Coastal Learning PARTNERSHIP

Heathlands

Primary Academy and Pre-school

Computing Long Term Planning Document

Implemented: September 2021

Updated: September 2024

Next Review: September 2026

Our Curriculum Intent

The intent of our curriculum is for pupils to have high aspirations, make progress from their starting points and to contribute positively to the school community and beyond.

Communication

It is essential that children leave Heathlands Primary Academy able to communicate their thoughts, ideas and feelings successfully in a wide range of different forms. Through our work on vocabulary, we aim to develop children's imaginations and to support them with building a rich vocabulary, which will enable them to understand the world in which we live. We will do this in computing by:

- ensuring that children are able to communicate thoughts, ideas and feelings successfully both online and offline
- using subject specific vocabulary and signposting children to areas where it crosses into other subjects and areas of life in general
- using information technology and multimedia to communicate in an appropriate and safe way

Community

Children who attend Heathlands Primary Academy should feel that they are always part of a community, whether this means their class, school, local area or as global citizens. We are closely supported by the Cultural Hub and this enables us to deliver authentic experiences that the children can then use back in the classroom. Some of the ways in which we will achieve this in computing will be:

- enabling children to be aware of how to use technology responsibly as part of an online community
- using information technology to share learning with others within the school community
- by encouraging children to share their learning about being safe online with families and the local community

Application

A key part of our curriculum is ensuring that new skills and knowledge are applied across the subjects, where appropriate. This will enable children to see new information in a variety of contexts, and to become more independent learners. We will ensure this is effective in computing by:

- showing children how to use information technology effectively to show learning outcomes in a variety of subjects
- encouraging children to utilise debugging, problem solving and reasoning skills to solve maths problems
- allowing children to apply digital literacy and multimedia skills across a variety of subjects

Long Term Planning Document

		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Online Safety strands (Education for a Connected World)	Self-image and identity	To know that anyone can say 'no', 'please stop', 'I'll tell', 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.	To recognise that there may be people online who could make someone feel sad, embarrassed or upset. To know that if something happens that makes me feel sad, worried, uncomfortable or frightened, I can give speak to an adult that I trust.	To understand that other people may look and act differently online and offline. To give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened.	To know that 'identity' is who you are. To understand that there are ways in which someone might change their identity depending on what they are doing online, e.g. gaming; using an avatar; social media. To know that people can represent themselves in different ways online.	To understand that my online identity can be different to my offline identity. To know that there are positive ways for someone to interact with others online and that this will positively impact on how others perceive them. To understand that someone can pretend to be someone else online, including my friends.	To understand that identity online can be copied, modified or altered. To know how to make responsible choices about having an online identity, depending on context.	To identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups. To explain why it is important to challenge and reject inappropriate representations online. To describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. To know and give examples of how to get help, both on and offline.
	Online relationships	To recognise some ways in which the internet can be used to communicate. To know that technology can be used to communicate with people I know.	To know that sometimes I should ask permission to do something online. To know that I can use the internet, with adult support, to communicate with people I know, e.g. video call, apps. To explain why it is important to be considerate and kind to people online and to respect their choices To understand that things one person finds funny or sad online may not always be seen in the same way by others.	To understand that someone might use technology to communicate with others they don't know and that this might be risky, e.g. email, online gaming, a pen pal in another school / country. To know who I should ask before sharing things about myself or others online. To understand that there are different ways to ask for, give, or deny my permission online. To know that I have a right to say 'no' or 'I will have to ask someone'. To identify who can help me if something happens online without my consent.	To understand that people who have similar likes and interests can connect online. To understand what it means to 'know someone' online and why this might be different from knowing someone offline. To know why it is important to be careful about who to trust online, including what information and content they are trusted with. To understand that someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. To understand that someone's feelings can be hurt by what is said or written online.	To know that there are strategies for safe and fun experiences in a range of online social environments, e.g. livestreaming, gaming platforms. To know that there are healthy and unhealthy online behaviours. To understand how content shared online may feel unimportant to one person but may be important to other people's thoughts, feelings and beliefs.	To know that there are types of technology that are specific forms of communication, e.g. emojis, memes and GIFs. To understand that there are some people I communicate with online who may want to do me or my friends harm; to understand that this is not my / my friends' fault. To know some of the ways people may be involved in online communities, e.g. gaming communities or social media groups.	To 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. To describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. To 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. To know that sharing something online may have an impact either positively or negatively.

			To know that I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.				
Online reputation	To know ways that I can put information on the internet.	To know that information can stay online and could be copied. To know what information I should not put online without asking a trusted adult first.	To understand that information put online about someone can last for a long time. To know that anyone's online information could be seen by others. To know who to talk to if something has been put online without consent or if it is incorrect.	To know how to search for information about others online. To know some examples of what anyone may or may not be willing to share about themselves online.	To know that information about someone online could have been created, copied or shared by others.	To know that information about anyone online can be used by others to make judgments about an individual and that these may be incorrect.	To know the ways in which anyone can develop a positive online reputation. To know strategies that anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.
Online bullying	To know that some people can be unkind online. To explain how people being unkind online can make others feel.	To know ways that I should behave online so that others do not become upset.	To know what bullying is, how people may bully others and how bullying can make someone feel. To understand that anyone who experiences bullying is not to blame. To know that anyone experiencing bullying can get help.	To know appropriate ways to behave towards other people online and why this is important. To give examples of how bullying behaviour could appear online and how someone can get support.	To know that there are different ways people can be bullied through a range of media, e.g. image, video, text, chat. To understand that 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).	To understand that online bullying can be different to bullying in the physical world. To know how to block abusive users. To know that there are helpline services which can help people experiencing bullying, e.g. Childline or The Mix.	To describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help. To know that someone can report online bullying in different contexts.
Managing online information	To talk about how to use the internet as a way of finding information online. To know the names of some devices that could be used to access information on the internet.	To know that search engines and voice activated searching are simple examples of how to find information. To know that I can encounter a range of things online, including things I like and don't like. To know that I can encounter a range of things online, including things that are real and fake. To know that a trusted adult should be told if I see content that makes me feel sad, uncomfortable worried or frightened.	To know that search engines use simple key words. To know the different ways to navigate a simple webpage to get to information (e.g. home, forward, back buttons; links, tabs and sections). To know that there is now technology which includes voice activated searching (e.g. Alexa, Google Now, Siri). To know that voice activated searching is not a real person. To understand that there is a difference between things that are imaginary/made up and things that are real/true. To know that some information found online may not be real or true.	To know what autocomplete is and how it can be used to choose the best suggestion. To know that the internet can be used to sell and buy things. To know the difference between a 'belief', an 'opinion' and a 'fact', and where they might be shared online, e.g. in videos, memes, posts, news stories etc. To know that not all opinions shared may be accepted as true or fair by others. To know the importance of using key phrases in search engines to gather accurate information online.	To know that information can be analysed to make a judgement about probable accuracy. To understand that someone can make their own decisions regarding content. To know that different methods are used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups. To understand that lots of people sharing the same opinions or beliefs online does not always make those opinions or beliefs true. To know that technology can be designed to act like or impersonate living things, e.g. bots. To know that 'fake news' is **news or stories on the internet that are not true,** e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.	To understand that there are benefits and limitations of using different types of search technologies e.g. voice-activation search engine. To explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. To know that some online content is commercially sponsored or boosted in different ways (e.g. by commercial companies or by vloggers, content creators, influencers). To understand how fake news may affect someone's emotions and behaviour, and how this may be harmful. To know that a 'hoax' is a concept or idea that is not true.	To know that some online information can be opinion and offer examples. To know that some people may present 'opinions' as 'facts'. To know the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news). To understand the difference between online misinformation and dis-information. To understand that information on a large number of sites may still be inaccurate or untrue. To know how to identify, flag and report inappropriate content. To understand how search engines work.
Health, well-being and lifestyle	To understand that there are rules that help keep us safe and healthy in and beyond the home, when using technology. To give some simple examples of online safety rules.	To give rules to keep myself safe when using technology, both in and beyond the home.	To understand that there is often guidance for using technology in different environments and settings, e.g. accessing online technologies in public places and the home environment.	To understand how spending too much time using technology can sometimes have a negative impact on someone, e.g. mood, sleep, body, relationships. To know some examples of both positive and negative activities where it is easy to spend a lot of time engaged, e.g. doing homework, games, films, videos. To know that some online activities have age restrictions and that it is important to follow them. To 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).	To understand that using technology can be a distraction from other things, in both a positive and negative way. To know that there are times or situations when someone may need to limit the amount of time they use technology, e.g. using a device before bedtime.	To understand that technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. To understand that we should balance accessing information about health and well-being online with talking to trusted adults and professionals. To know that some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes); to understand the importance of seeking permission from a trusted adult before purchasing.	To understand that there are common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings). To understand the pressures that technology can place on someone and how they could manage this. To understand features of persuasive design and how they are used to keep users engaged. To know that there are different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).
Privacy and security	To know some simple examples of my personal information, e.g. name, age, location, school. To know that personal information should only be shared with trustworthy adults. To know that a trustworthy adult is	To know that passwords are used to protect information, accounts and devices. To know more detailed examples of information that is personal to someone, e.g. address, family names, birthday, hobbies/clubs. To understand why it is important to always ask a trusted adult before sharing any personal information online.	To understand, and give examples of, what is meant by 'private' and 'keeping things private'. To know that some people may have devices in their homes connected to the internet, e.g. lights, fridges, toys, televisions.	To know that there are simple strategies for creating and keeping passwords private. To know that connected devices can collect and share anyone's information with others.	To understand that internet use is never fully private and is monitored, e.g. adult supervision. To know that some online services may seek consent to store information about me and that I should ask a trusted adult if I am not sure. To know that the digital age of consent is 13, so **only children aged 13 or above are able to provide their own consent.**	To know what a strong password is and demonstrate how to create one. To know that many free apps or services may read and share private information with others, e.g. friends, contacts, likes, images, videos, voice, messages, geolocation. To know that app permissions allow access to specific features of an app.	To know some effective ways that people can manage passwords (e.g. storing them securely or saving them in the browser). To know what to do if a password is shared, lost or stolen. To know that people should keep their software and apps up to date, e.g. auto updates. To understand that there are ways to increase privacy on apps and services that provide privacy settings.

		someone I know that makes me feel safe.																To know that some online content targets people in order to gain money or information illegally (e.g. scams, phishing). To know that online services have terms and conditions that govern their use.		
	Copyright and ownership	To know that work I create belongs to me. To know that I can name my work so that others know it belongs to me.	To know that I can save my work under a suitable title / name so that others know it belongs to me, e.g. filename, name on content. To understand that work created by others does not belong to me even if I save a copy.			To understand that content on the internet may belong to other people. To describe why other people's work belongs to them.			To know that copying someone else's work from the internet without permission isn't fair and might cause problems.			To know that I have to consider who owns content on the internet and whether I have the right to reuse it. To know some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.			To know that I can justify when it is acceptable to use the work of others. To know examples of content that is permitted to be reused and know how this content can be found online.			To know that search tools can be used to find and access online content which can then be reused by others. To understand the importance of making references to and acknowledging sources used from the internet.		
Units of work (linked to NC PoS)	Area of Learning		Computing systems and networks – technology around us	Programming A - Moving a robot	Creating media - Digital Writing	Computing systems and networks – Information Technology around us	Programming A - Robot Algorithms	Creating media - Making Music	Computing systems and networks – Connecting Computers	Programming A -Sequence in music	Creating media - Desktop publishing	Computing systems and networks – The Internet	Programming A - Repetition in shapes	Creating media –Photo editing	Computing systems and networks – Sharing information	Programming A - Selection in physical computing	Creating Media - Vector drawing	Computing systems and networks – Communication	Programming A - Variables in games	Creating Media - 3D Modelling
	Understanding the World(foster their understanding of our….technologically…. diverse world)		Creating media - Digital Painting	Data and information - Grouping Data	Programming B - Programming Animations	Creating media - Digital Photography	Data and Information - Pictograms	Programming B - An Introduction to Quizzes	Creating media -Stop-frame Animation	Data and Information - Branching databases	Programming B - Events and actions	Creating media –Audio editing	Data and Information - Data logging	Programming B - Repetition in games	Creating Media - Video editing	Data and Information - Flat-file databases	Programming B - Selection in quizzes	Creating Media - Web page creation	Data and Information - Introduction to spreadsheets	Programming B - Sensing
		EYFS	Y1			Y2			Y3			Y4			Y5			Y6		
Prior knowledge needed		To understand that a range of technology is used in everyday life To become familiar with a range of technology used in the course of play, eg cameras, ipads, clocks, computers. Begin to use technology to enhance learning	To be able to name some technology items and talk about what they are used for (EYFS) To be able to suggest technology for a specific purpose- eg to use an ipad to take a photo (EYFS) To know how to switch on and log into a computer/ipad and access an app (EYFS)	To be able to name some technology items and talk about what they are used for (EYFS) To be able to suggest technology for a specific purpose- eg to use an ipad to take a photo (EYFS) To know how to switch on and log into a computer/ipad and access an app (EYFS)	To be able to name some technology items and talk about what they are used for (EYFS) To be able to suggest technology for a specific purpose- eg to use an ipad to take a photo (EYFS) To know how to switch on and log into a computer/ipad and access an app (EYFS)	- To know how to switch on and log into a computer (EYFS, Y1) - To know how to use a mouse to click and drag" (Y1) - To know how to use the arrow keys to move the cursor" (Y1)	"- To know how to match a command to an outcome (Y1) - To know how to run a command on a device" (Y1) - To know how to experiment with turn and move commands to move a robot (Y1)	- To know how to use backspace to remove text (Y1) - To know how to use letter, number, and space keys" (Y1) - To know how to type capital letters" (Y1)	- To know how to move and resize images (Y2)	- To know how to use an algorithm to program a sequence on a floor robot" (Y2) "- To know how to create an algorithm to meet my goal (Y2) - To know how to test and debug each part of the program" (Y2)	- To know how to use a computer to create a musical pattern using three notes" (Y2) - To know how to save my work" (Y2) - To know how to reopen my work" (Y2)	- To know how to explain the role of a switch, server, and wireless access point in a network (Y3)	- To know how to create a program following a design (Y3) "- To know how to build a sequence of commands (Y3)	- To know how to edit text (Y3)	- To know how to explain why I need to think carefully before I share or reshare content - To know how to explain why some information I find online may not be honest, accurate, or legal." (None of this is taught in previous units, but will have been covered during safety specific sessions.)	- To know how to program a computer by typing commands" (Y4) - To know how to write an algorithm to produce a given outcome" (Y4) - To know how to use a procedure in a program" (Y4)	"- To know how to change the composition of an image by selecting parts of it (Y4) "- To know how to choose appropriate tools to retouch an image (Y4) - To know how to sort images into 'fake' or 'real' and explain my choices (Y4)	"- To know how to explain that data is transferred over networks in packets - To know how to recognise that connected digital devices can allow us to access shared files stored online (None of this is taught in previous units, but will have been covered during safety specific sessions.)	"- To know how to build a simple circuit to connect a microcontroller to a computer (Y5) - To know how to program a microcontroller to light an LED" (Y5) - To know how to use selection (an 'if… then…' statement) to direct the flow of a program" (Y5)	- To know how to move, resize, and rotate objects I have duplicated" (Y5) - To know how to use the zoom tool to help me add detail to my drawings" (Y5) "- To know how to change the order of layers in a vector drawing (Y5)
			To be able to name some technology items and talk about what they are used for (EYFS) To be able to suggest	To be able to name some technology items and talk about what they are used for (EYFS) To be able to suggest technology for a specific	To know what an instruction is (non computing related)	"- To know how to draw lines on a screen and explain which tools I used (Y1) - To know how to make marks on a	- To know how to describe an object (Y1) - To know how to group objects in more	- To know how to use commands to move a sprite" (Y1) - To know how to use more than one block by joining them	- To know how to take photos in both landscape and portrait format" (Y2) - To know how to focus on an object" (Y2) - To know how to use a tool to	"- To know how to enter data onto a computer (Y2) - To know how to use a computer to view data in a different format (Y2)	- To know how to build sequences of blocks to match my design (Y2) "- To know how to compare my project to my design (Y2)	- To know how to use onion skinning to help me make small changes between frames" (Y3) "- To know how to add other media to	"- To know how to arrange objects into a tree structure (Y3) - To know how to prove my branching database works (Y3)	"- To know how to choose which keys to use for actions and explain my choices (Y3) - To know how to explain the relationship between an	- To know how to use a device to record audio and play back sound"(Y4) - To know how to save a digital recording as a file" (Y4) - To know how to open a digital	- To know how to collect data using a data logger (Y4) - To know how to interpret data that has been collected using a data logger" (Y4)	- To know how to modify loops to produce a given outcome (Y4) - To know how to identify which parts of a loop can be changed (Y4)	"- To know how to choose the most suitable digital device for recording my project (Y5) - To know how to locate and identify the working features of a	- To know how to navigate a flat-file database to compare different views of information" (Y5)	"- To know how to create a program with different outcomes using selection (Y5)

		technology for a specific purpose- eg to use an ipad to take a photo (EYFS) To know how to switch on and log into a computer/ipad and access an app (EYFS)	purpose- eg to use an ipad to take a photo (EYFS) To know how to switch on and log into a computer/ipad and access an app (EYFS)		screen and explain which tools I used (Y1) - To know how to use the paint tools to draw a picture (Y1)	than one way (Y1) "- To know how to choose how to group objects (Y1)	together" (Y1) - To know how to create an algorithm for each sprite (Y1)	achieve a desired effect" (Y2)	- To know how to use a computer program to present information in different ways" (Y2)		my animation (Y3)	"- To know how to create questions and apply them to a tree structure (Y3)	event and an action (Y3) - To know how to program movement" (Y3)	recording from a file" (Y4)		- To know how to re-use existing code snippets on new sprites" (Y4)	digital device that can record video" (Y5) - To know how to store, retrieve, and export my recording to a computer" (Y5)		- To know how to use selection in an infinite loop to check a condition" (Y5) "- To know how to design the flow of a program which contains 'if... then... else...' (Y5)
	EYFS	Y1			Y2			Y3			Y4			Y5			Y6			
Computing skills to be explicitly taught during this unit	Identify types of technology used in different places Incorporate technology in to learning- eg using an app on an ipad, taking photos etc. Learn to program a simple robot (eg Beebot) to move forwards, backwards and turn)	To identify technology To identify a computer and its main parts **To use a mouse in different ways** **To use a keyboard to type** **To use the keyboard to edit text** To create rules for using technology responsibly	**To explain what a given command will do** To act out a given word **To combine forwards and backwards commands to make a sequence** To combine four direction commands to make sequences To plan a simple program To find more than one solution to a problem	To use a computer to write To add and remove text on a computer **To identify that the look of text can be changed on a computer** **To make careful choices when changing text** To explain why I used the tools that I chose To compare writing on a computer with writing on paper	**To recognise the uses and features of information technology** **To identify information technology in the home** **To identify information technology beyond school** To explain how information technology benefits us To show how to use information technology safely To recognise that choices are made when using information technology	To describe a series of instructions as a sequence **To explain what happens when we change the order of instructions** **To use logical reasoning to predict the outcome of a program (series of commands)** To explain that programming projects can have code and artwork To design an algorithm To create and debug a program that I have written		To explain how digital devices function **To identify input and output devices** To recognise how digital devices can change the way we work To explain how a computer network can be used to share information To explore how digital devices can be connected **To recognise the physical components of a network**	To explore a new programming environment I can identify that each sprite is controlled by the commands I choose To explain that a program has a start To recognise that a sequence of commands can have an order **To change the appearance of my project** **To create a project from a task description**	To recognise how text and images convey information To recognise that text and layout can be edited **To choose appropriate page settings** **To add content to a desktop publishing publication** To consider how different layouts can suit different purposes To consider the benefits of desktop publishing	To describe how networks physically connect to other networks To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web To describe how content can be added and accessed on the World Wide Web To recognise how the content of the WWW is created by people **To evaluate the consequences of unreliable content** **To access websites on the World Wide Web**	To identify that accuracy in programming is important **To create a program in a text-based language** To explain what 'repeat' means **To modify a count-controlled loop to produce a given outcome** To decompose a program into parts To create a program that uses count-controlled loops to produce a given outcome	To explain that digital images can be changed **To change the composition of an image** To describe how images can be changed for different uses **To make good choices when selecting different tools** To recognise that not all images are real To evaluate how changes can improve an image	To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together **To contribute to a shared project online** **To evaluate different ways of working together online**	**To control a simple circuit connected to a computer** To write a program that includes count-controlled loops To explain that a loop can stop when a condition is met, eg number of times To conclude that a loop can be used to repeatedly check whether a condition has been met To design a physical project that includes selection **To create a controllable system that includes selection**	To identify that drawing tools can be used to produce different outcomes To create a vector drawing by combining shapes **To use tools to achieve a desired effect** To recognise that vector drawings consist of layers **To group objects to make them easier to work with** **To evaluate my vector drawing**	**To use a search engine** To describe how search engines select results To explain how search results are ranked To recognise why the order of results is important, and to whom To recognise how we communicate using technology **To evaluate different methods of online communication**	To define a 'variable' as something that is changeable To explain why a variable is used in a program **To choose how to improve a game by using variables** **To design a project that builds on a given example** To use my design to create a project To evaluate my project	**To use a computer to create and manipulate three-dimensional (3D) digital objects** To compare working digitally with 2D and 3D graphics **To construct a digital 3D model of a physical object** To identify that physical objects can be broken down into a collection of 3D shapes To design a digital model by combining 3D objects To develop and improve a digital

																				3D model
		To describe what different freehand tools do **To use the shape tool and the line tools** **To make careful choices when painting a digital picture** To explain why I chose the tools I used To use a computer on my own to paint a picture To compare painting a picture on a computer and on paper	**To label objects** To identify that objects can be counted To describe objects in different ways **To count objects with the same properties** To compare groups of objects To answer questions about groups of objects	**To choose a command for a given purpose** **To show that a series of commands can be joined together** To identify the effect of changing a value To explain that each sprite has its own instructions To design the parts of a project To use my algorithm to create a program	To know what devices can be used to take photographs **To use a digital device to take a photograph** **To describe what makes a good photograph** To decide how photographs can be improved To use tools to change an image To recognise that images can be changed	To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures **To create a pictogram** **To select objects by attribute and make comparisons** To recognise that people can be described by attributes To explain that we can present information using a computer	To explain that a sequence of commands has a start To explain that a sequence of commands has an outcome **To create a program using a given design** To change a given design **To create a program using my own design** **To decide how my project can be improved**	To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images **To plan an animation** To identify the need to work consistently and carefully **To review and improve an animation** To evaluate the impact of adding other media to an animation	To create questions with yes/no answers **To identify the object attributes needed to collect relevant data** To create a branching database **To identify objects using a branching database** To explain why it is helpful for a database to be well structured To compare the information shown in a pictogram with a branching database	To explain how a sprite moves in an existing project **To create a program to move a sprite in four directions** To adapt a program to a new context To develop my program by adding features **To identify and fix bugs in a program** To design and create a maze-based challenge	To identify that sound can be digitally recorded To use a digital device to record sound To explain that a digital recording is stored as a file To explain that audio can be changed through editing **To combine and play different types of audio together** **To evaluate editing choices made**	To explain that data gathered over time can be used to answer questions **To use a digital device to collect data** automatically To explain that a data logger collects 'data points' from sensors over time To use data collected over a long duration to find information **To identify the data needed to answer questions** To use collected data to answer questions	**To develop the use of count-controlled loops in a different programming environment** To explain that in programming there are infinite loops and count controlled loops To develop a design which includes two or more loops which run at the same time **To modify an infinite loop in a given program** To design a project that includes repetition To create a project that includes repetition	To recognise video as moving pictures, which can include audio **To identify digital devices that can record video** **To capture video using a digital device** To recognise the features of an effective video To identify that video can be improved through reshooting and editing To consider the impact of the choices made when making and sharing a video	**To use a form to record information** To compare paper and computer-based databases To outline how grouping and then sorting data allows us to answer questions To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually **To apply my knowledge of a database to ask and answer real-world questions**	To explain how selection is used in computer programs To relate that a conditional statement connects a condition to an outcome **To explain how selection directs the flow of a program** **To design a program which uses selection** To create a program which uses selection To evaluate my program	**To review an existing website and consider its structure** **To plan the features of a web page** **To consider the ownership and use of images (copyright)** To recognise the need to preview pages To outline the need for a navigation path To recognise the implications of linking to content owned by other people	To identify questions which can be answered using data To explain that objects can be described using data To explain that formula can be used to produce calculated data **To apply formulas to data, including duplicating** **To create a spreadsheet to plan an event** To choose suitable ways to present data	To create a program to run on a controllable device To explain that selection can control the flow of a program **To update a variable with a user input** **To design a project that uses inputs & outputs on a controllable device** To develop a program to use inputs & outputs on a controllable device
	EYFS	Y1			Y2			Y3			Y4			Y5			Y6			
Knowledge to be taught (Secured knowledge in	**To be able to name some technology items and talk about what they are used for** **To be able to suggest technology for a specific purpose- eg to use an ipad to take a photo** **To know how to switch on and log into a computer/ipad and access an app**	"- To know how to explain how these technology examples help us - To know how to explain technology as something that helps us - To know how to locate examples of technology	**"- To know how to match a command to an outcome** - To know how to predict the outcome of a command on a device **- To know how to run a command on a device"** "- To know how to follow an instruction - To know how to give directions	"- To know how to identify and find keys on a keyboard - To know how to open a word processor - To know how to recognise keys on a keyboard" "- To know how to enter text into a computer **- To know how to use**	"- To know how to describe some uses of computers - To know how to identify examples of computers - To know how to identify that a	"- To know how to choose a series of words that can be enacted as a sequence - To know how to follow instructions given by someone else - To know how to give clear and unambiguous	"- To know how to describe how music makes me feel, e.g. happy or sad - To know how to identify simple differences in pieces of music - To know how to listen with concentration to a range of music (links to the Music curriculum)" "- To know how to create	**"- To show that digital devices accept inputs** **- To show how digital devices produce outputs** - To know how to follow a process" "- To know how to classify input and output devices - To know how to design a digital device - To know how to model a simple process"	"- To know how to explain that objects in Scratch have attributes (linked to) - To know how to identify the objects in a Scratch project (sprites, backdrops) - To know how to recognise that commands in Scratch are represented as blocks" "- To know how to choose	"- To know how to explain the difference between text and images - To know how to identify the advantages and disadvantages of using text and images - To know how to recognise that text and images can communicate messages clearly" **"- To know how to change font style, size, and colours** **- To know how to edit text**	"- To know how to demonstrate how information is shared across the internet - To know how to describe the internet as a network of networks - To know how to discuss why a network needs protecting" "- To know how to describe the different	"- To know how to create a code snippet for a given purpose - To know how to explain the effect of changing a value of a command **- To know how to program a computer by typing commands"** "- To know how to test my algorithm in a text-based language	"- To know how to explain the effect that editing can have on an image - To know how to explore how images can be changed in real life - To know how to identify changes that we can make to an image" **"- To know how to**	"- To know how to describe that a computer system features inputs, processes, and outputs - To know how to explain that computer systems communicate with other devices - To know how to explain that systems are built using a number of parts"	**"- To know how to build a simple circuit to connect a microcontroller to a computer** - To know how to explain why I used an infinite loop **- To know how to program a microcontroller to light an LED"** "- To know how to connect more than one output device to a microcontroller	"- To know how to discuss how a vector drawing is different from paper-based drawings - To know how to identify the main drawing tools - To know how to recognise that vector drawings are made using shapes" "- To know how to explain that each element	"- To know how to compare results from different search engines - To know how to complete a web search to find specific information - To know how to refine my search" "- To know how to explain why we need tools to find things online - To know how to recognise the role of web	"- To know how to explain that the way that a variable changes can be defined - To know how to identify examples of information that is variable - To know how to identify that variables can hold numbers or letters" **"- To know that a variable has a name and a value**	"- To know the similarities and differences between 2D and 3D shapes - To know why we might represent 3D objects on a computer

		in the classroom" "- To know how to name the main parts of a computer **- To know how to switch on and log into a computer** **- To know how to use a mouse to click and drag"** "- To know how to click and drag to make objects on a screen - To know how to use a mouse to create a picture - To know how to use a mouse to open a program" "- To know how to save my work to a file - To know how to tell you that writing on a computer is called typing - To know how to type my name on a computer" "- To know how to delete letters - To know how to open my work from a file **- To know how to use the arrow keys to move the cursor"** "- To know how to discuss how we benefit from these rules - To know how to give examples of some of these rules	- To know how to recall words that can be acted out" "- To know how to compare forwards and backwards movements - To know how to predict the outcome of a sequence involving forwards and backwards commands - To know how to start a sequence from the same place" "- To know how to compare left and right turns **- To know how to experiment with turn and move commands to move a robot** - To know how to predict the outcome of a sequence involving up to four commands" "- To know how to choose the order of commands in a sequence - To know how to debug my program - To know how to explain what my program should do" "- To know how to identify several possible solutions - To know how to plan two programs - To know how to use two different programs to get to the same place"	**backspace to remove text** **- To know how to use letter, number, and space keys"** "- To know how to explain what the keys that I have learnt about already do - To know how to identify the toolbar and use bold, italic, and underline **- To know how to type capital letters"** "- To know how to change the font - To know how to select a word by double-clicking - To know how to select all of the text by clicking and dragging" "- To know how to decide if my changes have improved my writing - To know how to say what tool I used to change the text - To know how to use 'undo' to remove changes" "- To know how to compare using a computer with using a pencil and paper - To know how to say which method I like best - To know how to write a message on a computer and on paper"	computer is a part of information technology" "- To know how to explain the purpose of information technology in the home - **To know how to move and resize images** **- To know how to open a file** "- To know how to compare types of information technology - To know how to find examples of information technology - To know how to talk about uses of information technology" "- To know how to demonstrate how information technology is used in a shop - To know how to	instructions" "- To know how to create different algorithms for a range of sequences (using the same commands) - To know how to show the difference in outcomes between two sequences that consist of the same commands **- To know how to use an algorithm to program a sequence on a floor robot"** "- To know how to compare my prediction to the program outcome - To know how to follow a sequence - To know how to predict the outcome of a sequence" "- To know how to explain the choices I made for my mat design - To know how to identify different routes around my mat - To know how to test my mat to make sure that it is usable" **"- To know how to create an algorithm**	a rhythm pattern - To know how to explain that music is created and played by humans - To know how to play an instrument following a rhythm pattern" "- To know how to connect images with sounds - To know how to relate an idea to a piece of music - To know how to use a computer to experiment with pitch and duration" "- To know how to identify that music is a sequence of notes - To know how to refine my musical pattern on a computer **- To know how to use a computer to create a musical pattern using three notes"** "- To know how to describe an animal using sounds - To know how to explain my choices **- To know how to save my work"** "- To know how to explain how I made my work better - To know how to listen to music and describe how it makes me feel **- To know how to reopen my work"**	**"- To show how I use digital devices for different activities** - To know how to recognise similarities between using digital devices and non-digital tools - To know how to suggest differences between using digital devices and non-digital tools" "- To know how to discuss why we need a network switch - To know how to explain how messages are passed through multiple connections - To know how to recognise different connections" "- To know how to demonstrate how information can be passed between devices - **To know the role of a switch, server, and wireless access point in a network** - To know how to recognise that a computer network is made up of a number of devices" "- To know how to identify how devices in a network are connected with one another - To know how to identify networked devices around me - To know how to identify the benefits of computer networks"	a word which describes an on-screen action for my design **- To know how to create a program following a design** **- To know that each sprite is controlled by the commands I choose"** "- To know how to create a sequence of connected commands - To know how to explain that the objects in my project will respond exactly to the code - To know how to start a program in different ways" "- To know how to combine sound commands - To know how to explain what a sequence is - To know how to order notes into a sequence" **"- To know how to build a sequence of commands** - To know how to decide the actions for each sprite in a program - To know how to make design choices for my artwork" "- To know how to identify and name the objects I will need for a project - To know how to implement my algorithm as code - To know how to relate a task description to a design"	- To know how to explain that text can be changed to communicate more clearly" "- To know how to create a template for a particular purpose - To know how to define the term 'page orientation' - To know how to recognise placeholders and say why they are important" "- To know how to choose the best locations for my content - To know how to make changes to content after I've added it **- To know how to paste text and images** "- To know how to choose a suitable layout for a given purpose - To know how to identify different layouts - To know how to match a layout to a purpose" "- To know how to compare work made on desktop publishing to work created by hand - To know how to identify the uses of desktop publishing in the real world - To know how to say why desktop publishing might be helpful"	networked devices and how they connect - To know how to explain how the internet allows us to view the World Wide Web - To know how to recognise that the World Wide Web is the part of the internet that contains websites and web pages" To know how to describe where websites are stored when uploaded to the WWW - To know how to explain the types of media that can be shared on the World Wide Web (WWW)" "- To know how to create media which can be found on websites - To know how to explain that new content can be created online - To know how to recognise that I can add content to the WWW" "- To know how to explain that there are rules to protect content - To know how to explain that websites and their content are created by people - To know how to suggest who owns the content on websites" **"- To know that not everything on the World Wide Web is true.** **- To know why I need to think carefully before I share or reshare content** **- To know that some**	- To know how to use a template to create a design for my program **- To know how to write an algorithm to produce a given outcome"** "- To know how to identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves - To know how to identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' - To know how to use a count-controlled loop to produce a given outcome" "- To know how to choose which values to change in a loop - To know how to identify the effect of changing the number of times a task is repeated - To know how to predict the outcome of a program containing a count-controlled loop" "- To know how to explain that a computer can repeatedly call a procedure - To know how to identify 'chunks' of actions in the real world **- To know how to use a procedure in a program"** "- To know how to design a program that includes count-controlled loops	**change the composition of an image by selecting parts of it** - To know how to consider why someone might want to change the composition of an image - To know how to explain what has changed in an edited image" "- To know how to choose effects to make my image fit a scenario - To know how to explain why my choices fit a scenario - To know how to talk about changes made to images" **"- To know how to choose appropriate tools to retouch an image** - To know how to give examples of positive and negative effects that retouching can have on an image - To know how to identify how an image has been retouched" "- To know how to combine parts of images to create new images **- To know how to sort images into 'fake' or 'real' and explain my choices** - To know how to talk about fake images around me"	"- To know how to explain the benefits of a given computer system **- To know and identify tasks that are managed by computer systems** - To know how to identify the human elements of a computer system" **"- To know that data is transferred over networks in packets** - To know how to explain that networked digital devices have unique addresses - To know how to recognise that data is transferred using agreed methods" "- To know how to explain that the internet allows different media to be shared **- To recognise that connected digital devices can allow us to access shared files stored online** - To know how to send information over the internet in different ways" "- To know how to compare working online with working offline - To know how to make thoughtful suggestions on my group's work - To know how to suggest strategies to ensure successful group work" "- To know how to explain how the internet enables effective collaboration	- To know how to decide which output devices I control with a count-controlled loop - To know how to design sequences for given output devices" "- To know how to experiment with a 'do until' loop - To know how to explain that a condition is something that can either be true or false (eg whether a value is more than 10, or whether a button has been pressed) - To know how to program a microcontroller to respond to an input" "- To know how to explain that a condition being met can start an action - To know how to identify a condition and an action in my project **- To know how to use selection (an 'if… then…' statement) to direct the flow of a program"** "- To know how to create a detailed drawing of my project - To know how to describe what my project will do (the task) - To know how to identify a condition to start an action (real world)" "- To know how to test and debug my project - To know how to use selection to produce an intended outcome - To know how to write an algorithm to control lights and a motor"	added to a vector drawing is an object - To know how to identify the shapes used to make a vector drawing **- To know how to move, resize, and rotate objects I have duplicated"** "- To know how to explain how alignment grids and resize handles can be used to improve consistency - To know how to modify objects to create different effects **- To know how to use the zoom tool to help me add detail to my drawings"** **"- To know how to change the order of layers in a vector drawing** - To know how to identify that each added object creates a new layer in the drawing - To know how to identify which objects are in the front layer or in the back layer of a drawing" "- To know how to copy part of a drawing by duplicating several objects - To know how to group to create a single object - To know how to reuse a group of objects to further develop my vector drawing"	crawlers in creating an index - To know how to relate a search term to the search engine's index" **"- To know that a search engine follows rules to rank relevant pages** - To know how to explain that search results are ordered - To know how to suggest some of the criteria that a search engine checks to decide on the order of results" "- To know how to describe some of the ways that search results can be influenced **- To know how search engines make money** - To know how to recognise some of the limitations of search engines" "- To know how to choose methods of communication to suit particular purposes - To know how to explain the different ways in which people communicate - To know how to identify that there are a variety of ways of communicating over the internet" "- To know how to compare different methods of communicating on the internet - To know how to decide when I should and should not share **- To know that communication on the internet may not be private"**	- To know how to identify a program variable as a placeholder in memory for a single value - To know how to recognise that the value of a variable can be changed" "- To know how to decide where in a program to change a variable **- To know how to make use of an event in a program to set a variable** - To know how to recognise that the value of a variable can be used by a program" "- To know how to choose the artwork for my project - To know how to explain my design choices" "- To know how to choose a name that identifies the role of a variable - To know how to create the artwork for my project **- To know how to test the code that I have written"** "- To know how to extend my game further using more variables - To know how to identify ways that my game could be improved - To know how to share my game with others"	**- To know how to select, move, and delete a digital 3D shape** "- To know how to change the colour of a 3D object - To know how to identify how graphical objects can be modified **- To know how to resize a 3D object** "- To know how to position 3D objects in relation to each other - To know how to rotate a 3D object **- To know how to select and duplicate multiple 3D objects** "- To know how to change the colour of a 3D objects of an appropriate size - To know how to group a digital 3D shape and a placeholder to create a

		- To know how to identify rules to keep us safe and healthy when we are using technology in and beyond the home"			explain how information technology helps people - To know how to recognise that information technology can be connected" **"- To know different uses of information technology** **- To know how to use information technology responsibly** - To know how to say how those rules/guides can help me" "- To know how to enjoy a variety of activities - To know how to explain simple guidance for using information technology in different environments and settings	**to meet my goal** - To know how to explain what my algorithm should achieve - To know how to use my algorithm to create a program" "- To know how to plan algorithms for different parts of a task - To know how to put together the different parts of my program **- To know how to test and debug each part of the program"**					**information I find online may not be honest, accurate, or legal."**	- To know how to develop my program by debugging it - To know how to make use of my design to write a program"	"- To know how to compare the original image with my completed publication - To know how to consider the effect of adding other elements to my work - To know how to evaluate the impact of my publication on others through feedback"	- To know how to identify different ways of working together online - To know how to recognise that working together on the internet can be public or private"		"- To know how to apply what I have learned about vector drawings - To know how to suggest improvements to a vector drawing - I create alternatives to vector drawings"			hole in an object - To know how to identify the 3D shapes needed to create a model of a real-world object" "- To know how to choose which 3D objects I need to construct my model - To know how to modify multiple 3D objects - To know how to plan my 3D model" "- To know how to decide how my model can be improved - To know how to evaluate my model against a given criterion - To know how to modify my model to improve it"

					- To know how to identify the choices that I make when using information technology"															
		"- To know how to draw lines on a screen and explain which tools I used **- To know how to make marks on a screen and explain which tools I used** **- To know how to use the paint tools to draw a picture"** "- To know how to make marks with the square and line tools - To know how to use the shape and line tools effectively - To know how to use the shape and line tools to recreate the work of an artist" "- To know how to choose appropriate shapes - To know how to create a picture in the style of an artist - To know how to make appropriate colour choices"	"- To know how to describe objects using labels - To know how to identify the label for a group of objects - To know how to match objects to groups" "- To know how to count a group of objects - To know how to count objects - To know how to group objects" "- To know how to describe a property of an object **- To know how to describe an object** - To know how to find objects with similar properties" "- To know how to count how many objects share a property **- To know how to group objects in more than one way** - To know how to group similar objects" "- To know how to choose how to group objects	"- To know how to compare different programming tools - To know how to find which commands move a sprite **- To know how to use commands to move a sprite"** "- To know how to run my program - To know how to use a start block in a program **- To know how to use more than one block by joining them together"** "- To know how to change the value - To know how to find blocks which have numbers - To know how to say what happens when I change a value" "- To know how to add blocks to each of my sprites - To know how to delete a sprite - To know how to show that a project can include more than one sprite" "- To know how to choose	"- To know how to capture digital photos and talk about my experience - To know how to sort devices into old and new - To know how to talk about how to take a photograph" "- To know how to explain the process of taking a good photograph - To know how to explain why a photo looks better in portrait or landscape format **- To know how to take**	"- To know how to compare totals in a tally chart - To know how to record data in a tally chart - To know how to represent a tally count as a total" **"- To know how to enter data onto a computer** **- To know how to use a computer to view data in a different format** - To know how to use pictograms to answer simple questions about objects" "- To know how to explain what the pictogram shows - To know how to organise data in a tally chart - To know how to use a tally chart to create a pictogram" "- To know how to answer 'more than'/'less	"- To know how to identify that a program needs to be started - To know how to identify the start of a sequence **- To know how to run my program"** "- To know how to change the outcome of a sequence of commands - To know how to match two sequences with the same outcome - To know how to predict the outcome of a sequence of commands" "- To know how to build the sequences of blocks I need - To know how to decide which blocks to use to meet the design - To know how to tell the actions of a sprite in an algorithm" "- To know how to choose backgrounds for the design - To know how to choose characters for the design - To know how to create a program based on the new design" **"- To know how to build sequences of**	**"- To know how to create flip book-style animation** - To know how to draw a sequence of pictures - To know how to explain how an animation/flip book works" **"- To know how to create a stop frame animation** - To know how to explain why little changes are needed for each frame - To know how to predict what an animation will look like" "- To know how to break down a story into settings, characters and events - To know how to create a storyboard - To know how to describe an animation that is achievable on screen" "- To know how to evaluate the quality of my animation - To know how to review a sequence of frames to check my work **- To know how to use onion skinning to help me make small changes between frames"** "- To know how to evaluate another	"- To know how to create two groups of objects separated by one attribute - To know how to investigate questions with yes/no answers - To know how to make up a yes/no question about a collection of objects" **"- To know how to arrange objects into a tree structure** - To know how to create a group of objects within an existing group - To know how to select an attribute to separate objects" "- To know how to group objects using my own yes/no questions **- To know how to prove my branching database works** - To know how to select objects to arrange in a branching database" **"- To know how to create questions and apply them to a tree structure** - To know how to select a theme and choose a	**"- To know how to choose which keys to use for actions and explain my choices** **- To know how to explain the relationship between an event and an action** - To know how to identify a way to improve a program" "- To know how to choose a character for my project - To know how to choose a suitable size for a character in a maze **- To know how to program movement"** "- To know how to choose blocks to set up my program - To know how to consider the real world when making design choices - To know how to use a programming extension" "- To know how to build more sequences of commands to make my design work - To know how to choose suitable keys to turn on additional features - To know how to identify additional features (from a given set of blocks)" "- To know how to match a piece of code to an outcome - To know how to modify a program using a design	"- To know how to identify digital devices that can record sound and play it back - To know how to identify the inputs and outputs required to play audio or record sound - To know how to recognise the range of sounds that can be recorded" "- To know how to discuss what other people include when recording sound for a podcast - To know how to suggest how to improve my recording **- To know how to use a device to record audio and play back sound"** "- To know how to discuss why it is useful to be able to save digital recordings - To know how to plan and write the content for a podcast **- To know how to save a digital recording as a file"** "- To know how to discuss ways in which audio recordings can be altered	"- To know how to choose a data set to answer a given question - To know how to identify data that can be gathered over time - To know how to suggest questions that can be answered using a given data set" **"- To know that sensors are input devices** - To know how to identify that data from sensors can be recorded **- To know how to use data from a sensor to answer a given question"** "- To know how to identify a suitable place to collect data - To know how to identify the intervals used to collect data - To know how to talk about the data that I have captured" "- To know how to import a data set - To know how to use a computer program to sort data - To know how to use a computer to view data in different ways" **"- To know how to collect**	"- To know how to list an everyday task as a set of instructions including repetition - To know how to modify a snippet of code to create a given outcome - To know how to predict the outcome of a snippet of code" "- To know how to choose when to use a count-controlled and an infinite loop **- To know how to modify loops to produce a given outcome** - To know how to recognise that some programming languages enable more than one process to be run at once" "- To know how to choose which action will be repeated for each object - To know how to evaluate the effectiveness of the repeated sequences used in my program	"- To know how to explain that a video can include both visual and audio media - To know how to explain the benefits of adding audio to a video - To know how to plan a video project using a storyboard" **"- To know how to choose the most suitable digital device for recording my project** - To know how to identify and name digital devices that can record video and sound **- To know how to locate and identify the working features of a digital device that can record video"** "- To know how to demonstrate suitable methods of using a digital device to capture my video - To know how to demonstrate the safe use and handling of devices - To know how to select a suitable device and software to capture my video" "- To know how to explain why lighting and angle are important in	"- To know how to create multiple questions about the same field - To know how to explain how information can be recorded - **To know how to order, sort, and group my data cards"** "- To know how to choose which field to sort data by to answer a given question **- To show what a 'field' and a 'record' is in a database** **- To know how to navigate a flat-file database to compare different views of information**" "- To know how to combine grouping and sorting to answer more specific questions - To know how to explain how information can be grouped - To know how to group information to answer questions" "- To know how to choose multiple criteria to answer a given question - To know how to choose which field and value are required to answer a given question	"- To know how to identify conditions in a program - To know how to modify a condition in a program - To know how to recall how conditions are used in selection" **"- To know how to create a program with different outcomes using selection** - To know how to identify the condition and outcomes in an if..then... else statement **- To know how to use selection in an infinite loop to check a condition"** **"- To know how to design the flow of a program which contains 'if... then... else...'** - To know how to explain that program flow can branch according to a condition - To know how to show that a condition can direct program flow in one of two ways" "- To know how to identify the outcome of user input in an algorithm	"- To know how to discuss the different types of media used on websites - To know how to explore a website - I know that websites are written in HTML" "- To know how to draw a web page layout that suits my purpose - To know how to recognise the common features of a web page - To know how to suggest media to include on my page" "- To know how to describe what is meant by the term 'fair use' **- To know how to find copyright-free images** - To know how to say why I should use copyright-free images" **"- To know how to add content to my own web page** - To know how to evaluate what my web page looks like on different devices and suggest/make edits. - To know how to preview what my web page looks like" "- To know how to describe why	"- To know how to answer questions from an existing data set - To know how to ask simple relevant questions which can be answered using data - To know how to explain the relevance of data headings" "- To know how to apply an appropriate number format to a cell **- To know how to build a data set in a spreadsheet application** - To know how to explain what an item of data is" "- To know how to construct a formula in a spreadsheet - To know how to explain the relevance of a cell's data type - To know how to identify that changing inputs changes outputs" **"- To know how to apply a formula to multiple cells by duplicating it** - To know how to create a formula which includes a range of cells - To know how to recognise that data can be calculated	"- To know how to apply my knowledge of programming to a new environment **- To know how to test my program on an emulator** - To know how to transfer my program to a controllable device" "- To know how to determine the flow of a program using selection - To know how to identify examples of conditions in the real world **- To know how to use a variable in an if... then... else... statement to select the flow**

		"- To know how to choose appropriate paint tools and colours to recreate the work of an artist - To know how to say which tools were helpful and why - I know that different paint tools do different jobs" "- To know how to change the colour and brush sizes - To know how to make dots of colour on the page - To know how to use dots of colour to create a picture in the style of an artist on my own" "- To know how to explain that pictures can be made in lots of different ways - To know how to say whether I prefer painting using a computer or using paper - To know how to spot the differences between painting on a computer and on paper"	- **To know how to describe groups of objects** - To know how to record how many objects are in a group" "- To know how to compare groups of objects - To know how to decide how to group objects to answer a question - To know how to record and share what I have found	appropriate artwork for my project - **To know how to create an algorithm for each sprite** - To know how to decide how each sprite will move" "- To know how to add programming blocks based on my algorithm - To know how to test the programs I have created - To know how to use sprites which match my design"	**photos in both landscape and portrait format "** "- To know how to discuss how to take a good photograph - To know how to identify what is wrong with a photograph - To know how to improve a photograph by retaking it" "- To know how to experiment with different light sources - To know how to explore the effect that light has on a photo **- To know how to focus on an object"** "- To know how to explain my choices - To know how to recognise that images can be changed **- To know**	than' and 'most/least' questions about an attribute - To know how to create a pictogram to arrange objects by an attribute - To know how to tally objects using a common attribute" "- To know how to choose a suitable attribute to compare people - To know how to collect the data I need - To know how to create a pictogram and draw conclusions from it" "- To know how to give simple examples of why information should not be shared - To know how to share what I have found out using a computer **- To know how to use a computer program to present information in different ways"**	**blocks to match my design** - To know how to choose the images for my own design - To know how to create an algorithm" **"- To know how to compare my project to my design** - To know how to debug - To know how to improve my project by adding features"	learner's animation - To know how to explain ways to make my animation better - To know how to improve my animation based on feedback" **"- To know how to add other media to my animation** - To know how to evaluate my final film - To know how to explain why I added other media to my animation"	variety of objects - To know how to use my branching database to answer questions" "- To know how to compare two branching database structures - To know how to create yes/no questions using given attributes - To know how to explain that questions need to be ordered carefully to split objects into similarly sized groups" "- To know how to compare two ways of presenting information - To know how to explain what a branching database tells me - To know how to explain what a pictogram tells me"	- To know how to test a program against a given design" "- To know how to evaluate my project - To know how to implement my design - To know how to make design choices and justify them"	- To know how to edit sections of of an audio recording **- To know how to open a digital recording from a file"** "- To know how to choose suitable sounds to include in a podcast - To know how to discuss sounds that other people combine - To know how to use editing tools to arrange sections of audio" "- To know how to discuss the features of a digital recording I like - To know how to explain that digital recordings need to be exported to share them - To know how to suggest improvements to a digital recording"	**data using a data logger** - To know how to propose a question that can be answered using logged data "- To know how to draw conclusions from the data that I have collected - To know how to explain the benefits of using a data logger **- To know how to interpret data that has been collected using a data logger"**	- To know how to explain what the outcome of the repeated action should be" "- To know how to explain the effect of my changes **- To know how to identify which parts of a loop can be changed** **- To know how to re-use existing code snippets on new sprites"** "- To know how to develop my own design explaining what my project will do - To know how to evaluate the use of repetition in a project - To know how to select key parts of a given project to use in my own design" "- To know how to build a program that follows my design - To know how to evaluate the steps I followed when building my project - To know how to refine the algorithm in my design"	creating an effective video - To know how to list some of the features of an effective video - To know how to record a video that demonstrates some of the features of an effective video" "- To know how to explain how to improve a video by reshooting and editing - To know how to select the correct tools to make edits to my video **- To know how to store, retrieve, and export my recording to a computer"** "- To know how to evaluate my video and share my opinions - To know how to make edits to my video and improve the final outcome - To know how to recognise that my choices when making a video will impact on the quality of the final outcome"	- To know how to outline how 'AND' and 'OR' can be used to refine data selection" "- To know how to explain the benefits of using a computer to create graphs - To know how to refine a chart by selecting a particular filter - To know how to select an appropriate chart to visually compare data" "- To know how to ask questions that will need more than one field to answer - To know how to present my findings to a group - To know how to refine a search in a real-world context"	- To know how to outline a given task - To know how to use a design format to outline my project" "- To know how to implement my algorithm to create the first section of my program - To know how to share my program with others - To know how to test my program" "- To know how to extend my program further - To know how to identify ways the program could be improved - To know how to identify what setup code my project needs"	navigation paths are useful - To know how to explain what a navigation path is - **To know how to make multiple web pages and link them using hyperlinks"** "- To know how to create hyperlinks to link to other people's work - To know how to evaluate the user experience of a website - To know how to explain the implication of linking to content owned by others"	using different operations" **"- To know how to apply a formula to calculate the data I need to answer questions** - To know how to explain why data should be organised - To know how to use a spreadsheet to answer questions" "- To know how to produce a graph - To know how to suggest when to use a table or graph - To know how to use a graph to show the answer to questions"	**of a program "** "- To know how to experiment with different physical inputs - To know that if you read a variable, the value remains - To know how to use a condition to change a variable" "- To the importance of the order of conditions in else if statements - To know how to modify a program to achieve a different outcome **- To know how to use an operand (e.g. <>=) in an if... then... statement"** "- To know how to decide what variables to include in a project - To know how to design the algorithm for my project - To know

					how to use a tool to achieve a desired effect" "- To know how to apply a range of photography skills to capture a photo - To know how to identify which images are real and which have been changed - To know how to recognise which images have been changed"														how to design the program flow for my project" "- To know how to create a program based on my design - To know how to test my program against my design - To know how to use a range of approaches to find and fix bugs"

	EYFS	Y1			Y2			Y3			Y4			Y5			Y6		
Computing vocabulary to be explicitly taught during this unit	technology, camera, ipad, computer, phone, app, record, film, program,	computer, mouse, trackpad, keyboard, screen, click, drag, double-click, click and drag	commands, algorithm, program	word processor, backspace, text cursor, toolbar, bold, italic, underline, cursor, select, font, undo	Debugging, algorithm, program Information technology (IT), barcode, scanner/scan,	algorithm, prediction,	emotions, pattern, pitch, tempo, rhythm, notes, create, pulse/beat, tempo, open, edit	Digital device, input, output, process Program Connection Network switch: a device that enables multiple devices on a network to be connected with each other Server: a computer that manages the network and stores files Wireless access point (WAP): a device, connected to a wired network, that sends and receives wireless	order, note, chord	Text, images, Font, font style, communicate, template placeholder, copy, paste	Router: A device that passes information between two computer networks Website, web page, web address content, website, web page, links, files Website, use, content, download, ownership, permission	Command Code snippet — this could be the same as a program; it can have several sets of commands in one program Algorithm — the part of the design of the program that is precise instructions to be implemented as code Debug — the process of finding and correcting errors in your code Decompose — break something down into smaller parts Procedure — a named code	crop copyright, composition, pixels, rotate, flip adjustments, effects, hue/saturation, sepia, version, illustrator, vignette retouch, clone, recolour, magic wand, adjust, sharpen, brighten composite, alter, background, foreground layer	System, connection, process Protocol, address, packet	Microcontroller components, LED count-controlled loop condition, selection,	Vector rotate, Organise, zoom, alignment grid, resize, handles, group, ungroup,	search engine, refine Index, crawler, bot, Ranking, , links,	Variable, name, value, set, event, algorithm, code	2D, 3D, resize, Rotate, position, duplicate Dimensions, group, ungroup

								signals for/from devices with WiFi connectivity				snippet that can be run multiple times Count-controlled loop Program — the entire solution to the task, and an implementation of the algorithm as code							
		erase, fill, undo, shape tools, line tool, fill tool, undo tool, brush style, brush size	group, object, property, value, label, data set, more, less, most, least, fewest, the same,	command, sprite, Block, joining, Start block, run, algorithm, predict program, programming blocks,	capture, image, landscape, portrait, field of view, narrow, wide, format, framing, focal point, natural lighting, artificial lighting, flash, focus, background, foreground,	data, object,	Sequence, command, program, run, start modify,	Animation, flip book Stop frame animation, frame, sequence, image, Setting, character, events, onion skinning consistency Evaluation, media, import, transition	Attribute, value, table, objects Branching database, database, pictogram, compare, information, decision tree	Motion, event, sprite, algorithm, logic Move, resize, algorithm Extension block, pen up, set up Pen, design, event, action, algorithm	Audio, record, playback, microphone, input, output mixing, export	data, Input device, sensor, data logger Data logger, logging, data point , data set, import, export	infinite loop, event block, Repetition,	Camera angle, zoom pan, tilt, split, trim/clip, timeline, transition,	Database, data, information, record, field, sort, order, group, value, graph, chart, axis,	selection conditional statement (the linking together of a condition and outcomes),	Website, web page, browser Copyright, home page navigation, hyperlink, subpage embed HTML	Spreadsheet cells, Formula, calculation, spreadsheet, cell reference	process, , flashing, if then else, variable, sensing, accelerometer Compass operand
	EYFS	Y1			Y2			Y3			Y4			Y5			Y6		
Suggested high quality texts	Hello Ruby: Adventures in coding –Linda Luikas Once Upon a Time Online- David Bedford	Communication Past and Present Author: Kerry Dinmont Troll Stinks! Jeanne Willis & Tony Ross	My First Coding Book By Kiki Prottsman		How Computers Work Author: Steffi Cavell-Clarke, Thomas Welch	Ada Lovelace Little People, BIG DREAMS Written by Maria Isabel Sanchez Vegara		Alan Turing Little People, BIG DREAMS™ Written by Maria Isabel Sánchez Vegara		https://projectevolve.co.uk/toolkit/resources/years/3/	https://zapatopi.net/treeoctopus/			https://www.youtube.com/watch?v=GHW6O3Mf0qE		https://chrome.google.com/webstore/detail/google-drawings/mkaakpdehdafacodkgkpghoibnmamcme	Learn the Language of Social Media William Anthony		
		https://www.behance.net/galleries	https://www.j2e.com/j2data/	https://projectevolve.co.uk/toolkit/resources/years/1/	https://www.behance.net/galleries	https://www.j2e.com/j2data/	https://projectevolve.co.uk/toolkit/resources/years/2/		What Is a Database? Author: Kirsty Holmes https://www.j2e.com/j2data/	Why Are There Different Computer Languages? Kirsty Holmes	In the Key of Code Aimee Lucido	https://apps.apple.com/us/app/arduino-science-journal/id1518014927	https://projectevolve.co.uk/toolkit/resources/years/4/		http://www.j2e.com https://www.expedia.co.uk/Flights	https://projectevolve.co.uk/toolkit/resources/years/5/	What Is Coding? Author: Steffi Cavell-Clarke, Thomas Welch		https://projectevolve.co.uk/toolkit/resources/years/6/
Rationale	Although there is no longer a statutory requirement to learn about and use technology in EYFS, we will ensure that the children are aware of its use at home, at school and in the wider world and have some experience of using it to enhance other areas of learning.	This LTP has been devised around the Teach Computing Curriculum. All of the content has been created by subject experts, based on the latest pedagogical research and teacher feedback. It also provides an innovative progression framework where computing content (concepts, knowledge, skills, and objectives) has been organised into interconnected networks called learning graphs. It was also chosen because each plan offers guidance on where to seek subject knowledge enhancement for teaching staff. All computing planning links with Education for a Connected World – 2020 edition and directs staff to modules on Project Evolve https://projectevolve.co.uk/about/ which will deepen children's knowledge and experience in a digital world. Online safety progression and planning is covered by Project Evolve which links to the government approved document "Education for a Connected World". When teaching units of online safety regarding peer-on-peer abuse and sexual harassment, teachers are signposted to the relevant areas of Education For a Connected World. Some elements come under the 11-14 phase, however may be relevant to children in a primary setting. Before delivering these lessons, teachers should consult with SLT, as well as the Computing Lead and PSHE lead in order to make sure that needs-led and age appropriate content **only** is shared with pupils. We also regularly set work on Google Classroom so that children develop the skills they need when remote learning is needed. *Planning materials and resources are available from NCCE website. Additional resources are available at www.teachcomputing.org*																	

National Curriculum in England: Computing Programmes of Study -- KS 1 & 2	**Key Stage 1 - Pupils should be taught to:** ● use technology purposefully to create, organise, store, manipulate and retrieve digital content ● recognise common uses of information technology beyond school ● 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 **Key Stage 2 - Pupils should be taught to:** ● 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 ● use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content ● use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Relationships Education, Relationships and Sex Education (RSE) and Health Education	**Online Relationships - Pupils should know:** ● that people sometimes behave differently online, including by pretending to be someone they are not. ● that the same principles apply to online relationships as to face-to face relationships, including the importance of respect for others online even when we are anonymous. ● the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. ● how to critically consider their online friendships and sources of information, including awareness of the risks associated with people they have never met. ● how information and data is shared and used online. **Being Safe - Pupils should know:** ● what sorts of boundaries are appropriate in friendships with peers and others (including in a digital context). ● about the concept of privacy and the implications of it for both children and adults; including that it is not always right to keep secrets if they relate to being safe. ● that each person's body belongs to them, and the differences between appropriate and inappropriate or unsafe physical, and other, contact. ● how to respond safely and appropriately to adults they may encounter (in all contexts, including online) whom they do not know. ● how to recognise and report feelings of being unsafe or feeling bad about any adult. ● how to ask for advice or help for themselves or others, and to keep trying until they are heard. ● how to report concerns or abuse, and the vocabulary and confidence needed to do so. ● where to get advice (e.g. family, school and/or other sources). **Mental Well-Being - Pupils should know:** ● that mental well-being is a normal part of daily life, in the same way as physical health. ● that there is a normal range of emotions (e.g. happiness, sadness, anger, fear, surprise, nervousness) and scale of emotions that all humans experience in relation to different experiences and situations. ● how to recognise and talk about their emotions, including having a varied vocabulary of words to use when talking about their own and others' feelings. ● how to judge whether what they are feeling and how they are behaving is appropriate and proportionate. ● the benefits of physical exercise, time outdoors, community participation, voluntary and service-based activities, on mental well-being and happiness. ● simple self-care techniques, including the importance of rest, time spent with friends and family, and the benefits of hobbies and interests.

	• isolation and loneliness can affect children and that it is very important for children to discuss their feelings with an adult and seek support. • that bullying (including cyberbullying) has a negative and often lasting impact on mental well-being. • where and how to seek support (including recognising the triggers for seeking support), including whom in school they should speak to if they are worried about their own or someone else's mental well-being or ability to control their emotions (including issues arising online). • it is common for people to experience mental health issues. For many people who do, the problems can be resolved if the right support is made available, especially if accessed early enough. **Internet Safety and Harms - Pupils should know:** • that for most people the internet is an integral part of life and has many benefits. • about the benefits of rationing time spent online, the risks of excessive time spent on electronic devices, and the impact of positive and negative content online on their own and others' mental and physical well-being. • how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online, and the importance of keeping personal information private. • why social media, some computer games, and online gaming, for example, are age restricted. • that the internet can also be a negative place where online abuse, trolling, bullying, and harassment can take place, which can have a negative impact on mental health. • how to be a discerning consumer of information online, including understanding that information, such as that from search engines, is ranked, selected and targeted. • where and how to report concerns and get support with issues online.
Keeping Children Safe in Education	• Governing bodies and proprietors should ensure that children are taught about safeguarding, including online safety. Schools should consider this as part of providing a broad and balanced curriculum. • This may include covering relevant issues through Relationships Education and Relationships and Sex Education (formerly known as Sex and Relationship Education), tutorials (in colleges) and/or where delivered, through Personal, Social, Health and Economic (PSHE) education. The government has made regulations that will make the subjects of Relationships Education (for all primary pupils) and Relationships and Sex Education (for all secondary pupils) and Health Education (for all pupils in state-funded schools) mandatory from September 2020. • Whilst it is essential that governing bodies and proprietors ensure that appropriate filters and monitoring systems are in place, they should be careful that "over blocking" does not lead to unreasonable restrictions as to what children can be taught with regard to online teaching and safeguarding.
Teaching Online Safety in School	• Guidance supporting schools to teach their pupils how to stay safe online, within new and existing school subjects.