Apley Wood Primary Academy Computing Curriculum Skills and Knowledge Progression

		EYFS	KS1		LKS2		UKS2	
	Computer Science		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Substantive Knowledge		I know how to operate simple technological equipment.	I know that instructions tell me how to make something work. I know that a robot/programmable toy can move in different directions. I know what a command is. I know that a series of commands can be joined together. I know what a sprite is.	I know what an algorithm is. I know what a prediction is. I know what a sequence is. I know how to follow a sequence.	I know what is meant by debugging. I know what repetition is. I know that 'Scratch' is a programming environment. I know the difference between an infinite loop and count- controlled loop.	I know how to move a screen turtle. I know what is meant by debugging. I know what repetition is. I know how to identify repetition in everyday tasks. I know what a sequence of instructions entails. I know the difference between an infinite loop and count-controlled loop.	I know that programs need testing. I know what an input device is (e.g. keyboard) I know what an output device is (e.g. speakers, printers) I know that computers link together to create a network. I know what is meant by selection and conditions.	I know that a variable is something that is changeable. I know how to improve a game by using variables. I know what an input device is (e.g. keyboard) I know what an output device is (e.g. speakers, printers) I know that systems require input and output device. I know different variables. I know that a loop can stop when a condition is met.
Disciplinary Knowledge		I can show an interest in real objects that involve technology. I can show skill in making toys work by pressing parts to achieve effects (sound, light, movement, showing of images).	I can control the movement of a floor turtle/robot using commands. I can use more than one command. I can run my program I can use a start block in a	I can start to **debug** any errors in code. I can explain what happens when we change the order of instructions. I can create a list of instructions to give to a	I can put programming commands into a sequence to achieve a specific outcome. I can describe the algorithm I will need for a simple task	I can program a computer by typing commands. I can explain the effect of changing a value of a command. I can write an algorithm to produce a	I can use selection to control the outcomes in an interactive quiz. I can control the flow of the program. I can identify and modify conditions in a program.	I can identify a condition and an action in my project. I can use selection (an if…then…' statement) to direct the flow of a program. I know how to test and

			program.	robot. I can control and debug commands for programmable toys I can identify several possible solutions to a problem.	I can test my program and can recognise when I need to debug it. I can combine sound commands. I can build a sequence of commands.	given outcome. I can improve the algorithm in my design. I can give basic logo commands. I can explain the relationship between an event and an action. I can develop my program by adding features.	I can implement my algorithm to create the first section of my program.	debug my project. I can experiment with different physical inputs. I can use an operand (e.g. <>=) in an if, then statement. I can explain that a variable has a name and a value. I can identify ways that my game could be improved.
Vocabulary			Program Command Run Sprite Forwards Backwards Direction	Instructions Sequence Algorithm Debug Prediction Control	Sound Command Sequence Block Sprite Debug	Code snippet Forwards Backwards Repeat Infinite loops Count-controlled loops Program Decomposition Algorithm	'If….then…else' Selection Conditions Input/output device Modify Control Outcome Algorithm	Input/output device Condition-controlled loop Infinite loop Count-controlled loop Sensor control Variable

Substantive Knowledge

	EYFS	KS1		LKS2		UKS2	
Information Technology		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	I know what a tablet is. I know what a computer is.	I know I need to save my work. I know you can enter numbers into a computer. I know that double clicking means tap a word twice. I know what caps lock does. I know what the space bar does. I know what the toolbar is. I know what is meant by portrait and landscape format. I know why a picture may be unclear. I know that some photographs can be changed. I know that pictures can be made in lots of different ways.	I know that art can be completed digitally. I know the differences between painting on a computer and on paper. I know what each tool icon represents. I know what data collection is.	I know that animation is a sequence of drawings or photographs. I know how an animation works. I know what a animation frame is. I know the purpose of a branching database. I know what cloning is. I know why photos might be edited.	I know the difference between text and images. I know what copy means. I know what paste means. I know that sound can be recorded. I know the difference between the input and output devices used to record and play sound. I know what a podcast is. I know that a data logger collects 'data points' from sensors over time. I know that the composition of digital images can be changed. I know that colours and filters can affect an image.	I know that video is a media format. I know that a database consists of records and fields. I know that vector drawings are made using shapes. I know that vector drawings consist of layers. I know how to use a digital device to record video. I know how to store, retrieve, and export my recording to a computer. I know how to remove unwanted content and reorder clips. I know how to manipulate 3D objects digitally. I know how to find copyright-free images online. I know how to copy part of a drawing by duplicating several objects	I know what a spreadsheet is. I know that the operations of multiplication, subtraction, division and addition are used to create formulas. I know what a website is. I know that websites are written in HTML. I know some common features of a webpage. I know what is meant by copyright. I know what a navigation path is. I know what a hyperlink is.

Disciplinary Knowledge & Skills		I can interact with a computer or tablet to make something happen successfully. I can interact with age-appropriate computer software. I know how to turn on and off a device.	I can open a word processor. I can use a computer to write. I can identify and find keys on a keyboard. I can enter text into a computer I can use letter, number, and Space keys I know how to change the text's appearance. I know how to 'undo' my actions. I can compare typing on a computer to writing on paper. I can select appropriate colours, brush sizes, and brush tools to independently create an image in the style of an artist. I can make lines/marks on a screen and can explain which tools I used. I know how to use the paint tools to draw a picture. I know how to group objects to answer questions.	I can tell you why I use technology in the classroom. I can identify benefits of using technology. I can create sound and a musical pattern. I can present information using a computer. I can create a pictogram using a computer.. I can use a digital device to take a photograph.	I can use onion skinning to help me make small changes between frames. I can improve my animation. I can evaluate my own and other people's animations. I can create two groups of objects separated by one attribute. I can investigate questions with yes/no answers. I can arrange objects into a tree structure. I can test my branching database to see if it works. I can choose suitable images for a project. I can change font style, size, and colours for a given purpose. I can copy and paste information into my work. I can choose a suitable layout for a given purpose. I can make design choices for my artwork.	I can plan and record appropriate content for a podcast. I can edit, trim, and align voice recordings. I can combine sound effects, background music and existing voice recordings. I can explain what data can be collected using sensors. I can plan how to collect data using a data logger. I can interpret data and draw conclusions.	I can capture video using a range of filming techniques I can create a storyboard to outline scenes in my video content. I can plan and construct a 3D model based on a design. I can create my own vector drawing by moving, resizing, rotating, and changing the colours of a selection of objects. I can select an appropriate chart to visually compare data. I can develop search techniques to answer questions about the data.	I can combine grouping and sorting to answer specific questions. I can build a data set in a spreadsheet. I can construct a formula in a spreadsheet. I can apply a formula to multiple cells by duplicating it. I can present data in the form of a chart.

			I can describe the properties of an object. I can sort information into groups.		I can describe the World Wide Web as the part of the Internet that contains websites. I can use the school network to save and retrieve my work.			

Vocabulary			Light Focus Portrait Landscape Image Photograph Lens Compose Capture Pictogram Tally Chart	Paint Draw Tools Shape Line Mark Fill Picture Image Data Collect Group Sort	Animation Stop-frame animation Frames Onion-skin Repeat Copy Paste Alter/edit Movement Flip-book Branching database Yes/no questions Sort Organise Data Evaluate Test	Text Image Desktop Publishing Templates Orientation Content copyright-free images soundwave audio-recording record podcast audio voice background music trim edit data logger data collection	Video Editing Retrieve Export 3D model Moving Resizing Duplicating Align Vector Shapes Line Grid Resize Reflection Modify Database Grouping Sorting Filtering	Spreadsheet Data Cells Formula Rows Columns Chart Duplicating

		EYFS	KS1		LKS2		UKS2	
Substantive Knowledge	Digital Literacy (Includes- E-Safety)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		I know some safer internet rules. To use 'Educated for a Connected world' to deliver: **Self-image and identity** **Online reputation** **Health, well-being and lifestyle** **Managing online information** **Online bullying** **Online relationships** **Privacy and security** **Copyright and ownership** I know that the internet can be used to communicate. I know that the internet can help me find information online. I know simple examples of my personal information (e.g. name, address, birthday, age, location). I know someone who would be trustworthy to share personal information with. I know that work I create belongs to me.	**Computing systems and networks: Technology around us** I know that technology is something that helps us. **Self-image and identity** I know to speak to an adult I can trust if sad/worried. **Online reputation** I know what information I should not put online without asking a trusted adult first. I know that information can stay online and could be copied. **Health, well-being and lifestyle** **Managing online information** I know how to find information using digital technologies, e.g. search engines, voice activated searching. I know that we can encounter a range of things online including things we like and don't like as well as things which are real or make	**Computing systems and networks: IT around us** I know what information technology (IT) is. I know how information technology helps us. **Online bullying** I know what bullying is, how people may bully others and how bullying can make someone feel. **Online relationships** I know who I should ask before sharing things about myself or others online. I know why I have a right to say 'no' or 'I will have to ask someone'. I know who can help me if I feel under pressure to agree to something, I am unsure about or don't want to do. **Privacy and security** I know that online information about me could be seen by others. I know what is meant by 'private' and 'keeping things private' online.	**Computing systems and networks: Connecting Computers** I know how digital devices function. **Self-image and identity** I know what is meant by the term 'identity' **Online reputation** I know why you need to be careful before sharing anything personal. **Health, well-being and lifestyle** I know what is meant by a healthy balance online. **Managing online information** I know what autocomplete is. I know that the internet can be used to sell and buy things. I know the difference between a 'belief', an 'opinion' and a 'fact. I know that not all opinions shared may be accepted as true or fair by others.	**Computing systems and networks: The Internet** I know that the internet is a network of networks. I know that the World Wide Web is part of the internet which contains websites and web pages. **Online bullying** I know different ways people can be bullied through a range of media (e.g. image, video, text, chat) I know when someone is upset, hurt or angry online. **Online relationships** I know strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms) I know how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours **Privacy and security**	**Computing systems and networks: Sharing information** I know that computers can be connected together to form systems. **Self-image and identity** I know how my identity online can be copied, modified or altered. **Online reputation** I know ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect. **Health, well-being and lifestyle** I know that some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and know the importance of seeking permission from a trusted adult before purchasing. **Managing online information** I know the benefits and limitations of using different types	**Computing systems and networks: Communication** I know that searches online need to be refined to achieve the best results. **Online bullying** I know how someone would report online bullying in different contexts. **Online relationships** I know how sharing something online may have an impact either positively or negatively. I know 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. **Privacy and security** I know effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). I know what to do if a password is shared, lost or stolen.

			believe / a joke.	**Copyright and ownership** I know that content on the internet may belong to other people.		I know that internet use is never fully private and is monitored, e.g. adult supervision. I know what the digital age of consent is and the impact this has on online services asking for consent. I know how to keep my personal information private, depending on context. **Copyright and ownership** I know not to use content without permission from the owner, e.g. videos, music, images.	of search technologies e.g. voice-activation search engine. I know what fake news is, and how it may affect someone's emotions and behaviour. I know what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share. I know what is meant by 'being sceptical', and can give examples of when/why it is important to be 'sceptical'. I know what a stereotype is.	I know simple ways to increase privacy on apps and services that provide privacy settings. I know that online services have terms and conditions that govern their use. **Copyright and ownership** I know what is meant by plagiarism.

Disciplinary Knowledge & Skills		I can recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset. I can give examples of how I (might) use technology to communicate with people I know. I can identify ways that I can put information on the internet I can describe ways that some people can be unkind online and can offer examples of how this can make other feel.	I can identify a computer and its main parts. I can use a mouse in different ways. I can use a keyboard to type and edit on a computer. I can recognise that there may be people online who could make someone feel sad, embarrassed, or upset. I can identify rules that help keep us safe and healthy in and beyond the home when using technology.	I can recognise the uses and features of information technology. I can explain why anyone who experiences bullying is not to blame. I can talk about how anyone experiencing bullying can get help. I know how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). I can explain how passwords can be	I can identify input and output devices. I can explain how a computer network can be used to share information. I can recognise the physical components of a network. I can explain why someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why I can give examples of what anyone may or may not be willing to share about themselves online.	I can evaluate the consequences of unreliable content; not everything on the World Wide Web is true. I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).	I can describe the input, process, and output of a digital system I can recognise the role of computer systems in our lives. I can use a search engine and I know that searches are ranked. I can make responsible choices about having an online identity, depending on context. I can search for information about an individual online and summarise the information found. I can explain how technology can affect health and	I can choose methods of communication to suit purposes. I can explain how to capture bullying content as evidence (e.g. screengrab, URL, profile) to share with others who can help me. I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. I can describe how and why people should keep their software

			I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.	used to protect information, accounts and devices. I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions)	I can explain the need to be careful before sharing anything personal. I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. I know how to use key phrases in search engines to gather accurate information online.	I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure. When searching on the internet for content to use, I can explain why I need to consider who owns information on websites and whether I have the right to reuse it.	well-being both positively (e.g. mindfulness apps) and negatively. I can recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and p rofessionals. I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. I can explain key concepts including information, reviews, fact, opinion belief, validity, reliability and evidence. I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads. I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, influencers)	and apps up to date, e.g. auto updates. I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing). I can use search tools to find and access online content which can be reused by others. I can make references to and acknowledge sources I have used from the internet.

Vocabulary			Identity Online Avatar Information Trusted adult Offline Consent Devices Search engines Real/make believe Webpage Voice activated searching Content Rules Safe Healthy	Bullying Online Unkind Upset Personal information Trusted Trust-worthy Passwords Protect Private Belonging Save work Created	Share Created Copied Reputation Digital personality Anonymity Identity Autocomplete Belief Opinion Fact Fake news Positive Negative	Online bullying Banter Teasing Chat Image Video Behaviour Support Share Personal information Password Confidentiality Digital age of consent Monitored Trusted adult Permission Owner Content	Share Created Copied Reputation Digital personality Anonymity Autocomplete Belief Opinion Fact Analyse Judgement In-app purchases Skeptical Pop-ups Notifications Validity Fake news Influence Manipulation Stereotype	Online bullying Banter Teasing Chat Image Video Behaviour Support Share Helpline services Abusive users Block Personal information Password Confidentiality Digital age of consent Monitored Trusted adult Strong password Geolocation Scams Phishing Illegal Permission Owner Content Referenced Acknowledgement Plagiarism