations.

Skills showcase units

There are four units entitled Skills showcase. These units give children the chance to combine and apply skills and knowledge gained, from a range of the five key areas above, to produce a specific outcome.

Y1 - Rocket to the moon

Y4 - HTML

Y5 - Mars Rover 2

Y6 - Inventing a product