Computing Long term plan

Scope:

- Computer Science - data representation, algorithms, data structures and programming
- Information Technology - use of computers within society
- Digital literacy - knowledge and ability to use technology confidently, competently and in a safe way
- Online safety

Computing	AU1	AU2	SP1	SP2	SU1	SU2
Reception	**Navigating simple programs** **Vocabulary: Ipad, computer, keyboard, key, screen, mouse, program, app, click, drag, close/open** ***Know the names of some parts of the computer** ***Know that the mouse moves the pointer on the screen** ***Know how to 'click' the mouse button to make things happen** ***Know how to open or close an app/program**		**Online safety** **Vocabulary: device, internet, online safety, passwords, trusted adult, screen time** **Key knowledge:** ***Why we use passwords to keep our information safe** ***Not to share passwords with anyone (other than a trusted adult)** ***To be kind when using technology** ***Know who to speak to if they are upset by something online**		**Bee-bots** **Vocabulary: Bee-Bot, program, instruction, forward, backward, turn right, turn left,** **Key knowledge:** ***Know how to turn the Bee-Bot on** ***know the functions of each button on the Bee-Bot** ***Know how to control a Bee-Bot by programming it**	
Year 1	**Name of unit:** Introduction to Purple Mash **Vocabulary:** Alert, Avatar, File Name, Folder, Home Page, Icon, Log in, Log out, Menu, Burger Menu, Password, Scrolling, Scrollbar **Key knowledge:** *To login to Purple Mash *To know how to start, save and complete 2Dos *To open a program from the tools area. *To save work. To find work in the work area.	**Name of Unit:** Data Explorers **Vocabulary:** Algorithm, Criteria, Data, Group, Pictogram, Sort **Key knowledge:** * To think carefully about the steps of grouping items. *To group items using a computer. *To be able to sort different items. *To understand that data is information that can be collected and used. *To understand that data can be shown using pictur	**Name of Unit:** Technology around us **Vocabulary:** Device, Digital Technology, Electronic, Hardware, Technology **Key knowledge:** *To know what the word technology means. *To know what technology is used in school. *To consider the purposes of technology used in the wider world. *To identify parts of a device and know how to use devices safely.	**Name of Unit:** Creating and following instructions **Vocabulary:** Algorithm, Coding, Computer Bug, Debugging, Instructions, Program **Key knowledge:** *To understand that an algorithm is a set of instructions. *To follow and create simple instructions on a device. *To sequence algorithms that require a correct order.	**Name of Unit:** Animated Stories **Vocabulary:** Animation, Background, Copy and Paste, Digital Book, Eraser, Font, Sound Effect, Text, Undo **Key knowledge:** *To understand some differences between traditional books and digital books. *To draw a character for a 2Create a Story digital book. *To understand the difference between backgrounds and other	**Name of Unit:** Coding **Vocabulary**: Action, algorithm, attribute, code, code blocks, code view, coding, command, debugging, design view, event, instruction, object **Key knowledge:** *To understand that computer programs work by following instructions called code.

	Name of Unit: Creative Computing **Vocabulary:** Arrow keys, Digital art, Drag and drop, Hotspot, Touchscreen gestures. **Key knowledge:** *To use paint tools to draw a picture * To create a jigsaw using a digital device and share it so that others can play. *To create a placing game in 2DIY. *To create images and use these to make a game.				objects on the screen in 2Create a Story. *To add animation to objects in 2Create a Story. *To add text to a 2Create a Story file. *To add sounds to a 2Create a Story file.	*To use object and action code blocks to make a computer program. *To understand what an event is in coding. *To understand the purpose of an output and to be able to 'read' code to find out what it does. *To change aspects of the design view. *To plan and make a computer program.
	Online Safety: Self image and identity 1.I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. 2. 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 **1.**I can give examples of when I should ask permission to do something online and	**Online Safety:** Online reputation 1. I can recognise that information can stay online and could be copied. 2. I can describe what information I should not put online without asking a trusted adult first. Online Bullying 1.I can describe how to behave online in ways that do not upset others and can give examples. Managing Online Information 1. I can give simple examples of how to find	**Online Safety:** Health, Wellbeing and lifestyle 1.I can explain rules to keep myself safe when using technology both in and beyond the home.	**Online Safety:** Privacy and Security 1.I can explain that passwords are used to protect information, accounts and devices. 2.I can recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names). 3.I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	**Online Safety:** Copyright and ownership 1.I can explain why work I create using technology belongs to me. 2.I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it''). 3.I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content). 4.I understand that work created by others does not belong to me even if I save a copy	**Online Safety:** Recap key messages from the year

	explain why this is important. 2.I can use the internet with adult support to communicate with people I know (e.g. video call apps or services). 3.I can explain why it is important to be considerate and kind to people online and to respect their choices. 4.I can explain why things one person finds funny or sad online may not always be seen in the same way by others.	information using digital technologies, e.g. search engines, voice activated searching). 2. 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. 3. I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened.				
Year 2	**Name of unit:** Route Explorers **Vocabulary:** Algorithm, Coding, Computer bug, Command, Debugging, Direction **Key knowledge:** *To use the direction keys in 2Go to move the turtle along a route. *To use units of distance along with the direction keys in 2Go to move along a route. *To write instructions to complete more than one step of a route at once. *To build up instructions for a longer route. **Name of Unit:** The internet **Vocabulary:** Browser, Home Page, Internet, Search Engine,	**Name of Unit:** Creating Pictures **Vocabulary:** Arts and Crafts, De stijl, Digital Portfolio, Fill toll, image picker, import, impressionism, outline, palette, pointillism, repeating pattern, resize **Key knowledge:** * To create a digital art piece in an Impressionist style. *To create a digital art piece in a Pointillism style. *To create a digital art piece that is in the style or Piet Mondrian's work. *To create digital art patterns in the style of the Arts and Crafts movement. *To create a portfolio of digital art	**Name of Unit:** Spreadsheets **Vocabulary:** Axis/Axes, Cell, Column, Row, Spreadsheet, Value **Key knowledge:** *To understand what a spreadsheet is and how to navigate one using 2Calculate. *To edit and improve a spreadsheet. *To explore how spreadsheets can complete calculations automatically. *To explore the range of tools available in 2Calculate. *To create and interpret block diagrams from data	**Name of Unit:** Questioning **Vocabulary:** Branching Database, Closed Question, Data, Open Question, Pictogram, Sorting, Tally Chart, Yes or No Question **Key knowledge:** *To understand how data can be used to help answer a question. • *To ask an appropriate question, gather data using a tally chart and present it using digital tools. *To begin to explore how yes or no questions can be used to sort data. *To understand how branching databases work and practise navigating them to find answers.	**Name of Unit:** Coding **Vocabulary**: Action, attribute, algorithm, bug, button object, collision detection, command, debug/debugging, event, object, output, program **Key knowledge:** *To create a computer program using an algorithm. *To understand ways that the collision detection event can be used in a program. *To design a program that follows a timed sequence. *To understand that different objects have different attributes (properties).	**Name of Unit:** Presenting Ideas **Vocabulary:** Concept map, group, present, connecting line, layer, title, node **Key knowledge:** To understand that ideas can be organised and presented using a concept map. To add information to a concept map. To organise ideas clearly in a concept map. To use a concept map to present ideas to others.

	Smart Device, Webpage, Wi-Fi, World Wide Web **Key knowledge:** * To understand how the internet, the World Wide Web and a browser work together. *To understand the different types of hardware used to access the internet and their functions. *To understand the difference between a website and a webpage and use a school website to find information. *To understand the difference between a browser and a search engine, and to practise searching for information safely				*To understand the function of button objects in a program. *To understand the importance of testing and debugging.	
	Online Safety: Self image and identity 1.I can explain how other people may look and act differently online and offline. 2. 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 reputation	**Online Safety:** Online relationships 1.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). 2. I can explain who I should ask before sharing things about myself or others online.	**Online Safety:** Managing Online Information 1. I can use simple keywords in search engines. 2. 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). 3. I can explain what voice activated searching is and how it might be used, and	**Online Safety:** Privacy and Security 1. I can explain how passwords can be used to protect information, accounts and devices. 2. I can explain and give examples of what is meant by 'private' and 'keeping things private'. 3. I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).	**Online Safety:** Health, Wellbeing and lifestyle 1. 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:** Copyright and Ownership 1. I can recognise that content on the internet may belong to other people 2. I can describe why other people's work belongs to them.

	1. I can explain how information put online about someone can last for a long time. 2. I can describe how anyone's online information could be seen by others. 3. I know who to talk to if something has been put online without consent or if it is incorrect. Online Bullying 1. I can explain what bullying is, how people may bully others and how bullying can make someone feel. **2.** I can explain why anyone who experiences bullying is not to blame. 3. I can talk about how anyone experiencing bullying can get help.	3. 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. 4. 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. 5. I can identify who can help me if something happens online without my consent. 6. 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. 7. I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.	know it is not a real person (e.g. Alexa, Google Now, Siri). 4. I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. 5. I can explain why some information I find online may not be real or true.	4. 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).		
Year 3	**Spend a lesson learning to log on using personal passwords.** **Name of unit:** Email **Vocabulary:** Address book, attachment, communication, compose, email, email simulation, inbox, password, personal	**Name of unit:** Route Planners **Vocabulary:** Algorithm, angle, command, degrees, route, turtle object, repeat, rotation **Key knowledge:** * To create 2Go commands to move a turtle along a route.	**Name of unit:** Touch Type **Vocabulary:** Bottom keys, Home keys, Keyboard, Number row, Posture, Shift key, Space Bar, top keys, Typing **Key knowledge:** *To learn correct finger positioning on the keyboard and understand when to use the left or right hand.	**Name of unit:** Micro:bits **Vocabulary:** Accelerometer, Algorithm, Animation, Gestures, Hardware, Image, Infine Loop, LED, Output, Repeat, Sequence, Software, Sound Output, Speaker **Key knowledge:**	**Name of unit:** Coding **Vocabulary:** Action, alert, algorithm, attribute, button object, collision detection, debug/debugging, flowchart, interval, nesting, object, repeat, sequence, design, event, timer, turtle object	**Name of unit:** Spreadsheets **Vocabulary**: Advanced mode, copy tools, data, formula, formula bar, formula wizard, function, merge, operations, range, sheet, total tools **Key knowledge:**

	information, recipient, trusted contact **Key knowledge:** *To understand how people communicate with each other. *To understand and respond to an email. *To compose and send an email. *To send an email attachment. *To learn how to use email safely. *To explore email simulations.	*To create commands in 2Go in which the turtle turns using rotation. *To plan algorithms and write 2Go code that uses angle of turn. *To use 90° and 45° angles in 2Go. *To use the repeat algorithm and coding in 2Go.	*To learn how to type numbers accurately and to use the shift key for capital letters. *To practise typing punctuation marks and symbols and build accuracy with simple words. *To practise typing sentences using capital letters, spaces, and full stops	*To use a micro:bit to create an electronic badge. *To code a micro:bit to show animations on its LED display. *To code a micro:bit to show different images on the LED display when specific buttons are pressed. *To code a micro:bit to make sounds when movements are detected.	**Key knowledge:** *To understand what a flowchart is and how flowcharts are used in computer programming. *To understand that there are different types of timers. *To understand how to use the repeat command. *To understand the importance of nesting when coding, testing and debugging. *To design a program. *To use design documentation to code a program.	*To understand the layout and features of 2Calculate in Advanced Mode. *To use the arrows toolbar to be able to automatically total rows and columns. *To use simple formulae in a spreadsheet by using the formula wizard. *To use advanced formulae in a spreadsheet to calculate totals, averages and to find the highest and lowest values. *To apply spreadsheet skills to solve real-world problems. *To design and use a spreadsheet to answer a series of questions.
	Online Safety: Self image and identity 1. I can explain what is meant by the term 'identity'. 2. I can explain how people can represent themselves in different ways online. 3. 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 reputation	**Online Safety:** Online relationships 1. I can describe ways people who have similar likes and interests can get together online. 2. I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. 3. 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 Safety:** Managing Online Information 1. I can demonstrate how to use key phrases in search engines to gather accurate information online. 2. I can explain what autocomplete is and how to choose the best suggestion. 3. I can explain how the internet can be used to sell and buy things. 4. I can explain the difference between a 'belief', an 'opinion' and a	**Online Safety:** Online Bullying 1. I can describe appropriate ways to behave towards other people online and why this is important. 2. I can give examples of how bullying behaviour could appear online and how someone can get support. Health, Wellbeing and lifestyle 1. I can explain why spending too much time using technology can	**Online Safety:** Privacy and Security 1. I can describe simple strategies for creating and keeping passwords private. 2. 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. 3. I can describe how connected devices can collect and share anyone's information with others.	**Online Safety:** Recap key online Safety messages

	1. I can explain how to search for information about others online. 2. 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. **3**. I can explain who someone can ask if they are unsure about putting something online.	online including what information and content they are trusted with. 4. I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. 5. I can explain how someone's feelings can be hurt by what is said or written online. 6. 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.	'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. 5. I can explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed). 6. 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.	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). 2. 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).	Copyright and Ownership 1. 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.	
Year 4	**Name of unit:** Unpacking hardware and software **Vocabulary:** Application (App), Component, Computer System, Hardware, Input, output, Peripheral, Process, Program, Software, Storage, Technology **Key knowledge:** * To understand what technology is, where we see it in everyday life, and how it helps us at school, home and beyond.	**Name of unit:** Logo **Vocabulary:** Logo, logo commands, multi-line mode, pen down, pen up, procedure, repeat, Set PC, Set PS **Key knowledge:** * To know key commands and input simple instructions. *To use a variety of commands to create shapes using multi-line mode. *To use the Repeat command.	**Name of unit:** Sound Stories **Vocabulary:** Audiobook, Background Music, Edit, Editor, Final Mix, Playback, Recording, Sound Effects, Sound Effect Manager, Sound Technician, Timeline, Track **Key knowledge:** *To understand what makes audiobooks effective and identify the key features that make them engaging.	**Name of unit:** Effective Searching **Vocabulary:** Crawl, Exact Match, Fake News, Filter, Index, Internet, Keywords, Rank, Refine, Relevance, Reliable Source, Search Bar, Search Engine, Snippet, Virtual Assistant Device, Website **Key knowledge:** *To understand what a search engine is, how it works and how to use simple keywords to find information online. *To understand how search engines collect,	**Name of unit:** Coding **Vocabulary**: Action, alert, attribute, co-ordinates, debug/debugging, design, flowchart, 'if' statement, 'if/else' statement, initialize, input, event, loop **Key knowledge:** *To create a simple computer program using coding structures previously encountered.	**Name of unit:** Introduction to AI **Vocabulary:** Artificial intelligence, automation, data, digital citizenship, future technology, generative AI, human oversight, innovation, prediction, privacy, prompt, refine, responsible behaviour, trustworthy/reliable **Key knowledge:** *To understand what Artificial Intelligence is

	*To identify and describe different pieces of computer hardware and understand their functions. *To understand what software is and how we use it to complete tasks. *To explore how hardware and software interact to complete everyday tasks. **Name of Unit:** Animation **Vocabulary:** Animation, animation software, background, copy frame, frame, frame per second, onion skinning, sharing controls, sound effect, stop motion, storyboard **Key knowledge:** * To understand what animation is. *To know what onion skinning is and be able to use this technique for 2D computer animations. *To know how to enhance simple animations using animation software. *To plan an animation. *To create a narrative. *To evaluate animations.	*To change the line thickness and colour. *To use procedures to write instructions.	*To plan and write a script for an engaging audiobook. *To record clear narration and add sound effects to an audiobook. *To edit, improve and finalise an audiobook using recording and sound design tools.	sort and rank results, and why some results appear first. *To learn advanced ways to improve searches so we can find the most accurate and useful results quickly. *To develop strategies to judge whether information online is true and if sources can be trusted	*To know what selection means in computer programming. *To know how to use co-ordinates in computer programming. *To explore methods that introduce loops in coding. *To understand what a variable is in programming. *To create a game that keeps score.	and some of the tasks it can carry out. *To learn to communicate effectively with AI tools by writing clear and precise prompts. *To learn how to be a good digital citizen when using AI. *To think about how AI might develop in the future.

	Online Safety: Self image and identity 1. I can explain how my online identity can be different to my offline identity. 2. I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. 3. 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 1. I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms). 2. I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. 3. 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 Safety:** Online reputation 1. I can describe how to find out information about others by searching online. 2. I can explain ways that some of the information about anyone online could have been created, copied or shared by others. Online bullying 1. I can recognise when someone is upset, hurt or angry online. 2. I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). 3. 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).	**Online Safety:** Managing Online Information 1. 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. 2. 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). 3. 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. 4. I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true. 5. I can explain that technology can be designed to act like or impersonate living things (e.g. bots) and describe	**Online Safety:** Health, Wellbeing and lifestyle 1. I can explain how using technology can be a distraction from other things, in both a positive and negative way. 2. 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. Copyright and ownership 1. 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. 2. 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:** Privacy and Security 1. I can describe strategies for keeping personal information private, depending on context. 2. I can explain that internet use is never fully private and is monitored, e.g. adult supervision. 3. 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. 4. I know what the digital age of consent is and the impact this has on online services asking for consent.	**Online Safety:** *Recap key online Safety messages

			what the benefits and the risks might be. 6. 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.			
Year 5	**Name of unit:** Quizzing **Vocabulary:** Quiz, interactive, Features, simple, advanced, debug **Key knowledge:** *To explore different types of quizzes and identify their features, strengths, and weaknesses. *To explore the features of 2Quiz and experiment with creating quiz questions. *To explore additional features of quizzes, such as feedback, title screens, and content pages. *To apply knowledge of 2Quiz to design an educational quiz based on a chosen topic. *To be able to refine, test and share completed quizzes. **Name of unit:** Databases **Vocabulary:** Condition, Data, Database, Edit, Field, Filter, Group,	**Name of unit:** Game Creator **Vocabulary:** 2D game, 3D game, game design, game environment, game feedback, game genre, playability, sprite, sprite animation **Key knowledge:** * To evaluate the features of a successful video game. *To plan a game in 2DIY3D. *To design and use game sprites. *To add features to a game world and check playability. *To evaluate games created by others.	**Name of unit:** Micro:bits **Vocabulary:** Data, Electrical Circuit, Gesture, If Statement, Logic, Pins, Random, Repeat, Selection, Sleep, Variable **Key knowledge:** *To create a micro:bit story telling game. *To code a micro:bit to measure temperature and produce different outputs based on this. *To code a micro:bit to simulate a magic 8 ball. *To create an automatic scoreboard display using a micro:bit	**Name of unit:** Spreadsheets **Vocabulary**: Axis, forecast, line graph, budget, formula, meteorologist, continuous data, income, plot/plotting, conversion, function, trend **Key knowledge:** *To refresh and extend understanding of formulae and functions from previous learning. *To use formulae in 2Calculate to convert measurements between different units. *To use 2Calculate to create and interpret line graphs that show how data changes over time. *To analyse weather data by using spreadsheets to identify patterns. *To use spreadsheets to plan and budget for an event. *To use a spreadsheet to plan a holiday.	**Name of unit:** Coding **Vocabulary:** Abstraction, action, algorithm, coordinates, concatenation, datatype, decomposition, event, flowchart, function, 'if' statement, 'if/else' statement, initialize, nesting **Key knowledge:** *To understand some ways that code can be simplified so that it is easier to read and runs more efficiently. *To program a computer simulation using 2Code. *To know what decomposition and abstraction are in Computer Science. *To understand what a function is and how functions work in code. *To understand what datatypes are and how they are used when coding with variables.	**Name of unit:** Concept maps **Vocabulary:** Body language, ceoncept map, connective line, intonation, node, node settings, present, structure, template **Key knowledge:** To understand what a concept map is and why they can be useful. To understand the different ways that concept maps can be used. To plan and create a non-fiction concept map. To present a concept map on a specific topic to an audience.

	Linked tables, Operator, Query, record, sort, validation **Key knowledge:** * To understand what a database is. *To design and create a database. *To build queries to find information. *To solve problems using a database.				*To read code, predict outcomes and identify and fix bugs.	
	Online Safety: Self image and identity 1. I can explain how identity online can be copied, modified or altered. 2. I can demonstrate how to make responsible choices about having an online identity, depending on context Online Relationships 1. I can give examples of technologyspecific forms of communication (e.g. emojis, memes and GIFs). 2. 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. 3. I can describe some of the ways people may be involved in online communities and describe	**Online Safety:** Online Reputation 1. I can search for information about an individual online and summarise the information found. 2. 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 Bullying 1. I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. 2. I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.	**Online Safety:** Health, wellbeing and lifestyle 1. I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. 2. I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology. 3. 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. 4. 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	**Online Safety:** Privacy and Security 1. I can explain what a strong password is and demonstrate how to create one. 2. 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. 3. I can explain what app permissions are and can give some examples	**Online Safety:** Managing Online Information (Summer 1 and Summer 2) 1. 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. 2. I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'. 3. I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.	**Online Safety:** Managing Online Information (Summer 1 and Summer 2) Please refer to summer 1

	how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). 4. 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	3. I can explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. 4. I can identify a range of ways to report concerns and access support both in school and at home about online bullying. 5. I can explain how to block abusive users. 6. I can describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).	seeking permission from a trusted adult before purchasing. Copyright and ownership 1. I can assess and justify when it is acceptable to use the work of others. 2. I can give examples of content that is permitted to be reused and know how this content can be found online.		4. I can explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence. 5. I can identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads. 6. 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). 7. 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. 8. I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful 9. I can explain what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share.	
Year 6	**Name of unit:** Networks **Vocabulary:**	**Name of unit:** Blogging **Vocabulary:**	**Name of unit:** 3D Modelling **Vocabulary:**		**Name of unit:** Coding	

	Email, internet, internet chat, LAN (Local Area Network), Network, router, Video call, WAN (Wide area network, web browser, website, Wi-FI, World Wide Web (WWW) **Key knowledge:** * To understand what a computer network is and identify examples of networks at home, school and in the wider world. *To understand the difference between the internet and the World Wide Web and explore the services they provide. *To explore how the internet can be used for communication and collaboration, and how to do this safely and respectfully. *To explore who is in charge of the internet and how rules and website blocking can affect people, society and online platforms. **Name of Unit:** Graphing **Vocabulary:** Chart, comparative bar chart, data, dataset, dual bar chart, line chart, pie chart **Key knowledge:** * To create comparative bar charts using graphing software.	Approval, blog, blog post, commenting, draft, edit, hyperlink, moderation, netiquette (network etiquette), plan, publish, revise, vlog **Key knowledge:** * To understand blogs and their features. *To plan the theme, content and structure for a blog post. *To write and style a blog post. *To review and comment on blog posts with an understanding of online safety.	3D printing, Computer Aided Design (CAD), Design brief, Model, Net, Points, Prototype, Three-Dimensional (3D), Two-Dimensional (2D) **Key knowledge:** *To explore and develop simple 3D models using CAD software. *To explore the effect of moving points when designing. *To plan, design and begin creating packaging to meet a design brief. *To refine, assemble and evaluate the finished packaging prototype **Name of unit:** Data Detectives **Vocabulary:** Bar chart, Calculate, Condition, Data, Database, Filter, Field, Group, Line graph, Linked tables, Query, Record, Sort **Key knowledge:** *To find information in databases by filtering and sorting. *To create graphs from data within a database. *To be able to find information in linked table databases. *To be able to find requested information using databases.	**Vocabulary:** Abstraction, action, algorithm, attribute, clone, concentration, decomposition, event, flowchart, function, hotspot, initialize, object, prompt **Key knowledge:** *To understand ways to use cloning in 2Code. *To explore the use of hotspots in 2Code. *To understand the different options for generating and using user input in 2Code. *To use flowcharts to test and debug a simulation. *To use program design documentation to produce a program. *To understand how 2Code can be used to make a text-based adventure game. **Name of unit:** Binary **Vocabulary:** Binary, bit, decimal, digit, game states, integer, nanotechnology, transistor, variable **Key knowledge:** *To recognise that digital systems represent all types of data using number codes in patterns of 1s and 0s (called binary digits). *To represent decimal (whole) numbers in a binary format. *To explore how division by two can be used as a technique to determine the binary representation of any whole number by collecting remainder terms. *To represent the state of an object in a game as active or inactive using the respective binary values of 1 or 0.

	*To create pie charts using graphing software. *To create line graphs using graphing software. *To present data in graphs to support an argument.			

6.

	Online Safety: Self-image and identity 1. 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. 2. 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. 3. I can explain the importance of asking until I get the help needed. Online Relationships 1. I can explain how sharing something online may have an impact either positively or negatively. 2. 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. 3. I can describe how things shared privately online can have	**Online Safety:** Online Reputation 1. I can explain the ways in which anyone can develop a positive online reputation. 2. I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity. Online Bullying 1. I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. 2. I can explain how someone would report online bullying in different contexts. Managing Online Information (start in Autumn 2 and finish in Spring 1) 1. I can explain how search engines work and how results are selected and ranked. 2. I can explain how to use search technologies effectively. 3. I can describe how some online information can be opinion and can offer examples.	**Online Safety:** Managing Online Information (Carried on from Autumn 2) (please refer to autumn 2) Health, Wellbeing and lifestyle 1. I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose 2. I recognise and can discuss the pressures that technology can place on someone and how / when they could manage this. 3. I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). 4. 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:** Privacy and Security 1. I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). 2. I can explain what to do if a password is shared, lost or stolen. 3. I can describe how and why people should keep their software and apps up to date, e.g. auto updates. 4. I can describe simple ways to increase privacy on apps and services that provide privacy settings. 5. 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). 6 I know that online services have terms and conditions that govern their use. Copyright and ownership 1. I know that online services have terms and conditions that govern their use. 2. I can demonstrate how to make references to and acknowledge sources I have used from the internet.

	unintended consequences for others. e.g. screen-grabs. 4. 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.	4. 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. 5. 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). 6. I understand the concept of persuasive design and how it can be used to influences peoples' choices. 7. I can demonstrate how to analyse and evaluate the validity of 'facts' and information and I can explain why using these strategies are important. 8. 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. 9. I can describe the difference between online misinformation and dis-information. 10. 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). 11. I can identify, flag and report inappropriate content.		

SEND – Adaptive Teaching	➢ Adjust the level of challenge – **e.g provide question prompts to support thinking, provide partially completed versions of work (code, spreadsheets etc. that the children have to finish)** ➢ Targeted support from a TA ➢ Clarify/simplify a task or provide numbered steps with visual representations (objects, pictures, signs, photos) ➢ Provide worked (completed) and partially completed examples. ➢ Re-explain a concept or explain it in a different way ➢ Give additional (or revisit) examples ➢ Use peer tutoring/collaborative learning (everyone must participate – give them roles) ➢ Provide additional scaffolds **e.g – pre-teach vocabulary, 'I do, we do, you', chunk learning into smaller chunks and break learning down into key knowledge, provide worked examples and hands on resources** ➢ Set clear targets/expectations ➢ Improve accessibility **e.g. proximity to speaker, visibility of whiteboard When researching, use child appropriate websites** ➢ Consider pace - (extra time for responses to questions, contributing to class discussions and to complete activities) ➢ Provide vocabulary with visual images **e.g - explicitly teach vocabulary at the beginning of a unit alongside a picture of the key word, use photographs to represent the word when using it during the unit** ➢ check understanding and reinforcing as needed through repetition, rephrasing, explaining and demonstration **e.g use of mini-plenaries to check understanding (quick quizzes)** ➢ Pre-teach vocabulary, key content etc.
Strategies to stretch and challenge	➢ **Identify and account for prior knowledge** – a child who has extensive prior knowledge could be asked to present some of the knowledge they have to the class; explain something they understand easily to a child who doesn't 'get it' so quickly - **peer modelling; more confident pupils could model how they created a code or inputted data on a spreadsheet to less confident pupils or give them the first section of code or data to 'get them started'** ➢ **Depth of content** - consider what you can add to create depth, e.g. digging into an area more deeply, going laterally with a concept. Can the child take the learning a step further? **Give them a different context to the rest of the class e.g In spreadsheets plan costs for a school dinner instead of a party or costs of baking 5 cakes instead of 1.** ➢ **Use questioning techniques to boost thinking** – ask open-ended questions which require higher-order thinking **e.g – How……..Why……..What does this data tell us? Why must we add code in using this order? Why is it important to keep personal information private?** ➢ **Mastery** - more intensive teaching, tutoring, peer-assisted learning, small group discussions, or additional homework **e.g. challenging them to create a more complex algorithm, including a wider range of variables.**

	➢ **Feedback** – framing feedback so pupils must take responsibility for improving their own learning **e.g extend more able learners through open-ended questions when providing feedback**