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Computing

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Networks	The idea of a network is introduced practically across these year groups.			Recognise the physical components of a network and how devices can be connected. Explain how a computer network can be used to share information.	Describe how networks physically connect to other networks. Recognise how networked devices make up the internet. Outline how websites can be shared via the World Wide Web (WWW). Describe how content can be added and accessed on the World Wide Web (WWW).	Experiment with search engines. Describe how search engines select results. Explain how search results are ranked. Recognise why the order of results is important, and to whom.	Explain the importance of internet addresses. Recognise how data is transferred across the internet. Recognise how we communicate using technology.
Creating Media	Use a digital device to take a photograph. Create collaboratively, sharing ideas, resources and skills. Use and explore a laptop, interactive whiteboard and a variety of tools and programs experimenting with colour and design. Explore adding text using a keyboard to their creations.	Create digital writing using a computer. Add, alter and remove text, explaining choices for changes and tools used.	Use a digital device to take a photograph. Talk about choices when taking a photograph to improve and enhance the photo. Recognise that photos can be changed. Experiment with sound using a computer. Create a musical pattern for a purpose using a computer.	Explain that animation is a sequence of drawings or photographs. Relate animated movement with a sequence of images. Plan an animation. Recognise that text and layout can be edited. Choose appropriate page settings. Add content to a desktop publishing publication. Consider how different layouts can suit different purposes.	Recognise the different parts of creating a podcast project. Apply audio editing skills independently. Combine audio to enhance a podcast. Explain that the composition of digital images can be changed. Explain that colours can be changed in digital images. Explain how cloning can be used in photo editing.	Explain what makes a video effective. Capture video using a range of techniques. Create a storyboard. Identify that video can be improved through reshooting and editing. Identify that drawing tools can be used to produce different outcomes. Create a vector drawing by combining shapes. Recognise that vector drawings consist of layers.	Recognise that you can work in three dimensions on a computer. Identify that digital 3D objects can be modified. Recognise that objects can be combined in a 3D model. Create a 3D model for a given purpose.

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					Explain that images can be combined. Combine images for a purpose.		
Data and Information	Collect and represent data in a variety of ways as a class, a small group or during play.	Label, compare and describe objects through grouping data.	Recognise the use of pictures and tally charts to represent and compare objects. Create a simple pictogram. Recognise that people can be described by attributes and that we can use these to make comparisons. Explain that we can present information using a computer.	Identify the attributes needed to collect data about an object. Create a branching database and explain why it is helpful for a database to be well structured. Independently create an identification tool.	Explain that data gathered over time can be used to answer questions. Use a digital device to collect data automatically. Explain that a data logger collects 'data points' from sensors over time. Identify the data needed to answer questions. Use data from sensors to answer questions.	Use a form to record information. Compare paper and computer-based databases. Outline how you can answer questions by grouping and then sorting data. Explain that tools can be used to select specific data. Explain that computer programs can be used to compare data visually. Use a real-world database to answer questions.	Create a data set in a spreadsheet. Explain that formulas can be used to produce calculated data and apply them. Create a spreadsheet to plan an event and choose suitable ways to present data.
Design and Development		Design parts of a project.	Describe what makes a good photograph. Use a given design to create a program. Create and adapt a design for a program. Make improvements to a program.	Review and improve an animation. Evaluate the impact of adding other media to an animation. Change the appearance of a project.			Review an existing website and consider its structure. Plan the features of a web page. Recognise the need to preview pages and for a navigation path.
Computing Systems	Safely use and explore a variety of		Recognise the uses and features of	Explain how digital devices function.	Understand that sound can be recorded and edited.	Explain that computers can be connected	Create a program to run on a controllable device.

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	tools and programs.		information technology. Identify the uses of information technology in and beyond school. Explain how information technology helps us. Explain how we use information technology safely and the importance of the choices we make when using this technology.	Identify input and output devices. Recognise how digital devices can change the way we work. Explore how digital devices can be connected.		together to form systems. Identify digital devices that can record video. Recognise the role of computer systems in our lives.	Explain that selection can control the flow of a program. Update a variable with a user input. Use a conditional statement to compare a variable to a value. Design and develop a project that uses inputs and outputs on a controllable device.
Impact of Technology	Understand how the use of a digital device creates a permanent record. Begin to understand how different technologies can be used to access and record information and recreational purposes.			Recognise how digital devices can change the way we work.	Evaluate the consequences of unreliable content.	Recognise the role of computer systems in our lives.	Explain how sharing information online can help people to work together. Evaluate different ways of working together online. Recognise the implications of linking to content owned by other people.
Algorithms	Talk about and identify the patterns around them. Notice and correct an error in a repeating pattern.	Find more than one solution to a problem. Use simple algorithms to create a program.	Describe a series of instructions as a sequence and explain what happens when we change the order of these instructions.	Create a project from a task description. Decompose a task into small steps.			Explain how selection is used in computer programs. Relate that a conditional statement connects a condition to an outcome.

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	Explore and understand directional language and keys using technology. Create and follow simple instructions for simple journeys and tasks.		Use logical reasoning to predict the outcome of a program. Design an algorithm. Debug a program.				
Programming	Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. Input an algorithm correctly into a BeeBot and review the outcome.	Create a series of commands that are joined together for a given purpose. Use simple algorithms to create a program, giving each sprite its own instructions. Identify the effect of changing a value.	Create a simple program. Explain that a sequence of commands has a start and an outcome.	Explore a new programming environment. Identify that commands have an outcome. Explain that a program has a start. Recognise that a sequence of commands can have an order. Create a project from a task description. Create a program to move a sprite in four directions and explain how this works. Adapt a program to a new context. Develop a program by adding features, including identifying and fixing bugs in a program. Design and create a maze-based challenge.	Identify that accuracy in programming is important. Create a program in a text-based language. Explain what 'repeat' means. Modify a count-controlled loop to produce a given outcome. Decompose a task into small steps. Create a program that uses count-controlled loops to produce a given outcome. Develop the use of count-controlled loops in a different programming environment. Explain that in programming there are infinite loops and count controlled loops.	Control a simple circuit connected to a computer. Write a program that includes count-controlled loops. Explain that a loop can stop when a condition is met. Explain that a loop can be used to repeatedly check whether a condition has been met. Design a physical project that includes selection. Create a program that controls a physical computing project. Explain how selection is used in computer programs. Relate that a conditional statement connects a condition to an outcome.	Define a 'variable' as something that is changeable. Explain why a variable is used in a program. Choose how to improve a game by using variables. Design, create and evaluate a project that builds on a given example.

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					Develop a design that includes two or more loops which run at the same time. Modify an infinite loop in a given program. Design a project that includes repetition. Create a project that includes repetition.	Explain how selection directs the flow of a program. Design, create and evaluate a program which uses selection.	
Effective use of tools	Explore digital tools for a range of purposes.	Use tools to add, edit and remove text.	Use simple tools to manipulate photographs.	Consider the benefits of desktop publishing.	Evaluate the effective use of audio. Recognise how a computer can help us analyse data. Evaluate how changes can improve an image.	Use tools to achieve a desired effect.	Evaluate different methods of online communication.
Safety and Security	Begin to log in to a computer using a username. Identify adults they can trust and know how to ask them for help if they have a problem online that upsets or worries them. To be aware of the potential dangers when online and how they can stay safe. Begin to understand the difference between	Log in to a computer system independently using a username and understand why this is private.	Explain how we use information technology safely and the importance of the choices we make when using this technology.		Evaluate the consequences of unreliable content.	Consider the impact of the choices made when making and sharing a video.	Consider the ownership and use of images (copyright).

	the digital and the real world.						