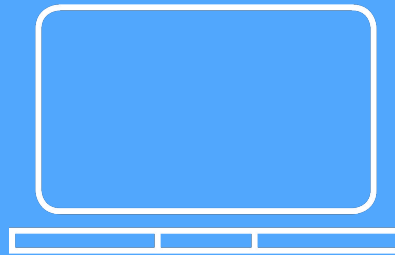# Computing

Kapow Primary™

National curriculum coverage

Introduction

Kapow Primary offers full coverage of the KS1 and KS2 Computing curriculum and this document contains each end of key stage National curriculum statement and information about the units that will help pupils on their learning journey to meeting that statement by the end of Year 2 and Year 6.
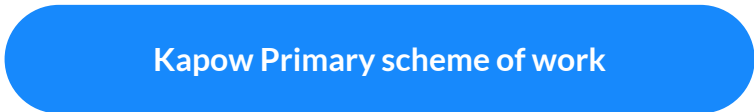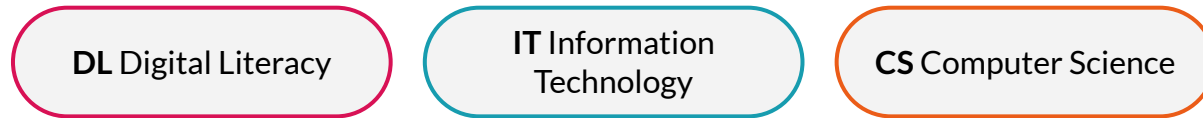
For EYFS, the document shows the Early Learning Goals and Development Matters statements that each unit covers.

The final pages of the document show cross-curricular links between our Computing scheme and other National curriculum subjects.
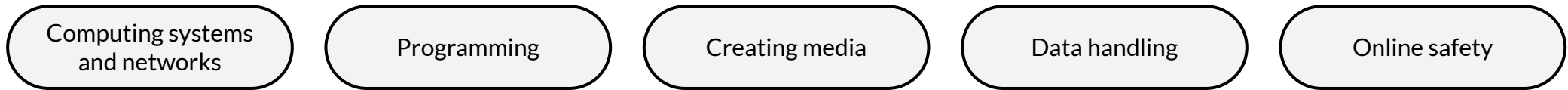
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How is the Computing scheme of work organised?

National Curriculum guidance

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

Kapow Primary scheme of work

Kapow Primary key areas

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

Early Years Foundation Stage Kapow Primary's 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 1: Using a computer	**Physical Development** -Develop their small motor skills so that they can use a range of tools competently, safely and confidently.	**Literacy** -Spell words by identifying the sounds and then writing the sounds with letter/s. -Re-read what they have written to check that it makes sense. **Mathematics** -Link the number symbol (numeral) with its cardinal number value.	✓ Playing and Exploring ✓ Active Learning
Programming 1: All about instructions	**Communication and Language** -Understand how to listen carefully and why listening is important. -Describe events in some detail. -Use talk to help work our problems and organise thinking and activities, and to explain how things work and why they might happen. **Personal, Social and Emotional Development** -**ELG**: Self-Regulation> Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions. -**ELG**: Managing Self> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. -**ELG**: Building Relationships> Work and play cooperatively and take turns with others. **Physical Development** -Know and talk about the different factors that support their overall health and wellbeing. -Further develop the skills they need to manage the school day successfully.		✓ Active Learning ✓ Creating and Thinking Critically

Early Years Foundation Stage / Kapow Primary's 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

Early Years Foundation Stage Kapow Primary's 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
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

National Curriculum by Kapow Primary's themes and units

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			✔			✔	✔

*Units that are included in the condensed curriculum

National curriculum coverage

National Curriculum by Kapow Primary's themes and units

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					✔	✔	

*Units that are included in the condensed curriculum

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 2: Emailing G / M	*Computing systems and networks 1: Networks and the internet	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	✔		✔	✔	✔		

*Units that are included in the condensed curriculum

National curriculum coverage

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 and the internet	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				✔		✔	

*Units that are included in the condensed curriculum

National Curriculum by Kapow Primary's themes and units

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					✔		

*Units that are included in the condensed curriculum

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	✔			✔		✔	✔

*Units that are included in the condensed curriculum

National Curriculum by Kapow Primary's themes and units

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	✔			✔	✔		

*Units that are included in the condensed curriculum

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				✔		✔	

*Units that are included in the condensed curriculum

National Curriculum by Kapow Primary's themes and units

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		✔	✔	✔	✔	✔	

*Units that are included in the condensed curriculum

National curriculum coverage

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		✔	✔	✔	✔		

*Units that are included in the condensed curriculum

National curriculum subjects	Kapow Primary topics Key stage 1 - **Year 1**						
	*Computing systems and networks: Improving mouse skills	*Programming 1: Algorithms unplugged	Skills showcase: Rocket to the moon	*Programming 2: Bee-Bot	Creating media: Digital imagery	*Data handling: Introduction to data	Online safety: Year 1
English	**Reading** - discussing key scenes from a story	**Writing** - writing algorithms (instructions), revising algorithms to make more precise. **Spoken language** - following instructions given	**Reading** - discussing the sequence of events	**Spoken language** - explaining how to use a Bee-bot, giving and following verbal instructions accurately **Reading** - retelling a story with a floor robot	**Reading** - enjoying and discussing picture books, predicting what might happen next		**Writing** - writing an online safety guide **Spoken language** - role=playing online situations
Maths	Rotating shapes and images, naming and drawing shapes	Drawing 2D shapes	Measuring in cm, sorting data into a table	Describing the direction of a Bee-Bot		Representing data, answering questions about data, creating a pictogram	
Science			Considering materials for a design			Classifying animals using branching databases	
Art and design	Creating digital artwork, considering famous artwork, creating a self portrait	Creating a picture from shapes, describing position and movement			Taking and editing photographs creating a collage		Designing an animal mask, designing an online safety poster
D & T			Designing a rocket, considering materials			Designing an invention to gather data	
Geography		Using compass directions and directional language when using maps		Using locational and directional language when programming Bee-bot			
History			Learning about Apollo 11				
RSE/PSHE	Considering why we need passwords				Practising safe searching and what to do if they find something inappropriate		Considering how we treat each other online and how online use affects emotions

National curriculum subjects	Kapow Primary topics Key stage 1 - **Year 2**						
	*Computing systems and networks 1: What is a computer?	*Programming 1: Algorithms and debugging	Computing systems and networks 2: Word processing	Programming 2: ScratchJr	Creating media: Stop motion using tablet devices	*Data handling: International Space Station	*Online Safety: Year 2
English	**Spoken language -** building vocabulary around computers, role-playing examples of computers in the real-world.	**Spoken language -** discussing with a partner how a game works, role-playing a game, giving and following verbal instructions **Writing -** writing instructions and editing to improve	**Writing -** finding the different letters quickly on a keyboard, typing sentences with a capital letter and full stop, creating a newspaper article **Reading -** recalling the man events of a story, appreciating poetry	**Spoken language -** discussing and predicting how software works **Reading -** retelling the Three little pigs in an animation	**Spoken language-** working as a group to plan and create an animation		
Maths		Describing position and movement		Describing position and movement		Reading temperatures on a thermometer, interpreting and comparing data	
Science	Identifying and classifying technology					Knowing the basic needs of plants and animals and the importance of exercise.	
Art and design					Creating a flip-book animation		
D & T	Designing a robot and invention						
Geography		Looking at maps of the UK and identifying features					
Music				Designing a musical instrument			
RSE/PSHE			Knowing what is safe to share online				Knowing you need to give/receive permission for online sharing

Cross-curricular links - Year 3

National curriculum subjects	Kapow Primary topics Key stage 2 - **Year 3**						
	*Computing systems and networks 1: Networks and the internet	*Programming: Scratch	Computing systems and networks 2: Emailing G / M	*Computing systems and networks 3: Journey inside a computer	*Creating media: Video trailers	Data handling: Comparison cards databases	Online safety: Year 3
English	**Spoken language -** Building vocabulary around computer networks, role-playing a file's journey	**Spoken language -** discussing how software works when tinkering **Writing -** practising storytelling by completing a story animation	**Writing -** proof-reading emails		**Reading -** appreciating books by creating a book trailer **Writing -** planning text for their trailers	**Spoken language -** building vocabulary around data	**Reading -** considering the language used in online adverts
Maths	Comparing durations of events, interpreting data					Comparing numbers, interpreting and representing data in charts and graphs	
D & T				Developing an understanding of the workings of technology			
Geography	Devising a map of the school's network and showing a website's journey, looking at a submarine cable map						
History	Learning how the internet has developed						
Music		Using loops to create music					
RSE/PSHE	Knowing how data is shared online	Considering copyright	Learning how to be responsible digital citizens, addressing cyberbullying, recognising fake emails				Knowing the internet can affect mood, knowing the rules of social media

National curriculum subjects	Kapow Primary topics Key stage 2 - **Year 4**						
	*Computing systems and networks: Collaborative learning	*Programming 1: Further coding with Scratch	Creating media: Website design G / M	*Skills showcase: HTML	*Programming 2: Computational thinking	Data handling: Investigating weather	Online safety
English	**Writing -** suggesting improvements to others' work through collaborative working tools	**Spoken language -** discussing while tinkering with code	**Reading -** reviewing books **Writing -** using organisational devices (headings etc) on webpage, adding information text, evaluating writing	**Writing -** planning and writing a news story	**Spoken language -** working with a partner to solve problems	**Spoken language -** giving a weather forecast **Writing -** preparing a script for a weather forecast	
Maths	Interpreting and presenting data	Describing position and direction, using coordinates, recalling multiplication and division facts			Solving maths problems, drawing shapes, considering angles	Knowing different units of measurement	
Science						Learning about the water cycle and changes in state, observing and measuring weather	
Art and design			Designing a webpage				
Geography						Understanding climate and weather, designing weather stations to measure weather, considering extreme weather and how it affects people	
PE					Breaking down a dance to learn it and practise decomposition		
RSE/PSHE	Recognising respectful ways to interact online			Developing awareness of hacking and copyright			Considering healthy levels of screen time

National curriculum subjects	Kapow Primary topics Key stage 2 - **Year 5**						
	Computing systems and networks: Search engines	*Programming 1: Music	*Data handling: Mars Rover 1	Creating media: Stop motion animation	Programming 2: Micro:bit	Skills showcase: Mars Rover 2	*Online safety
English		**Reading -** identifying themes in books to create a soundtrack			**Spoken language -** discussing and hypothesising while tinkering		
Maths			Converting units of measure to solve problems, carrying out binary calculations				
Science			Learning about Mars and space exploration, learning about how sensors work			Learning about Mars and space exploration	
Art & design	Designing a poster			Creating an animation toy, designing a character		Creating a pixelated image	Designing a poster about app permissions
D & T						Using CAD design software	
History	Researching about explorers from the past						
Music		Composing and performing music using programming software, including loops, considering the inter-related dimensions of music, evaluating compositions					
RSE/PSHE	Knowing how information is shared online, critically consider sources of information					Using an online community responsibly	Learning about cyber-bullying and its impact, understanding the effect of technology on health

Kapow Primary topics
Key stage 2 - **Year 6**

National curriculum subjects	*Computing systems and networks: Bletchley Park	*Programming: Intro to Python	*Data handling: Big Data 1	*Creating media: History of computers	Data handling: Big data 2	Skills showcase: Inventing a product	Online safety
English	**Writing** - Creating an information text site about Bletchley park, creating biography presentations about historical figures			**Reading** - considering the use of language in radio plays **Writing** - planning radio play scripts about Bletchley Park, writing information texts about a machine from the past	**Spoken language** - preparing a pitch to persuade the headteacher how Big Data could improve school life	**Writing** - using persuasive language to promote a product	
Maths	Solving problems involving codes	Using knowledge of angles in 2D shapes to 'draw' shapes in Logo, describing coordinate positions	Representing data in different graphs, interpreting data in tables to solve problems		Comparing data displayed in tables		
Science			Learning about infrared and radio waves				
Art and design		Creating islamic art using loops, Looking at the abstract art of Piet Mondrian					
D & T					Devising ways to make their school a 'smart' school	Designing and programming a product, use CAD to design a product	
Geography					Considering data analytics when town planning		
History	Learning about how codes and codebreaking were useful during World War II, knowing about historical figures involved in the development of computers			Learning about the first computers and creating a timeline			
Music				Improvising sound effects to accompany their radio plays			
RSE/PSHE	Learning the importance of a strong password to deter brute force hacking		Learning about the importance of keeping personal information (pin number) safe		Being aware that their data is being tracked		Reflecting on how online activity makes them feel, considering the risks of sharing online and leaving a digital footprint

This page shows recent updates to this document.

Date	Update
01.07.22	Updated to include cross-curricular links on p17-22
11.04.23	Changed name of document to 'National curriculum coverage'. Broken links fixed.