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	Autumn	Spring	Summer
N	**Computer Science** -shows interest in technological toys and real objects such as cameras and mobile phones -plays with/investigates objects in the nursery	**Computer Science** -knows to press buttons on simple equipment to make it work e.g. cd player and videos on screen -shows skill by using making toys work e.g. battery-operated toys such as hoovers, kettles, microwaves	**Computer Science** -explores Clever Cats -knows that they can make a Clever Cat move by pressing a button -explores moving Clever Cats around an area -shows some skill in using the Clever Cats
	Key vocabulary: camera, phone, computer	**Key vocabulary: button, start, stop**	**Key vocabulary: forwards, backwards**
		Digital Literacy -uses Digital Screens to make marks -shows interest in using computers/tablets to look at farms	**Digital Literacy** -can use a computer/tablet with help to look at the seaside/farm -using cameras to take photos
		Key vocabulary: screen, touch	**Key vocabulary: photo**
	Online Safety: - I can name a trusted adult - I know to tell a trusted adult if I see something I don't like when they are using computers/tablets, etc		
	The previous Development Matters Document for Technology has been removed in the Sept 21 curriculum update, however all of the above is still important to teach / support as part of a rounded curriculum in order for children to safely and sensibly use technology to enhance their own play / learning and be ready to access our curriculum in Reception and the national curriculum in year 1. **Previous EYFS 30-50 months Understanding The World - (Technology)** -knows how to operate simple equipment -shows an interest in technological toys with knobs or pulleys, or real objects -shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images -knows that information can be retrieved from computers		

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R	**Computer Science – Remote control** - knows that remote control toys have to be turned on and off - knows that remote control toys can only do what they are instructed to do (by pressing the buttons on the handset) - shows some control in operating remote control toys	**Computer Science – Programmable toys** - knows that beebots / bluebots have to be turned on and off - knows that beebots / bluebots can only do what they are instructed to do (by pressing the buttons to send it forwards / backwards / to turn - knows to press the X to clear previous instructions - can programme beebot / bluebot to reach a destination in a straight line (1 step instructions) e.g. to estimate and programme the correct number of forward "presses" needed to reach a friend sitting opposite them, or to move it to a specific place on a beebot / bluebot mat (by counting the squares then programming the forward "presses" as appropriate.	**Computer Science – Programmable toys** - can programme beebot / bluebot to reach a destination that involves a turn (2 or 3 step instructions)
	Key vocabulary: remote control, remote	**Key vocabulary: *forwards, backwards*, left, right**	**Key vocabulary: *forwards, backwards*, instructions**
	Digital Literacy - handles and uses the Digital Screens sensibly and carefully - uses the Digital Screens to draw and to mark make - uses the Digital Screens to compete simple activities / games - begins to use cameras to take photos to review their own learning	**Digital Literacy** - uses the Digital Screens to draw and to mark make / handwrite names or words - can use the Digital Screen onscreen keyboard to type names / words - uses the Digital Screens to compete simple activities / games - develop using cameras to take photos to review their own learning	**Digital Literacy** - uses the chromebooks to type own names - uses the chromebooks to type phonetic attempts at words / sentences - uses the Digital Screens / chromebooks to complete activities and games - shows competence in accessing games / activities e.g. can click the red cross to close, knows to double click to open - uses cameras with purpose to take photos to review their own learning
	Key vocabulary: *Digital Screen*	**Key vocabulary: *camera*, keyboard, type, *photo***	**Key vocabulary: chromebook, *keyboard*, *type*, click, close**
	Online Safety: I can name a "trusted adult" I can tell a "trusted adult" if something upsets or confuses me I know that not everything on the internet is true I can give examples of how I (might) use technology to communicate with people I know. I can talk about how to use the internet as a way of finding information online. I can identify devices I could use to access information on the internet. I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location); I can describe who would be trustworthy to share this information with; I can explain why they are trusted. I know that work I create belongs to me.		

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	Previous EYFS Early Learning Goal (Understanding the World - Technology) The previous ELG for Technology has been removed in the Sept 21 curriculum update, however all of the above is still important to teach / support as part of a rounded curriculum in order for children to safely and sensibly use technology to enhance their own play / learning and be ready to access the national curriculum in year 1. Previous ELG - Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

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Y1	**Basic skills:** Children log in to a Chromebook on a weekly basis, accessing educational sites such as numbots, use of mouse/trackpad control and/or typing games.		
	Computer Science – Giving instructions - know that an algorithm is a set of instructions - recognise the importance of clear, unambiguous instructions - give verbal instructions	**Computer Science – Programmable toys** - discuss instructions required to control a Beebot/Bluebot - use flashcards and images to plan an algorithm - input an algorithm using directional buttons to create a program for the Beebot/Bluebot to follow	**Computer Science – Programmable toys** - begin to plan an algorithm mentally - program more complex routes for the Beebot/Bluebot to follow - recognise where mistakes (bugs) arise and correct these (debug)
	Key vocabulary: algorithm, *instruction*	**Key vocabulary: program,** *algorithm, instruction,* direction, clear	**Key vocabulary:** *algorithm, program, instruction, direction, clear*, **bug, debug**
	Digital Literacy; Systems and Networks- Technology around us *Recognise what technology is and how it helps us. Know what people use computers for. Handle tablets and Chromebooks safely*. - turn devices on and off correctly - log on - identify technology - identify a computer and its main parts - use a mouse in different ways - use a keyboard to type - use the keyboard to edit text	**Digital Literacy – Digital Art** *Understand that art can be created on a computer. Recognise and use a range of tools.* - describe what different freehand tools do - use the shape tool and the line tools - make careful choices when painting a digital picture - explain why I chose the tools I used - use a computer on my own to paint a picture - compare painting a picture on a computer and on paper	**Digital Literacy – Digital writing** *Become more familiar with using a mouse(pad) and keyboard to add and remove text and alter the appearance of their writing.* - use a computer keyboard to write - add and remove text on a computer - alter the appearance of text (font, size, underline, bold, colour and capitalisation) - make careful choices when changing text by highlighting or selecting words or groups of words. - explain why I used the tools that I chose and use undo to remove unnecessary changes - compare writing on a computer with writing on paper
	Key vocabulary: technology, mouse, *keyboard, screen*, login	**Key vocabulary:** line, shape, brush size, fill colour, undo	**Key vocabulary:** *keyboard*, keys, space, backspace, shift, *undo,* **font, word processor**
	Online Safety: **Covered in NCCE units* 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. I can use the internet with adult support to communicate with people I know (e.g. video call apps or services). 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. 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 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 understand that work created by others does not belong to me even if I save a copy.		

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Y2	**Basic skills:** Children log in to a Chromebook on a weekly basis, accessing educational sites such as Numbots and Times Tables Rockstars, use of mouse/trackpad control and/or typing games.		
	Computer Science – Programming controllable toy with an external device - recap what an algorithm is - use Bluebot Tactile Readers o connect a Bluetooth device o sequence tiles to perform a complex set of instructions o recognise bugs and debug - use Bluebot app to control Bluebots o connect a Bluetooth device o sequence commands to perform a complex set of instructions o recognise bugs and debug	**Digital Literacy; Systems and Networks – IT around us** *Recognise information technology around them, how it impacts on their lives and how to use it responsibly.* - recognise the uses and features of information technology - identify information technology in the home - identify information technology beyond school - explain how information technology benefits us - show how to use information technology safely - recognise that choices are made when using information technology	**Computer Science – Animation** *Introduction to a blocks based programming language - controlling a sprite* - choose a command for a given purpose - choose a command for a given purpose - show that a series of commands can be joined - identify the effect of changing a value - explain that each sprite has its own instructions using more than one sprite - design the parts of a project - create a program using a blocks based programming language, test and debug its effectiveness
	Key vocabulary: bluetooth, *algorithm*, **bug, debug**,	**Key vocabulary: information technology (IT)**, computer, laptop, tablet, mouse, keyboard	**Key vocabulary:** *algorithm,* sprite, **start**, blocks, run, value*,* **program,** *debug*
	Digital Literacy – Digital Photography *Recognise that different devices can be used to capture photographs. Capture, edit, and improve photos. Use this knowledge to recognise that images they see may not be real.* - use a digital device to take a photograph - make choices when taking a photograph - describe what makes a good photograph - decide how photographs can be improved - use tools to change an image - recognise that photos can be changed	**Digital Literacy – Making Music** *Use a computer to make create and recreate music. Recognise and use patterns in music making.* - identify that there are patterns in music. - describe how music can be used in different ways - use a computer to experiment with pitch and duration - show how music is made from a series of notes by using a computer to make and refine a musical pattern - create music for a purpose - reopen, review and refine computer work	**Digital Literacy – Pictograms (Data handling)** - recognise that we can count and compare objects using tally charts - recognise that objects can be represented as pictures, entering data onto a computer - create a pictogram and use 'print screen' to save it - select objects by attribute and make comparisons - recognise that people can be described by attributes - explain that we can present information using a computer and use a computer to display information in different ways
	Key vocabulary: camera, photograph**, capture,** image**, landscape, portrait,** framing, subject, compose**,** light source, flash, **focus,** edit, filter, format, framing, lighting	**Key vocabulary:** pattern, recording, microphone, input	**Key vocabulary: data, attribute,** pictogram

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Online Safety: **Covered in NCCE units*

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.
I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.
I can explain why I have a right to say 'no' or 'I will have to ask someone'.
I can identify who can help me if something happens online without my consent.
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 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.
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 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 recognise that content on the internet may belong to other people.

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Y3	**Computer Science; Digital Literacy – Stop-frame animation** *Use a tablet to create a stop-frame animation, including music and text.* - explain that animation is a sequence of drawings or photographs - relate animated movement with a sequence of images - plan an animation - identify the need to work consistently and carefully using 'onion skinning' - review and improve an animation - evaluate the impact of adding other media to an animation	**Computer Science – Sequencing sounds** *To learn about sequencing in music through the Scratch programming* environment. This builds on children's prior use of Scratch Jr. - explore a new programming environment, comparing it to a previously used programming environment - identify that commands have an outcome - explain that a program has a start and identify different events that can start a program - recognise that a sequence of commands can have an order - change the appearance of my project - create a project from a task description	**Computer Science – Events and actions** *Develop understanding of sequencing and the links between events and actions.* - explain how a sprite moves in an existing project - create a program to move a sprite in four directions - adapt a program to a new contextTo develop my program by adding features such as the pen tool - identify and fix bugs in a program - design and create a maze-based challenge
	Key vocabulary: animation, frame, onion skin, storyboard, **sequence**, **decomposition**	**Key vocabulary: *sequencing*,** motion, control, event, *blocks, attributes, sprites,* backdrops	**Key vocabulary:** *algorithm, command, sequence, sprite, start,* event, action, *bug, debug*
	Digital Literacy – Desktop publishing- When text and graphics come together *Evaluate how publishers of a variety of media use text and graphics to complement each other. Consider how this changes depending on the audience and purpose.* *Use the principles identified to design and create various media.* - recognise how text and images convey information - recognise that text and layout can be edited - choose appropriate page settings (size, shape and orientation) - add content to a desktop publishing publication and alter what I have added - consider how different layouts can suit different purposes - consider the benefits of desktop publishing	**Digital Literacy; Systems and Networks – Connecting computers** *Recognise inputs and outputs, compare digital and non-digital devices and understand what a computer network is. Recognise the devices that make up a network's infrastructure.* - explain how digital devices function, focussing on inputs and outputs - identify input and output devices - recognise how digital devices can change the way we work - explain how a computer network can be used to share information, including how messages are passed through multiple connections - explore how digital devices can be connected to create a network - recognise the physical components of a network	**Digital Literacy – Branching databases (Data Handling)** *Develop an understanding of branching databases and the use of yes/no questions. Build on their understanding of attributes and how to use these to sort objects.* - create questions with yes/no answers about the attributes of sets of objects - identify the object attributes needed to collect relevant data - create a branching database - explain why it is helpful for a database to be well structured - identify objects using a branching database - compare the information shown in a pictogram with a branching database
	Key vocabulary: text, images, *font, bold, italic, underline,* templates, **orientation**, **placeholders, desktop publishing**	**Key vocabulary: input,** process, **output, network,** switch, **server, wireless access point,** wireless	**Key vocabulary: branching database,** *attribute, data, group, pictogram*

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	Online Safety **Covered in NCCE units* 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. 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 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. *I can explain how to search for information about others online. I can explain who someone can ask if they are unsure about putting something online. 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. I can demonstrate how to use key phrases in search engines to gather accurate information online. *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 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.

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Y4	**Computer Science- Repetition in shapes** *Create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.* - identify that accuracy in programming is important - create a program in a text-based language - explain what 'repeat' means, identifying repetition in everyday tasks and using loops - modify a count-controlled loop to produce a given outcome - decompose a task into small steps - create a program that uses count-controlled loops to produce a given outcome	**Computer Science- Repetition in games** *Apply prior learning of loops to animation and games in Scratch. Distinguish between count-controlled and infinite loops.* - develop the use of count-controlled loops in a different programming environment - explain that in programming there are infinite loops and count-controlled loops and choose when to use which - develop a design that includes two or more loops which run at the same time - modify an infinite loop in a given program - design a project that includes repetition - create a project that includes repetition	**Digital Literacy - Photo Editing** *Develop an understanding of how digital images can be changed and edited, and how they can then be resaved and reused. Consider the impact that editing images can have, and evaluate the effectiveness of their choices.* - explain that digital images can be changed - change the composition of an image - describe how images can be changed for different uses - make good choices when selecting different tools and recognise positive and negative effects that retouching can have on an image - recognise that not all images are real - evaluate how changes can improve an image
	Key vocabulary: repetition, repeat, loop, count controlled, *sequence, algorithm, program, instructions, decomposition, bug, debug*	**Key vocabulary: *repetition*,** *repeat,* ***loop*, infinite**, *count controlled, sequence, algorithm, program, instructions, decomposition, bug, debug, sprite*	**Key vocabulary: rotate, crop, flip, *copyright (free),*** zoom, pixels, composition, canvas, JPEG, PNG, effects, **filters,** fake
	Digital Literacy; Systems and Networks: The Internet *Recognise the internet as a 'network of networks'. Understand that the world wide web (www.) is part of the internet and explore ownership, honesty, accuracy and reliability.* - describe how networks physically connect to other networks and how information is shared across the internet - recognise how networked devices make up the internet - outline how websites can be shared via the World Wide Web - describe how content can be added and accessed on the World Wide Web - recognise how the content of the WWW is created by people who own the content and that rules protect this - evaluate the consequences of unreliable content, recognising that not everything online is honest, accurate, reliable or legal.	**Digital Literacy– Data logging (Data handling)** *Consider how and why data is collected over time. Recognise sensors as input devices used to gather data. Collect data and use a computer to review and analyse it. Recognise the benefits of using a data logger.* - explain that data gathered over time can be used to answer questions - use a digital device to collect data automatically - explain that a data logger collects 'data points' from sensors over time - use data collected over a long duration to find information by using a computer to view data in different ways - identify the data needed to answer questions - collect necessary data and use collected data to answer questions	**Digital Literacy – Audio editing** *Recognise input and output devices required to record and play audio. Understand ownership of digital audio and the copyright implications of duplicating the work of others. Pupils will produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files.* - identify that sound can be digitally recorded and devices that can record sound and play it back. - use a digital device to record sound - explain that a digital recording is stored as a file and understand how to name and save files - understand that audio can be changed through editing and name ways in which audio recordings can be altered - show that different types of audio can be combined and played together - evaluate editing choices made

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	Key vocabulary: World Wide Web (WWW), *network*, **website**, **internet,** *switch, server, wireless access point, wireless*, **fake news, copyright**	**Key vocabulary: sensors,** *input device,* **data loggers, data points,** intervals, data set, *attribute, data*	**Key vocabulary:** *input, output. microphone,* headphones/speakers, *copyright,* sound effects, backing tracks, **podcast**
	Online Safety **Covered in NCCE units* I can explain how my online identity can be different to my offline identity. I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this. 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. 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 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. 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. *I can describe strategies for keeping personal information private, depending on context. *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 can explain that internet use is never fully private and is monitored, e.g. adult supervision.		

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Y5	**Digital Literacy; Systems and Networks: Sharing Information** *Develop understanding of computer systems and how information is transferred between systems and devices. Explain the input, output, and process aspects of a variety of different real-world systems. Take part in a collaborative online project with other class members and develop their skills in working together online.* - explain that computers can be connected together to form systems - recognise the role of computer systems in our lives recognising the benefits and disadvantages - recognise that information is transferred over networks in packets using agreed methods, where devices have unique addresses - explain how sharing information online lets people in different places work together - contribute to a shared project online - evaluate ways of working together online	**Computer Science – Selection in physical computing** *Use physical computing to explore the concept of selection in programming and explore how and why data is stored and how it's used to make decisions. This builds on pupils understanding of sensors as input devices.* - recognise and sort data and understand how it can be collected - recognise sensors as input devices - consider the uses of sensors to collect data - use sensors in algorithms	**Computer Science – Selection in quizzes** *Develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if… then… else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'.* - explain how selection and conditions are used in computer programs - relate that a conditional statement connects a condition to an outcome - explain how selection directs the flow of a program with 'if… then… else…' statements - design, create and evaluate a program which uses selection
	Key vocabulary: *network*, computer system, IP (Internet Protocol) Address, protocols, packets, *data, website, internet*, *switch, server, wireless access point, wireless*, *inputs, sensor processes, outputs, copyright,* **presentation**	**Key vocabulary: selection, sequencing, condition, *sensors, abstraction,*** forever/*infinite loop,* digital assistant, *input device, data, debugging*	**Key vocabulary: *selection, sequencing, condition, abstraction,*** *forever/infinite loop, data, debugging,* binary
	Digital Literacy – Spreadsheets (Data handling) *Understand what a spreadsheet is and create a data set, Understand the need to format data correctly and apply formulas to produce calculated data. Create graphs and charts from their data set.* - identify questions which can be answered - explain that objects can be described using data, create data sets and format cells - explain that formulas can be used to produce calculated data - apply formulas to data, including duplicating - create a spreadsheet to plan an event - choose suitable ways to present data, creating graphs and tables	**Digital Literacy – Video editing** *Plan, record, edit and manipulate video clips, building on prior learning of audio editing.* - recognise video as moving pictures, which can include audio - identify digital devices that can record video and their inputs and outputs - capture video using a digital device - recognise the features of an effective video including camera angles and lighting - identify that video can be improved through reshooting and editing - consider the impact of the choices made when making and sharing a video	**Digital L?iteracy – Creating Vector Drawings** *Create vector images made of shapes, using a range of tools and develop an understanding of layers.* - identify drawing tools and understand that they can be used to produce different outcomes - create a vector drawing by combining shapes, resizing, rotating, duplicating and moving 'objects' - use tools, such as zoom, alignment grids and resize handles, to achieve a desired effect - recognise that vector drawings consist of layers and reorder these as necessary - group objects to make them easier to work with - evaluate my vector drawing

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	Key Vocabulary: Spreadsheet, *data,* data set, **cells, cell reference, formula***,* format, *table, graph*	**Key vocabulary: video, audiovisual, camera angles, track, greenscreen/chromakey**, captions/subtitles, *storyboard,* panning, *zoom, input, output. microphone, headphones/speakers, copyright, sound effects, backing tracks, filters, effects, canvas*	**Key vocabulary: vector, layers, objects,** alignment, resize, *zoom, line, shape, brush size, fill colour, undo, canvas*
	Online Safety **Covered in NCCE units* I can explain how identity online can be copied, modified or altered. I can give examples of technology specific forms of communication (e.g. emojis, memes and GIFs). *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. *I can search for information about an individual online and summarise the information found. I can explain how to block abusive users. 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 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. I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology. 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 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 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.		

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Y6	**Computer Science – Variables in games** *Understand what a variable is and identify their uses. Include variables in a game.* - define a 'variable' as something that is changeable - explain why a variable is used in a program - choose how to improve a game by using variables - design a project that builds on a given example - create a project using variables - evaluate projects	**Digital Literacy Flat-file databases (Data handling)** *Understand how a flat-file database can be used to organise data in records, use tools within a database to order and answer questions and create graphs and charts.* - use a form to record information - compare paper and computer-based databases, recognising fields and records - outline how grouping and then sorting data allows us to answer questions - explain that tools can be used to select specific data - explain that computer programs can be used to compare data visually - apply my knowledge of a database to ask and answer real-world questions	**Computer Science – Sensing** *Combining all four programming constructs introduced in KS2, pupils program a physical device (micro:bit) incorporating sequence, repetition, selection and variables.* - create a program to run on a controllable device - explain that selection can control the flow of a program using an 'if, then, else' statement - update a variable with a user input - use a conditional statement to compare a variable to a value - design a project that uses inputs and outputs on a controllable device - develop a program to use inputs and outputs on a controllable device
	Key vocabulary: variable, value, name, changeable, set, *event, algorithm, bug, debug*	**Key Vocabulary: database,** *data,* data set, **record, field**, sort, *order, group*, *table, graph, value*	**Key vocabulary: variable, value,** name, changeable, set, *event, algorithm, bug, debug, input, output, USB, selection, condition,* random, accelerometer, operand
	Digital Literacy; Systems and Networks - Communication *Recognise the World Wide Web as a communication tool, understand how search engines work and how results are ranked and compare methods of internet communication.* - identify how to use a search engine and how to refine searches - describe how search engines select results and the role of web crawlers in creating an index - explain how search results are ranked - recognise why the order of results is important, and to whom - recognise how we communicate using technology - evaluate different methods of online communication	**Digital literacy- Artificial Intelligence (AI)** *Know what AI is and evaluate its use. Apply principles of machine learning.* - understand the terms 'AI' and 'machine learning' - explore the uses of AI - develop a machine learning model to classify two types of objects - identify that bias can appear in a data set - design a machine that uses AI - create a machine learning model that achieves the objectives of their project - recognise the benefits and risks of AI to themselves and society	**Digital literacy – Webpage creation** *Work in small groups to create a website using Google Sites, paying specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.* - review an existing website and consider its structure, recognising they are written in HTML code - plan the features of a web page - consider the ownership and use of images (copyright) - recognise the need to preview page - outline the need for a navigation path - recognise the implications of linking to content owned by other people

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Computing and Online Safety Medium Term Plan

	Key vocabulary: search engine, refine, index, **crawler**, bot, **ranking,** optimisation, *World Wide Web, internet, selection, network, email,* SMS, blog, *copyright*	**Key Vocabulary: artificial intelligence (AI),** machine learning, generative AI, bias, *classify, neural network, computer vision*	**Key Vocabulary: *website*, webpage, browser, hyperlink** *World Wide Web*, HTML (Hypertext Markup Language), header, *media, copyright,* fair use, home page, subpage, external link, embed
	Online Safety **Covered in NCCE units* 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 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 to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. *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 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 demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. I can identify, flag and report inappropriate content. 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 describe the difference between online misinformation and dis-information. I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). 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 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. *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.		