Computing

Key skills and knowledge by unit

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Introduction

This document shows the **skills** covered in each year group from EYFS - Year 6 and which units focus on developing those skills. It also gives three to five key **knowledge** statements for each unit.

This document was last updated on 28.03.25. Please click here to find the most up-to-date version.

✦ **NB**. Unit appears in the condensed curriculum

Other related documents:

If you would like to see an overview of progression through the whole school, then please see our Computing: Progression of skills and knowledge.

If you are following our Mixed-age Computing long-term plan, then please use the accompanying Progression of skills and knowledge - mixed-age

If you are following our Condensed Computing long-term plan, then please use the accompanying Progression of skills and knowledge - condensed

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EYFS		Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2	Data handling
		✦Using a computer	✦All about instructions	Exploring hardware	✦Programming Bee-Bots	✦Introduction to data
Learning how to operate a camera to take photographs of meaningful creations or moments.	Computer science			✔		
Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.				✔	✔	
Recognising and identifying familiar letters and numbers on a keyboard.		✔				
Developing basic mouse skills such as moving and clicking.		✔				
Using logical reasoning to understand simple instructions and predict the outcome.			✔		✔	
Following instructions as part of practical activities and games.			✔		✔	
Learning to give simple instructions.			✔		✔	
Experimenting with programming a Bee-bot/ Blue-bot and learning how to give simple commands.					✔	
Learning to debug instructions, with the help of an adult, when things go wrong.			✔		✔	

✦NB. Unit appears in the condensed curriculum

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EYFS		Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2	Data handling
		✦Using a computer	✦All about instructions	Exploring hardware	✦Programming Bee-Bots	✦Introduction to data
Using a simple online paint tool to create digital art.	Information technology	✔				
Representing data through sorting and categorising objects in unplugged scenarios.						✔
Representing data through pictograms.						✔
Exploring branch databases through physical games.						✔
Recognising that a range of technology is used in places such as homes and schools.	Digital literacy			✔		
Learning to log in and log out.		✔				

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EYFS	Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2	Data handling
	✦Using a computer	✦All about instructions	Exploring hardware	✦Programming Bee-Bots	✦Introduction to data
Key knowledge from the unit	To be able to understand what a computer keyboard is and recognise some letters and numbers.	To know that being able to follow and give simple instructions is important in computing.	To know that different types of technology can be found at home and in school.	To know that you can program a Bee-Bot with some simple commands.	To know that sorting objects into various categories can help you locate information.
	To know that a mouse can be used to click, drag and create simple drawings.	To understand that it is important for instructions to be in the right order.	To know that you can take simple photographs with a camera or iPad.	To understand that debugging means how to fix some simple programming errors.	To know that using yes/no questions to find an answer is known as a branching database.
	To know that to use a computer you need to log in to it and then log out at the end of your session.	To understand why a set of instructions may have gone wrong.	To know that you must hold the camera still and ensure the subject is in the shot to take a photo.	To understand that an algorithm is a set of clear and precise instructions.	To know that a pictogram is a way of showing information.

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Year 1		Computing systems and networks	Programming 1	Skills showcase	Programming 2	Creating media	Data handling	Online safety
		✦Improving mouse skills	✦Algorithms unplugged	Rocket to the moon	✦Bee-Bot (1/2)	Digital imagery	✦Introduction to data	
Learning how to explore and tinker with hardware to find out how it works.	Computer science	✔			✔	✔	✔	
Recognising that some devices are input devices and others are output devices.			✔				✔	
Learning where keys are located on the keyboard.		✔		✔		✔	✔	
Learning how to operate a camera to take photos and videos.				✔	✔	✔		
Learning that decomposition means breaking a problem down into smaller parts.			✔					
Using decomposition to solve unplugged challenges.			✔		✔			
Using logical reasoning to predict the behaviour of simple programs.				✔	✔			
Developing the skills associated with sequencing in unplugged activities.			✔	✔	✔	✔		

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Year 1		Computing systems and networks	Programming 1	Skills showcase	Programming 2	Creating media	Data handling	Online safety
		✦Improving mouse skills	✦Algorithms unplugged	Rocket to the moon	✦Bee-Bot (1/2)	Digital imagery	✦Introduction to data	
Following a basic set of instructions.	Computer science		✔	✔	✔			
Assembling instructions into a simple algorithm.			✔	✔	✔			
Programming a floor robot to follow a planned route.					✔			
Learning to debug instructions when things go wrong.			✔	✔	✔			
Using programming language to explain how a floor robot works.					✔			
Learning to debug an algorithm in an unplugged scenario.			✔	✔	✔			
Using a basic range of tools within graphic editing software.	IT	✔		✔		✔		
Taking and editing photographs.				✔	✔	✔		

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Year 1		Computing systems and networks	Programming 1	Skills showcase	Programming 2	Creating media	Data handling	Online safety
		✦Improving mouse skills	✦Algorithms unplugged	Rocket to the moon	✦Bee-Bot (1/2)	Digital imagery	✦Introduction to data	
Developing control of the mouse through dragging, clicking and resizing of images to create different effects.	Information technology	✔		✔		✔	✔	
Developing understanding of different software tools.		✔		✔		✔	✔	
Recognising devices that are connected to the internet.		✔		✔			✔	✔
Understanding that we are connected to others when using the internet.								✔
Searching and downloading images from the internet safely.						✔		
Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.				✔			✔	
Using data representations to answer questions about data.							✔	
Using software to explore and create pictograms and branching databases.							✔	

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Year 1		Computing systems and networks	Programming 1	Skills showcase	Programming 2	Creating media	Data handling	Online safety
		✦Improving mouse skills	✦Algorithms unplugged	Rocket to the moon	✦Bee-Bot (1/2)	Digital imagery	✦Introduction to data	
Understanding some of the ways we can use the internet.	Information technology							✔
Recognising common uses of information technology, including beyond school.								✔
Logging in and out and saving work on their own account.	Digital literacy	✔		✔				
When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable.						✔		✔
Understanding how to interact safely with others online.								✔
Recognising how actions on the internet can affect others.								✔
To be able to recognise what a digital footprint is and how to be careful about what we "post".								✔

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Year 1	Computing systems and networks	Programming 1	Skills showcase	Programming 2	Creating media	Data handling	Online safety
	✦Improving mouse skills	✦Algorithms unplugged	Rocket to the moon	✦Bee-Bot (1/2)	Digital imagery	✦Introduction to data	
Key knowledge from the unit	To know that "log in and log out" means to begin and end a connection with a computer.	To understand that an algorithm is when instructions are put in an exact order.	To know that when we create something on a computer it can be more easily saved and shared than a paper version.	To understand the basic functions of a Bee-Bot.	To understand that holding the camera still and considering angles and light are important to take good pictures.	To know how that charts and pictograms can be created using a computer.	To know that the internet is many devices connected to one another.
	To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.	To know that input devices get information into a computer and that output devices get information out of a computer.	To know some of the simple graphic design features of a piece of online software.	To know that you can use a camera/tablet to make simple videos.	To know that you can edit, crop and filter photographs.	To understand that a branching database is a way of classifying a group of objects.	To know what to do if you feel unsafe or worried online - tell a trusted adult.
	To know that passwords are important for security.	To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing.	To know that a spreadsheet is an electronic 'table' for sorting data.	To know that algorithms move a Bee-Bot accurately to a chosen destination.	To know how to search safely for images online.	To know that computers understand different types of 'input'.	To know that people you do not know on the internet (online) are strangers and are not always who they say they are.
		To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.					To know that to stay safe online it is important to keep personal information safe.
							To know that 'sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.

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Year 2		Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2	Creating media	Data handling	Online safety
		✦What is a computer?	✦Algorithms and debugging	Word Processing	Introduction to block coding Option 1: MakeCode Option 2: ScratchJr	Stop motion (Option 1/ Option 2)	✦International Space Station	
Understanding what a computer is and that it's made up of different components.	Computer science	✔						
Recognising that buttons cause effects and that technology follows instructions.		✔			✔			
Learning how we know that technology is doing what we want it to do via its output.		✔						
Using greater control when taking photos with cameras, tablets or computers.		✔				✔		
Developing confidence with the keyboard and the basics of touch typing.			✔	✔			✔	
Articulating what decomposition is.			✔					
Decomposing a game to predict the algorithms used to create it.			✔					
Learning that there are different levels of abstraction.			✔					
Explaining what an algorithm is.			✔		✔			

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Year 2		Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2	Creating media	Data handling	Online safety
		✦What is a computer?	✦Algorithms and debugging	Word Processing	Introduction to block coding Option 1: MakeCode Option 2: ScratchJr	Stop motion (Option 1/ Option 2)	✦International Space Station	
Following an algorithm.	Computer science		✔		✔			
Creating a clear and precise algorithm.			✔		✔			
Learning that programs execute by following precise instructions.			✔		✔			
Incorporating loops within algorithms.			✔		✔			
Using logical thinking to explore software, predicting, testing and explaining what it does.			✔		✔	✔		
Using an algorithm to write a basic computer program.			✔		✔			
Using loop blocks when programming to repeat an instruction more than once.					✔			

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Year 2		Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2	Creating media	Data handling	Online safety
		✦What is a computer?	✦Algorithms and debugging	Word Processing	Introduction to block coding Option 1: MakeCode Option 2: ScratchJr	Stop motion (Option 1/ Option 2)	✦International Space Station	
Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.	Information technology	✔	✔	✔				
Using word processing software to type and reformat text.		✔		✔				
Using software (and unplugged means) to create story animations.					✔	✔		
Creating and labelling images.		✔					✔	
Searching for appropriate images to use in a document.				✔				
Understanding what online information is.				✔				
Collecting and inputting data into a spreadsheet.							✔	
Interpreting data from a spreadsheet.							✔	
Learning how computers are used in the wider world.		✔					✔	

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Year 2		Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2	Creating media	Data handling	Online safety
		✦What is a computer?	✦Algorithms and debugging	Word Processing	Introduction to block coding Option 1: MakeCode Option 2: ScratchJr	Stop motion (Option 1/ Option 2)	✦International Space Station	
Identifying whether information is safe or unsafe to be shared online.	Digital literacy			✔				✔
Learning how to create a strong password.								✔
Learning to be respectful of others when sharing online and ask for their permission before sharing content.								✔
Learning strategies for checking if something they read online is true.								✔
Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable.								✔

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Year 2	Computing systems and networks 1	Programming 1	Computing systems and networks 2	Programming 2		Creating media	Data handling	Online safety
	✦ What is a computer?	✦ Algorithms and debugging	Word Processing	Introduction to block coding Option 1: MakeCode	Introduction to block coding Option 2: ScratchJr	Stop motion (Option 1/ Option 2)	✦ International Space Station	
Key knowledge from the unit	To know the difference between a desktop and laptop computer.	To understand what machine learning is and how it enables computers to make predictions.	To know that touch typing is the fastest way to type.	To know that programming a computer or device involves giving it instructions to perform specific tasks. To know that video games, phones, websites and apps are all created using programming.	To know that coding is writing in a special language so that the computer understands what to do.	To understand that an animation is made up of a sequence of photographs.	To understand that you can enter simple data into a spreadsheet.	To understand the difference between online and offline.
	To know that people control technology.	To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times.	To know that I can make text a different style, size and colour.	To know that different devices and programs use different programming languages or 'codes'. To know that an algorithm becomes a program when it is coded.	To understand that the character in ScratchJr is controlled by the programming blocks.	To know that small changes in my frames will create a smoother looking animation.	To understand what steps you need to take to create an algorithm.	To understand what information I should not post online.
	To know some input devices that give a computer an instruction about what to do (output).	To know that abstraction is the removing of unnecessary detail to help solve a problem.	To know that "copy and paste" is a quick way of duplicating text.	To know that programs execute the exact instructions they are given, even if they are incorrect. To know that a program is a series of instructions (algorithms) that are written for a computer to follow.	To know that you can write a program to create a musical instrument or tell a joke.	To understand what software creates simple animations and some of its features e.g. onion skinning.	To know what data to use to answer certain questions.	To know what the techniques are for creating a strong password.
	To know that computers often work together.			To know that a person can program a device by giving it an algorithm/algorithms to follow. To know that there must be an error if a program does not execute as expected.			To know that computers can be used to monitor supplies.	To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.'
				To know that an error in a computer program is known as a 'bug' and fixing errors is known as 'debugging'.				To understand that not everything I see or read online is true.

Year 3		Computing systems and networks 1	Programming	Computing systems and networks 2	Computing systems and networks 3	Creating media	Data handling	Online safety
		✦Networks	✦Scratch	Emailing (G/MO)	✦Journey inside a computer	✦Video trailers (1/2)	Comparisons cards databases	
Understanding what the different components of a computer do and how they work together.	Computer science				✔			
Learning about the purpose of routers.		✔						
Drawing comparisons across different types of computers.					✔			
Understanding the role of the key components of a network.		✔						
Understanding that websites & videos are files that are shared from one computer to another.		✔						
Learning about the role of packets.		✔						
Understanding how networks work and their purpose.		✔						
Identifying the key components within a network, including whether they are wired or wireless.		✔						
Recognising links between networks and the internet.		✔						

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Year 3		Computing systems and networks 1	Programming	Computing systems and networks 2	Computing systems and networks 3	Creating media	Data handling	Online safety
		✦Networks	✦Scratch	Emailing (G/MO)	✦Journey inside a computer	✦Video trailers (1/2)	Comparisons cards databases	
Learning how data is transferred.	Computer science	✔						
Using decomposition to explain the parts of a laptop computer.					✔			
Using decomposition to explore the code behind an animation.			✔					
Using repetition in programs.			✔					
Using logical reasoning to explain how simple algorithms work.			✔					
Explaining the purpose of an algorithm.			✔		✔			
Forming algorithms independently.			✔					
Using logical thinking to explore more complex software; predicting, testing and explaining what it does.			✔			✔	✔	
Incorporating loops to make code more efficient.			✔					
Continuing existing code.			✔					
Making reasonable suggestions for how to debug their own and others' code.			✔					

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Year 3		Computing systems and networks 1	Programming	Computing systems and networks 2	Computing systems and networks 3	Creating media	Data handling	Online safety
		✦Networks	✦Scratch	Emailing (G/MO)	✦Journey inside a computer	✦Video trailers (1/2)	Comparisons cards databases	
Taking photographs and recording video to tell a story.	Information technology					✔		
Using software to edit and enhance their video adding music, sounds and text on screen with transitions.						✔		
Learning to log in and out of an email account.				✔				
Writing an email including a subject, 'to' and 'from'.				✔				
Sending an email with an attachment.				✔				
Replying to an email.				✔				
Understanding the vocabulary associated with databases: field, record, data.							✔	
Learning about the pros and cons of digital versus paper databases.							✔	
Sorting and filtering databases to easily retrieve information.							✔	

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Year 3		Computing systems and networks 1	Programming	Computing systems and networks 2	Computing systems and networks 3	Creating media	Data handling	Online safety
		✦Networks	✦Scratch	Emailing (G/MO)	✦Journey inside a computer	✦Video trailers (1/2)	Comparisons cards databases	
Creating and interpreting charts and graphs to understand data.	Information technology						✔	
Recognising how social media platforms are used to interact.								✔
Understanding the purpose of emails.				✔				
Recognising that different information is shared online including facts, beliefs and opinions.	Digital literacy							✔
Learning how to identify reliable information when searching online.								✔
Learning how to stay safe on social media.								✔
Considering the impact technology can have on mood.								✔
Learning about cyberbullying.				✔				
Learning that not all emails are genuine, recognising when an email might be fake and what to do about it.				✔				

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Year 3	Computing systems and networks 1	Programming	Computing systems and networks 2	Computing systems and networks 3	Creating media	Data handling	Online safety
	✦Networks	✦Scratch	Emailing (G/MO)	✦Journey inside a computer	✦Video trailers (1/2)	Comparisons cards databases	
Key knowledge from the unit	To understand that a network is a group of interconnected devices.	To know that Scratch is a programming language and some of its basic functions.	To understand that email stands for 'electronic mail.'	To know the roles that inputs and outputs play on computers.	To know that different types of camera shots can make my photos or videos look more effective.	To know that a database is a collection of data stored in a logical, structured and orderly manner.	To know that not everything on the internet is true: people share facts, beliefs and opinions online.
	To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices).	To understand how to use loops to improve programming.	To know that an attachment is an extra file added to an email.	To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.	To know that I can edit photos and videos using film editing software.	To know that computer databases can be useful for sorting and filtering data.	To understand that the internet can affect your moods and feelings.
	To know that a server is central to a network and responds to requests made.	To understand how decomposition is used in programming.	To understand that emails should contain appropriate and respectful content.	To know what a tablet is and how it is different from a laptop/desktop computer.	To understand that I can add transitions and text to my video.	To know that different visual representations of data can be made on a computer.	To know that privacy settings limit who can access your important personal information such as your name, age, gender etc.
	To know that the internet connects all the networks around the world.	To understand that you can remix and adapt existing code.	To know that cyberbullying is bullying using electronics such as a computer or phone.				To know what social media is and that age restrictions apply.
	To know that a router connects us to the internet.						
	To know what a packet is and why it is important for website data transfer.						

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Year 4		Computing systems and networks	Programming 1	Creating media	Skills showcase	Programming 2	Data handling	Online safety
		✦Collaborative learning	✦Further coding with Scratch	Website design (G/MO)	✦HTML	✦Computational thinking Option 1/ Option 2	Investigating weather	
Using tablets or digital cameras to film a weather forecast.	Computer science						✔	
Understanding that weather stations use sensors to gather and record data which predicts the weather.							✔	
Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration.		✔						
Using decomposition to solve a problem by finding out what code was used.			✔			✔		
Using decomposition to understand the purpose of a script of code.			✔			✔		
Identifying patterns through unplugged activities.						✔		

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Year 4		Computing systems and networks	Programming 1	Creating media	Skills showcase	Programming 2	Data handling	Online safety
		✦Collaborative learning	✦Further coding with Scratch	Website design (G/MO)	✦HTML	✦Computational thinking Option 1/ Option 2	Investigating weather	
Using past experiences to help solve new problems.	Computer science					✔		
Using abstraction to identify the important parts when completing both plugged and unplugged activities.						✔		
Creating algorithms for a specific purpose.			✔			✔		
Coding a simple game.			✔			✔		
Using abstraction and pattern recognition to modify code.						✔		
Incorporating variables to make code more efficient.			✔			✔		
Remixing existing code.			✔		✔	✔		

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Year 4		Computing systems and networks	Programming 1	Creating media	Skills showcase	Programming 2	Data handling	Online safety
		✦Collaborative learning	✦Further coding with Scratch	Website design (G/MO)	✦HTML	✦Computational thinking Option 1/ Option 2	Investigating weather	
Building a web page and creating content for it.	Information technology			✔	✔			
Designing and creating a webpage for a given purpose.				✔				
Use online software for documents, presentations, forms and spreadsheets.		✔						
Using software to work collaboratively with others.		✔		✔				
Understanding why some results come before others when searching.								✔
Using keywords to effectively search for information on the internet.							✔	
Understanding that information found by searching the internet is not all grounded in fact.					✔			✔
Searching the internet for data.							✔	
Designing a device which gathers and records sensor data.							✔	

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Year 4		Computing systems and networks	Programming 1	Creating media	Skills showcase	Programming 2	Data handling	Online safety
		✦Collaborative learning	✦Further coding with Scratch	Website design (G/MO)	✦HTML	✦Computational thinking Option 1/ Option 2	Investigating weather	
Recording data in a spreadsheet independently.	Information technology						✔	
Sorting data in a spreadsheet to compare using the 'sort by…' option.							✔	
Understanding that data is used to forecast weather.							✔	
Understanding that software can be used collaboratively online to work as a team.		✔						
Learning to make judgements about the accuracy of online searches.	Digital literacy							✔
Identifying forms of advertising online.								✔
Recognising what appropriate behaviour is when collaborating with others online.		✔						
Reflecting on the positives and negatives of time online.								✔
Identifying respectful and disrespectful online behaviour.								✔
Recognising that information on the Internet might not be true or correct and that some sources are more trustworthy than others.					✔			✔

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Year 4	Computing systems and networks	Programming 1	Creating media	Skills showcase	Programming 2	Data handling	Online safety
	✦Collaborative learning	✦Further coding with Scratch	Website design (G/MO)	✦HTML	✦Computational thinking Option 1/ Option 2	Investigating weather	
Key knowledge from the unit	To understand that software can be used collaboratively online to work as a team.	To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch.	To know that a website is a collection of pages that are all connected. .	To understand and identify examples of HTML tags.	To know that combining computational thinking skills can help you to solve a problem.	To know that computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data').	To understand some of the methods used to encourage people to buy things online.
	To know what type of comments and suggestions on a collaborative document can be helpful.	To know what a conditional statement is in programming.	To know that websites usually have a homepage and subpages as well as clickable links to new pages, called hyperlinks.	To understand what changing the HTML and CSS does to alter the appearance of an object on the web .	To understand that pattern recognition means identifying patterns to help them work out how the code works.	To know that a weather machine is an automated machine that respond to sensor data.	To understand that technology can be designed to act like or impersonate living things.
	To know that you can use images, text, transitions and animation in presentation slides.	To understand that variables can help you to create a quiz on Scratch.	To know that websites should be informative and interactive.	To understand that copyright means that those images are protected and to understand that we should do a "creative commons" image search if we wish to use images from the internet.	To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.	To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.	To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology.
				To know what "fake news" is and ways to spot websites that carry this type of misinformation.			To understand what behaviours are appropriate in order to stay safe and be respectful online.
				To know what the "inspect" elements tool is and ways of using it to explore and alter text and images.			

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Year 5		Computing systems and networks	Programming 1	Data handling	Programming 2	Creating media	Skills showcase	Online safety
		✦Search engines	✦Music Option 1/ Option 2	✦Mars Rover 1	Micro:bit	Stop motion animation (1/2)	Mars Rover 2	
Learning that external devices can be programmed by a separate computer.	Computer science			✔				
Learning the difference between ROM and RAM.							✔	
Recognising how the size of RAM affects the processing of data.				✔			✔	
Understanding the fetch, decode, execute cycle.							✔	
Learning the vocabulary associated with data: data and transmit.				✔				
Learning how the data for digital images can be compressed.							✔	
Recognising that computers transfer data in binary and understanding simple binary addition.				✔			✔	
Relating binary signals (Boolean) to the simple character-based language, ASCII.				✔				
Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations.				✔				

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Year 5		Computing systems and networks	Programming 1	Data handling	Programming 2	Creating media	Skills showcase	Online safety
		✦Search engines	✦Music Option 1/ Option 2	✦Mars Rover 1	Micro:bit	Stop motion animation (1/2)	Mars Rover 2	
Understanding how bit patterns represent images as pixels.	Computer science						✔	
Decomposing animations into a series of images.						✔		
Decomposing a program without support.					✔			
Decomposing a story to be able to plan a program to tell a story.						✔		
Predicting how software will work based on previous experience.			✔		✔			
Writing more complex algorithms for a purpose.			✔		✔			
Programming an animation.					✔			
Iterating and developing their programming as they work.			✔		✔			
Confidently using loops in their programming.			✔		✔			

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Year 5		Computing systems and networks	Programming 1	Data handling	Programming 2	Creating media	Skills showcase	Online safety
		✦Search engines	✦Music Option 1/ Option 2	✦Mars Rover 1	Micro:bit	Stop motion animation (1/2)	Mars Rover 2	
Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.	Computer science		✔		✔			
Writing code to create a desired effect.			✔		✔			
Using a range of programming commands.			✔		✔			
Using repetition within a program.			✔		✔			
Amending code within a live scenario.			✔					
Using logical thinking to explore software more independently, making predictions based on their previous experience.	Information technology		✔		✔		✔	
Using a software programme (Sonic Pi/Scratch) to create music.			✔					
Using video editing software to animate.						✔		
Identify ways to improve and edit programs, videos, images etc.			✔		✔			
Independently learning how to use 3D design software package TinkerCAD.							✔	

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Year 5		Computing systems and networks	Programming 1	Data handling	Programming 2	Creating media	Skills showcase	Online safety
		✦ Search engines	✦ Music Option 1/ Option 2	✦ Mars Rover 1	Micro:bit	Stop motion animation (1/2)	Mars Rover 2	
Developing searching skills to help find relevant information on the internet.	Information technology	✔						
Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns.		✔						
Understanding how data is collected in remote or dangerous places.				✔				
Understanding how data might be used to tell us about a location.				✔				
Learn about different forms of communication that have developed with the use of technology.		✔		✔			✔	
Identifying possible dangers online and learning how to stay safe.	Digital literacy							✔
Evaluating the pros and cons of online communication.								✔
Recognising that information on the Internet might not be true or correct and learning ways of checking validity.		✔						✔
Learning what to do if they experience bullying online.								✔
Learning to use an online community safely.								✔

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Year 5	Computing systems and networks	Programming 1	Data handling	Programming 2	Creating media	Skills showcase	Online safety
	✦Search engines	✦Music Option 1/ Option 2	✦Mars Rover 1	Micro:bit	Stop motion animation (1/2)	Mars Rover 2	
Key knowledge from the unit	To know how search engines work.	To know that a soundtrack is music for a film/video and that one way of composing these is on programming software.	To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock.	To know that a Micro:bit is a programmable device.	To know that decomposition of an idea is important when creating stop-motion animations.	To understand that bit patterns represent images as pixels.	To know different ways we can communicate online.
	To understand that anyone can create a website and therefore we should take steps to check the validity of websites.	To understand that using loops can make the process of writing music simpler and more effective.	To know what numbers using binary code look like and be able to identify how messages can be sent in this format.	To know that Micro:bit uses a block coding language similar to Scratch.	To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph.	To understand that the data for digital images can be compressed.	To understand how online information can be used to form judgements.
	To know that web crawlers are computer programs that crawl through the internet.	To know how to adapt their music while performing.	To understand that RAM is Random Access Memory and acts as the computer's working memory.	To understand and recognise coding structures including variables.	To know that editing is an important feature of making and improving a stop motion animation.	To know the difference between ROM and RAM.	To understand some ways to deal with online bullying.
	To understand what copyright is.		To know what simple operations can be used to calculate bit patterns.	To know what techniques to use to create a program for a specific purpose (including decomposition).		To understand various techniques that will improve the design of a 3D object (using CAD software).	To know that apps require permission to access private information and that you can alter the permissions.
							To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.

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Year 6		Computing systems and networks	Computing systems and networks	Data handling 1	Programming	Data handling 2	Skills showcase	Online safety
		✦Bletchley Park and the history of computers	Exploring AI	✦Big Data 1	✦Introduction to Python	Big Data 2	Inventing a product	
Learning about the history of computers and how they have evolved over time.	Computer science	✔						
Using the understanding of historic computers to design a computer of the future.		✔						
Understanding and identifying barcodes, QR codes and RFID.				✔				
Identifying devices and applications that can scan or read barcodes, QR codes and RFID.				✔				
Understanding how corruption can happen within data during transfer (for example when downloading, installing, copying and updating files).						✔		
Identify different types of AI and their applications in everyday life.			✔					
Understanding that computer networks provide multiple services.						✔		
Decomposing a program into an algorithm.					✔			
Using past experiences to help solve new problems.		✔					✔	
Writing increasingly complex algorithms for a purpose.		✔			✔		✔	

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Year 6		Computing systems and networks	Computing systems and networks	Data handling 1	Programming	Data handling 2	Skills showcase	Online safety
		✦Bletchley Park and the history of computers	Exploring AI	✦Big Data 1	✦Introduction to Python	Big Data 2	Inventing a product	
Analysing the effectiveness of prompts and refine them for improved AI outputs.	Computer science		✔					
Debugging quickly and effectively to make a program more efficient.		✔			✔		✔	
Remixing existing code to explore a problem.		✔			✔		✔	
Using and adapting nested loops.					✔			
Programming using the language Python.					✔			
Changing a program to personalise it.		✔			✔		✔	
Evaluating code to understand its purpose.		✔			✔		✔	
Predicting code and adapting it to a chosen purpose.		✔					✔	
Applying coding skills like decomposition and pattern recognition to interact with AI applications.			✔					

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Year 6		Computing systems and networks	Computing systems and networks	Data handling 1	Programming	Data handling 2	Skills showcase	Online safety
		✦Bletchley Park and the history of computers	Exploring AI	✦Big Data 1	✦Introduction to Python	Big Data 2	Inventing a product	
Using logical thinking to explore software independently, iterating ideas and testing continuously.	Information technology				✔		✔	
Using search and word processing skills to create a presentation.		✔				✔		
Planning, recording and editing an audio recording.		✔						
Creating and editing sound recordings for a specific purpose.		✔						
Creating and editing videos, adding multiple elements: music, voiceover, sound, text and transitions.							✔	
Using design software TinkerCAD to design a product.							✔	
Creating a website with embedded links and multiple pages.							✔	
Using text-based and image-based AI tools to generate content.			✔					
Understanding how search engines work.		✔					✔	

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Year 6		Computing systems and networks	Computing systems and networks	Data handling 1	Programming	Data handling 2	Skills showcase	Online safety
		✦Bletchley Park and the history of computers	Exploring AI	✦Big Data 1	✦Introduction to Python	Big Data 2	Inventing a product	
Understanding how barcodes, QR codes and RFID work.	Information technology			✔				
Gathering and analysing data in real time.				✔				
Creating formulas and sorting data within spreadsheets.				✔		✔		
Learning about the Internet of Things and how it has led to 'big data'.						✔		
Learning how 'big data' can be used to solve a problem or improve efficiency.				✔		✔		
Learning about the positive and negative impacts of sharing online.	Digital literacy							✔
Learning strategies to create a positive online reputation.								✔
Understanding the importance of secure passwords and how to create them.		✔						✔
Learning strategies to capture evidence of online bullying in order to seek help.								✔
Using search engines safely and effectively.		✔					✔	
Recognising that updated software can help to prevent data corruption and hacking								✔
Exploring ethical considerations around AI use and its impact on society.			✔					

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Year 6	Computing systems and networks	Computing systems and networks	Data handling 1	Programming	Data handling 2	Skills showcase	Online safety
	✦Bletchley Park and the history of computers	Exploring AI	✦Big Data 1	✦Introduction to Python	Big Data 2	Inventing a product	
Key knowledge from the unit	To know the importance of having a secure password and what "brute force hacking" is.	To know that AI is artificial intelligence and is used in everyday life.	To know that data contained within barcodes and QR codes can be used by computers.	To know that there are text-based programming languages such as Logo and Python.	To know that data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'.	To know what designing an electronic product involves.	To know that a digital footprint means the information that exists on the internet as a result of a person's online activity.
	To know the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.	To know that AI is trained on data to recognise patterns and generate outputs.	To know that infrared waves are a way of transmitting data. .	To know that nested loops are loops inside of loops.	I know that devices or that are not updated are most vulnerable to hackers.	To know which programming software/ language is best to achieve a purpose.	To know what steps are required to capture bullying content as evidence.
	To know about some of the historical figures that contributed to technological advances in computing.	To know that AI can be used to generate written content.	To know that Radio Frequency Identification (RFID) is a more private way of transmitting data.	To understand the use of random numbers and remix Python code.	To know the difference between mobile data and WiFi.	To know the building blocks of computational thinking e.g. sequence, selection, repetition, variables and inputs and outputs.	To understand that it is important to manage personal passwords effectively.
	To know what techniques are required to create a presentation using appropriate software.	To know that AI can be used to create visual content like pictures.	To know that data is often encrypted so that even if it is stolen it is not useful to the thief.				To understand what it means to have a positive online reputation.
	To know that sound clips can be recorded using sound recording software and that sound clips can be edited and trimmed.	To know that AI can help generate basic HTML code to create the structure and layout of a website.					To know some common online scams.
		To know that there are ethical issues surrounding AI, including data privacy, bias and responsible use.					

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Version history

This page shows recent updates to this document.

Date	Update
11.04.23	Broken links fixed.
21.06.23	Updated to reflect alternative versions on website.
04.09.23	Updated links to reflect newly refreshed units.
30.04.24	Updated links to reflect newly refreshed units.
20.08.24	Updated to reflect newly refreshed units.
25.08.24	Updated to add in the new MakeCode unit for Year 2.
04.10.24	Updated to add in the new Exploring AI unit for Year 6.
21.11.24	Updated the name of Programming 2 Year 2 units to include Introduction to block coding.
28.03.25	Updated to include links to newly published units.

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