Computing Curriculum

2023 - 2024

We empower | We respect | We care

Part of Diverse Academies

Computing is…

comprised of three strands: **Computer Science**, **Information Technology**, and **Digital Literacy**. Together these strands come together to teach children how computers and computer systems work, how to design, build and analyse programs, and how to find and manage digital information securely. Each component is **essential** in preparing children to thrive in an increasingly digital world.

> "Technology can become the 'wings' that will allow the educational world to fly farther and faster than ever before; if we will allow it."
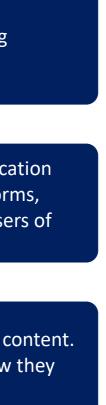> **Jenny Arledge**

Computer Science- The study of computers as machines and how they operate including programming, algorithms, variables, sequence, selection and repetition.

Digital Literacy- The skills you need to live, learn, and work in a society where communication and access to information is increasingly through digital technologies like internet platforms, social media, and mobile devices. This includes being knowledgeable and responsible users of technology, using the internet and other platforms safely and respectfully.
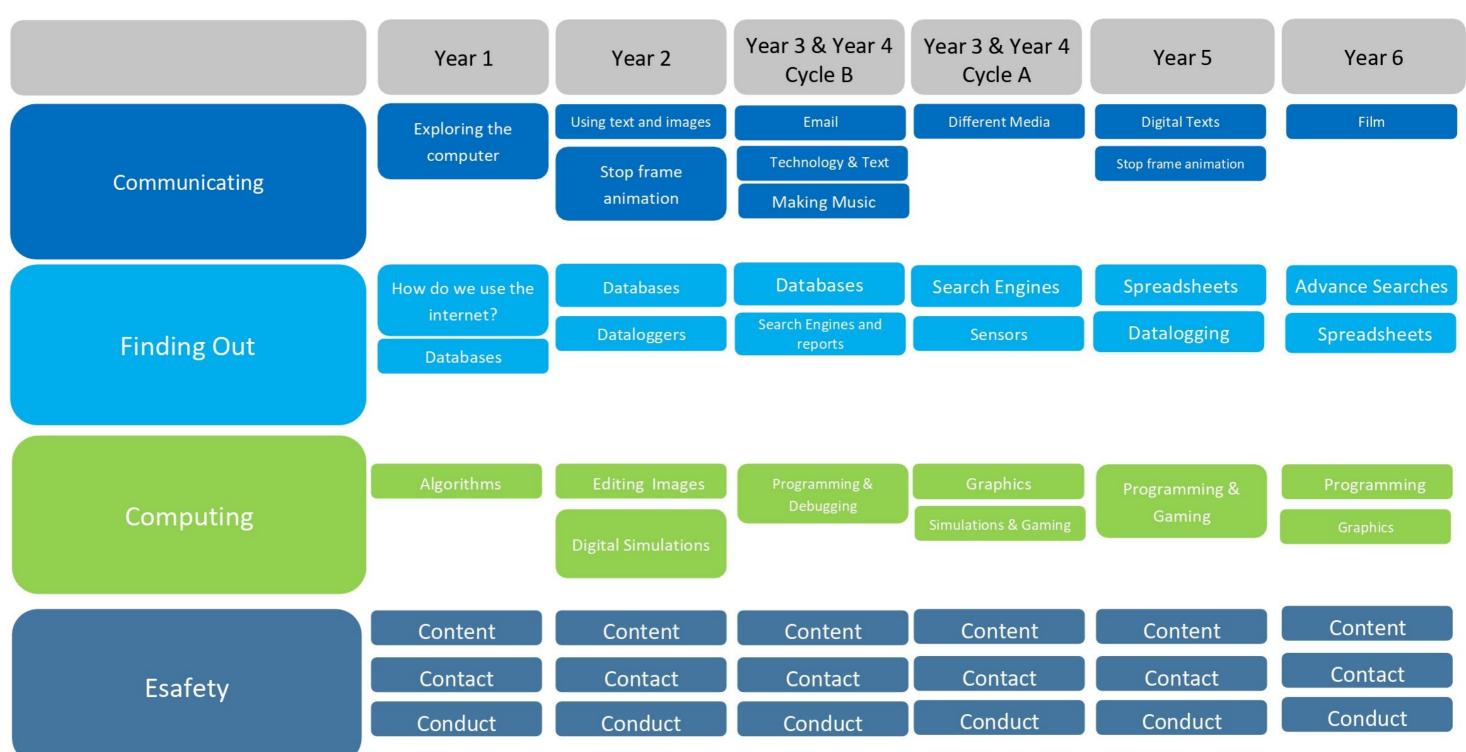
Information Technology- The ability to create, retrieve, combine and manipulate digital content. The understanding of computer networks, the world-wide web and the internet and how they operate.

Computing Curriculum Map

	Year 1	Year 2	Year 3 & Year 4 Cycle B	Year 3 & Year 4 Cycle A	Year 5	Year 6
Communicating	Exploring the computer	Using text and images	Email	Different Media	Digital Texts	Film
		Stop frame animation	Technology & Text		Stop frame animation	
			Making Music			
Finding Out	How do we use the internet?	Databases	Databases	Search Engines	Spreadsheets	Advance Searches
	Databases	Dataloggers	Search Engines and reports	Sensors	Datalogging	Spreadsheets
Computing	Algorithms	Editing Images	Programming & Debugging	Graphics	Programming & Gaming	Programming
		Digital Simulations		Simulations & Gaming		Graphics
Esafety	Content	Content	Content	Content	Content	Content
	Contact	Contact	Contact	Contact	Contact	Contact
	Conduct	Conduct	Conduct	Conduct	Conduct	Conduct

Year 1	Year 2	Year 3 & Year 4 Cycle B	Year 3 & Year 4 Cycle A	Year 5	Year 6
Communicating **Exploring the computer** **Key Knowledge** -Text can be entered and corrected -Events can be recorded using text, sound, still and moving images. -Images, text and sounds can be combined using digital devices. - Use a keyboard to enter and edit text. - Use a word bank to enter text. - Take a photograph and record a video which includes sound. -Explore a digital text e.g. a talking book. -Use their own username and password to get on to the school's network.	**Communicating** **Using text and images** **Key Knowledge** - ICT can be used to change the appearance of text to suit a purpose. -Text, images and sound may be changed to suit a purpose. -Text, images and sound may be sourced from a variety of places including the internet. **Required skills:** - Combine images texts and sounds to create a simple presentation. -Use digital effects to change the appearance of text, sound and image to suit a purpose e.g. font, alignment and formatting. -Explore digital content on the internet. -Know how to save, copy and paste images from the internet with support from an adult. **Stop Frame Animation** **Key Knowledge** - Images taken with a digital camera can be transferred to the computer. - Video is composed of a series of still images - Still images can be combined to make a stop frame animation. **Required skills:** -Take a photograph. Video record a sound using a digital device. -Transfer digital resources between devices. - Still images can be combined to make a stop frame animation. -Sequence, delete and crop images with adult help -Compose a video from a series of still images. -Create a simple stop frame animation.	**Communicating** **Email** **Key Knowledge** -Electronic communication can take a variety of forms e.g. email / blogging / instant messaging / Skype / FaceTime - E-mail can be used to send messages between individuals and groups. - E-mail addresses have a particular format **Required skills:** - Open, read and send a reply to an email address, - Write and send a new email to several people - Discuss ways in which ICT is used to communicate **Technology and Text** **Key Knowledge** -There are a range of modes of communication including text, audio, video -Digital texts may be nonlinear -Technology can be used to redraft more easily than traditional methods. **Required skills:** - Change the layout of a text to suit a purpose e.g. Text box, tables, images, 'Word Art', bullet points, paragraphs. - Cut, copy and paste text -Create a digital text which includes making choices. - Capture an image or video (including sound) using an electronic recording device. - Import videos and sound in to editing clips to make longer sequences **Making Music** **Key Knowledge** -Digital devices may be used to create musical. sounds, and these might sound like real instruments. - Sounds may be recorded on a computer and that software enables you to combine and edit sounds. - ICT can be used to arrange, repeat and edit musical elements **Required skills:** - Record a sound on a computer. - Create music using music software -Interact with icons in software and apps to create musical sounds and phrases. -Arrange a musical sequence where musical phrases are represented by icons. -Create and edit music and soundtracks using music apps or software.	**Communicating** **Different Media** **Key Knowledge** - Presentation software can be used to create a multimodal text for a specific purpose. -Digital media may be enhanced to achieve a desired outcome -Digital media can be shared via a Learning Platform and the internet to reach a wider audience -The internet can be used to share information via email, online comments. - Videos can be enhanced by adding titles, transitions and effects, and by adding soundtracks and narrations. **Required skills:** -Find media from different sources e.g. the internet digital microscope, IWB screen recorder. -Capture video using a range of devices. -Capture still images from video independently. -Manage digital resources on a range of devices. -Use simple photo and video editing tools to change the appearance of images. -Text sound and video can be edited and recombined to create sequences - Add soundtracks and narrations to video sequences. -Make use of titles, transitions, animations and effects to enhance their digital texts. -Share digital outcomes with a wider audience on the internet through a range of methods e.g. learning platform, blogs, podcast. - Use more advanced e-mail tools e.g. attachments and address book	**Communicating** **Digital Texts** **Key Knowledge** - Word processing software has tools to allow individual and collaborative editing. - A non-linear text allows choices to be made. -The internet enables multimodal text to be shared with a wider audience. -Technology allows individual and collaborative editing. **Required skills:** - Create a multimodal text including making choices -Evaluate the design and layout of digital texts and use their findings to support the planning and design in their work - Use video editing tools and techniques to create a desired effect -Select the most appropriate way to communicate ideas. **Stop Frame Animation** **Key Knowledge** - 'Onion skinning' allows the last frame to be seen when creating the next frame. - An animation story needs decomposing into smaller parts. **Required skills:** -Create a stop frame animation which includes a soundtrack. - Make small changes to my object to make my animation smoother - Keep the camera still and make small movements between shots	**Communicating** **Film** **Key Knowledge** - Filming techniques and video editing can be combined to create a video for a specific purpose. -Editing, camera angles, lighting techniques can be used to achieve a desired effect in a digital text. -ICT enables you to create music with a range of input devices e.g. electronic keyboards. -Software can be used to create and edit complex digital texts, with elements from a variety of sources. **Required skills:** -Use text, sound, image, video, camera angles and framing editing tools and techniques to create a desired effect. -Use a range of devices to create music. - Create a multimodal text including a range of elements e.g. sounds and videos. -Critically evaluate web content. -Evaluate forms of digital media and the impact its form can have. -Produce content for a web page. - Work collaboratively on an online document. -As a class make use of video technologies to work collaboratively.

Communicating Progression

	Year 1	Year 2	Year 3 & Year 4 Cycle B	Year 3 & Year 4 Cycle A	Year 5	Year 6
Finding Out Progression	**Finding Out** **How do we use the internet?** *Key Knowledge* -Both traditional and digital methods can be used to find useful information. -Web pages can be viewed using a web browser that lets us look at web pages and navigate around them sites can be bookmarks as favourites. -Know that companies use the internet to encourage people to buy things. **Required skills:** -Discuss how people use the internet to help them with their work e.g. selling, research, communicating, sharing information. - Select programmes and apps and navigate through screens and menus -Use a search engine. -Use simple navigation tools including hyperlinks, menus, index, and forward and back buttons e.tc to explore pre-selected digital information sources purposefully. -Select programs and apps, navigate screens and menus. **Databases** *Key Knowledge* -Data represented graphically can be easier to understand than tables or text. -ICT can be used to create graphs from data. -ICT can be used to create a database **Required skills:** -Use ICT to create pictograms and use them to answer simple questions. -Input data into a simple database program and use it to answer simple questions.	**Finding Out** **Databases** **Key Knowledge** - ICT can be used to create graphs from data **Required skills:** -Search a database. -Use a database to produce bar charts. -Complete a table e.g. a simple spreadsheet and then create a graph to answer a question. **Dataloggers** **Key Knowledge** -Everyday devices like automatic doors, car park barriers, streetlights etc can be controlled by simple sensors. -Our senses allow us to find out what is happening in the world and some machines can do the same. -A computer can be used to view a visual representation of external conditions like sound levels and temperature. **Required skills:** -Begin to identify and talk about how everyday devices with sensors work. -View data and on-screen measurements e.g. sound levels, temperature, precipitation collected in school and beyond through sensors and websites and apps. -Compare photographs they have taken which show change e.g. clouds on different days.	**Finding Out** **Databases** **Key Knowledge** -Databases exist in a variety of forms and provide a means of storing information that can be searched. -A database is created by collecting and inputting data into a prepared structure. -When answering a specific question some graphs are more appropriate than others. -Understand that information needs to be collected and entered accurately. **Required skills:** - Explore a range of paper-based databases and compare to ICT versions -Open a prepared database, and identify the main features: records, types of fields etc. -Use the search tool on a simple database to find out the answers to questions by ordering records by a key field. -Create a simple database with different types of fields and records. -Use a variety of graphs to display the information, including pie charts, and discuss which type of graph works best for different kinds of data. **Search engines and reports** **Key Knowledge** - Web pages have a unique address or URL (unique resource locators) - Although keywords can be used to search for information, results may not always be useful - Folders can be used to organise Favourites and links. **Required skills:** -Use search engines to find images for a specific topic. - Locate a web page by typing a simple URL into the address bar of a web browser - Bookmark a website as a favourite. - Find images and text relating to a specific topic by using keywords to search an online library e.g. Living Library - Create a new folder within the favourites folder to save a link to a useful website.	**Finding Out** **Search Engines** **Key Knowledge** -Web browsers allow you to keep bookmarks and keep a history of sites visited. -Although search engines can locate information on the internet, results may need to be skimmed to save time and to assess their usefulness. -The copyright of images and sounds should be considered when downloading them from the internet. -Understand how technology is used extensively in peoples working and personal lives e.g. selling, research, communicating, sharing, and managing information. -Understand the impact of ICT on society. -Identify ways in which companies use the internet for marketing. **Required skills:** -Access a website by typing in the URL, selecting from favourites or from the history. -Skim and scan search engine results and look at their web address for clues as to their usefulness - Answer specific questions on a topic by creating a report using programmes such as Word or presentations using programmes such as PowerPoint or Prezi - Search using keywords either within a digital content library or in a child friendly reference site - Locate and download images and sounds from the internet **Sensors** **Key Knowledge** -Conditions such as light intensity, temperature and sound level can be measured by devices attached to a computer. -Different conditions will be measured by different sensors. -Understand how sensors in the environment control devices. -There are advantages in using computers to monitor and log data such as accuracy and reliability over long periods of time. **Required skills:** -Take readings as part of a science or humanities activity using a simple sensor(s) attached to a computer or data logger. -Use appropriate sensors attached to a computer or data logging device to take readings to investigate a specific question or theory.	**Finding Out** **Spreadsheets** **Key Knowledge** -Tables and graphs can show more than one variable allowing one to look at relationships and trends more clearly. -Information contained within databases may contain errors and that this can affect results. -A spreadsheet can be used to organise, sort and analyse data and produce graphs and reports. -Data held in a spreadsheet can be sorted and filtered using software tools **Required skills:** -Create a database using more complex setup tools (e.g. keywords) to answer specific questions. -Recognise when data is implausible by checking data for accuracy against predicted or expected outcomes. -Create tables and graphs with more than one variable. -Use the features of a spreadsheet to answer questions by producing graphs using sort and filter features. -Choose when to search when to sort and when to use a graph to answer questions. -Analyse information by transferring it into an appropriate data handling package e.g. Spreadsheets **Data Logging** **Key Knowledge** - There are advantages in using computers to monitor and log data such as accuracy and reliability over long periods of time. **Required skills:** -Use software to analyse and interpret data collected locally and remotely to investigate specific questions or theories. -Build up a system that controls events in response to changing conditions. LINK to science or maths (This does not need to be done using data loggers, they can use research they have collected by class sample or the internet. The focus will be on the analysis of the data.)	**Finding Out** **Advance Searches** **Key Knowledge** -Searches can be refined through the use of advanced search operators. - The accuracy of information on the internet should always be checked. **Required skills:** - Refine search techniques making use of advanced search operators such as inverted commas, +, - -Download files from websites, saving and opening them. -Use web-based tools to ask a question, find out information or submit information or opinion. - Explore the plausibility of websites, identifying some ways to check author, accuracy etc -Find specific information by searching an online database e.g. Census data. -Create a presentation for a specific audience by gathering information from a selection of websites. -Use a moderated website, video conference, forum, or learning platform to ask a question, submit information or offer an opinion. **Spreadsheets** **Key Knowledge** -Spreadsheets can be used to create a simple model, perform calculations and are useful when numbers change to explore outcomes and what if scenarios e.g. currency converter **Required skills:** -Enter labels, numbers & formulae into a spreadsheet. - Use a spreadsheet to convert one value to another based on a rule -Design & create a simple spreadsheet model using information from experiments and real-life situations e.g. predict shadow length at different times of the day from initial measurements, convert one value to another. -Change data in a spreadsheet to answer, 'what if...?' questions and check predictions.

Year 1	Year 2	Year 3 & Year 4 Cycle B	Year 3 & Year 4 Cycle A	Year 5	Year 6
Computing **Algorithms** -Control a programmable toy by giving it an instruction e.g. a Bee-Bot. -Predict the behaviour of a simple set of instructions -Write an algorithm refining the instructions to achieve a desired outcome. *Key Knowledge* - *Many everyday devices and toys respond to signals and instructions.* -An algorithm is a sequence of instructions which can control a device. -Algorithms are implemented as programs on digital devices. -A digital device may be used to simulate a wide range of environments and situations.	**Computing** **Editing Images** *Key Knowledge* -Software and apps can be used to create and edit images. -Digital devices aid the drawing of more complex shapes and designs. - *Digital photos can be altered using simple painting tools.* **Required skills:** -Use an art package on a digital device to create an image. -Select purposefully and use a variety of tools in a painting package e.g. the straight line, geometric shapes and flood fill tools. -Open a digital image from a file and add effects painting effects using brushes and stamps. **Digital Simulations** *Key Knowledge* -Digital simulation allows users to explore options and make choices. **Required skills:** -Create and debug a simple program to control an on-screen object. -Explore the effect of changing the variables in simulations.	**Computing** **Programming and debugging** *Key Knowledge* -Devices are controlled by a repeated set of instructions. -A procedure is a set of instructions which may be repeated in a program. -Digital simulations allow users to solve problems and test ideas. -Variables can be changed within a digital simulation to achieve a specific outcome. **Required skills:** -Create a program which includes sequence, selection and repetition. -Create a program which responds to various forms of inputs and outputs. -Write a program to achieve a specific goal. -Use logical reasoning to detect and correct errors in algorithms and programs	**Computing** **Graphics** *Key Knowledge* -Graphics software can be used to select, copy, cut and paste areas of a picture and to automate some tasks. **Required skills:** -Create and manipulate graphics within a graphics package, move, rotate and re-size graphic elements. -Use tools to explore the effects of cutting, copying and pasting areas of an image. - Create and edit vector graphics e.g. Using the drawing tool in Word - Use the selection/capture tools to explore the effects of cutting, copying and pasting areas of an image **Simulations and gaming** *Key Knowledge* - Variables can be changed within a computer simulation to achieve a specific outcome. **Required skills:** -Explore the effect of changing the variables in simulations and use them to make and test predictions, changing the variables in a simulation to achieve a given outcome. -Record the outcome of choices in a simulation systematically to help achieve an outcome. -Evaluate an online game.	**Computing** **Programming and Gaming** *Key Knowledge* -Technology allows people to play games and access simulations on a range of devices at the same time. -Digital devices need to be programmed to make them work. -Control systems have a number of distinct components that combine to work effectively e.g. inputs and outputs. -Devices can be controlled through direct instructions or from sensing equipment. -Control programs can be written to respond to circumstances flexibly e.g. – if this then that. **Required skills:** -Solve a problem by decomposing into smaller parts. -Produce a program to accomplish a specific goal which includes variables and a range of inputs and outputs. -Use logical reasoning to explain how a simple algorithm works.	**Computing** **Programming** *Key Knowledge* -Digital games and simulations are written using a programming language. - Explain how loops and nested loops work - Identify the need for random numbers **Required skills:** -Discuss how games have evolved. -Evaluate games and design their own including rules. - Create loops and nested loops to make the code more efficient. - Choose commands for a purpose. - Write an effective algorithm. **Graphics** *Key Knowledge* -Graphics software can be used to create and edit an image for a specific purpose. -Graphics software allows layers to be created within and image and that this allows complex images to be created and manipulated. **Required skills:** -Select appropriate graphics tools to fulfil a design brief e.g. create an image for an advert. -Use the layers tool in graphics software to create a complex design with several graphical elements.

Computing Progression

Online Safety Progression: Content

Year 1	Year 2	Year 3 & Year 4 Cycle B	Year 3 & Year 4 Cycle A	Year 5	Year 6
Online Safety: Content -Know the SMART rules. -Know what to do if they view content they think is inappropriate or upsetting (school policy) e.g. know how to minimise a screen if they **Privacy & Security** - I can explain that passwords are used to protect information, accounts and devices. - I can recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names). -I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others. **Copyright & Ownership** - I can explain why work I create using technology belongs to me. -I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it"). -I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content). -I understand that work created by others does not belong to me even if I save a copy	**Online Safety: Content** -Begin to evaluate web sites by giving opinions about preferred sites. -Know that anyone can create a web site and it is sometimes difficult to know if information is true. **Privacy & Security** -I can explain how passwords can be used to protect information, accounts and devices. - I can explain and give examples of what is meant by 'private' and 'keeping things private'. - I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). - 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). **Copyright & Ownership** - I can recognise that content on the internet may belong to other people. - I can describe why other people's work belongs to them.	**Online Safety: Content** -Be aware of the school Acceptable use Policy and the SMART online rules: Safe/Meeting/Accepting/Reliable/Tell. -Know what to do if content is inappropriate or upsetting (school policy) e.g. know who to report to and talk to. -Be aware that taking text or images from some sites may be stealing other people's work. **Privacy & Security** - I can describe simple strategies for creating and keeping passwords private. -I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. -I can describe how connected devices can collect and share anyone's information with others. **Copyright & Ownership** - I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	**Online Safety: Content** -Understand the Internet contains fact, fiction and opinion and begin to distinguish between them. -Know when an email should not be opened, or messages ignored. -Know that the aim of many sites is to sell something or gain personal information. **Privacy & Security** - I can describe strategies for keeping personal information private, depending on context. -I can explain that internet use is never fully private and is monitored, e.g. adult supervision. -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. -I know what the digital age of consent is and the impact this has on online services asking for consent. **Copyright & Ownership** - When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. -I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	**Online Safety: Content** -Use a range of sources to evaluate information found online, consider plausibility and develop strategies to make judgements on the sources used e.g. cross-referencing a number of websites. -Understand the impact of an individual sending or uploading inappropriate content to a wider audience. -Understand wikis are multi-authored and can be hard to verify (e.g. Wikipedia). -Have an awareness of the need to check a resource has copyright or can be legally downloaded free of charge from the internet and whether it can be re-used. **Privacy & Security** -I can explain what a strong password is and demonstrate how to create one. -I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. -I can explain what app permissions are and can give some examples. **Copyright & Ownership** - I can assess and justify when it is acceptable to use the work of others. -I can give examples of content that is permitted to be reused and know how this content can be found online.	**Online Safety: Content** -Check the validity of a website, e.g. look for the author via the 'Contact us' or 'About us' area of the website, or through 'Who is' sites that list the author's details. -Understand the need for privacy settings on any social networking sites (and that those privacy settings may not be observed by online 'friends' who can use/share/download your images/content). -Know the importance of not uploading other people's images or content without their permission -Know that many commercial providers have sophisticated ways of trying to sell on the internet (e.g. hoax 'You have a virus' message box to sell antivirus software). **Privacy & Security** -I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). -I can explain what to do if a password is shared, lost or stolen. -I can describe how and why people should keep their software and apps up to date, e.g. auto updates. -I can describe simple ways to increase privacy on apps and services that provide privacy settings. -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 know that online services have terms and conditions that govern their use. **Copyright & Ownership** - I can demonstrate the use of search tools to find and access online content which can be reused by others. - I can demonstrate how to make references to and acknowledge sources I have used from the internet.

Online Safety Progression: Contact

Year 1	Year 2	Year 3 & Year 4 Cycle B	Year 3 & Year 4 Cycle A	Year 5	Year 6
Online Safety: Contact -Know to keep personal information private when communicating online **Self-image & identity** -I can recognise, online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset. -I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. -If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help. **Online Relationships** -I can give examples of when I should ask permission to do something online and explain why this is important. - I can use the internet with adult support to communicate with people I know (e.g. video call apps or services). - I can explain why it is important to be considerate and kind to people online and to respect their choices. -I can explain why things one person finds funny or sad online may not always be seen in the same way by others. **Online Reputation** -I can recognise that information can stay online and could be copied. - I can describe what information I should not put online without asking a trusted adult first.	**Online Safety: Contact** -Begin to evaluate web sites by giving opinions about preferred sites. -Know that anyone can create a web site and it is sometimes difficult to know if information is true. **Online Safety: Contact** -Know that online communication is not always confidential and that it can be monitored. **Self-image & identity** -I can explain how other people may look and act differently online and offline. - I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help. **Online Relationships** -I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). -I can explain who I should ask before sharing things about myself or others online. -I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. -I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. -I can identify who can help me if something happens online without my consent. -I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. -I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online. **Online Reputation** -I can explain how information put online about someone can last for a long time. -I can describe how anyone's online information could be seen by others. -I know who to talk to if something has been put online without consent or if it is incorrect.	**Online Safety: Contact** -Know to keep personal information and passwords private when communicating online (including email, blogging and instant messaging). -Know they can create an alias or avatar when online. **Self-image & identity** -I can explain what is meant by the term 'identity'. -I can explain how people can represent themselves in different ways online. -I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why. **Online Relationships** -I can describe ways people who have similar likes and interests can get together online. -I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. -I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with. -I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. -I can explain how someone's feelings can be hurt by what is said or written online. -I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos. **Online Reputation** -I can explain how to search for information about others online. -I can give examples of what anyone may or may not be willing to share about themselves online. -I can explain the need to be careful before sharing anything personal. -I can explain who someone can ask if they are unsure about putting something online.	**Online Safety: Contact** -Know when an email should not be opened, or messages ignored. -Understand that online communication is not always confidential and that it can be monitored. -Know that anyone can create a user showing any age or gender and people you meet online may not be who they say they are (social networking, chat rooms and instant messenger). **Self-image & identity** -I can explain how my online identity can be different to my offline identity. -I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. - I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this. **Online Relationships** -I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms). - I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. - I can explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs. **Online Reputation** -I can describe how to find out information about others by searching online. -I can explain ways that some of the information about anyone online could have been created, copied or shared by others.	**Online Safety: Contact** -Demonstrate safe practice when selecting images or content for uploading to an online space. -Understand some malicious adults use the internet to make contact and "groom" young children. Know how to report any suspicions (Think You Know REPORT ABUSE page). **Self-image & identity** -I can explain how identity online can be copied, modified or altered. - I can demonstrate how to make responsible choices about having an online identity, depending on context. **Online Relationships** -I can give examples of technology specific forms of communication (e.g. emojis, memes and GIFs). -I can explain that there are some people I communicate with online who may want to do me or my friends harm. -I can recognise that this is not my / our fault. - I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). -I can explain how someone can get help if they are having problems and identify when to tell a trusted adult. -I can demonstrate how to support others (including those who are having difficulties) online. **Online Reputation** -I can search for information about an individual online and summarise the information found. -I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.	**Online Safety: Contact** -Understand the need for privacy settings on any social networking sites (and that those privacy settings may not be observed by online 'friends' who can use/share/download your images/content). **Self-image & identity** -I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. -I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. -I can explain the importance of asking until I get the help needed. **Online Relationships** -I can explain how sharing something online may have an impact either positively or negatively. -I can 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. -I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. -I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this. **Online Reputation** -I can explain the ways in which anyone can develop a positive online reputation. -I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity

8

	Year 1	Year 2	Year 3 & Year 4 Cycle B	Year 3 & Year 4 Cycle A	Year 5	Year 6
Online Safety Progression: Conduct	**Online Safety: Conduct** -Identify some risks presented by new technologies inside and outside school (e.g. online games, mobile phone texting, cyberbullying). **Online Bullying** -I can describe how to behave online in ways that do not upset others and can give examples **Managing Online Information** - I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching). -I know / understand 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 believe / a joke. -I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened. **Health, wellbeing & lifestyle** - I can explain rules to keep myself safe when using technology both in and beyond the home.	**Online Safety: Conduct** -Learn to respect the work of others that is stored on a shared drive of a network or presented online. **Online Bullying** - I can explain what bullying is, how people may bully others and how bullying can make someone feel. -I can explain why anyone who experiences bullying is not to blame. -I can talk about how anyone experiencing bullying can get help **Managing Online Information** -I can use simple keywords in search engines. -I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). -I can explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). -I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. -I can explain why some information I find online may not be real or true **Health, wellbeing & lifestyle** - 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 can say how those rules / guides can help anyone accessing online technologies.	**Online Safety: Conduct** -Know how to respond to unpleasant communications via mobile phone, text, IM or email, chat rooms. (Save the message and show to a trusted adult). **Online Bullying** - I can describe appropriate ways to behave towards other people online and why this is important. -I can give examples of how bullying behaviour could appear online and how someone can get support. **Managing Online Information** - I can demonstrate how to use key phrases in search engines to gather accurate information online. - I can explain what autocomplete is and how to choose the best suggestion. - I can explain how the internet can be used to sell and buy things. -I can explain the difference between a 'belief', an 'opinion' and a 'fact'. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. -I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed). -I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened. **Health, wellbeing & lifestyle** - I can explain why spending too much time using technology can sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; I can give 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). -I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	**Online Safety: Conduct** -Know there are writing conventions for electronic communication (language, tone, accuracy). **Online Bullying** -I can recognise when someone is upset, hurt or angry online. -I can explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how others feel about them (their reputation). -I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). **Managing Online Information** - I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. -I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites). -I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. -I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true. -I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe what the benefits and the risks might be. -I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't **Health, wellbeing & lifestyle** -I can explain how using technology can be a distraction from other things, in both a positive and negative way. -I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.	**Online Safety: Conduct** -Know when to reply to a group email using 'reply all' and when to 'cc'. **Online Bullying** - I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. -I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. -I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. -I can identify a range of ways to report concerns and access support both in school and at home about online bullying. -I can explain how to block abusive users. -I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix). **Managing Online Information** - I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. -I can explain how some technology can limit the information I aim presented with e.g. voice-activated searching giving one result. -I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'. -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). -I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others. -I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful. -I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.	**Online Safety: Conduct** -Understand the importance of appropriate online behaviour and that online bullying is unacceptable. Know to whom to report any incidents. -Understand the different audience of a school Learning Platform and an online social network. **Online Bullying** - I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. -I can explain how someone would report online bullying in different contexts. **Managing Online Information** -I can explain how search engines work and how results are selected and ranked. -I can explain how to use search technologies effectively. -I can describe how some online information can be opinion and can offer examples. -I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal. -I can define 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). -I understand the concept of persuasive design and how it can be used to influences peoples' choices. - I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. -I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this. -I can describe the difference between online misinformation and dis-information. -I can explain why information that is on a large number of sites may still be inaccurate or untrue. -I can assess how this might happen (e.g. the sharing of misinformation or disinformation). I can identify, flag and report inappropriate content

				Health, wellbeing & lifestyle	Health, wellbeing & lifestyle
				-I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. -I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology. -I 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 professionals. -I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing	**-** I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. -I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. -I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). -I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).

Computing Long Term Planning

Tuxford Primary Academy

Year 1	Autumn	Spring	Summer
Communicating Finding Out Computing	**Communicating** **Autumn 1 and 2- Exploring the computer** **Key Knowledge** -Text can be entered and corrected -Events can be recorded using text, sound, still and moving images. -Images, text and sounds can be combined using digital devices. **Required skills:** - Use a keyboard to enter and edit text. - Use a word bank to enter text. - Take a photograph and record a video which includes sound. -Explore a digital text e.g. a talking book. -Use their own username and password to get on to the school's network.	**Finding Out** **Spring 1- How do we use the internet?** *Key Knowledge* -Both traditional and digital methods can be used to find useful information. -Web pages can be viewed using a web browser that lets us look at web pages and navigate around them sites can be bookmarks as favourites. -Know that companies use the internet to encourage people to buy things. **Required skills:** -Discuss how people use the internet to help them with their work e.g. selling, research, communicating, sharing information. - Select programmes and apps and navigate through screens and menus -Use a search engine. -Use simple navigation tools including hyperlinks, menus, index, and forward and back buttons e.tc to explore pre-selected digital information sources purposefully. -Select programs and apps, navigate screens and menus. **Spring 2- Databases** *Key Knowledge* -Data represented graphically can be easier to understand than tables or text. -ICT can be used to create graphs from data. -ICT can be used to create a database **Required skills:** -Use ICT to create pictograms and use them to answer simple questions. -Input data into a simple database program and use it to answer simple questions.	**Computing** **Summer 1 and 2 - Algorithms** -Control a programmable toy by giving it an instruction e.g. a Bee-Bot. -Predict the behaviour of a simple set of instructions -Write an algorithm refining the instructions to achieve a desired outcome. *Key Knowledge* - *Many everyday devices and toys respond to signals and instructions.* -An algorithm is a sequence of instructions which can control a device. -Algorithms are implemented as programs on digital devices. -A digital device may be used to simulate a wide range of environments and situations.
Online safety	**Online Safety: Content** -Know the SMART rules. -Know what to do if they view content they think is inappropriate or upsetting (school policy) e.g. know how to minimise a screen if they **Privacy & Security** - I can explain that passwords are used to protect information, accounts and devices. - I can recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names). -I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others. **Copyright & Ownership** - I can explain why work I create using technology belongs to me. -I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it'). -I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content). -I understand that work created by others does not belong to me even if I save a copy	**Online Safety: Contact** -Know to keep personal information private when communicating online **Self-image & identity** -I can recognise, online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset. -I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. -If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help. **Online Relationships** -I can give examples of when I should ask permission to do something online and explain why this is important. - I can use the internet with adult support to communicate with people I know (e.g. video call apps or services). - I can explain why it is important to be considerate and kind to people online and to respect their choices. -I can explain why things one person finds funny or sad online may not always be seen in the same way by others. **Online Reputation** -I can recognise that information can stay online and could be copied. - I can describe what information I should not put online without asking a trusted adult first.	**Online Safety: Conduct** -Identify some risks presented by new technologies inside and outside school (e.g. online games, mobile phone texting, cyberbullying). **Online Bullying** -I can describe how to behave online in ways that do not upset others and can give examples **Managing Online Information** - I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching). -I know / understand 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 believe / a joke. -I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened. **Health, wellbeing & lifestyle** - I can explain rules to keep myself safe when using technology both in and beyond the home.

		Online Safety resources: Education for a Connected World 2020 edition & Projectevolve.co.uk	
Vocabulary	Space Bar, Delete, Return Key, Enter, Mouse, Trackpad, arrow keys,cursor, select,	**Databases** Columns, category, tally chart, pictograms, explain, branching database, categorise, chart, label,	Digital, program, follow, code, bugs, fix, order, Alorithm, bee-bot, computing code, computer program, predict, tinker,
Hardware/ software/ resources	Seesaw, Word, Pages Google Docs Pic Collage, Book Creator,	**How do we use the internet? 1 & 2** **Databases** **https://www.j2e.com/j2data/** **https://www.j2e.com/jit5**	Beebot app, Scratch Jnr, Kodable, ScratchJr Bee-bot online Beebot equipment, tunnels, bridges etc & maps Kapow 1 Kapow 2

Year 2	Autumn	Spring	Summer
Communicating **Finding Out** **Computing**	**Communicating** **Autumn 1- Using text and images** **Key Knowledge** - ICT can be used to change the appearance of text to suit a purpose. -Text, images and sound may be changed to suit a purpose. -Text, images and sound may be sourced from a variety of places including the internet. **Required skills:** - Combine images texts and sounds to create a simple presentation. -Use digital effects to change the appearance of text, sound and image to suit a purpose e.g. font, alignment and formatting. -Explore digital content on the internet. -Know how to save, copy and paste images from the internet with support from an adult. **Autumn 2 – Stop Frame Animation** **Key Knowledge** - Images taken with a digital camera can be transferred to the computer. - Video is composed of a series of still images - Still images can be combined to make a stop frame animation. **Required skills:** -Take a photograph. Video record a sound using a digital device. -Transfer digital resources between devices. -Still images can be combined to make a stop frame animation. -Sequence, delete and crop images with adult help -Compose a video from a series of still images. -Create a simple stop frame animation.	**Finding Out** **Spring 1 – Databases** **Key Knowledge** - ICT can be used to create graphs from data **Required skills:** -Search a database. -Use a database to produce bar charts. -Complete a table e.g. a simple spreadsheet and then create a graph to answer a question. **Spring 2 - Dataloggers (link to science?)** **Key Knowledge** -Everyday devices like automatic doors, car park barriers, streetlights etc can be controlled by simple sensors. -Our senses allow us to find out what is happening in the world and some machines can do the same. -A computer can be used to view a visual representation of external conditions like sound levels and temperature. **Required skills:** -Begin to identify and talk about how everyday devices with sensors work. -View data and on-screen measurements e.g. sound levels, temperature, precipitation collected in school and beyond through sensors and websites and apps. -Compare photographs they have taken which show change e.g. clouds on different days.	**Computing** **Summer 1- Editing Images** *Key Knowledge* -Software and apps can be used to create and edit images. -Digital devices aid the drawing of more complex shapes and designs. - *Digital photos can be altered using simple painting tools.* **Required skills:** -Use an art package on a digital device to create an image. -Select purposefully and use a variety of tools in a painting package e.g. the straight line, geometric shapes and flood fill tools. -Open a digital image from a file and add effects painting effects using brushes and stamps. **Summer 2 – Digital Simulations** *Key Knowledge* -Digital simulation allows users to explore options and make choices. **Required skills:** -Create and debug a simple program to control an on-screen object. -Explore the effect of changing the variables in simulations.

Online Safety	**Online Safety: Content** -Begin to evaluate web sites by giving opinions about preferred sites. -Know that anyone can create a web site and it is sometimes difficult to know if information is true. **Privacy & Security** -I can explain how passwords can be used to protect information, accounts and devices. - I can explain and give examples of what is meant by 'private' and 'keeping things private'. - I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). - 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). **Copyright & Ownership** - I can recognise that content on the internet may belong to other people. - I can describe why other people's work belongs to them.	**Online Safety: Contact** -Know that online communication is not always confidential and that it can be monitored. **Self-image & identity** -I can explain how other people may look and act differently online and offline. - I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help. **Online Relationships** -I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). -I can explain who I should ask before sharing things about myself or others online. -I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. -I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. -I can identify who can help me if something happens online without my consent. -I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. -I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online. **Online Reputation** -I can explain how information put online about someone can last for a long time. -I can describe how anyone's online information could be seen by others. -I know who to talk to if something has been put online without consent or if it is incorrect.	**Online Safety: Conduct** -Learn to respect the work of others that is stored on a shared drive of a network or presented online. **Online Bullying** - I can explain what bullying is, how people may bully others and how bullying can make someone feel. -I can explain why anyone who experiences bullying is not to blame. -I can talk about how anyone experiencing bullying can get help **Managing Online Information** -I can use simple keywords in search engines. -I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). -I can explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). -I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. -I can explain why some information I find online may not be real or true **Health, wellbeing & lifestyle** - 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 can say how those rules / guides can help anyone accessing online technologies.
	Online Safety resources: Education for a Connected World 2020 edition & Projectevolve.co.uk		
Vocabulary	**Using text and images** Cut, copy, paste. Caps Lock, Insert, Image, Save, clipboard, editing, header, highlight **Stop Frame Animation** Stop motion, ghosting, timing, cartoon	Venn diagrams, carroll diagrams, bar charts, database, table	**Editing Images** Crop, filters, fill, export, JPEG, zoom, flash, undo
Hardware/ software/ resources	**Using text and images** Seesaw, Word, Pages Google Docs Pic Collage, Keynote Book Creator, Popplet, Sonic Pi (laptop & desktop users- kapow link), scratch (tablet & chromebook users (kapow link). **Stop Frame Animation** Puppetpals, ChatterPix Kids, I Can Animate, Seesaw, Stop Motion Studio app, Power-Point, Microsoft Photos, J2E animation. (Kapow link to this.)	Seesaw, Pic Collage, Plickers Google Sheets, Google Forms, Excel, Numbers, **Dataloggers** 1, 2 & 3 – enable Flash	**Editing Images** Camera, **Image editing software on laptops:** Paint, Serif Drawplus5, Serif PhotoPlus, Powerpoint. **Apps:** Keynote, Mark up, Photobooth, Seesaw, Keynote, Pic Collage, Notes **Digital Simulations** App ScratchJr Kapow unit: Using Scratch Jr Planning unit example Simulations to explore 1 & 2

Year 3 and Year 4	Autumn	Spring	Summer
Communicating Finding Out Computing	**Communicating** **Autumn 1- Email** **Key Knowledge** -Electronic communication can take a variety of forms e.g. email / blogging / instant messaging / Skype / FaceTime - E-mail can be used to send messages between individuals and groups. - E-mail addresses have a particular format **Required skills:** - Open, read and send a reply to an email address, - Write and send a new email to several people - Discuss ways in which ICT is used to communicate **Autumn 1- Technology and Text (cross-curricular)** **Key Knowledge** -There are a range of modes of communication including text, audio, video -Digital texts may be nonlinear -Technology can be used to redraft more easily than traditional methods. **Required skills:** - Change the layout of a text to suit a purpose e.g. Text box, tables, images, 'Word Art', bullet points, paragraphs. - Cut, copy and paste text -Create a digital text which includes making choices. - Capture an image or video (including sound) using an electronic recording device. - Import videos and sound in to editing clips to make longer sequences **Autumn 2- Making Music** **Key Knowledge** -Digital devices may be used to create musical. sounds, and these might sound like real instruments. - Sounds may be recorded on a computer and that software enables you to combine and edit sounds. - ICT can be used to arrange, repeat and edit musical elements **Required skills:** - Record a sound on a computer. - Create music using music software -Interact with icons in software and apps to create musical sounds and phrases. -Arrange a musical sequence where musical phrases are represented by icons. -Create and edit music and soundtracks using music apps or software.	**Finding Out** **Spring 1and 2- Databases** **Key Knowledge** -Databases exist in a variety of forms and provide a means of storing information that can be searched. -A database is created by collecting and inputting data into a prepared structure. -When answering a specific question some graphs are more appropriate than others. -Understand that information needs to be collected and entered accurately. **Required skills:** - Explore a range of paper-based databases and compare to ICT versions -Open a prepared database, and identify the main features: records, types of fields etc. -Use the search tool on a simple database to find out the answers to questions by ordering records by a key field. -Create a simple database with different types of fields and records. -Use a variety of graphs to display the information, including pie charts, and discuss which type of graph works best for different kinds of data. **Spring 1and 2- Search engines and reports** **Key Knowledge** - Web pages have a unique address or URL (unique resource locators) - Although keywords can be used to search for information, results may not always be useful - Folders can be used to organise Favourites and links. **Required skills:** -Use search engines to find images for a specific topic. - Locate a web page by typing a simple URL into the address bar of a web browser - Bookmark a website as a favourite. - Find images and text relating to a specific topic by using keywords to search an online library e.g. Living Library - Create a new folder within the favourites folder to save a link to a useful website.	**Computing** **Summer 1 and 2- programming and debugging** *Key Knowledge* -Devices are controlled by a repeated set of instructions. -A procedure is a set of instructions which may be repeated in a program. -Digital simulations allow users to solve problems and test ideas. -Variables can be changed within a digital simulation to achieve a specific outcome. **Required skills:** -Create a program which includes sequence, selection and repetition. -Create a program which responds to various forms of inputs and outputs. -Write a program to achieve a specific goal. -Use logical reasoning to detect and correct errors in algorithms and programs

Online Safety	**Online Safety: Content** -Be aware of the school Acceptable use Policy and the SMART online rules: Safe/Meeting/Accepting/Reliable/Tell. -Know what to do if content is inappropriate or upsetting (school policy) e.g. know who to report to and talk to. -Be aware that taking text or images from some sites may be stealing other people's work. **Privacy & Security** - I can describe simple strategies for creating and keeping passwords private. -I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. -I can describe how connected devices can collect and share anyone's information with others. **Copyright & Ownership** - I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	**Online Safety: Contact** -Know to keep personal information and passwords private when communicating online (including email, blogging and instant messaging). -Know they can create an alias or avatar when online. **Self-image & identity** -I can explain what is meant by the term 'identity'. -I can explain how people can represent themselves in different ways online. -I can explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why. **Online Relationships** -I can describe ways people who have similar likes and interests can get together online. -I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. -I can explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with. -I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. -I can explain how someone's feelings can be hurt by what is said or written online. -I can explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos. **Online Reputation** -I can explain how to search for information about others online. -I can give examples of what anyone may or may not be willing to share about themselves online. -I can explain the need to be careful before sharing anything personal. -I can explain who someone can ask if they are unsure about putting something online.	**Online Safety: Conduct** -Know how to respond to unpleasant communications via mobile phone, text, IM or email, chat rooms. (Save the message and show to a trusted adult). **Online Bullying** - I can describe appropriate ways to behave towards other people online and why this is important. -I can give examples of how bullying behaviour could appear online and how someone can get support. **Managing Online Information** - I can demonstrate how to use key phrases in search engines to gather accurate information online. -I can explain what autocomplete is and how to choose the best suggestion. - I can explain how the internet can be used to sell and buy things. -I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. -I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed). -I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened. **Health, wellbeing & lifestyle** - I can explain why spending too much time using technology can sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; I can give 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). -I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).
	Online Safety resources: Education for a Connected World 2020 edition & Projectevolve.co.uk		
Vocabulary	**Technology and Text (cross-curricular)** Touch type. Edit, format, font, size, borders, shadows, duplicate, organise, undo, redo, autocorrect, clipart **Making Music** Input, output, selection, mix,	**Databases** Table, column, row, cell, spreadsheet, graph,	Sequence, inputs, outputs, code, design, programming language, Scratch
Hardware/ software	**Technology and Text (cross-curricular)** Seesaw, Word, Pages, Google Docs Keynote Book Creator, Popplet **Making Music** Seesaw, Voice Memos, Garageband, Anchor, Keezy, Sonic Pi (laptop & desktop users- kapow link), scratch (tablet & chromebook users- kapow link)	**Databases** Google Sheets, Google Forms, Excel, Numbers, http://www.j2e.com/help/videos/datags4 1, 2	Beebot, Scratch Jnr, Kodable, Tynker, Scratch 3, Hopscotch, Swift Playgrounds, Simulations to explore 1 & 2 Kapow unit: Y3 Scratch

Year 5	Autumn	Spring	Summer
Communicating Finding Out Computing	**Communicating** **Autumn 1- Digital Texts** **Key Knowledge** - Word processing software has tools to allow individual and collaborative editing. - A non-linear text allows choices to be made. -The internet enables multimodal text to be shared with a wider audience. -Technology allows individual and collaborative editing. **Required skills:** - Create a multimodal text including making choices -Evaluate the design and layout of digital texts and use their findings to support the planning and design in their work - Use video editing tools and techniques to create a desired effect -Select the most appropriate way to communicate ideas. **Autumn 2- Stop Frame Animation** **Key Knowledge** - 'Onion skinning' allows the last frame to be seen when creating the next frame. - An animation story needs decomposing into smaller parts. **Required skills:** -Create a stop frame animation which includes a soundtrack. - Make small changes to my object to make my animation smoother - Keep the camera still and make small movements between shots	**Finding Out** **Spring 1 and 2- Spreadsheets** **Key Knowledge** -Tables and graphs can show more than one variable allowing one to look at relationships and trends more clearly. -Information contained within databases may contain errors and that this can affect results. -A spreadsheet can be used to organise, sort and analyse data and produce graphs and reports. -Data held in a spreadsheet can be sorted and filtered using software tools **Required skills:** -Create a database using more complex setup tools (e.g. keywords) to answer specific questions. -Recognise when data is implausible by checking data for accuracy against predicted or expected outcomes. -Create tables and graphs with more than one variable. -Use the features of a spreadsheet to answer questions by producing graphs using sort and filter features. -Choose when to search when to sort and when to use a graph to answer questions. -Analyse information by transferring it into an appropriate data handling package e.g. Spreadsheets **Spring 2- Data Logging** **Key Knowledge** - There are advantages in using computers to monitor and log data such as accuracy and reliability over long periods of time. **Required skills:** -Use software to analyse and interpret data collected locally and remotely to investigate specific questions or theories. -Build up a system that controls events in response to changing conditions. LINK to science or maths (This does not need to be done using data loggers, they can use research they have collected by class sample or the internet. The focus will be on the analysis of the data.)	**Computing** **Summer 1 and 2- Programming and Gaming** *Key Knowledge* -Technology allows people to play games and access simulations on a range of devices at the same time. -Digital devices need to be programmed to make them work. -Control systems have a number of distinct components that combine to work effectively e.g. inputs and outputs. -Devices can be controlled through direct instructions or from sensing equipment. -Control programs can be written to respond to circumstances flexibly e.g. – if this then that. **Required skills:** -Solve a problem by decomposing into smaller parts. -Produce a program to accomplish a specific goal which includes variables and a range of inputs and outputs. -Use logical reasoning to explain how a simple algorithm works.

Online Safety	Online Safety: Content	Online Safety: Contact	Online Safety: Conduct
	Online Safety: Content -Use a range of sources to evaluate information found online, consider plausibility and develop strategies to make judgements on the sources used e.g. cross-referencing a number of websites. -Understand the impact of an individual sending or uploading inappropriate content to a wider audience. -Understand wikis are multi-authored and can be hard to verify (e.g. Wikipedia). -Have an awareness of the need to check a resource has copyright or can be legally downloaded free of charge from the internet and whether it can be re-used. **Privacy & Security** -I can explain what a strong password is and demonstrate how to create one. -I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. -I can explain what app permissions are and can give some examples. **Copyright & Ownership** - I can assess and justify when it is acceptable to use the work of others. -I can give examples of content that is permitted to be reused and know how this content can be found online.	**Online Safety: Contact** -Demonstrate safe practice when selecting images or content for uploading to an online space. -Understand some malicious adults use the internet to make contact and "groom" young children. Know how to report any suspicions (Think You Know REPORT ABUSE page). **Self-image & identity** -I can explain how identity online can be copied, modified or altered. - I can demonstrate how to make responsible choices about having an online identity, depending on context. **Online Relationships** -I can give examples of technology specific forms of communication (e.g. emojis, memes and GIFs). -I can explain that there are some people I communicate with online who may want to do me or my friends harm. -I can recognise that this is not my / our fault. I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). -I can explain how someone can get help if they are having problems and identify when to tell a trusted adult. -I can demonstrate how to support others (including those who are having difficulties) online. **Online Reputation** -I can search for information about an individual online and summarise the information found. -I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.	**Online Safety: Conduct** -Know when to reply to a group email using 'reply all' and when to 'cc'. **Online Bullying** - I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. -I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. -I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. -I can identify a range of ways to report concerns and access support both in school and at home about online bullying. -I can explain how to block abusive users. -I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix). **Managing Online Information** - I can explain the benefits and limitations of using different types of search technologies e.g. voice-activation search engine. -I can explain how some technology can limit the information I aim presented with e.g. voice-activated searching giving one result. -I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'. -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). -I can explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others. -I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful. -I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share. **Health, wellbeing & lifestyle** -I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. -I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology. -I 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 professionals. -I can explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing.
	Online Safety resources: Education for a Connected World 2020 edition & Projectevolve.co.uk		
Vocabulary	**Digital Texts** Import, export, hyperlinks, animate, build in, build out, italics, bold, arrange, bullets, **Stop Frame Animation** Chroma Key, Flipbook, export, GIF, publish,	**Spreadsheets** Formula bar, Autosum, Autofill, value	

Hardware/software	Digital Texts Seesaw, Word, PagesGoogle Docs Keynote Book Creator, Popplet Stop Frame Animation Puppetpals, ChatterPix Kids, Animate Anything, I Can Animate, iFunFace, Seesaw, Plotagon, Puppetmaster, Toontastic, -Stop motion animation. (Maybe extra features?)	Spreadsheets Google Sheets, Google Forms, Excel, Numbers, Mentimeter 1, 2,	Simulations to explore 1 Code Studio – set up classes and track their progress – this would need to be checked on the software compliance first Construct 2 or Construct 3 – design games -Hour of code (Used at Bracken Lane for KS2 during coding week- children really loved this- can set age settings & there are lots of coding activities/games to choose from. Some linked to Minecraft, frozen etc.) LB took idea from Tuxford Secondary that use it in KS3.

Year 6	Autumn	Spring	Summer
Communicating Finding Out Computing	Communicating Autumn 1 and 2- Film Key Knowledge - Filming techniques and video editing can be combined to create a video for a specific purpose. -Editing, camera angles, lighting techniques can be used to achieve a desired effect in a digital text. -ICT enables you to create music with a range of input devices e.g. electronic keyboards. -Software can be used to create and edit complex digital texts, with elements from a variety of sources. Required skills: -Use text, sound, image, video, camera angles and framing editing tools and techniques to create a desired effect. -Use a range of devices to create music. - Create a multimodal text including a range of elements e.g. sounds and videos. -Critically evaluate web content. -Evaluate forms of digital media and the impact its form can have. -Produce content for a web page. - Work collaboratively on an online document. -As a class make use of video technologies to work collaboratively.	Finding Out Spring 1- Advance Searches Key Knowledge -Searches can be refined through the use of advanced search operators. - The accuracy of information on the internet should always be checked. Required skills: - Refine search techniques making use of advanced search operators such as inverted commas, +, - -Download files from websites, saving and opening them. -Use web-based tools to ask a question, find out information or submit information or opinion. - Explore the plausibility of websites, identifying some ways to check author, accuracy etc -Find specific information by searching an online database e.g. Census data. -Create a presentation for a specific audience by gathering information from a selection of websites. -Use a moderated website, video conference, forum, or learning platform to ask a question, submit information or offer an opinion. Spring 2- Spreadsheets Key Knowledge -Spreadsheets can be used to create a simple model, perform calculations and are useful when numbers change to explore outcomes and what if scenarios e.g. currency converter Required skills: -Enter labels, numbers & formulae into a spreadsheet. - Use a spreadsheet to convert one value to another based on a rule -Design & create a simple spreadsheet model using information from experiments and real- life situations e.g. predict shadow length at different times of the day from initial measurements, convert one value to another. -Change data in a spreadsheet to answer, 'what if...?' questions and check predictions.	Computing Summer 1 – Programming Key Knowledge -Digital games and simulations are written using a programming language. - Explain how loops and nested loops work - Identify the need for random numbers Required skills: -Discuss how games have evolved. -Evaluate games and design their own including rules. - Create loops and nested loops to make the code more efficient. - Choose commands for a purpose. - Write an effective algorithm. Summer 2- Graphics Key Knowledge -Graphics software can be used to create and edit an image for a specific purpose. -Graphics software allows layers to be created within and image and that this allows complex images to be created and manipulated. Required skills: -Select appropriate graphics tools to fulfil a design brief e.g. create an image for an advert. -Use the layers tool in graphics software to create a complex design with several graphical elements.

Online Safety	**Online Safety: Content** -Check the validity of a website, e.g. look for the author via the 'Contact us' or 'About us' area of the website, or through 'Who is' sites that list the author's details. -Understand the need for privacy settings on any social networking sites (and that those privacy settings may not be observed by online 'friends' who can use/share/download your images/content). -Know the importance of not uploading other people's images or content without their permission -Know that many commercial providers have sophisticated ways of trying to sell on the internet (e.g. hoax 'You have a virus' message box to sell antivirus software). **Privacy & Security** -I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). -I can explain what to do if a password is shared, lost or stolen. -I can describe how and why people should keep their software and apps up to date, e.g. auto updates. -I can describe simple ways to increase privacy on apps and services that provide privacy settings. -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 know that online services have terms and conditions that govern their use. **Copyright & Ownership** - I can demonstrate the use of search tools to find and access online content which can be reused by others. - I can demonstrate how to make references to and acknowledge sources I have used from the internet.	**Online Safety: Contact** -Understand the need for privacy settings on any social networking sites (and that those privacy settings may not be observed by online 'friends' who can use/share/download your images/content). **Self-image & identity** -I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. -I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. -I can explain the importance of asking until I get the help needed. **Online Relationships** -I can explain how sharing something online may have an impact either positively or negatively. -I can 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. -I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs. -I can explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this. **Online Reputation** -I can explain the ways in which anyone can develop a positive online reputation. -I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity	**Online Safety: Conduct** -Understand the importance of appropriate online behaviour and that online bullying is unacceptable. Know to whom to report any incidents. -Understand the different audience of a school Learning Platform and an online social network. **Online Bullying** - I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. -I can explain how someone would report online bullying in different contexts. **Managing Online Information** -I can explain how search engines work and how results are selected and ranked. -I can explain how to use search technologies effectively. -I can describe how some online information can be opinion and can offer examples. -I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal. -I can define 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). -I understand the concept of persuasive design and how it can be used to influences peoples' choices. - I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. -I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this. -I can describe the difference between online misinformation and dis-information. -I can explain why information that is on a large number of sites may still be inaccurate or untrue. -I can assess how this might happen (e.g. the sharing of misinformation or disinformation). I can identify, flag and report inappropriate content **Health, wellbeing & lifestyle** - I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. -I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. -I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). -I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).
	Online Safety resources: Education for a Connected World 2020 edition & Projectevolve.co.uk		
Vocabulary	Split screen, cutaway, montage, fade, animation, stop motion, onion skinning	**Spreadsheets** Range, =, fill, conditional formatting,	**Onion skimming**
Hardware/ software	Stop Motion Studio app iMovie resource example Doink Greenscreen, iMovie, Shadow Puppets Edu, Videorama, Apple Clips Explain Everything, audacity -Music- Sonic Pi (laptop & desktop users.) (Kapow link.) -Music- Scratch (tablet & chromebook.) (Kapow link.) -Editing- WeVideo (Kapow link.) -Stop motion animation. (Maybe extra features?)	**Advance Searches** 1, 2, 3, 4, 5 **Spreadsheets** Google Sheets, Google Forms, Excel, Numbers, Y6 Spreadsheets: Numbers app, Excel https://www.mrpict.com/numbers.html -Microsoft 365: Computing systems & network: Search engines. (Kapow link.) -Google: Computing systems & search engines. (Kapow link.)	**Graphics** Image editing software on laptops: Paint, Serif Drawplus5, Serif PhotoPlus, Powerpoint Adobe Spark Post app - posters and infographics. -BBC micro:bit app using Android or Apple. (Kapow link.) -**Python (Kapow link.)** -**Hour of code**