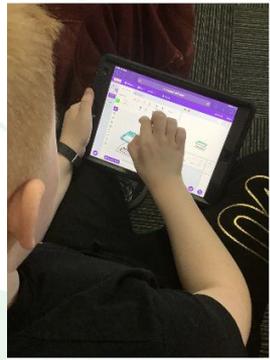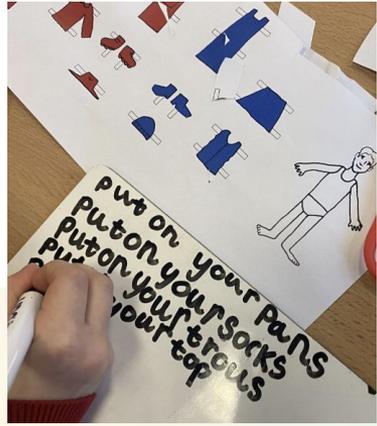# Computing at Carcroft

Intent:

We recognise the importance of computing education in preparing children for the rapidly evolving digital world. Our computing curriculum is delivered using the scheme Kapow which is designed to equip students with the knowledge, skills, and attitudes they need to become confident, creative, and responsible users of technology.

Our curriculum focuses on developing digital literacy skills that enable children to navigate, evaluate, and use digital technologies effectively and responsibly. Pupils learn how to access information safely, critically evaluate online content, and protect their digital identity and privacy in an increasingly connected world. We aim to develop computational thinking skills that underpin problem-solving and logical reasoning across various contexts. Through coding, algorithmic thinking, and problem-solving activities, children develop the ability to break down complex problems, analyse data, and design solutions using computational techniques.

Our curriculum encourages creativity and innovation by providing opportunities for students to design and create digital artifacts, such as animations, games, websites, and multimedia presentations.

We provide a solid foundation in technical skills and concepts related to computing hardware, software, networks, and systems. Pupils develop an understanding of how computers work, basic programming concepts, and the principles of data representation, enabling them to use and troubleshoot digital technologies effectively.

We promote responsible digital citizenship by fostering ethical behavior, online safety, and digital well-being. Pupils learn about the rights and responsibilities of digital citizens, including issues related to cyberbullying, online privacy, copyright, and digital footprints, and develop strategies for managing risks and making informed choices online.

In summary, our computing curriculum intent is to empower pupils with the knowledge, skills, and attitudes they need to thrive in a digital world. By fostering digital literacy, computational thinking, creativity, collaboration, and responsible citizenship, we aim to prepare pupils to harness the power of technology for lifelong learning.

Implementation:

Computing is taught fortnightly using the Kapow teaching scheme. This scheme aligns with the National Curriculum and for EYFS, the documentation below lists the Early learning goals and Development matters statements covered by each unit.

EYFS

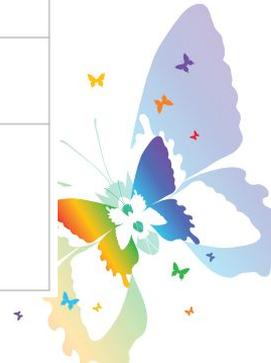| Early Years Foundation Stage / Kapow Primary units	Early years outcomes: Prime Areas Development Matters 2021 statements Early Learning Goals	Early years outcomes: Specific Areas Development Matters 2021 statements Early Learning Goals	Characteristics of effective learning
Computing systems and networks 2: Exploring hardware	**Communication and Language** -Learn new vocabulary. -Use new vocabulary throughout the day. -Ask questions to find out more and to check they understand what has been said to them. -Articulate their thoughts and ideas in well-formed sentences. -Use talk to help work out problems and organise thinking and activities and to explain how things work and why they might happen. **Personal, Social and Emotional Development** -See themselves as a valuable individual. **Physical Development** -Develop their small motor skills so that they can use a range of tools competently, safely and confidently. -Confidently and safely use a range of large and small apparatus indoors and outside, alone and in a group.	**Literacy** -Spell words by identifying the sounds and then writing the sounds with letter/s. -Write short sentences with known letter-sound correspondences using a capital and full stop. **Understanding the World** -Describe what they see, hear and feel whilst outside.	✓ Playing and exploring. ✓ Active learning.
Programming 2: Programming Bee-Bots	**Personal, Social and Emotional Development** -**ELG**: Managing Self> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.	**Mathematics** -Count objects, actions and sounds. -Link the number symbol (numeral) with its cardinal number value. -Count beyond 10.	✓ Playing and exploring. ✓ Active learning. ✓ Creating and thinking critically.

Implementation:

Early Years Foundation Stage	Early years outcomes: Prime Areas Development Matters 2021 statements Early Learning Goals	Early years outcomes: Specific Areas Development Matters 2021 statements Early Learning Goals	Characteristics of effective learning
Kapow Primary units			
Data handling: Introduction to data	**Communication and Language** -Articulate their thoughts and ideas in well-formed sentences. -Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. **-ELG**: Listening, Attention and Understanding> Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. **-ELG**: Listening, Attention and Understanding> Make comments about what they have heard and ask questions to clarify their understanding. **-ELG**:Speaking> Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.	**Mathematics** **-ELG**:Numerical Patterns> Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. -Count objects, actions and sounds. -Subitise. -Count beyond 10. -Compare numbers. -Understand the 'one more than/ one less than' relationship between consecutive numbers. -Continue, copy and create repeating patterns. -Compare length, weight and capacity.	✓ Playing and exploring. ✓ Active learning. ✓ Creating and thinking critically.

Implementation:

Year 1

Key stage 1: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Key stage 1: **Year 1**						
		Programming 2: Bee-Bot	Programming 1: Algorithms unplugged	Creating media: Digital imagery	Data handling: Introduction to data	Skills showcase: Rocket to the moon	Computing systems and networks: Improving mouse skills	Online safety: Year 1
Understand what algorithms are, how they are implemented as programs on digital devices and that programs execute by following precise and unambiguous instructions.	CS	✔	✔					
Create and debug simple programs.	CS	✔	✔					
Use logical reasoning to predict the behaviour of simple programs.	CS	✔		✔				
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	DL			✔	✔	✔	✔	
Recognise common uses of information technology beyond school.	IT			✔	✔		✔	✔
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.	DL			✔			✔	✔

Implementation:

Key stage 1: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Key stage 1: Year 2						
		Computing systems and networks 1: What is a computer?	Programming 2: ScratchJr	Programming 1: Algorithms and debugging	Data handling: International Space Station	Online Safety: Year 2	Computing systems and networks 2: Word processing	Creating media: Stop motion using tablet devices
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	CS	✔	✔	✔	✔			
Create and debug simple programs.	CS		✔	✔				
Use logical reasoning to predict the behaviour of simple programs.	CS		✔	✔				
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	DL		✔		✔	✔	✔	✔
Recognise common uses of information technology beyond school.	IT	✔				✔		✔
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.	DL					✔	✔	

Implementation:

Year 3

Key stage 2: National curriculum Computing subject content	Kapow Primary Computing strands	Kapow Primary topics Lower key stage 2: Year 3						
		Computing systems and networks 3: Journey inside a computer	Programming: Scratch	Computing systems and networks 2: Emailing G / M	Computing systems and networks 1: Networks	Online safety: Year 3	Creating media: Video trailers	Data handling: Comparison cards databases
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	CS	✔	✔					
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	CS		✔					
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	CS	✔	✔					
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.	DL IT	✔		✔	✔	✔		

Key stage 2: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Lower key stage 2: Year 3						
		Computing systems and networks 3: Journey inside a computer	Programming: Scratch	Computing systems and networks 1: Networks	Online safety: Year 3	Creating media: Video trailers	Computing systems and networks 2: Emailing G / M	Data handling: Comparison cards databases
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	DL IT		✔	✔	✔	✔		
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.	CS IT		✔	✔		✔	✔	✔
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	DL				✔		✔	

Implementation:

Year 4

Key stage 2: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Lower key stage 2: **Year 4**						
		Skills showcase: HTML	Programming 2: Computational thinking	Programming 1: Further coding with Scratch	Data handling: Investigating weather	Computing systems and networks: Collaborative learning	Creating media: Website design G / M	Online safety: Year 4
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	CS	✔	✔	✔				
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	CS	✔	✔	✔	✔			
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	CS	✔	✔	✔				
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.	DL IT					✔		

Key stage 2: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Lower key stage 2: **Year 4**						
		Skills showcase: HTML	Programming 2: Computational thinking	Programming 1: Further coding with Scratch	Data handling: Investigating weather	Computing systems and networks: Collaborative learning	Creating media: Website design G / M	Online safety: Year 4
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	DL IT						✔	✔
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.	CS IT	✔	✔	✔	✔	✔	✔	
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	DL	✔			✔		✔	✔

Implementation:

Year 5

Key stage 2: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Upper key stage 2: **Year 5**						
		Programming 2: Micro:bit	Programming 1: Music - Sonic Pi	Creating media: Stop motion animation - Stop Motion Studio	Computing systems and networks: Search engines	Data handling: Mars Rover 1	Online safety 5	Skills showcase: Mars Rover 2
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	CS	✔	✔	✔				
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	CS	✔	✔	✔				
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	CS	✔	✔					
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.	DL IT	✔			✔	✔		

Key stage 2: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Upper key stage 2: **Year 5**						
		Programming 2: Micro:bit	Programming 1: Music - Sonic Pi	Creating media: Stop motion animation - Stop Motion Studio	Computing systems and networks: Search engines	Data handling: Mars Rover 1	Online safety 5	Skills showcase: Mars Rover 2
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	DL IT				✔		✔	
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.	CS IT	✔	✔			✔	✔	✔
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	DL				✔		✔	

Implementation:

Year 6

Key stage 2: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Upper key stage 2: Year 6						
		Programming: Intro to Python	Skills showcase: Inventing a product	Computing systems and networks: Bletchley Park	Data handling: Big Data 1	Online safety: Year 6	Creating media: History of computers	Data handling 1: Big data 2
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	CS	✔	✔					
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	CS	✔	✔					
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	CS	✔	✔					
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.	DL IT		✔	✔	✔	✔	✔	

Key stage 2: National curriculum Computing subject content	Kapow Primary's Computing strands	Kapow Primary topics Upper key stage 2: Year 6						
		Programming: Intro to Python	Skills showcase: Inventing a product	Computing systems and networks: Bletchley Park	Data handling: Big Data 1	Online safety: Year 6	Creating media: History of computers	Data handling 1: Big data 2
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	DL IT		✔	✔		✔		
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.	CS IT	✔	✔	✔	✔		✔	
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	DL		✔	✔	✔	✔		

Impact:

By the end of Y6 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.

Computer Science

★ Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.

Information Technology

★ Are responsible, competent, confident and creative users of information and communication technology.

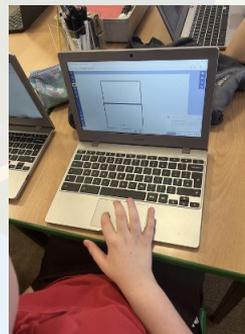**Digital Literacy**

Case Studies

Computing

Understanding algorithms

Understanding parts of a computer

Understanding search engines

Case Studies

Computing

Computer inputs

Coding

Use of ICT in 'every day' learning