

Computing Curriculum Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
N	<p>It is important in early years to give children a broad, play-based experience of ICT in a range of contexts, including outdoor play. Computing is not just about computers. Early years learning environments should feature ICT scenarios based on experience in the real world, such as in role play. Children gain confidence, control and language skills through opportunities to explore using non-computer based resources such as programmable toys, controllable traffic lights and walkie-talkie sets. Recording devices can support children to develop their communication skills. This is particularly useful with children who have English as an additional language. There are no specific standards that cover computing in the Early Years Framework however several standards in the framework can be met to develop computing skills to prepare pupils to access computing in Key Stage One.</p> <p>Three and Four year olds: Personal, Social and Emotional Development Remember rules without needing an adult to remind them. Physical Development Match their developing physical skills to tasks and activities in the setting. Mathematics Solve real world mathematical problems with numbers up to 5. Discuss routes and locations, using words like 'in front of' and 'behind'. Notice and correct an error in a repeating pattern. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then'. Understanding the World Explore how things work.</p>					
R	Information Technology		Computer Science		Digital literacy	
	<p>To know how to move objects on a screen using index finger. To know how to create shapes and text on a screen. To know how to use technology to show my learning. To know that typing on a keyboard/ keypad is another way of writing information. To know that digital devices can be used to create pictures.</p>		<p>Explore programmable toys e.g. Bee-Bots/ Codepillar Use and understand words like forwards or backwards to describe movement in a plugged and unplugged task. Give a simple set of instructions e.g. how to brush your teeth. Understand how to make a floor robot move. Understand the function of buttons and icons I press, touch or click on.</p>		<p>Understand technology that is used at home and in school. Operate simple equipment. Describe some similarities and differences with technology.</p>	
	Online Relationships Self-Image and Self Identity		Online Reputation Online Bullying		Privacy and Security Managing Online Information	
<p>Give examples of how I (might) use technology to communicate with people I know. Recognise, online or offline, that anyone can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.</p>		<p>Identify ways that I can put information on the internet. Describe ways that some people can be unkind online. Offer examples of how this can make others feel</p>		<p>Identify some simple examples of my personal information (e.g. name, address, birthday, age, location). Describe who would be trustworthy to share this information with; I can explain why they are trusted. Talk about how to use the internet as a way of finding information online. I can talk about how I can use the internet to find things out. Identify devices I could use to access information on the internet.</p>		

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1	Digital Literacy & Information Technology	Computer Science	Information technology, Computer Science & Digital Literacy
	Computing systems and networks: Improving mouse skills Log in to a computer and access a website. Develop mouse skills. Use mouse skills to draw and edit shapes. Draw a scene from a story using digital tools. Create a self-portrait using digital techniques.	Programming 1: Algorithms unplugged Understand what an algorithm is. Follow instructions precisely to carry out an action. Understand that computers and devices around us use inputs and outputs. Understand and be able to explain what decomposition is. Know how to debug an algorithm.	Creating Media: Digital Imagery Understand and create a sequence of pictures. Take clear photos Edit photos Search for and import images. Create a photo collage.
	Online Relationships	Online Reputation Online Bullying	Privacy and Security Health, Well-being and Lifestyle
	Give examples of when I should ask permission to do something online and explain why this is important. Use the internet with adult support to communicate with people I know (e.g. video call apps or services). Explain why it is important to be considerate and kind to people online and to respect their choices. Explain why things one person finds funny or sad online may not always be seen in the same way by others.	Recognise that information can stay online and could be copied. Describe what information I should not put online without asking a trusted adult first. Describe how to behave online in ways that do not upset others and can give examples.	Explain how passwords are used to protect information, accounts and devices. Recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names). Explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others. Explain rules to keep myself safe when using technology both in and beyond the home.
2	Computer Science, Digital Literacy & Information Technology	Computer Science	Digital Literacy
	Computer systems and Networks 1: What is a computer? Recognise the parts of a computer. Recognise how technology is controlled. Recognise technology. Create a design for an invention. Understand the role of computers.	Programming: Algorithms and debugging Decompose a game to predict the algorithms that are used Understand that computers can use algorithms to make predictions (machine learning) Plan algorithms that will solve problems Understand what abstraction is Understand what debugging is	Data Handling: International Space Station Locate features on an interactive map. Create a digital drawing Input data in a spreadsheet. Create algorithms for healthy plant growth. Retrieve data from a spreadsheet.
	Online relationships Self-Image and Identity	Managing Online Information Online Bullying	Privacy and Security Online Reputation
	Give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). Explain who I should ask before sharing things about myself or others online. Explain how other people may look and act differently online and offline.	Explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real' Explain what bullying is, how people may bully others and how bullying can make someone feel. Explain why anyone who experiences bullying is not to blame	Explain and give examples of what is meant by 'private' and 'keeping things private'. Describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). Explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions). Describe how anyone's online information could be seen by others. Know who to talk to if something has been put online without consent or if it is incorrect.
3	Digital Literacy & Information Technology	Computer Science	Digital Literacy, Information Technology & Computer Science
	Computer systems and Networks 1: Networks and the internet Recognise what a network is. Understand how information moves around a network. Demonstrate how a website works. Explore the role of routers.	Programming: Scratch Explore a programming application Use repetition (a loop) in a program Program an animation. Program a story	Creating media: Video trailers Plan a book trailer Take photos or videos that tell a story. Edit a video Add text and transitions to a video.

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	Identify the role of packet data.	Program a game	Evaluate video editing
	Self-image and Identity Online Bullying	Online Relationships	Health, Well-being and Lifestyle
	Explain what is meant by the term 'identity'. Explain how people can represent themselves in different ways online Describe appropriate ways to behave towards other people online and why this is important. Give examples of how bullying behaviour could appear online and how someone can get support.	Explain what it means to 'know someone' online and why this might be different from knowing someone offline. Explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with. Explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried.	Explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged. Explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).
4	Computer Science	Computer Science	Computer Science, Information Technology & Digital Literacy
	Programming: Computational thinking Apply decomposition and pattern recognition to solve problems. Explain and apply abstraction by identifying key details in a problem. Design an algorithm to support an everyday task. Apply and reflect on computational thinking skills while creating a Scratch project. Evaluate a remixed program by reflecting on the effectiveness of computational thinking.	Programming 1: Further Coding with Scratch Recall the key features of Scratch Understand how a Scratch game works by using decomposition to identify key features Recognise what a variable is. Understand how to make a variable in Scratch. Create a quiz using variables.	Data Handling: Investigating weather Log data taken from online sources in a spreadsheet. Design an automated machine to respond to sensor data. Understand how weather forecasts are made. Use tablets or digital cameras to present a weather forecast.
	Self-image and Identity Online Bullying	Online Relationships Managing Information Online	Privacy and Security
	Explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this. Recognise when someone is upset, hurt or angry online. Describe ways people can be bullied through a range of media (e.g. image, video, text, chat). Explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation).	Describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms) Give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. Analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.	Describe strategies for keeping personal information private, depending on context. Explain that internet use is never fully private and is monitored, e.g. adult supervision. Describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure.
5	Digital Literacy, Information Technology and Computer Science	Information Technology & Digital Literacy	Computer Science & Information Technology
	Computing systems and networks: Search engines Understand what a search engine is and how to use it. Be aware that not everything online is true. Search effectively. Create an informative poster. Understand how search engines work.	Data handling: Mars Rover 1 Identify how and why data is collected from space. Read and calculate numbers using binary code. Identify the computer architecture of the Mars Rover. Use simple operations to calculate bit patterns. Represent binary as text.	Programming: Programming music Tinker with Scratch music elements Create a program that plays themed music Plan a soundtrack program Program a soundtrack Program music for a specific purpose
	Self-image and Identity Online Relationships	Online Bullying	Privacy and Security Health, Well-being and Lifestyle
	Explain how identity online can be copied, modified or altered. Explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault. Explain how someone can get help if they are having problems	Recognise online bullying can be different to bullying in the physical world and can describe some of those differences. Describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.	Explain what a strong password is and demonstrate how to create one. Explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.

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	and identify when to tell a trusted adult.	Explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. Explain how to block abusive users.	Explain what app permissions are and can give some examples Describe some strategies, tips or advice to promote health and wellbeing with regards to technology.
6	Computer Science, Information Technology & Digital Literacy	Computer Science	Digital Literacy, Computer Science & Information Technology
	Computing systems and networks: Bletchley Park and the history of computers Understand that there are lots of different types of secret codes. Understand the importance of having a secure password. Recognise the importance of the history of computers and create a well-researched presentation. Design a computer of the future. Create an audio advert for a future computer.	Programming: Intro to Python Tinker with a new piece of software Understand nested loops Understand basic Python commands Use loops when programming Understand the use of random numbers	Computing systems and networks: Exploring AI Explore the basics of AI. Recognise how AI processes and responds to text prompts. Recognise how AI can be used to explore and generate images. Apply AI-generated HTML code to the website Trinket. Debate the ethical implications of AI.
	Self-image and Identity Online Bullying	Online Relationships	Health, Well-being and Lifestyle Online Reputation
	Identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. Describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. Describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me. Explain how someone would report online bullying in different contexts.	Explain how sharing something online may have an impact either positively or negatively. Describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not. Describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. Explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.	Describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. Recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. Explain the ways in which anyone can develop a positive online reputation. Explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.