









Computing curriculum overview


Kapow Primary offers full coverage of the KS1 and KS2 Computing curriculum and we have categorised our content into three areas:



DL Digital Literacy and Online Safety

CT Computational Thinking

CH Computers and Hardware

<p>Key stage 1 - National Curriculum computing subject content</p> <p>Pupils should be taught to:</p>	<p>Kapow Primary's computing themes</p>	<p>Kapow Primary's units</p>
<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p>		<p>Y1 > Programming: Bee-Bots, Algorithms unplugged Y2 > What is a computer?, Programming: ScratchJr, Algorithms and debugging, International Space Station</p>
<p>Create and debug simple programs</p>		<p>Y1 > Programming: Bee-Bots, Algorithms unplugged Y2 > Programming: ScratchJr, Algorithms and debugging</p>
<p>Use logical reasoning to predict the behaviour of simple programs</p>		<p>Y1 > Programming: Bee-Bots, Digital imagery Y2 > Programming: ScratchJr, Algorithms and debugging</p>
<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>		<p>Y1 > Getting started, Digital imagery, Introduction to data, Rocket to the moon Y2 > Word processing, Programming: ScratchJr, International Space Station, Stop motion</p>
<p>Recognise common uses of information technology beyond school</p>		<p>Y1 > Getting started, Digital imagery, Introduction to data Y2 > What is a computer?, Stop motion</p>
<p>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</p>		<p>Y1 > Getting started, Digital imagery Y2 > Word processing</p>

<p>Key stage 2 - National Curriculum computing subject content</p> <p>Pupils should be taught to:</p>	<p>Kapow Primary's computing themes</p>	<p>Kapow Primary's units</p>
<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p>		<p>Y3 > Journey inside a computer, Programming: Scratch Y4 > HTML, Computational thinking Y5 > Micro:bit, Sonic Pi Y6 > Intro to Python, Skills showcase</p>
<p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p>		<p>Y3 > Programming: Scratch Y4 > HTML, Investigating weather, Computational thinking Y5 > Micro:bit, Sonic Pi Y6 > Intro to Python, Skills showcase</p>
<p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>		<p>Y3 > Journey inside a computer, Programming: Scratch Y4 > HTML, Computational thinking Y5 > Micro:bit, Sonic Pi Y6 > Intro to Python, Skills showcase</p>
<p>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</p>	 	<p>Y3 > Journey inside a computer, Emailing, Networks Y4 > Collaborative learning, The internet Y5 > Micro:bit, Search engines, Mars Rover 1 Y6 > Bletchley Park 1, Skills showcase, Big Data 1</p>
<p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p>	 	<p>Y3 > Digital literacy Y4 > The internet Y5 > Search engines Y6 > Bletchley Park 1, Skills showcase</p>

<p>Key stage 2 - National Curriculum computing subject content</p> <p>Pupils should be taught to:</p>	<p>Kapow Primary's computing themes</p>	<p>Kapow Primary's units</p>
<p>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</p>		<p>Y3 > Emailing, Top trumps databases, Digital literacy Y4 > Collaborative learning, Website design, Investigating weather Y5 > Online Safety, Micro:bit, Sonic Pi, Mars Rover 1 Y6 > Bletchley Park 1, Skills showcase, Big Data 1</p>
<p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</p>		<p>Y3 > Emailing Y4 > Website design, HTML, Investigating weather Y5 > Online Safety, Search engines Y6 > Bletchley Park 1, Skills showcase, Big Data 1</p>

Year 1	Getting started (5 lessons)	Programming: Bee-Bots	Algorithms unplugged (5 lessons)	Digital imagery (5 lessons)	Introduction to data (5 lessons)	Rocket to the moon (5 lessons)
	<p>Introducing children to logging in and using technology for a purpose, including creatin art Go to unit</p> <p>DL Recognising common uses of information technology. Logging in and saving work on their own account. Knowing what to do if they have concerns about content or contact online. Understanding of how to create digital art using an online paint tool.</p> <p>CH Learning to locate where keys are on the keyboard. Developing basic mouse skills.</p>	<p>(5 lessons) Using Bee-Bots to navigate an area and constructing simple algorithms, through the story of The Three Little Pigs Go to unit</p> <p>CT Learning how to explore and tinker with hardware to find out how it works. Constructing a series of instructions into a simple algorithm. Applying computing concepts to real world situation in an unplugged activity.</p>	<p>Learning how computers handle information by exploring 'unplugged' algorithms- completing tasks away from the computer Go to unit</p> <p>CT Understanding how to create algorithms. Learning that computers need information to be presented in a simple and clear way. Understanding how to break a computational thinking problem into smaller parts in order to solve it.</p>	<p>Taking and manipulating digital photographs, including adding images found via a search engine Go to unit</p> <p>DL Using technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowing what to do if they have concerns about content or contact online.</p> <p>CT Using logical reasoning to predict the behaviour of simple programs.</p> <p>CH Using cameras or tablets to take photos.</p>	<p>Learning about what data is and how it can be represented and using these skills to show the findings of a minibeast hunt Go to unit</p> <p>DL Using technology purposefully to create, organise, store, manipulate and retrieve digital content. Selecting software appropriately.</p> <p>CH Recognising uses of technology beyond school.</p>	<p>Appreciating the value of computers, understanding that they helped us get to the moon Go to unit</p> <p>DL Using technology purposefully to create, organise, store, manipulate and retrieve digital content. Selecting software appropriately.</p>
Cross curricular links	<p>Art & Design Maths</p>			<p>English: Reading</p>	<p>Maths Science</p>	<p>Science D&T Maths History</p>

<p>Year 2</p>	<p>What is a computer? (5 lessons)</p> <p>Children explore exactly what a computer is, identifying and learning how inputs and outputs work, how computers are used in the wider world and designing their own computerised invention Go to unit</p>	<p>Word processing (5 lessons)</p> <p>Using their developing word processing skills, pupils write simple messages to friends and learn why we must be careful about who we talk to online Go to unit</p>	<p>Programming: ScratchJr (5 lessons)</p> <p>Using the app 'ScratchJr', pupils programme a familiar story and an animation of an animal, make their own musical instruments and follow an algorithm to record a joke Go to unit</p>	<p>Algorithms and debugging (5 lessons)</p> <p>Identifying problems with code using both 'unplugged' and 'plugged' systems to diagnose and correct errors in an algorithm- a process known as 'debugging' Go to unit</p>	<p>International Space Station (5 lessons)</p> <p>Building on their understanding of how computers sense the world around us, pupils learn how data is collected, used and displayed to keep astronauts safe onboard the ISS Go to unit</p>	<p>Stop motion (5 lessons)</p> <p>Pupils create simple animations, storyboarding their ideas then decomposing it into small parts of action to be captured using Stop Motion Animation Software Go to unit</p>
	<p>CT Learning about inputs and outputs and how they are used in algorithms.</p> <p>CH Understanding what a computer is and the role of individual components.</p>	<p>DL Using word processing software to type and reformat text. Understanding the importance of staying safe online.</p>	<p>CT Creating and debugging simple programs. Using logical reasoning to predict the behaviour of simple programs. Understanding what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p>DL Using technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>CT Creating and debugging simple programs. Using logical reasoning to predict the behaviour of simple programs. Understanding what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p>	<p>DL Using technology to create and label images and to put data into a spreadsheet.</p> <p>CT Consider inputs and outputs to understand how sensors work.</p>	<p>DL Using technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p>CH Understanding how to use tablets or computers to take photos.</p>
<p>Cross curricular links</p>	<p>D&T Science</p>	<p>PSHE</p>			<p>Science</p>	<p>English</p>

<p>Year 3</p>	<p>Emailing (5 lessons)</p> <p>Pupils learn how to send emails, including attachments and how to be responsible digital citizens Go to unit</p>	<p>Journey inside a computer (5 lessons)</p> <p>Children learn about the different parts of a computer through role-play and develop their understanding of how they follow instructions Go to unit</p>	<p>Top trumps databases (5 lessons)</p> <p>Developing their understanding of data and databases, children play with and create their own Top Trumps cards, learning how to interpret information by ordering and filtering Go to unit</p>	<p>Digital literacy (5 lessons)</p> <p>Developing their video skills, pupils create a book trailer, storyboarding their trailers before then filming and editing their videos, adding effects such as transitions, music, voice and text Go to unit</p>	<p>Programming: Scratch (5 lessons)</p> <p>Using Scratch, with its block-based approach to coding, pupils learn to tell stories and create simple games Go to unit</p>	<p>Networks (5 lessons)</p> <p>To understand how computers communicate, children learn about networks and how they are used to share information Go to unit</p>
	<p>DL</p> <p>Learn about cyberbullying and fake emails. Understanding the purpose of emails.</p>	<p>CH</p> <p>Understanding what different components of a computer do.</p> <p>CT</p> <p>Understanding that programs execute by following precise and unambiguous instructions.</p>	<p>DL</p> <p>Using technology purposefully to create, organise, store, manipulate and retrieve data.</p>	<p>DL</p> <p>Using technology purposefully to create, organise, store, manipulate and retrieve digital content, including searching for relevant information.</p>	<p>CT</p> <p>Using logical reasoning to explain how simple algorithms work. Designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems. Solving problems by decomposing them into smaller parts. Using sequence, selection, and repetition in programs. Working with variables and various forms of input and output.</p>	<p>CH</p> <p>Identifying network components and how data is transferred</p>
<p>Cross curricular links</p>	<p>English</p>		<p>Maths</p>	<p>English</p>		

<p>Year 4</p>	<p>Collaborative learning (5 lessons)</p> <p>Learning to work collaboratively in a responsible way using tools including Google Docs and Sheets Go to unit</p>	<p>The internet (5 lessons)</p> <p>We use the Internet every single day, but 30 years ago, it didn't exist. In this unit, pupils learn how data is transferred around the world using the world wide web Go to unit</p>	<p>Website design (5 lessons)</p> <p>Pupils design and create their own websites, considering content and style, as well as understanding the importance of working collaboratively Go to unit</p>	<p>HTML (5 lessons)</p> <p>Pupils explore the language behind well-known websites, while developing their understanding of how to change the core characteristics of a website using HTML and CSS Go to unit</p>	<p>Investigating weather (5 lessons)</p> <p>Children investigate the role of computers in forecasting and recording weather as well as how technology is used to present forecasts Go to unit</p>	<p>Computational thinking (5 lessons)</p> <p>Through developing their understanding of the four pillars of computational thinking, children learn to identify them in different contexts Go to unit</p>
	<p>DL</p> <p>Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals.</p> <p>Understanding opportunities offered by the World Wide Web for communication and collaboration.</p>	<p>DL</p> <p>Understanding 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.</p> <p>CH</p> <p>Identify components of a network and understand how they used to connect to the Internet.</p>	<p>DL</p> <p>Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals. Understanding opportunities offered by the World Wide Web for communication and collaboration.</p>	<p>DL</p> <p>Recognising that information on the Internet might not be true or correct. Using technology safely, by recognising acceptable/unacceptable behaviour and knowing what to do when they have concerns about content or contact online.</p> <p>CT</p> <p>Understanding that websites can be altered by exploring the code beneath the site. Designing, writing and debugging programs that accomplish specific goals. Solving problems by decomposing them into smaller parts.</p>	<p>DL</p> <p>Understanding why some sources are more trustworthy than others.</p> <p>CT</p> <p>Understanding the role of inputs and outputs in computerised devices.</p>	<p>CT</p> <p>Understand what decomposition is and how it facilitates problem solving.</p> <p>Designing, writing and debugging programs that accomplish specific goals. Understand abstraction and patterns recognition.</p>
<p>Cross curricular links</p>					<p>Science Geography</p>	

<p>Year 5</p>	<p>Online safety (5 lessons)</p> <p>Pupils create an online safety resource for younger children using tools such as presentation software, video tools or a simple stop-motion animation Go to unit</p>	<p>Micro:bit (5 lessons)</p> <p>Programming a small device called a micro:bit to display animations or messages on its simple LED display using block coding Go to unit</p>	<p>Search engines (5 lessons)</p> <p>To enable children to quickly and accurately find information and become independent learners, they need to develop their searching skills and learn how to identify trustworthy sources Go to unit</p>	<p>Sonic Pi (5 lessons)</p> <p>Composing music using code through Sonic Pi, pupils can import samples, add drum beats and compose simple tunes culminating in a 'battle of the bands' using live loops of music Go to unit</p>	<p>Mars Rover 1 (5 lessons)</p> <p>Pupils explore inputs and outputs as well as Binary numbers to understand how the Mars Rover transmits and receives data and how scientists are able to control it to explore another planet! Go to unit</p>	<p>Mars Rover 2 (5 lessons)</p> <p>Children learn how the Mars Rover is able to send images all the way back to Earth and experiment with online CAD software to design new tyres for it Go to unit</p>
	<p>DL</p> <p>Recognising that information on the Internet might not be true or correct. Using technology safely, by recognising acceptable/unacceptable behaviour and knowing what to do when they have concerns about content or contact online.</p>	<p>CT</p> <p>Using block coding to program a device. To explore variables and different forms of input.</p> <p>CH</p> <p>Understand how external devices can be programmed by a separate computer.</p>	<p>DL</p> <p>Recognising that information on the Internet might not be true or correct. Know how to use key words to quickly find accurate information.</p>	<p>DL</p> <p>Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals.</p> <p>CT</p> <p>Using programming language to create music, including use of loops.</p>	<p>DL</p> <p>Understanding 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.</p> <p>CH</p> <p>Using search technologies effectively, appreciating how results are selected and ranked, and be discerning in evaluating digital content. Recognising that computers transfer data in binary and understand simple binary addition.</p>	<p>DL</p> <p>Developing their CAD skills.</p> <p>CH</p> <p>Understanding how image data is transferred.</p>
<p>Cross curricular links</p>				<p>English: Reading Music</p>		

<p>Year 6</p>	<p>Bletchley Park 1 & 2 (10 lessons)</p> <p>Children learn about the history of Bletchley Park, including: key historical figures, how the first modern computers were created as part of a WWII code breaking team and consider how computers have evolved over time. They then go on to investigate secret codes and how they are created, exploring 'brute force' hacking and learn how to make passwords more secure Go to unit</p>		<p>Intro to Python (5 lessons)</p> <p>Building on their knowledge of coding from previous years, children are introduced to the text-based programming language Python, which is the language behind many apps and programs, such as Dropbox Go to unit</p>	<p>Big Data 1 (5 lessons)</p> <p>Children learn how data is collected and stored by exploring barcodes, QR codes and RFID chips, and investigate how collecting big data can be used to help people in a variety of different scenarios Go to unit</p>	<p>Big Data 2 (5 lessons)</p> <p>Children learn the difference between mobile data and WiFi and how data is transferred and use their understanding of big data to design their own smart school Go to unit</p>	<p>Skills Showcase (5 lessons)</p> <p>Reflecting on and showcasing their computing skills, pupils create an entire project around a specific theme Go to unit</p>
	<p>DL Understanding the importance of secure passwords and using searching and word processing skills to create a presentation.</p> <p>CT Using programming software to understand hacking, relating this to computer cracking codes in WWII.</p>	<p>DL Editing sound recordings for specific purpose.</p> <p>CH Learning about the history of computers and how they evolved over time.</p>	<p>CT Understanding that websites can be altered by exploring the code beneath the site. Designing, writing and debugging programs that accomplish specific goals Solving problems by decomposing them into smaller parts.</p>	<p>DL Understanding how learning can be applied to a real world context. Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data.</p> <p>CH Understanding that computer networks provide multiple services Understanding how barcodes and QR codes work.</p>	<p>DL Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data.</p>	<p>DL Showcasing their digital literacy skills.</p> <p>CT Demonstrating their computational thinking skills by designing and debugging programs, using different inputs and outputs.</p> <p>CH Understanding how search engines work and knowing how to use them safely and effectively.</p>
<p>Cross curricular links</p>	<p>History Maths</p>	<p>English</p>	<p>Art & Design Maths</p>	<p>Science</p>		