Computing Long Term Plan Cycles A and B (Purple Mash)

Cycle A						
Year	**Term**	**Unit / National Curriculum**	**Aims**	**Success Criterial**	**End of Unit Outcomes**	**Vocabulary**
Years 1 and 2	**Autumn**	**Unit 1.1** **Digital Literacy** Online Safety & Exploring Purple Mash Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	• To log in safely. • To start to understand the idea of 'ownership' of their creative work. • To learn how to find saved work in the Online Work area and find teacher comments. • To learn how to search Purple Mash to find resources • To become familiar with the types of resources available in the Topics section. • To become more familiar with the icons	• Pupils can log in to Purple Mash using their own login. • Pupils have created their own avatar and understand why they are used. • Pupils can add their name to a picture they created on the computer. • Pupils are beginning to develop an understanding of ownership of work online. • Pupils can save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work. • Pupils can find their saved work in the Online Work area of Purple Mash. • Pupils can find messages that their teacher has left for them on Purple Mash. • Pupils can search Purple Mash to find resources. • Pupils will be able to use the different types of topic templates in the Topics section confidently. • Pupils will be confident with the functionality of	**Emerging:** With support, pupils demonstrate an awareness of online safety using their own private usernames and passwords for Purple Mash (Unit 1.1 Lesson 1. Point 6). This can be assisted by using printed login cards. Pupils take ownership of their work and save this in their own private space (Unit 1.1 Lesson 1. Point 16). **Expected:** Pupils demonstrate an understanding of the importance of online safety, using their own private usernames and passwords for Purple Mash (Unit 1.1 Lesson 1. Point 6). Most pupils will be able to demonstrate an understanding of the reasons for keeping their password private including talking about the meaning of 'private information' (Lesson 1) and actively demonstrate this in lessons (Throughout all lessons in Unit 1.1). Pupils take ownership of their work and will be able to save their work, using a memorable file name, to their own personal space on Purple Mash and understand that this can be retrieved later Unit 1.1 Lesson 1 Point 18 Most pupils will be able to add their name to their picture in lesson 1. In lesson 2, most pupils will be able to explain that their teacher was able to connect with them online to leave a message in Purple Mash. They could contribute to the class discussion relating this to other forms of digital communication. Most pupils will be able to give a simple explanation of the way to word comments online when given the example of their teacher commenting upon their work. Throughout this unit most pupils will be able to contribute their ideas about communicating appropriately and relate online and off-line appropriate behaviour. Most pupils will be able to open Purple Mash and use the search bar within Purple Mash to find resources	Sort Criteria Log in Username Password Avatar My work Log out Save Notification Topics Tools

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			used in the resources in the Topics section. • To start to add pictures and text to work	the icons in the topic templates. • Pupils will know how to use the different icons and writing cues to add pictures and text to their work.	(lesson 2). They can suggest appropriate words to search with to find the results that they are looking for. **Exceeding:** Pupils demonstrate an understanding of the importance of online safety using their own private usernames and passwords for Purple Mash. Pupils understand the importance of keeping information, such as their usernames and passwords private and actively demonstrate this in lessons. Pupils take ownership of their work and save this in their own private space. Pupils demonstrating greater depth understand the	
		Unit 2.5 **Digital Literacy** Effective Searching -Use technology purposefully to create, organise, store, manipulate and retrieve digital content -Recognise common uses of information technology beyond school	• To gain a better understanding of searching the Internet	• I can identify the basic parts of a web search engine search page. • I have learnt to read a web search results page. • I can search for answers to a quiz on the Internet.	**Emerging:** Pupils have an awareness that their Internet searches form part of a 'digital footprint'. **Expected**: Pupils can relate the creation of a digital footprint to their search history and make contributions to the class discussion about this in relation to online safety. Pupils know that many search engine companies collect and sell information about users. **Exceeding:** Pupils apply what they know about search engine algorithms to their own online safety and digital footprint. They can understand the implications of search engines selling information and having paid ads at the top of search results	Internet Search Search Engine
		Unit 1.4 **Computer Science** Lego Builders Understand what algorithms are; how they are implemented as programs on digital devices; and that programs	• To emphasise the importance of following instructions.	• Children know that to achieve the effect they want when building something, they need to follow accurate instructions. • Children know that by following the instructions correctly, they will get the correct result. • Children know that an algorithm is a precise, step-by-step set of	**Emerging** Children understand that to achieve the effect they want when building something, they need to follow instructions. They can give another child instruction to build a simple model, but their instructions might not anticipate all possibilities. Children know that computers need instructions to operate. Children can attempt to write instructions for a simple recipe but might not include all required steps **Expected** Children can assimilate a set of simple Lego model instructions and look at the outcomes produced	Instruction Algorithm Computer Program Debug

		execute by following precise and unambiguous instructions.	• To follow and create simple instructions on the computer. • To consider how the order of instructions affects the result	instructions used to solve a problem or achieve an objective. • Children can follow instructions in a computer program. • Children can explain the effect of carrying out a task with no instructions. • Children know that computers need precise instructions to follow. • Children know that an algorithm written for a computer to follow is called a program. • Children understand how the order in which the steps of a recipe are presented affects the outcome. • Children can organise instructions for a simple recipe. • Children know that correcting errors in an algorithm or program is called 'debugging'.	from these instructions. They can state where an error has occurred on one of the models from the instructions given (Unit 1.4. Lesson 1). Children understand the effect that accuracy of the instructions has on the outcome. Children can give each other precise simple instructions and follow them to create the desired outcomes for their Lego model (Unit 1.4. Lesson1). They can give another child instruction to build a simple model, anticipating the information that the other child will need to make an accurate replica. Children can compare their digital paintings within 2Paint and show an understanding as to why they are different. They can consider that instructions are needed to give the pictures uniformity and as such are able to follow a set of instructions (Algorithm) to achieve this (Unit 1.4. Lesson 2). Children know that an algorithm is a set of instructions used to solve a problem or achieve an objective. Children know that an algorithm written for a computer to follow is called a program. Children can debug a very simple set of printed instructions for a recipe, the approach they use should entail breaking the instructions into smaller parts to support interpretation. Most children can create a set of written instructions for other pupils to follow e.g., the 'coders and robot' game (Unit 1.4. Lesson 2). Children can confidently debug simple errors in other children's written instructions for recipes (Unit 1.4). Children understand that very precise instructions need to be given to a computer for it to accurately carry out intended outcomes. These precise instructions can be broken down into smaller parts. Children can demonstrate this by playing a 'coders and robots' game (Unit 1.4. Lesson 2). **Exceeding** Children understand the effect that precise accuracy of the instructions has on the outcome. Children can give instructions that demonstrate they are anticipating the outcome. They can give	

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					another child detailed instruction to build a simple model, anticipating the information that the other child will need to make an accurate replica at a more detailed level. Children know that an algorithm is a set of instructions used to solve a problem or achieve an objective. Children know that an algorithm written for a computer to follow is called a program. They can work out what is wrong in an algorithm when the steps are out of order and can debug the algorithm. They can write their own algorithm for a recipe	
	Spring	**Unit 1.9** **Digital Literacy** Technology Outside School Recognise common uses of information technology beyond school	• To find and understand examples of where technology is used in the local community • To record examples of technology outside school.	• Children understand what is meant by 'technology'. • Children have considered types of technology used in school and out of school. • Children have recorded 4 examples of where technology is used away from school.	**Emerging** With support, children understand what is meant by technology and can identify a limited number of examples both in and out of school. Children record this using (Unit 1.9 Lesson 1. Worksheet 1) & (Unit 1.9 Lesson 2. Worksheet 1). **Expected** Children understand what is meant by technology and can identify a variety of examples both in and out of school. Children record this using (Unit 1.9 Lesson 1. Worksheet 1) & (Unit 1.9 Lesson 2. Worksheet 1). Children' discussion shows that they have a good understanding about the technological devices in use in their daily lives and how some of these facilitate communication of a variety of formats. Children can explain at a basic level that we should treat others politely regardless of the means of communication. Children can compare the speed and ease of technology to non-technological actions e.g., e-mail, buying an app or painting on screen. **Exceeding** Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can explain why a certain technology has been chosen as a solution to a specific problem. Children record this using (Unit 1.9 Lesson 1. Worksheet 1) & (Unit 1.9 Lesson 2. Worksheet 1)	Technology

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	Spring	**Unit 1.2** **Computer Science** Grouping and Sorting Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	• To sort items using a range of criteria. • To sort items on the computer using the 'Grouping' activities in Purple Mash	• Children can sort various items offline using a variety of criteria • Children have used Purple Mash activities to sort various items online using a variety of criteria	**Emerging** With support, children can physically sort items using a limited number of given criteria (Unit 1.2 Lesson 1). Using Purple Mash, children can sort items into two clearly defined groups using given criteria (Unit 1.2 Lesson 2). **Expected** Children can physically sort, collate, edit, present, search through, re-order and re-structure items using a range of given criteria (Unit 1.2 Lesson 1). Using Purple Mash, children can sort items into three clearly defined groups using given criteria (Unit 1.2 Lesson 2). Most children can sort physical objects using a range of criteria e.g., shape: Number of sides, colour, equal length sides etc. They can apply this skill within Purple Mash using the range of sorting activities with more than one criterion (All of Unit 1.2). **Exceeding** Children demonstrate their depth of understanding by creating their own criteria for items against which they can physically sort, collate, edit, present, search through, re-order and re-structure and explain their reasoning (Unit 1.2 Lesson 1). Using Purple Mash, children can also sort items into Venn diagrams using given criteria (Unit 1.2 Lesson 2)	Sort Criteria
		Unit 2.6 **Information Technology** Creating Pictures Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To explore 2Paint A Picture. • To look at the work of Impressionist artists and recreate them using the Impressionism template. • To look at the work of pointillist artists such as Seurat. • To recreate pointillist art using the Pointillism template.	• Children can describe the main features of impressionist art. • Children can use 2Paint a Picture to create art based upon this style. • Children can explain what pointillism is. • Children can use 2Paint a Picture to create art based upon this style.	**Emerging** Teachers may wish to allocate tablets to children who have difficulty in controlling a mouse. With support children can create an image on 2Paint a Picture replicating an established style e.g., pointillism (Unit 2.6 Lesson 2). Children can enhance a picture using the tools within 2Paint a Picture which demonstrates their ability to manipulate a digital image (Throughout all lessons in Unit 2.6). Throughout this unit, children show that they can efficiently store and retrieve their work from their saved area on Purple Mash **Expected**	Impression Palette Pointillism Share Surrealism Template

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			• To look at the work of Piet Mondrian and recreate it using the Lines template. • To look at the work of William Morris and recreate it using the Patterns template • To look at some surrealist art and create your own using the eCollage function in 2Paint A Picture.	• Children can describe the main features of Piet Mondrian's work. • Children can use 2Paint a Picture to art based upon his style. • Children can describe the main features of art that uses repeating patterns. • Children can use 2Paint a Picture to create art by repeating patterns in a variety of ways. • Children can combine more than one effect in 2Paint a Picture to enhance patterns. • Children can describe surrealist art. • Children can use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart.	Using 2Paint a Picture, children can create an image replicating an established style e.g., pointillism (Unit 2.6 Lesson 2). Children can enhance a picture using the tools within 2Paint a Picture which demonstrates their ability to manipulate a digital image (Throughout all lessons in Unit 2.6). They can combine and use multiple effects & features to enhance their patterns, such as rotational effects, repeat style buttons and size slider (Unit 2.6. Lesson 4). Throughout this unit, children show that they can efficiently store and retrieve their work from their saved area on Purple Mash. Most children will be able to successfully create their own pieces of inspired art using 2Paint a Picture. They will be able to use a range of effects and functions, such as e-collage, in 2Paint a Picture (Unit 2.6. Lesson 4) & (Unit 2.6. Lesson 5) **Exceeding** To demonstrate greater depth, children achieve expected outcomes. In addition to this, using the eCollage (Unit 2.6 Lesson 5) tool on 2Paint a Picture, they can upload a background image of their choice and manipulate this using the tools and ability to layer images to create a given style. In doing this, children demonstrate their ability to seamlessly use all aspects of the software and therefore greater depth. Throughout this unit, children show that they can efficiently store and retrieve their work from their saved area on Purple Mash	
Years 1 and 2	**Summer**	**Unit 1.8 Information Technology** Spreadsheets Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To understand what a spreadsheet looks like. • To be able to navigate around a spread sheet and enter data. • To learn new vocabulary related to spreadsheets.	• Children can navigate around a spreadsheet. • Children can explain what rows and columns are. • Children can save and open sheets. • Children can enter data into cells.	**Emerging** With support, children can save and open sheets (Unit 1.8 Lesson 1), enter a limited quantity of data into cells (Unit 1.8 Lesson 1), manipulate data using the 'move cell' tool (Unit 1.8 Lesson 2) and use the image toolbox to add clipart (Unit 1.8 Lesson 2). **Expected** Using the 2Calculate spreadsheet, children can save and open sheets (Unit 1.8 Lesson 1). Most Children will be able to save their 2Calculate files, using a memorable file name, to their own personal space	Arrow Keys Cells Lock Tool Backspace Clipart Move Cell Tool Cursor Count Tool Rows Speak Tool Columns

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			• To add clipart images to a spreadsheet. • To use the 'move cell' and 'lock' tools. • To use the 'speak' and 'count' tools in 2Calculate to count items	• Children can open the Image toolbox and find and add clipart. • Children can use the 'move cell' tool so that images can be dragged around the spreadsheet. • Children can use the 'lock' tool to prevent changes to cells. • Children can give images a value that the spreadsheet can use to count them. • Children can add the count tool to count items. • Children can add the speak tool so that the items are counted out loud. • Children can use a spreadsheet to help work out a fair way to share items (Extension	on Purple Mash and understand that this can be retrieved later. They can enter data into cells (Unit 1.8 Lesson 1), manipulate data using the 'move cell' tool (Unit 1.8 Lesson 2) and use the image toolbox to add clipart (Unit 1.8 Lesson 2). **Exceeding** Using the 2Calculate spreadsheet, children can save and open sheets (Unit 1.8 Lesson 1), enter data into cells (Unit 1.8 Lesson 1), manipulate data using the 'move cell' tool (Unit 1.8 Lesson 2) and use the image toolbox to add clipart (Unit 1.8 Lesson 2). Children will demonstrate greater depth by explaining the data and sorting it (suggested extension)	Delete Key Image Toolbox Spreadsheet
Years 1 and 2		**Unit 2.1** **Computer Science** Coding Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and	• To understand what an algorithm is. • To create a computer program using an algorithm. • To create a program using a given design. • To understand the collision detection event.	• Children can explain that an algorithm is a set of instructions. • Children can describe the algorithms they created. • Children can explain that for the computer to make something happen, it needs to follow clear instructions • Children can plan an algorithm that includes collision detection.	**Emerging** Children know that an algorithm is related to giving instructions. They can relate a simple one-step algorithm to the outcome of code in Free code Chimp. For example, in Lesson 1 they have been able to make a program that follows the algorithm e.g. 'when the helicopter is clicked it takes off'. With support, children can create a simple one step program that achieves a specific purpose. With support, children can identify and correct errors (Unit 2.1 Lesson 6). With support, children can identify the parts of an algorithm that control and initiate specific actions. Based on this, with support, children can predict what will happen in a program (Unit 2.1 Lesson 4). **Expected**	Action Algorithm Background Button Collision Detection Debug/debugging Design Mode Event Key Pressed Nesting Object Predict Properties Run Scale Scene

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		unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs.	• To understand that algorithms follow a sequence. • To design an algorithm that follows a timed sequence. • To understand that different objects have different properties. • To understand what different events do in code. • To create a program using a given design. • To understand the function of buttons in a program.	• Children can create a program using collision detection. • Children read blocks of code and predict what will happen when it is run. • Children can create a program that uses a timer-after command. • Children can explain what the timer-after command does in their program. • Children can predict what will happen in a program that includes a timer-after command. • Children can create a computer program that includes different object types. • Children can modify the properties of an object. • Children can use different events in their program to make objects move. • Children can create a computer program that includes a button object. • Children can explain what a button does in their program. • Children can modify the properties of a button to fit their program design	Children can explain that an algorithm is a set of instructions to complete a task. They have turned algorithms of more than one step into code using free code Chimp. For example, in Lesson 4 and 5 they have been able to make a program that follows their algorithm e.g. 'when the animal is clicked it moves forward then turns right'. Children show an awareness of the need to be precise in their designs so that algorithms can be successfully translated into code. (Unit 2.1 Lesson 5). Children use a planning format on paper before implementing on screen within 2Code as they recognise this is the best approach for designing a solution. They can use the Design Mode within 2Code to carefully see how their planned program will look and are able to switch into Code Mode to apply movements to objects (Unit 2.1. Lesson 4). They confidently include objects, actions, events and outputs successfully within their 2Code programs. Children can talk through code which contains a timer command, explaining where this command is positioned and what will happen (Unit 2.1. Lesson 3). Children can predict program outcomes and attempt to debug. For example, (Unit 2.1 Lesson 6). Children can identify the parts of a program that respond to specific events and initiate specific actions. Based on this, children can predict and describe, using a cause and effect sentence, what will happen in a program. (Unit 2.1 Lesson 6). Children can debug their own and other's programs using design documentation to test against (Unit 2.1 Lesson 6) **Exceeding** Children can explain and give examples that an algorithm is a set of instructions to complete a specific task. They can create complex and logical algorithms of several steps that accomplish the aim of the task that can be easily utilized to create executable code. Children show an awareness of the need to be precise in their designs so that algorithms can be successfully translated into code	Sequence Sound Test Text Timer When clicked / swiped

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			• To know what debugging means. • To understand the need to test and debug a program repeatedly. • To debug simple programs.	• Children can explain what debug (debugging) means. • Children can use a design document to start debugging a program. • Children can debug simple programs	(Unit 2.1 Lesson 5). Children can create more complex programs that utilize all the coding constructs that they have learnt about and extend their own learning by trying out different ways to code that achieve a specific purpose. Children can identify and correct errors. For example, (Unit 2.1 Lesson 6). An exceeding pupil will be able to apply their knowledge as a transferable skill across a range of debugging scenarios including making logical attempts to debug their own more complex code. Children can identify the parts of a program that respond to specific events and initiate specific actions. Based on this, children can adopt a systematic approach for predicting the behaviour of programs. Furthermore, using cause and affect language, Children can reason in detail about what will happen in a program. For example, (Unit 2.1 Lesson 5)	
Y3 and 4	**Autumn**	**Unit 3.1 / 4.1** **Computer Science** Coding Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables	•To review previous coding 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 be able to select the right type of timer for a purpose.	•Children can read and explain a flowchart • Children can use a flowchart to create a computer program. • Children can create a computer program that uses click events and timers. •Children can create a program that uses a timer-after command • Children can create a program that uses a timer-every command • Children understand there can be different ways to solve a problem. •Children can create a program that includes an IF statement.	**Emerging** Children can design and code a program that follows a simple sequence (Unit 3.1 Lessons 1 and 2). Children can make good attempts to 'read' code and predict what will happen in a program which can help them to correct errors (Unit 3.1 Lessons 2 and 3). Children's designs for their programs show that they are thinking of the structure of a simple program in logical, achievable steps (Unit 4.1 Lesson 1). Children can make good attempts to 'read' code and predict what will happen in a program which can help them to correct errors in their code. With support, children can turn a real-life situation into an algorithm for a program that has cause and effect (Unit 4.1 Lesson 2) and use their algorithm to write simple programs using 2Code (Unit 4.1 Lesson 2). Furthermore, they can identify errors within their programs and make logical attempts to fix it (Unit 4.1). Children attempt to introduce selection into their code using simple 'if statements' (Unit 4.1 Lesson 2). Children's use of these structures is experimental; they cannot always predict the outcome accurately or	Action Alert Background Button Code Block Command Co-ordinates Debug / debugging Execute Flowchart If Algorithm Blocks of Command Collision Detection Develop Event Nesting

		and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	•To begin to understand selection in computer programming. • To understand how an IF statement works. • To understand how to use coordinates in computer programming. • To understand how an IF statement works. • To use coding knowledge to create a range of programs. • To understand the importance of nesting. • To review coding vocabulary and knowledge. • To create a simple computer program.	• Children can interpret a flowchart that depicts an IF statement. •Children can make use of the X and Y properties of objects in their coding. • Children can create a program that includes an IF statement. • Children can create computer programs using prior knowledge. • Children can run, test and debug their programs. • Children can consider nesting when debugging their programs. • Children can explore different object types in 2Code. • Children can use a background and objects to create a scene. • Children can plan an algorithm for their scene and use 2Code to program it.	anticipate the structures required when planning their code. They have a developing idea that a variable can be used to store information in a program, in lesson 5 they can follow the examples but might struggle when applying this with their own ideas. **Expected** Children have a clear idea of how to design and code a program that follows a simple sequence (Unit 3.1 Lessons 2 and 3). Children experiment with the use of timers to achieve delay effects in their programs – they understand the difference between timer-after and timer-every commands. (Unit 3.1 Lesson 2). Children are beginning to understand how code is structured and are able to apply this knowledge when debugging (Unit 3.1 Lesson 4). They can be reflective on how successful they are at creating their programs and how the previous learning has helped them (Unit 3.1.). Children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition (Unit 4.1 Lessons 1 and 6). Children can identify an error within a program that prevents it following the desired algorithm and then fix it (Unit 4.1), they apply these techniques to their own code to fix bugs. Children understand IF and IF/ ELSE statements for selection and combine these with other coding structures including variables to achieve the effects that they design in their programs (Unit 4.1 Lesson 4). Their design demonstrates their growing understanding of when a coded solution will require repetition e.g. in Lesson 4 'Reginal Rocket' children can see that the position of the rocket is changed repeatedly until it is in line with the rocket launch pad. They can explain the new command 'Repeat Until'. They make use of user input (Unit 4.1 Lesson 2) and outputs such as 'print to screen' (Unit 4.1 Lesson 4) as well as sound and movement of objects. **Exceeding**	

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					Children can identify an error within a program that prevents it following the desired algorithm and then fix it (Unit 3.1). Children make intuitive attempts to debug their own programs as they increase in complexity (Unit 3.1 Lesson 4).	
		Unit 3.2 **Digital Literacy** Online Safety Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away. • To understand how the Internet can be used to help us to communicate effectively. • To understand how a blog can be used to help us communicate with a wider audience. • To consider if what can be read on websites is always true. • To look at a 'spoof' website. • To create a 'spoof' webpage. • To think about why these sites might exist and how to check that the information is accurate.	• Children understand what makes a good password for use on the Internet. Children are beginning to realise the outcomes of not keeping passwords safe. • Children can contribute to a concept map of all the different ways they know that the Internet can help us to communicate. • Children have contributed to a class blog with clear and appropriate messages. • Extension: Children understand that passwords help to limit who can see personal / private / confidential information. • Children understand that some information held on websites may not be accurate or true. • Children are beginning to understand how to search the Internet and how to think critically about the results that are returned. • Children have accessed and assessed a 'spoof' website.	**Emerging** With prompting, children can understand that it is important to have a secure password that is not shared with anyone else (Unit 3.2 Lesson 1). Children can give a negative example of failure to keep passwords secure (Unit 3.2 Lesson 1). Children are beginning to identify some of the main things to look for when deciding whether the information on a website is trustworthy or not (Unit 3.2 Lesson 2). **Expected** Children understand the importance of a secure password and not sharing this with anyone else (Unit 3.2 Lesson 1). Furthermore, children understand the negative implications of failure to keep passwords safe and secure and can suggest examples of good and poor passwords (Unit 3.2 Lesson 1). When using the internet, children can appraise the accuracy of the information on a website and make decisions on whether it is a trustworthy source of information (Unit 3.2 Lesson 2). In lesson 1, children have a choice of topics about which to blog. Most children will have gained an understanding that it is not acceptable to use the work of others or post images of others without consent. Most children recognise the PEGI ratings and can give examples of why content is rated and how this protects them (lesson 3) Most children can contribute to a class collaborative file about the effects of inappropriate content with useful suggestions (lesson 3). Most children can answer the quiz questions in lesson 3, their answers demonstrating that they are developing their understanding of the features of online communication. In lesson 1, their blog posts and comments are appropriate. Most children can	Password Internet Blog Concept map Username Website Webpage Spoof website PEGI rating

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			• To learn about the meaning of age restrictions symbols on digital media and devices. • To discuss why PEGI restrictions exist. • To know where to turn for help if they see inappropriate content or have inappropriate contact from others.	• Children have created their own 'spoof' webpage mock-up. • Children have shared their 'spoof' web page on a class display board. • Extension: Children evaluate facts from a website and explain how they fact checked the information that was presented. • Children can identify some physical and emotional effects of playing/watching inappropriate content/games. • Children relate cyberbullying to bullying in the real-world and have strategies for dealing with online bullying including screenshot and reporting.	express the need to tell a trusted adult if they are upset by anything online, in lesson 3 their responses illustrate that they have taken this message onboard. Most children will be able to use Purple Mash as a platform for collaboration. Specifically, they will create a spoof website for other children to read and share on a class display board (Unit 3.2 Lesson 2). In lesson 2, most children can use suitable keywords when trying to verify sources. **Exceeding** Children demonstrating greater depth will be able to give a clear explanation and examples of why having a secure, confidential password is essential and give negative examples of it not being secure and confidential (Unit 3.2 Lesson 1). Children will be able to appraise the accuracy of information shared on a website and a provide suitable evidence to support their decisions on whether it is trustworthy or not (Unit 3.2 Lesson 2).	
		Unit 3.9 Information Technology Presenting with Microsoft PowerPoint Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of	• To create a page in a presentation. • To add media to a presentation	• Children know what PowerPoint is. • Children can open PowerPoint. • Children can add text to a page and format it. • Children can add shapes to a page. • Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures.	**Emerging** Children know that presentation software allows the user to put together a file made of slides to present. Slides can include text, images, animations and sounds. With support children can add text, pictures and shapes to a slide. Children can insert slides into a presentation though they might not be able to anticipate the order of the slides. Children know that slides can have animations and can add transition animations with support. **Expected** Children can add text. pictures and shapes to a slide and format them with tools such as shadows and borders. Children can insert slides into a presentation. Children can use transition effects between slides and animations of the objects in	Animation Audio Design template Entrance animation Media Presentation Presentation-Program Slides Stock image Text box Text formatting Transition Font Slideshow

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		programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• To add animations into a presentation • To add timings into a presentation. • To use the skills learnt in previous weeks to design and present an effective presentation.	• Children can edit pictures. • Children can insert video and audio. • Children can use animations in a presentation. • Children can use transitions in a presentation. • Children can add timings to a presentation. • Children can present effectively using PowerPoint. • Children can create a presentation including formatted text. • Children can include different media. • Children can add transitions and animations. • Children can add timings to the presentation. • Children can present effectively.	slides. Children can explore the use of timings to a presentation (version dependant) **Exceeding** Children can incorporate video and audio into slideshows. Children appraise the animation effects available to them and make decisions about what to include and what to leave out for the most effective presentation	Word Art
	Spring	**Unit 3.4** **Information Technology** Touch Typing Select, use and combine a variety of software (including internet services) on a range of	• To introduce typing terminology. • To understand the correct way to sit at the keyboard. • To learn how to use the home, top and bottom row keys.	• Children understand the names of the fingers. • Children understand what is meant by the home, bottom, and top rows. • Children have developed the ability to touch type the home, bottom, and top rows.	**Emerging** Children are developing their touch-typing skills and recognise the importance of positioning of their hands in relation to 'home, bottom and top row. They are beginning to use both hands when typing with improving typing accuracy and speed. Children can reflect on their progress and where they need to improve (Unit 3.4 All lessons). **Expected** Children have developed their touch-typing skills and understand how to touch type using the home,	Posture Top row keys Home row keys Bottom row keys Space bar

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		digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To practice and improve typing for home, bottom, and top rows. • To practice the keys typed with the left hand. • To practice the keys typed with the right hand.	• Children can use two hands to type the letters on the keyboard. • Children can touch type using the left hand. • Children can touch type using the right hand.	bottom and top row keys using both hands. Children can apply these skills to all units. Most children will be able to reflect upon how successful they have been with their typing skills and are able to compare their current progress against previous (Unit 3.4 All lessons). **Exceeding** Children type with accuracy and suitable pace, positioning their hands correctly in relation to the home, bottom and top row keys using both hands. They are able to reflect on their progress and are beginning to explore less familiar keys (Unit 3.4 All lessons).	
		Unit 3.5 **Digital Literacy** Email (including email safety) Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create	• To think about the different methods of communication. • To open and respond to an email. • To write an email to someone from an address book. • To learn how to use email safely.	• Children can list a range of different ways to communicate. • Children can use 2Connect to highlight the strengths and weaknesses of each method. • Extension: Children can order the various types of communication that have been used through history. • Children can open an email and respond to it. • Children have sent emails to other children in the class. • Extension: Children can use the search option in the address book to find a classmate when sending an email. • Children have written rules about how to stay safe using email.	**Emerging** With prompting, children can list a range of ways the internet can be used to provide different methods of communication. Using 2Connect (Unit 3.5 Lesson 1) they can identify the disadvantages and advantages of each method. With some support, children can open, respond, and send emails to others in the class (Unit 3.5 Lesson 2) and demonstrate a basic understanding of email conventions and safety (Unit 3.5 Lesson 3 & 4). They are aware of how to attach files to an email (Unit 3.5 Lesson 6). With support throughout, children will use 2Email and 2Quiz to develop their understanding and knowledge of email systems. Using the software, children will create a simple quiz with a limited number of questions (Unit 3.5 Lesson 4) and attach this file in a guided situation (Unit 3.5 Lesson 5) to an email. Children will demonstrate some understanding about how this information needs to be presented (Unit 3.5 Lesson 2). With support, children understand the importance of staying safe (Unit 3.5 Lesson 3) when using email and will partially demonstrate this knowledge during the unit. As part of a small, guided group, children apply their knowledge of email safety through the creation of a quiz on staying safe when emailing (Unit 3.5 Lesson 4). **Expected**	Communication Email Compose Send Report to the teacher Attachment Address book Save to draft Password CC Formatting

		a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• To learn how to use email safely • To add an attachment to an email. • To explore a simulated email scenario.	• Children have contributed to classmates' rules. • Extension: Children understand the importance of draft. • Children have created a quiz about email safety which explores scenarios that they could come across in the future. • Extension: Children create title screens for their quizzes explaining what the quiz is about, and how to play it. • Children can attach work to an email. • Children know what CC means and how to use it. • Children can read and respond to a series of email communications. • Children can attach files appropriately and use email communication to explore ideas. • Extension: Children know why the terms CC and BCC are used • Children understand when to use CC or BCC	Children can list a range of ways the internet can be used to provide different methods of communication. Using 2Connect (Unit 3.5 Lesson 1) they can explain and compare each communication method. Most children will be able to exchange email communications using 2Email. This will take the form of both simulated email communication scenarios and real email communication with their peers. (Unit 3.5 Lessons 2-6) Most children will be able to open and respond to an email, altering the size of the font, as well as the formatting of the text. They will be able to select a person from their address book and compose a suitable email to send them (Unit 3.5. Lesson 2). Children will be able to add attachments to an email they compose and use the CC functionality correctly (unit 3.5. Lesson 5). They will recognise obvious errors such as spelling due to the inbuilt wizard and will use their editing skills to address such errors. Children understand the importance of staying safe (Unit 3.5 Lesson 3) when using email and have demonstrated knowledge of this through the writing of class rules for their conduct when using email systems (Unit 3.5 Lesson 3). Children apply their knowledge of email safety through the creation of a quiz on staying safe when emailing (Unit 3.5 Lesson 4). In lesson 3, children can suggest why they need to seek permission before sharing photos. In lesson 1, children can refer to what they learnt in Unit 3.2 regarding Online Safety when suggesting the way to communicate appropriately online. Children's email messages illustrate that they have taken on board messages about appropriate communication with a regard for their audience. In lesson 3, this forms part of the slideshow discussion., children include this as part of their guidelines for step 5. Most children will be able to evaluate and explain the effectiveness of different methods of communication and collate these in a concept map using 2Connect (Unit 3.5 Lesson 1). **Exceeding**	

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					Children can provide a comprehensive list of the range of ways the internet can be used to provided different methods of communication. Using 2Connect (Unit 3.5 Lesson 1) they can explain the benefits and drawbacks of each communication method and provide life scenarios where each one could be used. With ease, children open, respond and send emails to others in the class (Unit 3.5 Lesson 2). They are not only able to demonstrate an understanding of email conventions and keeping safe but can explain why conventions and certain recognised positive behaviours are expected and the possible consequences of not abiding by them (Unit 3.5 Lessons 3 & 4). They know how to attach files to emails and can explain why we must be careful with attachments (Unit 3.5 Lesson 6). Children demonstrating greater depth will exhibit their ability to support others during this unit. Using the software, children will create a quiz and further resources (Unit 3.5 Lesson 4) and attach these as multiple files (Unit 3.5 Lesson 5) to an email in response to a fictional email from a well-known character. Children demonstrating greater depth can justify and explain why they have presented information in the way that they have (Unit 3.5 Lesson 2). Children demonstrating greater depth, understand the importance of staying safe (Unit 3.5 Lesson 3) when using email and can apply these principles to the related aspects of messaging. Children demonstrate their knowledge through taking an active role in the writing of class rules and quiz creation on appropriate conduct when using email systems and can expand on their points to explain their reasoning (Unit 3.5 Lesson 3).	
		Unit 3.6 Information Technology Branching Databases	• To sort objects using just YES/NO questions.	• Children understand how YES/NO questions are structured and answered. • Children have used YES/NO questioning to	**Emerging** With support and using concrete paper resources, children will begin to understand what a branching database is (Unit 3.6 Lesson 1). In a small, supported group, they will collect, sort, and present their information using the paper	Branching database Question Data

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		Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To complete a branching database using 2Question. • To create a branching database of the children's choice.	play a simple game with a friend. • Children can explain why they choose a particular question to split their database. • Extension: Children can begin to use 'or more' and 'or less' in their questioning. • Children have contributed to a class branching database about fruit. • Children have completed a branching database about vegetables. • Extension: Children can edit and adapt a branching database to accommodate new entries. • Children can choose a suitable topic for a branching database. • Children can select and save appropriate images. • Children can create a branching database. • Children know how to use and debug their own and others branching databases.	resources. Children will then turn their paper branching database into a digital version using 2Question (Unit 3.6 Lesson 2, 3 and 4). The resulting branching database will demonstrate a limited number of branches. **Expected** Using 2 Question, children will learn how to create a branching database that accomplishes a given goal. They will understand how to collect, analyse, evaluate, and present their data and information throughout the unit initially as a paper Yes/No game (Unit 3.6 Lesson 1) and then as a digital version of a branching database (Unit 3.6 Lesson 2, 3 and 4). Most children can create a branching database and are able to successfully debug it to improve the quality of their digital content creation. Their branching database would have been carefully planned before utilising 2Question (Unit 3.6. Lessons 3 & 4). Most children will be able to create a branching database which includes suitable text, titles and gathering of appropriate images from online and importing them (Unit 3.6. Lessons 3 &4). Children can make their own branching databases, collating and organising data by sets of questions they have considered appropriate (Unit 3.6 Lesson 1. Children analyse each other's branching databases and can make further suggestions for improvement (Unit 3.6 Lessons 3 & 4). **Exceeding** Children demonstrating greater depth understand the specific characteristics of a branching database and its application in real world situations. Furthermore, they understand the needs of the end user and can adapt their program to reflect this using supporting information (Notes can be added to each layer of the branching database).	

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	Summer	**Unit 3.7** **Information Technology** Simulations Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To find out what a simulation is and understand the purpose of simulations. • To explore a simulation, making choices and discussing their effects. • To work through and evaluate a more complex simulation.	• Children know that a computer simulation can represent real and imaginary situations. • Children can give some examples of simulations used for fun and for work. • Children can give suggestions of advantages and problems of simulations. • Children can explore a simulation. • Children can use a simulation to try out different options and to test predictions. • Children can begin to evaluate simulations by comparing them with real situations and considering their usefulness. • Children can analyse choices made using a branching database. • Children can recognise patterns within simulations and make and test predictions. • Children can identify the relationships and rules on which the simulations are based. • Children can evaluate a simulation to determine its usefulness for purpose. • Children can create their own simple simulation (extension).	**Emerging** With support throughout, children are beginning to analyse and evaluate information relating to the situations in the activities within 2Simulate (Unit 3.7 Lesson 2 and 3). They can verbally present their findings as part of a discussion (Unit 3.7 Lesson 2 and 3). Although there understanding may be limited, they are beginning to understand the importance of simulations in relation to real and hypothetical situations (Unit 3.7 Lesson 1). **Expected** Using 2Simulate, children can analyse and evaluate information relating to the situations in the activities (Unit 3.7 Lesson 2 and 3). They present their findings as part of a discussion and give reasons for the choices they made (Unit 3.7 Lesson 2 and 3). They will understand the importance of simulations to replicate events that could occur in real and hypothetical situations (Unit 3.7 Lesson 1). Most children can effectively assess their own and others' progress and achievements through a simulation. Additionally, they can evaluate the effectiveness of the simulation (Unit 3.7. Lesson 3). **Exceeding** Children demonstrating greater depth, will use 2Simulate to analyse, evaluate, identify patterns, and predict the outcomes of simulated scenarios (Unit 3.7 Lesson 2 and 3). They will present their predications and findings as part of a discussion and give detailed explanations for the choices they have made (Unit 3.7 Lesson 2 and 3). Children demonstrating greater depth will not only understand the importance of simulations to replicate events but will also identify where simulations are used in everyday life (Unit 3.7 Lesson 1).	Simulation

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		Unit 3.8 **Information Technology** Graphing Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To enter data into a graph and answer questions. • To solve an investigation and present the results in graphic form.	• Children can set up a graph with a given number of fields. • Children can enter data for a graph. • Children can produce and share graphs made on the computer. • Extension: Children can select most appropriate style of graph for their data and explain their reasoning. • Children have solved a maths investigation. • Children can present the results in a range of graphical formats. • Children can use the sorting option to make analysis of their data easier. • Extension: Children can select most appropriate style of graph for their data and explain their reasoning.	**Emerging** With support throughout, children use 2Graph to enter a simple data range on a limited number of fields. Children can then present their data as a simple bar chart (Unit 3.8 Lesson 1). In a small, supported group, children will complete an investigation of an everyday event, linked, where possible to the curriculum (Unit 3.8 Lesson 2.). **Expected** Children use 2Graph to enter data on a given number of fields and then present their data as a graph (Unit 3.8 Lesson 1). Children can select the most appropriate graph format to present their data. Independently, children can apply their graphical knowledge to an investigation of an everyday event, linked, where possible to the curriculum (Unit 3.8 Lesson 2). Furthermore, children present their graph by sharing it on a class blog (Unit 3.8 Lesson 2). Most children can set up a graph within 2Graph with a given number of fields, enter data and manipulate the presentation of it using: Sort, block size, additional rows and editing of labels (Unit 3.8. Lesson 1). They can create further digital content within the context of the data they have collected by importing it into a pre-made writing template (Unit 3.8. Lesson 2). Most children can present information in a range of graphical formats which includes attention to detail regarding appropriate labelling and block sizing (Unit 3.8. Lesson 2). Children can use 2Graph to enter collected data and represent it using an appropriate graph type. They can sort data using sort features for easier analysis (Unit 3.8 Lesson 1) and can share their graphs with other children via 2Blog, appropriately commenting on their results e.g., from a maths investigation, particularly any surprising results (Unit 3.8 Lesson 2). **Exceeding** Children demonstrating greater depth will select the most appropriate graph format to present their data and explain their reasoning behind this (Unit	Graph Field Data Bar chart Block graph Line graph Pie chart Row Column

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					3.8 Lesson 1). They will experiment with different types of charts and determine the most suitable. They will also explore the ways of presenting data so that it can be graphically represented.	
		Unit 3.3 **Information Technology** Spreadsheets Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To add and edit data in a table layout. • To find out how spreadsheet programs can automatically create graphs from data. • To introduce the 'more than', 'less than' and 'equals' tools. • To introduce the 'spin' tool and show how it can be used to count through times tables. • To introduce the Advanced mode of 2Calculate. • To learn about describing cells using their addresses.	• Children can create a table of data on a spreadsheet. • Children can use a spreadsheet program to automatically create charts and graphs from data. • Children can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to calculations. • Children can use the 'spin' tool to count through times tables. • Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. • Children can find specified locations in a spreadsheet.	**Emerging** Children know that they can use a spreadsheet to present their collected data as a chart or graph (lesson 1). With support, they can create and begin to interpret graphs of simple data. They are beginning to understand the use of symbols to represent more than, less than and equals to and use the spreadsheet tools to explore the outcome of comparing numbers and calculations (lesson 2). Children can find specific cell locations within a spreadsheet (lesson 3). **Expected** Most children can create a table of data on a spreadsheet and can use this to automatically create charts/graphs from data. Children will be able to select the most suitable type of chart to use for their data, edit headers and apply axis labels (Unit 3.3. Lesson 1). Children can create their own number lines within 2Calculate including 'more than', 'less than' and 'equal' tools (Unit 3.3. Lesson 2). Children can collect and enter data within 2Calcualte, they are able to use the graphing tool to create suitable graphical representations of the data they have within a table (Unit 3.3. Lesson 1). **Exceeding** Children demonstrating greater depth will explore more complex functioning of the 2Calculate tools to create their own spreadsheets to explore number and interpret their own data.	Advance mode Copy Paste Columns Delete key Equals tool Move cell tool Rows Spin tool Spreadsheet <>=
Years 5 and 6	**Autumn**	**Unit 5.1 / 6.1** **Computer Science** Coding Design, write and debug programs	• To review existing coding knowledge. • To begin to be able to simplify code. • To create a playable game.	• Children can use simplified code to make their programming more efficient. • Children can use variables in their code.	**Emerging** With support, children can begin to create more complex programs that include different types of events in their code (Unit 5.1 Lesson 1). They are beginning to understand what simulations are and with support they have formulated an algorithm for a simple traffic light sequence (Unit 5.1 Lesson 2).	Action Abstraction Algorithm Button Called Co-ordinates Decomposition

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		that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	• To understand what a simulation is. • To program a simulation using 2Code. • To understand how to use friction in code. • To begin to understand what a function is and how functions work in code. • To understand what the different variable types are and how they are used differently. • To understand how to create a string. • To begin to explore text variables when coding. • To understand what concatenation is and how it works.	• Children can create a simple playable game. • Children can plan an algorithm modelling the sequence of traffic lights. • Children can select the right images to reflect the simulation they are making. • Children can use their plan to program the simulation to work in 2Code. • Children can create a program which represents a physical system. • Children can create and use functions in their code to make their programming more efficient. • Children can create and use strings in programming. • Children can set/change variable values appropriately. • Children know some ways that text variables can be used in coding. • Children can create a string and use it in their program. • Children can use strings to produce a range of outputs in their program.	As their coding becomes more complex, they will require support to tackle debugging in a logical rather than a trial-and-error method. Children are beginning to understand how decomposition and abstraction are used in computer programming and with support can break a given process down into parts. (Unit 5.1 Lesson 3) They will usually require support to make use of co-ordinates and variables in their code (Unit 5.1 Lesson 4-6). **Expected** Children can create more complex programs and are beginning to understand that there are ways to simplify code to make their programming more efficient. They are able to recall and apply previous coding knowledge in their code. (Unit 5.1 Lessons 1 and 4). Children understand what simulations are and can formulate and program an algorithm for an observed traffic light sequence. (Unit 5.1 Lesson 2). Children understand the processes of decomposition and abstraction and can apply this knowledge when planning algorithms for a program. (Unit 5.1 Lesson 3). Children can include sequence, selection and repetition into code as well as use functions to make their programming more efficient. (Unit 5.1 Lesson 4). Children understand what a physical system is and can consider how they can program objects to behave like the would in 'real life'. Children test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs but might need support to identify the specific line of code that is causing the problem. Children begin to understand how functions work (Unit 5.1 Lesson 4). Children understand that there are different variable types and begin to explore how they can be used (Unit 5.1 Lesson 5). Children can 'read' others' code and predict what will happen in a program which helps them to correct errors. They can also make good attempts to fix their own bugs as their coding becomes more complex (Unit 5.1	Event Function

			• To understand the different options of generating user input in 2Code. • To understand how user input can be used in a program.	• Children can code programs that take text input from the user and use this in the program. • Children can attribute variables to user input. • Children are aware of the need to code for all possibilities when using user input.	Lesson 6). Throughout this unit, children will demonstrate that they are open to feedback from both the teacher and fellow peers on their programs, specifically where they are expected to improve or create a game. **Exceeding** Children can create more complex programs and understand that there are ways to simplify code to make their programming more efficient. With ease, they are able to recall and apply previous coding knowledge in their code (Unit 5.1 Lesson 1). Children can write algorithms for and program simulations, they easily adapt their code to (Unit 5.1 Lesson 2). Children understand the processes of decomposition and abstraction and naturally apply this knowledge when planning algorithms for programs beyond the point at which it was taught (Unit 5.1 Lesson 3). Children intuitively grasp the concepts of selection, repetition and variables. They like to challenge themselves to combine these with other coding structures to personalise and to improve their programs. They understand how to use functions to improve efficiency (Unit 5.2 Lessons 4-5). Children understand and can apply mathematical concepts including co-ordinates, angles and negative numbers with ease when coding (Unit 5.1 Lesson 4). They are also thinking about good structure to their code with a view to debugging such as the use of tabs to organise code and the naming of variables. (Unit 5.1 Lesson 5). Children understand that there are different variable types, can see purpose for them and create and use them with ease when coding. (Unit 5.1 Lesson 5). Children can 'read' others' code and predict what will happen in a program which helps them to correct errors (Unit 5.1 Lesson 6). They are usually successful when attempting to fix their own bugs as their coding becomes more complex.	
		Unit 5.2 **Digital Literacy** Online Safety	• To gain a greater understanding of the	• Children critically about the information that they	**Emerging** Children demonstrate a developing understanding of their responsibility to others as well as to	Online Safety Smart rules Password

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		Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	impact that sharing digital content can have. • To review sources of support when using technology. • To review children' responsibility to one another in their online behaviour. • To know how to maintain secure passwords. • To understand the advantages, disadvantages, permissions, and purposes of altering an image digitally and the reasons for this. • To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. • To learn about how to reference sources in their work. • To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information.	share online both about themselves and others. • Children know who to tell if they are upset by something that happens online. • Children can use the SMART rules as a source of guidance when online. • Children think critically about what they share online, even when asked by a usually reliable person to share something. • Children have clear ideas about good passwords. • Children can see how they can use images and digital technology to create effects not possible without technology. • Children have experienced how image manipulation could be used to upset them or others even using simple, freely available tools and little specialist knowledge. • Children can cite all sources when researching and explain the importance of this. • Children select keywords and search techniques to find relevant information and increase reliability.	themselves when communicating and sharing content online. They know what to do if they are upset by online content and know that there are rules such as the SMART rules to protect them (lesson 1). With support throughout, children demonstrate an understanding of what the SMART rules are but may find it difficult to apply all of these to using technology safely and respectfully (Unit 5.1 Lesson 1). They can create a simple comic strip to teach other children about online safety (Unit 5.2 Lesson 2). **Expected** Children demonstrate an understanding of their responsibility to others as well as to themselves when communicating and sharing content online. Children demonstrate a clear understanding of what the SMART rules are and how they should be applied to using technology safely and respectfully (Unit 5.1 Lesson 1). In lesson 1, children demonstrate that they are developing critical thinking skills in their online experience and know what sorts of inappropriate content should be reported. They can apply their knowledge in the creation of a comic strip to teach other children about online safety (Unit 5.2 Lesson 2). When doing image editing in lesson 2, they were able to see both the positive and negative consequences of technological developments including altering images both in terms of impact upon themselves and impact upon others. In lesson 3, children can explain why citations must be considered when using the work of others. They know that there is a convention for recording citations and can put this into practice in their work. In lesson 3, children's contributions demonstrate a growing awareness of the context of communication and an ability to view the communication from the intended audience's point-of-view. Most children will be able demonstrate that they understand what is meant by reliable and can build on their ability to identify reliable content. In lesson 3 while completing the	Reputable Encryption Identity theft Shared image Plagiarism Citations Reference Bibliography

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			• Ensuring reliability through using different methods of communication.	• Children show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each.	citation writing frame, they were able to recognise that it is not a good idea to rely upon only 1 source for information. **Exceeding** Children are developing a deeper understanding of the interaction of the positive benefits and negative risks of innovative technology. They take advantage of these technologies in their work but are mindful of protecting themselves and others from harm.	
		Unit 5.3 **Information Technology** Spreadsheets Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To use formulae within a spreadsheet to convert measurements of length and distance. • To use the count tool to answer hypotheses about common letters in use • To use a spreadsheet to model a real-life problem. • To use formulae to calculate area and perimeter of shapes. • To create formulae that use text variables.	• Children can create a formula in a spreadsheet to convert m to cm. • Children can apply this to creating a spreadsheet that converts miles to km and vice versa. • Children can use a spreadsheet to work out which letters appear most often. • Children can use the 'how many' tool. • Children can use a spreadsheet to work out the area and perimeter of rectangles. • Children can use these calculations to solve a real-life problem. • Children can create simple formulae that use different variables. • Children can create a formula that will work out how many days there are in x number of weeks or years.	**Emerging** With support throughout, children can create a simple formula with limited success using 2Calculate that converts metres into centimetres (Lesson 1). Children understand what a variable is and can program a variable that converts weeks into years (Lesson 4). Furthermore, they can represent their data as a simple graph (Lesson 2). **Expected** Children can create a formula using 2Calculate that converts metres into centimetres (Lesson 1). Children can program different variables to convert data from one format and present it in an alternative way (Lesson 4). Furthermore, they can convert their data into a graphical format (Lesson 2). Throughout this unit, children will be tasked with creating spreadsheets which are contextualised and evaluating them. Most children can use suitable layouts and content (and explain this) which achieve a specific goal, such as creating a spreadsheet to work out the area and perimeter of rectangles (Lesson 3). Their layouts and contents will be fit for purpose for their intended audience, such as applying graphs to represent data (Lesson 2). Children will use, manipulate, and create spreadsheets within this unit. Their improving skill of using text variables to perform calculations, advanced mode and count tools will lead to the creation of their own purposeful spreadsheet. Children will invite feedback through sharing their spreadsheets, focusing on the functionality, layout,	Average function Advance mode Copy and paste Columns Cells Charts Equals tool Formula Formula wizard Random tool Rows Spin tool Spreadsheet Timer Move cell tool

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			• To use a spreadsheet to help plan a school cake sale.	• Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.	clear purpose and whether it achieve it. Most children can use 2Calculate to produce functional spreadsheets with clear purpose and their spreadsheets are set up so that interrogation of data is easily achieved. They demonstrate they can use formulae such as converting between measures and incorporating text variables to perform calculations. Automatic graph creation from data sets is easily achieved by the children, including appropriate labelling and graph type for data type. **Exceeding** Children demonstrating greater depth can use their understanding of converting metres into centimetres and apply this to other mathematical conversions (Lesson 1). Furthermore, they choose the most appropriate way to convert and represent their data and can give their reasons behind this choice (Lesson 2).	
	Spring	**Unit 5.4** **Information Technology** Databases Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and	• To learn how to search for information in a database. • To contribute to a class database. • To create a database around a chosen topic.	• Children understand the different ways to search a database. • Children can search a database to answer questions correctly. • Children can design an avatar for a class database. • Children can successfully enter information into a class database. • Children can create their own database on a chosen topic. • Children can add records to their database. • Children know what a database field is and can correctly add field information.	**Emerging** With support, children can contribute to the design of a collaborative (Unit 5.4 Lesson 2) and individual database, although this may be with limited success (Unit 5.4 Lesson 3 and 4). They can design and enter information accurately into their own simple database and create basic questions about their database for their classmates to answer. Furthermore, they can use the search functionalities to answer simple questions (Unit 5.4 Lesson 1, Lesson 3 and 4). **Expected** Children can contribute to the design of a collaborative (Unit 5.4 Lesson 2) and individual database (Unit 5.4 Lesson 3 and 4). They can design and enter information accurately into their own database and create questions about their database for their classmates to answer. Furthermore, they can use the search functionalities to answer questions (Unit 5.4 Lesson 1 and Lesson 3 and 4). Most children will be able to create a database within 2Investigate which	Avatar Binary Tree Charts Collaborative Data Database Find Record Sort, group and arrange Statistics and reports Table

		presenting data and information.		• Children understand how to word questions so that they can be effectively answered using a search of their database.	contains contextualised information relating to a topic. They can add fields which are appropriate for the topic choice and present data using graphical tools, table views, and search for appropriate content to be displayed to answer a question (Unit 5.4. Lessons 3 & 4). Throughout this unit, children will be learning how to effectively utilise a database. They will respond to feedback from peers and the class teacher. Most children can interrogate a database, including the different ways the data can be sorted and displayed – Table view, Find, Sort, Charts (Unit 5.4 Lesson 1). They can use more advanced features such as the 'statistics tool' to display multiple pieces of statistical information at the same time and produce reports on specific criterion (Unit 5.4 Lesson 1 & 2). **Exceeding** Children demonstrating greater depth will lead a small group in the design and creation of a collaborative (Unit 5.4 Lesson 2) database. They can create an individual database with a greater number of fields and create complex search questions about their database for their classmates to answer (Questions using and/or statements). Furthermore, they can seamlessly use the search functionalities to answer complex questions (Unit 5.4 Lesson 1 and lesson 3 and 4.)	
		Unit 5.5 **Computer Science** Game Creator Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of	• To Introduce the 2DIY 3D tool. • To begin planning a game. • To design the game environment.	• Children can review and analyse a computer game. • Children can describe some of the elements that make a successful game. • Children can begin the process of designing their own game. • Children can design the setting for their game so that it fits with the selected theme.	**Emerging** When creating their games, children think about the component parts and design these as components in a theme rather than completely isolated parts. They increase playability through trial-and-error methods rather than a planned strategy for the design. With support and in small groups, children can use a given success criteria to verbally review and analyse what makes a successful computer game (Unit 5.5 Lesson 1). When creating their own game, limited consideration is given to the end user, but the game does demonstrate simple functionality (Unit 5.5 Lesson 2/3). Furthermore, children can say	Animation Computer Game Customise Evaluation Image Instructions Interactive Screenshot Texture Perspective Playability

		programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To design the game quest to make it a playable game. • To finish and share the game. • To self- and peer-evaluate.	• Children can upload images or use the drawing tools to create the walls, floor, and roof. • Children can design characters for their game. • Children can decide upon, and change, the animations and sounds that the characters make. • Children can make their game more unique by selecting the appropriate options to maximise the playability. • Children can write informative instructions for their game so that other people can play it. • Children can evaluate my their own and peers' games to help improve their design for the future	what they like and do not like about a game (Unit 5.5 Lesson 5). E**xpected** Most children can plan a computer game (2DIY3D) using a template. They carefully use the 'Think about' feature in the planning templates to assess their progress against the tasks and how well they have considered key criteria (Unit 5.5. All lessons). When creating their games, children think about the component parts and design these as components in a theme rather than completely isolated parts. They consider aspects such as the movement of the characters and goal objects to increase playability. When designing the game environment, they do this with the end-user experience in mind. Most children can combine text, sound, and graphic components within a 2DIY3D game. Their games demonstrate a well-planned approach, with appropriate use of text, sound, and graphic components. They easily mix their approaches for image use such as uploading and using the drawing tools. Successful application of animation features to objects is applied to enhance their games (Unit 5.5. Lessons 2, 3 & 4). Children can use a given success criteria to review and analyse what makes a successful computer game (Unit 5.5 Lesson 1). Children consider the end user of their game by designing appropriate settings and characters that maintain the user's interest and engagement levels (Unit 5.5 Lesson 2/3). Furthermore, children demonstrate the ability to objectively review and evaluate a range of completed games (Unit 5.5 Lesson 5). Children can evaluate their own and others' games with 2DIY3D for content and design. They use this peer and self-assessment opportunity to make improvements to their own game (Unit 5.5. Lesson 5). Feedback which focuses on the design elements of their game against key criteria such as playability, challenge, engagement, use of advanced features and suitability for intended audience.	

Computing Long Term Plan Cycles A and B (Purple Mash)

					Exceeding Children think about the entirety of their game at the design stage and can consider the game environment, objects and characters and the interactions of these components and their impact on playability to design a good end-user experience before proceeding with the construction stage. Children demonstrating greater depth can create their own success criteria to review, analyse and verbally justify what makes one computer game more successful than another (Unit 5.5 Lesson 1). Throughout the design and creation of their game, the needs of the end user have been considered. The game creator evaluates and reviews their game during the process and makes amendments where necessary and justifies their edits verbally (Unit 5.5 Lesson 2/3/5).	
		Unit 5.6 **Information Technology** 3D Modelling Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To be introduced to the 2Design and Make tool. • To explore the effect of moving points when designing. • To design a 3D model to fit certain criteria. • To refine and print a model.	• Children know what the 2Design and Make tool is for. • Children can explore the different viewpoints in 2Design and Make whilst designing a building. • Children can adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form. • Children can explore how to edit the polygon 3D models to design a 3D model for a purpose. • Children can refine one of their designs to prepare it for printing.	**Emerging** With support, children can use the ready-made templates within using 2Design and Make to design the recognisable form of a building (Lesson 1). They will evaluate, refine, edit, and adapt models to suit a design brief (Lesson 2, 3 & 4). **Expected** Children will use the ready-made templates within 2Design and Make to design the recognisable form of a building (Lesson 1). They will evaluate, refine, edit, and adapt models to suit a design brief (Lessons 2, 3 and 4). Most children can design a 3D model to fit certain criteria using a template from 2Publish. They can present their work making use of screenshots incorporated within their template (Lesson 3). Children designs demonstrate that they have considered the brief and can discuss changes they intend to make to their designs to refine them for printing (Lesson 4). Most children will invite feedback which focuses on how well their designs meet an intended purpose, explicitly, the skill of editing existing polygons. **Exceeding**	CAD – Computer Aided Design Modelling 3D Viewpoint Polygon 2D Net 3D Printing Points Template

Computing Long Term Plan Cycles A and B (Purple Mash)

					Using 2Design and Make, children demonstrating great depth can use the geometric shapes and the addition of up to 24 points to design the recognisable form of a building (Lesson 1). They will evaluate, refine, edit, and adapt models to suit a design brief (Lesson 2, 3 and 4).	
	Summer	**Unit 5.7** **Computer Science** Concept Maps Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To understand the need for visual representation when generating and discussing complex ideas. • To understand the uses of a 'concept map'. • To understand and use the correct vocabulary when creating a concept map. • To create a concept map. • To understand how a concept map can be used to retell stories and information. • To create a collaborative concept map and present this to an audience.	• Children can make connections between thoughts and ideas. • Children can see the importance of recording concept maps visually. • Children understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections.' • Children can create a basic concept map. • Children have used 2Connect Story Mode to create an informative text. • Children have used 2Connect collaboratively to create a concept map. • Children have used Presentation Mode to present their concept maps to an audience	**Emerging** With support and in a small group, children can use 2Connect to design and create concept maps that collect and present a range of ideas, although at times these might not be linked (Lessons 1 and 2). With help, children can use the additional features of the software in 2Connect to present their concept maps as a visual whole class presentation (Lesson 4) and as simple written text (Lesson 3). **Expected** Children can use 2Connect to design and create concept maps that collect and present a range of linked ideas (Lessons 1 and 2). Children can use the additional features of the software in 2Connect to present their concept maps as a visual whole class presentation (Lesson 4) and as written text (Lesson 3). Most children will be able to work successfully with others to create an online collaborative concept map using 2connect (Lesson 4) which has been well thought out for layout and content, using features such as image and node layout choices appropriately. They can reflect on these choices and discuss the rationale for them. During presentations (Lesson 4), children can give constructive feedback sensitively and respond well to others' feedback. **Exceeding** Children demonstrating greater depth use the full functionality of 2Connect to create detailed concept maps which contain appropriate images and additional links between nodes (Lessons 1 and 2). Children can use the additional features of the software in 2Connect to present their concept maps as a visual whole class presentation (Lesson 4) and as written text (Lesson 3).	Audience Collaboratively Concept Concept Map Connection Idea Node Thought Visual

Computing Long Term Plan Cycles A and B (Purple Mash)

Cycle B						
Years 1 and 2	**Autumn**	**Unit 1.1** **Digital Literacy** Online Safety and Exploring Purple Mash Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	• To log in safely. • To start to understand the idea of 'ownership' of their creative work. • To learn how to find saved work in the Online Work area and find teacher comments. • To learn how to search Purple Mash to find resources • To become familiar with the types of resources available in the Topics section. • To become more familiar with the icons used in the resources in the Topics section.	• Pupils can log in to Purple Mash using their own login. • Pupils have created their own avatar and understand why they are used. • Pupils can add their name to a picture they created on the computer. • Pupils are beginning to develop an understanding of ownership of work online. • Pupils can save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work. • Pupils can find their saved work in the Online Work area of Purple Mash. • Pupils can find messages that their teacher has left for them on Purple Mash. • Pupils can search Purple Mash to find resources. • Pupils will be able to use the different types of topic templates in the Topics section confidently. • Pupils will be confident with the functionality of the icons in the topic templates.	**Emerging:** With support, pupils demonstrate an awareness of online safety using their own private usernames and passwords for Purple Mash (Unit 1.1 Lesson 1. Point 6). This can be assisted by using printed login cards. Pupils take ownership of their work and save this in their own private space (Unit 1.1 Lesson 1. Point 16). **Expected:** Pupils demonstrate an understanding of the importance of online safety, using their own private usernames and passwords for Purple Mash (Unit 1.1 Lesson 1. Point 6). Most pupils will be able to demonstrate an understanding of the reasons for keeping their password private including talking about the meaning of 'private information' (Lesson 1) and actively demonstrate this in lessons (Throughout all lessons in Unit 1.1). Pupils take ownership of their work and will be able to save their work, using a memorable file name, to their own personal space on Purple Mash and understand that this can be retrieved later Unit 1.1 Lesson 1 Point 18 Most pupils will be able to add their name to their picture in lesson 1. In lesson 2, most pupils will be able to explain that their teacher was able to connect with them online to leave a message in Purple Mash. They could contribute to the class discussion relating this to other forms of digital communication. Most pupils will be able to give a simple explanation of the way to word comments online when given the example of their teacher commenting upon their work. Throughout this unit most pupils will be able to contribute their ideas about communicating appropriately and relate online and off-line appropriate behaviour. Most pupils will be able to open Purple Mash and use the search bar within Purple Mash to find resources (lesson 2). They can suggest appropriate words to search with to find the results that they are looking for.	Sort Criteria Log in Username Password Avatar My work Log out Save Notification Topics Tools

Computing Long Term Plan Cycles A and B (Purple Mash)

			• To start to add pictures and text to work	• Pupils will know how to use the different icons and writing cues to add pictures and text to their work.	**Exceeding:** Pupils demonstrate an understanding of the importance of online safety using their own private usernames and passwords for Purple Mash. Pupils understand the importance of keeping information, such as their usernames and passwords private and actively demonstrate this in lessons. Pupils take ownership of their work and save this in their own private space. Pupils demonstrating greater depth understand the	
		Unit 1.5 **Computer Science** Maze Explorers Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs.	• To understand the functionality of the basic direction keys in Challenges 1 and 2. • To be able to use the direction keys to complete the challenges successfully. • To understand the functionality of the basic direction keys in Challenges 3 and 4. • To understand how to create and debug a set of instructions (algorithm). • To use the additional direction keys as part of their algorithm. • To understand how to change and extend the algorithm list.	• Children know how to use the direction keys in 2Go to move forwards, backwards, left and right. • Children know how to add a unit of measurement to the direction in 2Go Challenge 2. • Children know how to undo their last move. • Children know how to move their character back to the starting point. • Children can use diagonal direction keys to move the characters in the right direction. • Children know how to create a simple algorithm. • Children know how to debug their algorithm. • Children can use the additional direction keys to create a new algorithm. • Children can challenge themselves by using the longer algorithm to complete challenges.	**Emerging** Children can use the buttons to move their character purposefully. They move one step at a time towards the goal rather than anticipating several steps. In (Unit 1.5 Lesson 2), they needed support with challenges 4 and 5 which require anticipating several steps. Children can tackle challenges 4-6 with support, though they might not complete all challenges. They are starting to be able to work out why their program doesn't work as they expect and know that it is due to the instructions which they are inputting rather than a fault with the computer understanding the instructions. With support, children can explain the possible ways to make their turtle move. When looking at a program they can 'read' the code one line at a time but might not be able to envision the bigger picture of the overall effect of the program. When presented with an example from challenges 4-6, they will struggle to work out where the turtle will end up at the end of the program but will know that it will move. **Expected** Children can use the buttons to move their character purposefully. They can plan their moves several steps at a time towards the goal rather than one step at a time. In (Unit 1.5 Lessons 2 & 3), they were able to complete challenges 4 and 5 which require anticipating several steps. In (Unit 1.5 Lessons 2 & 3), children can complete challenges 4 and 5 which require anticipating several steps to	Direction Challenge Arrow Undo Rewind Forward Backwards Right turn Left turn Debug Instruction Algorithm

			• To create a longer algorithm for an activity • To provide an opportunity for the children to set challenges for each other. • To provide an opportunity for the teacher to add these challenges to a display board for the class to try.	• Children can change the background images in their chosen challenge and save their new challenge. • Children have tried each other's challenges.	build a program. They know that any unexpected outcome is due to the code that they have created and make logical attempts to try to fix this code rather than attributing it to a fault with the computer understanding the instructions. Children can explain the possible ways to make their turtle move in the different levels of 2Go. When looking at a program they can 'read' the code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. When presented with an example from challenges 4-6, they can sometimes work out where the turtle will end up at the end of the program and when they are incorrect, they will make good attempts to work out why. Most children will be able to save their 2go maze files, using a memorable file name, to their own personal space on Purple Mash and understand that this can be retrieved later Unit 1.5 Lesson 4. Using 2Go, children can use simple direction keys in conjunction with a number pad (add a unit of measurement) to move an on-screen character to specific locations on a screen. They demonstrate that their sequence of buttons relates to their thinking of how to solve a problem of getting character from point A to point B (Unit 1.5. Lesson 1). As children move through this unit, they demonstrate an ability to successfully use diagonal direction keys combined with number pad to refine their solution for solving a problem (Unit 1.5. Lessons 2 to 3). Most children can make a screen character 'sprite' navigate to a specific place using 2Go. Using strategies such as drawing the route with their finger, counting squares with a grid and testing how many squares each command moves the character, the children have broken down a problem to solve a solution (Unit 1.5. Lesson 1). Children can use the 'list' feature in 2Go to generate an algorithm to solve a given problem. They test their instructions until they finally make an algorithm which works (Unit 1.5. Lesson 2). Their skill of breaking down a problem to solve it is	

Computing Long Term Plan Cycles A and B (Purple Mash)

					evident in their ability to create increasingly longer and more complex algorithms, including number of units moved and diagonal controls (Unit 1.5. Lessons 3 & 4). Most children can change an algorithm to create a different outcome when using 2Go. Their skill at debugging an algorithm and then changing it to perform an intended outcome is secure. Children use alternative algorithms to achieve the same outcomes, beginning to understand refinement of instruction (Unit 1.5. Lesson 3). **Exceeding** Children choose to plan their moves several steps at a time towards the goal even reaching the goal in one 'run' of the program rather than one step at a time. In (Unit 1.5 Lessons 2 & 3, they were able to complete challenges 4 - 6 which require anticipating several steps with ease. Children challenge themselves by creating their own complex challenges. Children choose to plan their moves several steps at a time towards the goal. In (Unit 1.5 Lessons 2 & 3), they can complete challenges 4 - 6 which require anticipating several steps with ease. Children challenge themselves by creating their own complex challenges.	
		Unit 2.4 **Information Technology** Questioning Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To show that the information provided on pictograms is of limited use beyond answering simple questions • To use yes/no questions to separate information • To construct a binary tree to separate different items.	• Children understand that the information on pictograms cannot be used to answer more complicated questions. • Children have used a range of yes/no questions to separate different items.	**Emerging** With support, children can create basic pictograms using 2Count to represent a simple data set (Unit 2.4 Lesson 1). Children may need concrete representation to understand how to organise and search for data. With support, this physical representation can then be transferred into 2Investigate and used to answer simple questions on a data set (Unit 2.4 Lesson 5). Using 2Question, children use a binary tree to sort information and can manipulate their data, answering questions relating to this (Unit 2.4 Lesson 4). With support, children can store and retrieve data throughout Unit 2.4. **Expected**	Pictogram Question Data Collate Binary Tree Avatar Database

Computing Long Term Plan Cycles A and B (Purple Mash)

			• Use 2Question (a binary tree) to answer questions • To use a database to answer more complex search questions. • To use the Search tool to find information.	• Children understand what is meant by a binary tree. • Children have designed a binary tree to sort pictures of children. • Children understand that questions are limited to 'yes' and 'no' in a binary tree. • Children understand that the user cannot use 2Question to find out answers to more complicated questions. • Children have matched 2Simple item pictures to names using a binary tree. • Children understand what is meant by a database. • Children have used a database to answer simple and more complex search questions	Using 2Count, children can create pictograms to represent data (Unit 2.4 Lesson 1). Children demonstrate their ability to organise data using a database in 2Investigate and can run simple searches on their data set (Unit 2.4 Lesson 5). Using 2Question, children use a binary tree to sort information and can manipulate their data, answering questions relating to this (Unit 2.4 Lesson 4). Children will store and retrieve data throughout Unit 2.4. Most children will be able to design their own physical binary tree to sort pictures of children (Unit 2.4 Lesson 3). They will be able to apply this skill into using 2Question to answer questions. Most children can design a binary tree using 2Question to sort pictures (Unit 2.4. Lesson 3). They can use their own created binary trees to support the answering of related questions to the data (Unit 2.4. Lesson 5). **Exceeding** Using 2Count, children can create pictograms to represent data (Unit 2.4 Lesson 1). Children demonstrate their ability to organise data using a database in 2Investigate and can run complex searches on their data set (Unit 2.4 Lesson 5). Using 2Question, children use a binary tree to sort information and can manipulate their data, answering questions relating to this (Unit 2.4 Lesson 4). Children will store and retrieve data throughout Unit 2.4. Children demonstrating greater depth can create their own questions using the data and will use skills covered in other units to assist with this.	
	Spring	**Unit 2.2** **Digital Literacy** Online Safety Use technology safely and respectfully, keeping personal	• To know how to refine searches using the Search tool. • To know how to share work electronically using the display boards. • To use digital technology to share work on Purple	• Children can use the search facility to refine searches on Purple Mash by year group and subject. • Children can share the work they have created to a display board.	**Emerging** With support, children are beginning to understand how to use the Purple Mash search bar and know the implications of inappropriate searches (Unit 2.2 Lesson 1). With support, they can share their work using the display board (Unit 2.2 Lesson 1). Furthermore, using 2Respond activities, the children develop an understanding of how to use	Search Display Internet Sharing Email Attachment Digital Footprint

		information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Mash to communicate and connect with others locally. • To have some knowledge and understanding about sharing more globally on the Internet. • To introduce Email as a communication tool using 2Respond simulations. • To understand how we talk to others when they are not there in front of us. • To open and send simple online communications in the form of email. • To understand that information put online leaves a digital footprint or trail. • To begin to think critically about the information they leave online. • To identify the steps that can be taken to keep personal data and hardware secure	• Children understand that the teacher approves work before it is displayed. • Children are beginning to understand how things can be shared electronically for others to see both on Purple Mash and the Internet. • Children know that Email is a form of digital communication. • Children understand how 2Repond can teach them how to use email. • Children can open and send an email to a 2Respond character. • Children have discussed their own experiences and understanding of what email is used for. • Children have discussed what makes us feel happy and what makes us feel sad. • Children can explain what a digital footprint is. • Children can give examples of things that they would not want to be in their digital footprint	email safely and responsibly (Unit 2.2 Lesson 2). They also know how to report inappropriate content to their teacher. **Expected** Children understand how to use the Purple Mash search bar and know the implications of inappropriate searches (Unit 2.2 Lesson 1). Most children will be able to explain what a digital footprint is, that it is permanent and their online behaviour influences what it shows (lesson 3). Most children will be able to give reasons for keeping their password safe that include protecting their personal information. Most children will be able to express the good and bad sides of digital technology. In lesson 3, they can give examples of positive effects on life as well as negative. Children add their name to work but show a differentiation between full name and first name only when information is to be shared online. Most children will be able to share their work to a Display Board (lesson 1). By sharing their work using the display board, children begin to understand how things are shared electronically (Unit 2.2 Lesson 1). Most children will be able to open and respond to simulated emails in 2Email (lesson 2) Most children will be able to open and send email responses to simulated emails in 2Email (Unit 2.2 Lesson 2). Furthermore, using 2Respond activities the children develop an understanding of how to use email safely and responsibly (Unit 2.2 Lesson 2). They also know how to report inappropriate content to their teacher. **Exceeding** Children understand how to use the Purple Mash search bar (Unit 2.2 Lesson 1) and for greater depth can refine searches using Boolean search terms (AND, OR, NOT).	

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		Unit 1.6 **Information Technology** Animated Story Books Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To understand the differences between traditional books and ebooks. • To explore the tools of 2Create a Story's My Simple Story level. • To save the page they have created • To add animation to a picture. • To play the pages created so far. • To save the additional changes and overwrite the file. • To add a sound effect to a picture. • To add a voice recording to the picture. • To add created music to the picture. • To add a background to the story. • To demonstrate a good understanding of all the tools they have used in 2Create a Story and use these successfully to create their own story • To use the copy and paste feature to create additional pages.	• Children know the difference between a traditional book and an e-book. • Children can use the different drawing tools to create a picture on the page. • Children can add text to a page. • Children can open previously saved work. • Children can add an animation to a page. • Children can play the pages created. • Children can save changes and overwrite the file. • Children can add a sound to the page. • Children can add voice recording to the page. • Children can create music for a page. • Children can add a background to the page. • Children can use the additional drawing tools on My Story mode. • Children can change the font style and size.	**Emerging** With support, children use the 'My Simple Story' aspect of 2Create a Story to create a simple interactive story (Unit 1.6 Lesson 1). With limited success, children can manipulate the properties of their story by changing the images, adding animations (Unit 1.6 Lesson 2) and sound (Unit 1.6 Lesson 3) as well as typing, copying and pasting pages (Unit 1.6 Lesson 5). Children are taught the importance of saving their work, overwriting saved files and retrieving their saved work (Unit 1.6 Lesson 1). **Expected** Children can use the 'My Story' aspect of 2Create a Story to create an interactive story (Unit 1.6 Lesson 1). They can manipulate the properties of their story by changing the images, adding animations (Unit 1.6 Lesson 2) and sound (Unit 1.6 Lesson 3) as well as typing, copying and pasting pages (Unit 1.6 Lesson 5). Children are taught the importance of saving their work, overwriting saved files and retrieving their saved work. Children can include their name and date within the text of their e-books. Children demonstrate their understanding by discussing e-books and by sharing their own book with others on a class displayboard. Children make valid comparisons between paper book and e-books. They can apply their knowledge of paper book when developing their e-books. Most children will be able to save their animated story files, using a memorable file name, to their own personal space on Purple Mash and understand that this can be retrieved later Unit 1.6 Lesson 1. **Exceeding** Children can use the 'My Story' aspect of 2Create a Story to create a detailed interactive story (Unit 1.6 Lesson 1). This demonstrates their ability to combine all the aspects available within the software e.g. recording their own sounds and importing backgrounds, to enhance their narrative. Children are taught the importance of saving their	Animation Font Sound effect E Book File Display Borad

Computing Long Term Plan Cycles A and B (Purple Mash)

			• To continue and complete an animated story. • To create a class display board of the story books created by the class.	• Children can use the copy and paste function to add more pages to their animated e-book. • Children can share their e-books on a class story book display board.	work, overwriting saved files and retrieving their saved work (Unit 1.6 Lesson 1). Furthermore, they can publish this to a class display board (Unit 1.6 Lesson 5).	
		Unit 2.7 **Information Technology** Making Music Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To be introduced to making music digitally using 2Sequence. • To explore, edit and combine sounds using 2Sequence. • To add sounds to a tune to improve it. • To think about how music can be used to express feelings and create tunes which depict feelings • To upload a sound from a bank of sounds into the Sounds section. • To record their own sound and upload it into the Sounds section.	• Children understand what 2Sequence is and how it works. • Children have used the different sounds within 2Sequence to create a tune. • Children have explored how to speed up and slow down tunes. • Children understand what happens to the tune when sounds are moved. • Children have added sounds to a tune they have already created to change it. • Children have considered how music can be used to express feelings. • Children can change the volume of the background sounds. • Children have created two tunes which depict two feelings. • Children have uploaded and used their own sound chosen from a bank of sounds.	**Emerging** With support, children use the sounds within 2Sequence to create a simple composition (Unit 2.7 Lesson 1). They demonstrate their ability to manipulate digital content by editing and amending their composition (Unit 2.7 Lesson 1). Throughout this unit, with support, children show that they can store and retrieve their work from their saved area on Purple Mash. **Expected** Children use the sounds within 2Sequence to create a composition (Unit 2.7 Lesson 1). They demonstrate their ability to manipulate digital content by editing and amending their composition (Unit 2.7 Lesson 1). They will have explored different sounds to utilise within their tune and functions such as tempo (Unit 2.7 Lesson 1). Children create, upload and use their own sounds as part of this (Unit 2.7 Lesson 3). Throughout this unit, children show that they can efficiently store and retrieve their work from their saved area on Purple Mash. **Exceeding** Children achieve all expected outcomes. In addition, using 2Beat, children can create a simple drum composition and export this as an mp3. They can then upload this into 2Sequence allowing them to add greater complexity to their composition. In doing this, children demonstrate their ability to seamlessly use all aspects of the software and therefore greater depth. Throughout this unit, children show that they can efficiently store and retrieve their work from their saved area on Purple Mash.	Bpm Composition Digitally Instrument Music Sound Effects (sfx) Soundtrack Tempo Volume

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			• To create their own tune using the sounds which they have added to the Sounds section.	• Children have created, uploaded and used their own recorded sound. • Children have created their own tune using some of the chosen sounds.		
	Summer	**Unit 2.3** **Information Technology** Spreadsheets Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To review the work done in 2Calculate in year 1. • To revise spreadsheet related vocabulary. • To use some 2Calculate tools that were introduced in year 1. • To use copying, cutting and pasting shortcuts in 2Calculate. • To use 2Calcuate totalling tools. • To use 2Calculate to solve a simple puzzle • To explore the capabilities of a spreadsheet in adding up coins to match the prices of objects • To add and edit data in a table layout.	• Children can explain what rows and columns are in a spreadsheet. • Children can open, save and edit a spreadsheet. • Children can add images from the image toolbox and allocate them a value. • Children can add the count tool to count items. • Children can use copying, cutting and pasting to help make spreadsheets. • Children can use tools in a spreadsheet to automatically total rows and columns. • Children can use a spreadsheet to solve a mathematical puzzle. • Children can use images in a spreadsheet. • Children can work out how much they need to pay using coins by using a spreadsheet to help calculate. • Children can create a table of data on a spreadsheet.	**Emerging** With support, children can open, edit and save sheets in 2Calculate (Throughout Unit 2.3). Children can enter a small set of data into cells (Throughout Unit 2.3). With support, they can allocate a value to an image (Unit 2.3 Lesson 1) and manipulate data using copying, cutting and pasting allowing them to solve puzzles (Unit 2.3 Lesson 2) - support in the form of a visual prompt may be given here to aid children in using keyboard short cuts). Children use images and can present data in a variety of ways (Unit 2.3 Lesson 4). **Expected** Using the 2Calculate spreadsheet, children can open, edit and save sheets (Throughout Unit 2.3). Children can enter data into cells (Throughout Unit 2.3), allocate a value to an image (Unit 2.3 Lesson 1) and manipulate data using copying, cutting and pasting allowing them to solve puzzles (Unit 2.3 Lesson 2). Children use images and can present data in a variety of ways (Unit 2.3 Lesson 4). Most children will be able to create a spreadsheet which includes a graph based on simple data collected. Their planned spreadsheet and graph are likely to contain pre-compiled shared data. They can add colour and appropriate labels to their spreadsheet and graph respectively (Unit 2.3. Lesson 4). Most children will be able to produce a spreadsheet which can help them solve simple mathematical puzzles, calculate how many coins are required to pay for an amount and present data graphically. Using spreadsheets, the children can model an idea through them (Unit 2.3.). Children can utilise spreadsheets both own and pre-made to manipulate data e.g., create a manual graph from a	Backspace key Copy and paste Columns Cells Count tool Delete key Equals tool Image toolbox Move cell tool Rows Speak tool Spreadsheet

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			• To use the data to manually create a block graph.	• Children can use the data to create a block graph manually.	table, produce desired calculations on numerical data e.g., simple addition calculations (Unit 2.3. Lesson 3). Children can answer questions on data e.g., the most and least popular flavours (Unit 2.3. Lesson 4). Most children will be able to use 2Calculate to record collected data into a table and use this data to create a block graph manually (Unit 2.3. Lesson 4). **Exceeding** Using the 2Calculate spreadsheet, children can independently open, edit and save sheets and support others in doing this (Throughout Unit 2.3). Children can enter a wider amount data into cells (Throughout Unit 2.3), allocate a value to an image (Unit 2.3 Lesson 1) and manipulate data seamlessly using keyboard short cuts for copying, cutting and pasting, allowing them to solve puzzles (Unit 2.3 Lesson 2). Children use images and can present data in a variety of ways (Unit 2.3 Lesson 4). Children will demonstrate greater depth by explaining the data and summarising this into simple statements (Unit 2.3 Lesson 4).	
		Unit 1.3 **Information Technology** Pictograms Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To understand that data can be represented in picture format. • To contribute to a class pictogram. • To use a pictogram to record the results of an experiment	• Children can discuss and illustrate the transport used to travel to school. • Children can contribute to the collection of class data. • Children have used these illustrations to create a simple pictogram • Children can contribute to a class pictogram. • Children can discuss what the pictogram shows. • Children can collect data from rolling a die 20 times and recording the results. • Children can represent the results as a pictogram.	**Emerging** With support, children can organise a limited set of data into a physical pictogram (Unit 1.3 Lesson 1) and a virtual pictogram (Unit 1.3 Lesson 2). With support, children use this data to answer given questions. Working as a group, children can create, store, retrieve and share their pictograms (Unit 1.3 Lesson 3). **Expected** Children can collate and organise class data into a physical pictogram (Unit 1.3 Lesson 1) and a virtual pictogram (Unit 1.3 Lesson 2) Children can then interrogate this data to answer given questions. Children can create, store, retrieve and share their own pictograms (Unit 1.3 Lesson 3). Most children will be able to save their pictograms, using a memorable file name, to their own personal space on Purple Mash and understand that this can be retrieved later (Unit 1.3 Lesson 3.) Children can	Pictogram Data Collate

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					represent simple collected data in an appropriate pictogram by using 2Count (Unit 1.3. Lesson 3). Most children can collate data from rolling a die and record the results within 2Count. They demonstrate that they can use 2Count to group collated data into pictorial representations (Pictograms) Unit 1.3. Lesson 3). **Exceeding** Children can collate and organise class data into a physical pictogram (Unit 1.3 Lesson 1) and a virtual pictogram (Unit 1.3 Lesson 2) Children can then interrogate this data to present statements about the data e.g. 'The second most popular form of transport was…'. Independently, children can create, store, retrieve and share their own pictograms (Unit 1.3 Lesson 3).	
		Unit 2.8 **Information Technology** Presenting Ideas Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To explore how a story can be presented in different ways. • To make a quiz about a story or class topic. • To make a fact file on a non-fiction topic.	• Children have examined a traditional tale presented as a mind map, as a quiz, as an e-book and as a fact file. • Children know that digital content can be represented in many forms. • Children have made a quiz about a story using 2Quiz. • Children can talk about their work and make improvements to solutions based on feedback received. • Children have extracted information from a 2Connect file to make a publisher fact file on a non-fiction topic.	**Emerging** With support throughout, children use the software 2Create a Story on Purple Mash to create a simple narrative (Unit 2.8 Lesson 4). An emerging child will be able to explain their narrative to the teacher whilst referring to their 2Create a Story file. Throughout this unit, with support, children show that they can store and retrieve their work from their saved area on Purple Mash. **Expected** Children use the software 2Quiz (Unit 2.8 Lesson 2) 2Publish+, 2Connect (Unit 2.8 Lesson 3) and 2Create a Story on Purple Mash to create and present a narrative (Unit 2.8 Lesson 4). This demonstrates the children's understanding of how digital content can be represented in many forms. Throughout this unit, children show that they can efficiently store and retrieve their work from their saved area on Purple Mash. Throughout this unit, children are presenting ideas in different formats for different audiences. Most children can adapt their content to suit the audience and format. When children feedback to others whether face-to-face or online, their input shows consideration for the other person's feelings. Most children will be	Concept map (mind map) Node Animated Quiz Non-fiction Presentation Narrative Audience

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			• To make a presentation to the class.	• Children have added appropriate clipart. • Children have added an appropriate photo. • Children know that data can be structured in tables to make it useful. • Children can use a variety of software to manipulate and present digital content and information. • Children can collect, organise and present data and information in digital content. • Children can create digital content to achieve a given goal by combining software packages.	able to use Purple Mash as a platform for collaboration. Specifically, they will create a presentation for their class using a tool of their choice (Unit 2.8 Lesson 4). Most children can plan their own presentation which will utilise either: 2Connect, 2Create a Story or a Publishing Template (Unit 2.8 Lesson 4). They will effectively select the most appropriate tool to use during the planning and resource gathering stage of the task (Unit 2.8 Lesson 4). Most children can make improvements to their quizzes they have made in 2Quiz, fully able to select the most appropriate question out of the 8 choices (Unit 2.8. Lesson 2). Children can utilise a variety of software to manipulate and present digital content and information (Unit 2.8. Lesson 3). **Exceeding** Independently, children choose the software to use to represent their narrative and reason why- 2Quiz (Unit 2.8 Lesson 2) 2Publish+, 2Connect (Unit 2.8 Lesson 3) on Purple Mash to create and present a narrative (Unit 2.8 Lesson 4). This demonstrates the children's understanding of how digital content can be represented in many forms. Throughout this unit, children show that they can efficiently store and retrieve their work from their saved area on Purple Mash.	
Years 3 and 4	**Autumn**	**Units 3.1 / 4.1** **Computer Science** Coding Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing	• To understand how to use the repeat command. • To understand the Repeat until command. • To begin to understand selection in computer programming.	• Children understand how the turtle object moves. • Children can use the repeat command with an object. • Children can create a computer program that includes use of the repeat command. • Children can read code that includes repeat until and IF/ ELSE and explain how it works.	**Emerging** Children can make good attempts to 'read' code and predict what will happen in a program which can help them to correct errors (Unit 3.1 Lesson 3). Children's designs for their programs, show that they are thinking of the structure of a simple program in logical, achievable steps (Unit 3.1 lessons 5 and 6). They have a developing idea that a variable can be used to store information in a program, in Unit 4.1, lesson 5 they can follow the examples but might struggle when applying this with their own ideas. **Expected** Children have a clear idea of how to design and code a program that follows a simple sequence	Action Alert Background Button Block code Command Co-ordinates Debug/debugging Execute Flowchart If Algorithm Blocks of command Collision detection

		them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To understand how an IF/ELSE statement works. • To understand what a variable is in programming. • To use a number variable. • To design and create an interactive scene. • To review vocabulary and concepts learnt in Year 4 Coding. • To create a playable game.	• Children can create a program that includes an IF/ ELSE statement. • Children can interpret a flowchart that depicts an IF/ ELSE statement. • Children can explain what a variable is in programming. • Children can create and use variables when programming. • Children can use the properties table to set the properties of objects. • Children can plan their scene and code before they create their program. • Children can confidently make several different things happen in a program • Children can read code that includes repeat until and IF/ ELSE and explain how it works. • Children can create a program that includes and IF/ ELSE statement. • Children can interpret a flowchart that depicts an IF/ ELSE statement.	(Unit 3.1 Lessons 2 and 3). Children experiment with the use of timers to achieve delay effects in their programs – they understand the difference between timer-after and timer-every commands. (Unit 3.1 Lesson 2) Children' designs for their programs, show that they are thinking of the structure of a simple program in logical, achievable steps with attention to specific events that initiate specific actions. (Unit 3.1 Lessons 5 & 6). Most children can explain the choice of commands they have included in their program and what they achieve (Unit 3.1 Lessons 5 & 6). Most children can integrate multimedia components such as sounds, animation and images into their coding. They can apply specific actions to these objects to animate them as part of the overall process of creating their own program (Unit 3.1. Lessons 5 and 6). **Exceeding** Children's designs show that they are thinking of the required task and how to accomplish this in code (Unit 3.1 Lessons 5 & 6). Children have a good understanding of timers within timers in a program (Unit 3.1 Lessons 2 and 4) and this is evidenced in their program designs (Unit 3.1 Lessons 5 & 6). Children exhibit greater ease at fixing their own bugs as their coding becomes more complex. (Lessons 5 and 6). Children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition (Unit 4.1 Lessons 1 and 6). Children can identify an error within a program that prevents it following the desired algorithm and then fix it (Unit 4.1), they apply these techniques to their own code to fix bugs. Children understand IF and IF/ ELSE statements for selection and combine these with other coding structures including variables to achieve the effects that they design in their programs (Unit 4.1 Lesson 4). Their design demonstrates their growing understanding of when a coded solution will require repetition e.g. in Lesson 4 'Reginal Rocket' children can see that the	Develop Event Nesting

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					position of the rocket is changed repeatedly until it is in line with the rocket launch pad. They can explain the new command 'Repeat Until'. They make use of user input (Unit 4.1 Lesson 2) and outputs such as 'print to screen' (Unit 4.1 Lesson 4) as well as sound and movement of objects. They understand how variables can be used to store information while a program is executing (Unit 4.1 Lesson 5) and make attempts to use and manipulate the value of variables.	
		Unit 4.2 **Digital Literacy** Online Safety Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about	• To understand how children can protect themselves from online identity theft. • To understand that information put online leaves a digital footprint or trail and that this can aid identity theft. • To identify the risks and benefits of installing software including apps. • To understand that copying the work of others	• Children know that security symbols such as a padlock protect their identity online. • Children know the meaning of the term 'phishing' and are aware of the existence of scam websites. • Children can explain what a digital footprint is and how it relates to identity theft. • Children can give examples of things that they would not want to be in their digital footprint • Children can identify possible risks of installing free and paid for software. • Children know that malware is software that is specifically designed to disrupt, damage, or gain access to a computer. • Children know what a computer virus is. • Children can determine whether activities that	**Emerging** Children contribute their ideas to discussion of spam email (lesson 1), malware (lesson 2) and plagiarism (lesson 3). They have included appropriate content in their Top Tips for Online Safety publication (lesson 2). They have been able to share their work online. With support throughout, children show an understand what online safety is. In a small group, they can use 2Connect (Unit 4.2 Lesson 1) to map out the key features of online safety. Children produce a simple leaflet, postcard, or slideshow etc about online safety, which can then be used as part of presentation to parents (Unit 4.2 Lesson 1). **Expected** Children have decided upon the most important online safety messages to communicate and have shared these ideas in their Top Tips for Online Safety publication (lesson 2). They put this knowledge into action in their own online activity. Children can explore key concepts relating to online safety using 2Connect Unit 4.2 Lesson 1). They help others to understand the importance of online safety (Unit 4.2 Lesson 2) and apply their knowledge through the creation of online safety resources which are then used as part of presentation to parents (Unit 4.2 Lesson 1). Using the example from lesson 1, children can give some examples of things to look out for in an email to ensure that it from a valid source and is not a phishing scam email. They can explain what can be	Computer virus Cookies Copyright Digital footprint E-mail Identity theft Malware Phishing Plagiarism Spam

		content and contact.	and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. • To identify appropriate behaviour when participating or contributing to collaborative online projects for learning. • To identify the positive and negative influences of technology on health and the environment. • To understand the importance of balancing game and screen time with other parts of their lives.	they undertake online, infringe another's' copyright. They know the difference between researching and using information and copying it • Children know about citing sources that they have used. • Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities. • Children can give reasons for limiting screen time.	learnt by looking at the padlock details for a website (lesson 1). Most children can reflect upon positive and negative aspects of a digital footprint and can give examples of the care they would take when sharing online in relation to their and others' digital footprint (lesson 1). Most children can give reasons for taking care when installing apps or software. They know what Malware is and the possible impact of computer viruses and can give recommendations for how best to ensure that they only install valid software as part of their top tips document in lesson 2. Most children can give reasons for limiting screen time that include the effect on physical and mental health. In lesson 4, they were able to reflect on their own screen time and collective class screen time and begin to make informed decisions about when to limit their own screen time. Most children can explain how plagiarism is stealing, they are beginning to be able to identify the aspects of sharing that would be classed as plagiarism (lesson 3). In lesson 4, children were able to include actions for reporting cyberbullying or inappropriate content in their screen time study document. By completing lesson 4, most children would have saved both online and locally to a device and are able to explain the differences between the two storage types. Most children will be able to identify key messages that should be shared with other children and parents about online safety, including identification of reliable content from websites found via common search engines (Unit 4.2 Lessons 1 & 2). **Exceeding** Children have decided upon the most important online safety messages to communicate and have shared these ideas in their Top Tips for Online Safety publication (lesson 2). Children demonstrate that they are making connections between the positive possibilities that technology provides e.g., collaboration and sharing and the possible downsides of this such as malware and phishing.	

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					They actively use this knowledge to support their own online activities safely. Children demonstrating greater depth understand the key concepts and implications of the choices they make relating to online safety (Unit 4.2 Lesson 1). They help others to understand the importance of online safety (Unit 4.2 Lesson 2) and apply their knowledge and approach to staying safe online in all areas of the curriculum (Unit 4.2 Lesson 1).	
		Unit 4.3 **Information Technology** Spreadsheets Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To explore how the numbers entered into cells can be set to either currency or decimal. • To explore the use of the display of decimal places. • To find out how to add formulae to a cell. • To explore how tools can be combined to use 2Calculate to make number games. • To explore the use of the timer, random number and spin button tools. • To use the line graphing tool in 2Calculate with appropriate data. • To interpret a line graph to estimate values between data readings. • To use the currency formatting tool in 2Calculate. • To use 2Calculate to create a	• Children can use the number formatting tools within 2Calculate to appropriately format numbers. • Children can add a formula to a cell to automatically make a calculation in that cell • Children can use the timer, random number and spin button tools. • Children can combine tools to make fun ways to explore number. • Children can use a series of data in a spreadsheet to create a line graph. • Children can use a line graph to find out when the temperature in the playground will reach 20°C • Children can make practical use of a spreadsheet to help them plan actions.	**Emerging** With support throughout, children will use 2Calculate and a limited data set to design a simple graph to solve a mathematical problem (Unit 4.3 Lesson 3). Children will present their data and information using 2Calculate (Unit 4.3 Lesson 5). **Expected** Children will use 2Calculate to design a graph to solve a mathematical problem (Unit 4.3 Lesson 3). Children will present, format and analyse their data and information in a variety of ways and use their spreadsheets to solve and check mathematical problems and concepts (Unit 4.3 Lesson 5). Most children can use the number formatting tools within 2Calculate to appropriately format numbers (Unit 4.3. Lesson 1). Children can add a formula to a cell to automatically make a calculation in that cell using the 'formula wizard' (Unit 4.3. Lesson 1). They will be fluent in copying and pasting contents between cell(s) (Unit 4.3. Lesson 1). Children can use spreadsheets to collate data and extract information from it to answer questions e.g., children can create line graphs and can use it to identify when something will happen using 2Calculate (Unit 4.3 Lesson 3) **Exceeding** Children demonstrating greater depth will explore more complex functioning of the 2Calculate tools to create their own spreadsheets to explore number and interpret their own data. They will intuitively grasp the concept of using a spreadsheet	Average function Advance mode Copy and paste Columns Cells Charts Equals tool Formula

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			model of a real-life situation. • To use the functions of allocating value to images in 2Calculate to make a resource to teach place value.	• Children can use the currency formatting in 2Calculate. • Children can allocate values to images and use these to explore place value. • Children can use a spreadsheet made in 2Calculate to check their understanding of a mathematical concept	to model a reallife situation and calculate solutions. Children demonstrating greater depth will use 2Calculate to design a range of different graphs which present data in a variety of ways and select the most appropriate one to independently to solve mathematical problems (Unit 4.3 Lesson 5)	
	Spring	**Unit 4.4** **Information Technology** Writing for Different Audiences Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To explore how font size and style can affect the impact of a text. • To use a simulated scenario to produce a news report. • To use a simulated scenario to write for a community campaign.	• Children can look at and discuss a variety of written material where the font size and type are tailored to the purpose of the text. • Children can use text formatting to make a piece of writing fit for its audience and purpose. • Children can role-play the job of a journalist in a newsroom. • Children can interpret a variety of incoming communications and use these to build up the details of a story. • Children can use the incoming information to write their own newspaper report. • Children can use 2Connect to mind-map ideas for a community campaign.	**Emerging** With support throughout, children will use 2Connect (Unit 4.4 Lesson 4 and 5) and 2 Publish+ (Unit 4.4 Lesson 4 and 5) to create limited content in small groups linked to a 2Simulate scenario (Unit 4.4 Lesson 2, 3, 4 and 5). Using the variety of software, children change the font style to make it appropriate for their audience (Unit 4.4 Lesson 1). **Expected** Children will use 2Connect (Unit 4.4 Lesson 4 and 5) and 2 Publish+ (Unit 4.4 Lesson 4 and 5) to create content linked to a 2Simulate scenario (Unit 4.4 Lesson 2, 3, 4 and 5) for a select audience. Using the variety of software, children must make informed choices about the best way to present their information e.g., appropriate font and text formatting (Unit 4.4 Lesson 1). Most children can alter font types, styles and sizes to suit an intended audience for digital content using 2Publish and incorporate, with ease, images from clipart banks and internet sources (Unit 4.4. Lesson 1). **Exceeding** Children demonstrating greater depth will seamlessly use a variety of software including 2Connect (Unit 4.4 Lesson 4 and 5) and 2 Publish+ (Unit 4.4 Lesson 4 and 5) to create content linked to a 2Simulate scenario (Unit 4.4 Lesson 2, 3, 4 and 5) for a variety of different audiences. Using the	Font Bold Italic Underline

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				• Children can use these ideas to write a persuasive letter or poster as part of the campaign. • Children can assess their texts using criteria to judge their suitability for the intended audience.	variety of software, children must make informed choices about the best way to present their information e.g., appropriate font and text formatting and give reasons for their choices (Unit 4.4 Lesson 1)	
		Unit 4.5 **Computer Science** Logo Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and	• To learn the structure of the language of 2Logo. • To input simple instructions in 2Logo • To use 2Logo to create letter shapes. • To use the Repeat command in 2Logo to create shapes. • To use and build procedures in 2Logo.	• Children know what the common instructions are in 2Logo and how to type them. • Children can follow simple 2Logo instructions to create shapes on paper. • Children can follow simple instructions to create shapes in 2Logo. • Children can create 2Logo instructions to draw patterns of increasing complexity. • Children understand the pu and pd commands. • Children can write 2Logo instructions for a word of four letters • Children can follow 2Logo code to predict the outcome. • Children can create shapes using the Repeat command. • Children can find the most efficient way to draw shapes • Children can use the Procedure feature.	**Emerging** Children can 'read' small 2Logo programs and predict the outcome using some logical reasoning although they might not always be correct (Unit 4.5 Lesson 1). Children think about the 2Logo commands that they need in small steps, one or two commands at a time. When their code does not execute as they expect, they can sometimes find the error independently but as the code becomes longer, they need support to do so (Unit 4.5 Lesson 2). They understand that the repeat command makes things happen more than once but might not be able to plan the repeat; they work out a solution using trial-and-error that includes some logic (Unit 4.5 Lesson 3). They can create a procedure but might not realise the full value of creating a procedure to make quality code and save coding the same thing many times over (Unit 4.5 Lesson 4). **Expected** Children can 'read' 2Logo programs with several steps and predict the outcome accurately (Unit 4.5 Lesson 1) & (Unit 4.5 Lesson 3). Children can think about the 2Logo commands that they need steps of two or more commands at a time before executing the code to check the result e.g. fd 4 rt 90 fd 6 rt 90. When their code does not execute as they expect, they can sometimes find the error independently but as the code becomes longer, they need support to do so (Unit 4.5 Lesson 2). They understand the repeat command and can plan simple repeat structures before executing rather than relying on trial-and-error (Unit 4.5 Lesson 3). They experiment with repeating procedures to make more complex patterns (Unit 4.5 Lesson 4). They understand the value of a procedure in making code more efficient and call these procedures appropriately (Unit 4.5 Lesson 4). Most children can manipulate instructions within 2Logo to create common shapes using repeat functions (Unit 4.5.	Logo BK FD RT LT REPEAT SETPC SETPS PU PD

		correct errors in algorithms and programs		• Children can create 'flowers' or 'crystals' using 2Logo	Lesson 3). They can edit instructions to produce shapes created in the most efficient way including using the Procedures function (Unit 4.5. Lesson 4). In (Unit 4.5 Lesson 4), they can use some knowledge of mathematics to understand how the patterns are formed. **Exceeding** Children enjoy and challenge themselves to think about the 2Logo commands that they need in long steps of several commands at a time before executing the code to check the result e.g. fd 4 rt 90 fd 6 rt 90 fd 5 lt 90 fd 9 These commands include repeats alongside sequential steps. They fully understand the value of the pu and pd commands to achieve the effects that they desire (Unit 4.5 Lesson 1). When their code does not execute as they expect, they use logical reasoning and debugging techniques such as running accumulating parts of the code to find the source of the error independently (Unit 4.5 Lesson 2). They create procedures and call these procedures efficiently; they can refine their code to put procedure calls within other procedures (Unit 4.5 Lesson 4). They experiment with repeating procedures to make more complex patterns demonstrating the mathematical understanding behind the patterns (Unit 4.5 Lesson 4). Children can 'read' increasingly complex 2Logo programs with several steps and predict the outcome accurately (Unit 4.5 Lesson 3) including procedures within repeats (Unit 4.5 Lesson 4)	
		Unit 4.6 **Information Technology** Animation Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and	• To decide what makes a good, animated film or cartoon and discuss favourite animations. • To learn how animations are created by hand. • To find out how 2Animate animations can be created in a similar way using technology. • To learn about onion skinning in animation. • To add backgrounds and sounds to animations	• Children have put together a simple animation using paper to create a flick book. • Children understand animation frames. • Children have made a simple animation using 2Animate. • Children know what the Onion Skin tool does in animation.	**Emerging** With support throughout, children will use a pencil and paper flip book to understand the basics of stop motion animation (Unit 4.6 Lesson 1). Children begin to transfer this knowledge and create their own basic animation using 2Animate (Unit 4.6 Lesson 3). This animation may lack detail and lack smoothness of transition. Children share their learning by displaying their animation on a blog or display board (Unit 4.6 Lesson 3). **Expected** Initially children will use a pencil and paper flip book to understand the basics of stop motion animation (Unit 4.6 Lesson 1). Children transfer this knowledge and create their own animation using 2Animate (Unit 4.6 Lesson 3). Children know,	Animation Flipbook Frame Onion skinning Background Play Sound Stop motion Video clip

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		content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• Introducing 'stop motion' animation. • To share animation the class blog.	• Children can use the Onion Skin tool to create an animated image. • Children can use backgrounds and sounds to make more complex and imaginative animations • Children know what 'stop motion' animation is and how it is created. • Children have used ideas from existing 'stop motion' films to recreate their own animation. • Children have shared their animations and commented on each other's work using display boards and blogs in Purple Mash.	understand, and use the onion skin animation tool within 2Animate to show movement across the screen (Unit 4.6 Lesson 2). Furthermore, they select backgrounds and sounds to make their animation more immersive (Unit 4.6 Lesson 2). Children share their learning by displaying their animation on a display board or blog (Unit 4.6 Lesson 3). **Exceeding** Children demonstrating greater depth create their own detailed animation using 2Animate (Unit 4.6 Lesson 3) utilizing all the features of the software e.g., onion skin animation tool (Unit 4.6 Lesson 2) select backgrounds and sounds (Unit 4.6 Lesson 2). Children share their learning by displaying their animation on a display board or blog (Unit 4.6 Lesson 3). Children will demonstrate greater depth understanding when they suggest novel ways to solve difficulties that other children are having in making their animations effective	
	Summer	**Unit 4.7** **Information Technology** Effective Search Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication	• To locate information on the search results page. • To use search effectively to find out information. • To assess whether an information source is true and reliable.	• Children can structure search queries to locate specific information. • Children have used search to answer a series of questions. • Children have written search questions for a friend to solve. • Children can analyse the contents of a web page for clues about the credibility of the information.	**Emerging** Children have some awareness that search engines can provide helpful information to support our daily lives such as: Weather forecasts, postcodes, answer calculations, provide definitions and sport results (Unit 4.7 Lesson 1 & 2). They can search for intended information with some degree of accuracy demonstrated in the results returned. **Expected** Children can use search engines to provide helpful information to support their learning (Unit 4.7 Lesson 1 & 2). They can search for intended information with a degree of accuracy and thus know that key words can be more effective than sentences when searching. Most children will be able to locate information from the internet via a search engine using effective techniques such as truncating a question into just key words or concise phrases. They will be aware of the lack of need to	Easter egg Internet Internet browser Search Search engine Spoof website Website

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		and collaboration. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.			use capital letters or punctuation when using this search technique (Unit 4.7. Lesson 2). Most children will be able to analyse the contents of a web page for obvious clues about the credibility of the information. They will be able to work in small groups to decide collectively if a website has questionable credibility (Unit 4.7, Lesson 3) **Exceeding** Children can use search engines effectively to find intended information (Unit 4.7 Lesson 1 & 2) and are fully aware of the benefits of using key words. They can interpret search questions and decide upon how to re-phrase them so that they return the most suitable results in a search engine.	
		Unit 4.8 **Computer Science** Hardware Investigators Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	• To understand the different parts that make up a desktop computer. • To recall the different parts that make up a computer.	• Children can name the different parts of a desktop computer. • Children know what the function of the different parts of a computer is • Children have created a leaflet to show the function of computer parts	**Emerging** Children understand what hardware is and that specific components allow computers to join and form a network. Children can recognise some hardware parts that relate to networking (Unit 4.8 Lesson 1). With some support, children can create their own hardware leaflet. **Expected** Children recognise the main component parts of hardware which allow computers to join and form a network (Unit 4.8 Lesson 1). Children can create their own leaflet to share their understanding of Computer Hardware (Unit 4.8 Lesson 2) **Exceeding** Children recognise the components parts of hardware which allow computers to join and form a network (Unit 4.8 Lesson 1). They are also able to explain that there are different types of network and how they are connected. Children can create their own leaflet to share their understanding of Computer Hardware and can compare physical network connections with wireless connections. (Unit 4.8 Lesson 2)	Motherboard CPU RAM Graphics card Network card Monitor Speakers Keyboard Mouse

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Years 5 and 6	**Autumn**	**Unit 6.1 /5.1** **Computer Science** Coding Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Select, use and combine a variety of software (including internet services)	• To design a playable game with a timer and a score. • To plan and use selection and variables. • To understand how the launch command works. • To know what decomposition and abstraction are in Computer Science. • To take a real-life situation, decompose it and think about the level of abstraction. • To use decomposition to make a plan of a real-life situation. • To use functions and understand why they are useful. • To understand how functions are created and called. • To use flowcharts to test and debug a program. • To create a simulation of a room in which devices can be controlled.	• Children can plan a program which includes a timer and a score. • Children can follow their plans to create a program. • Children can debug when things do not run as expected. • Children can make good attempts to break down their task into smaller achievable steps. • Children recognise the need to start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task. • Children can create a program that makes use of functions. • Children can create a program that uses multiple functions with the code arranged in tabs. • Children can explain how their code executes when their program is run. • Children can follow flowcharts to create and debug code. • Children can create flowcharts for procedures. • Children can be creative with the way they code to generate novel visual effects	**Emerging** Children are beginning to be able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way with support (Unit 6.1 Lessons 1 and 2). They can then use this design to write a program using 2Code. Children understand sequence, selection and repetition in programs and can use them in their simplest forms. They will require support when combing these aspects e.g. using selection within a repeat in a game (Unit 6.1 Lessons 1, 2 and 6). With support, children can plan, design and create a simple program that includes a single variable relating to timing. They can also include a button which will launch another program (Unit 6.1 Lessons 1 and 2). Children can make good attempts to 'read' code and predict what will happen in a program (Unit 6.1 Lessons 4-6). They can usually interpret a program in parts but will need support to put the separate parts of a complex algorithm or program together to explain the program as a whole (Unit 6.1 Lesson 6). Children are beginning to understand how decomposition and abstraction are used in computer programming and with support can break a given process down into parts. (Unit 5.1 Lesson 3) **Expected** Children are beginning to be able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. They can then use this design to write a program using 2Code (Unit 6.1 Lessons 1 and 2). Children can translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures including nesting structures within each other (Unit 6.1 Lessons 1-6). Children can plan, design and create a program that includes variables relating to timing and scoring along with buttons which launch other programs (Unit 6.1 Lessons 1 and 2). Furthermore, children will consider how to organise their code using multiple tabs (Unit 6.1 Lessons 1, 2, 3 and 5). Children understand the processes of decomposition and abstraction and can apply this knowledge when planning algorithms for a program.	Action Algorithm Abstraction Button Called Co-ordinates Decomposition Event Function If Nesting Object Physical system Run Repeat Score Sequence Simplify / ied Simulation Tab Timer Variable Properties

		on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To understand how 2Code can be used to make a text-based adventure game.	• Children can follow through the code of how a text adventure can be programmed in 2Code. • Children can design their own text-based adventure game based on one they have played. • Children can adapt an existing text adventure so it reflects their own ideas.	(Unit 5.1 Lesson 3) Their coding displays an understanding of the function of variables in coding (Unit 6.1 Lessons 1 and 2 and Lesson 6), outputs such as sound and movement (Unit 6.1 Lessons 1 and 2), inputs from the user of the program such as button clicks (Unit 6.1 Lessons 3, 4 & 5) and the value of Functions (Unit 6.1 Lesson 3). Children can make good attempts to 'read' code and predict what will happen in a program (Unit 6.1 Lessons 4 and 6). They can usually interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm or program together to explain the program as a whole (Unit 6.1 Lesson 6). Children test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs but might need support to identify the specific line of code that is causing the problem as the complexity of the programs increases. They try to improve and debug their own programs (Unit 6.1 All Lessons). Within their programs, they can use features such as interactivity with the end users with the desired effect of adding greater impact. (Unit 6.1. Lesson 5 and 6). Most children demonstrate a secure understanding of the impact of changing the position of instructions within 2Code. With this knowledge, they can demonstrate use of the tabs feature to carefully section code for the intention of easier debugging and less code error, as their coding becomes more complex. **Exceeding** Children can turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. They can then use this design to write a program using 2Code (Unit 6.1 Lessons 1 and 2). Children's designs show that they are thinking both of the required task, and of how to accomplish this in code. Children test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs then test systematically to identify the specific line of code that is causing the problem. Children intuitively grasp the concepts of selection, repetition and variables and make use of the various commands to use input from users and produce output including sound and movement. Children like to challenge themselves to	

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					combine these with other coding structures to achieve the effects that they design to personalise and to improve their programs (Unit 6.1 Lessons 4-6). They are also thinking about good structure to their code with a view to debugging such as the use of tabs and functions to organise code and the naming of variables	
		Unit 6.2 **Digital Literacy** Online Safety Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Use technology safely, respectfully and	• To identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location. • To identify secure sites by looking for privacy seals of approval, e.g., https, padlock icon. • To identify the benefits and risks of giving personal information and device access to different software. • To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. • To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying	• Children have used the example game and further research to refresh their memories about risks online including sharing location, secure websites, spoof websites, phishing, and other email scams. • Children have used the example game and further research to refresh their memories about the steps they can take to protect themselves including protecting their digital footprint, where to go for help, smart rules and security software. • Children understand how what they share impacts upon themselves and upon others in the long-term. • Children know about the consequences of promoting inappropriate content online and how to put a stop to such behaviour when they experience it or witness it as a bystander. • Extension: Children' actions demonstrate that they also feel a	**Emerging** Children can refer to the SMART rules to guide them online. They can navigate networks within Purple Mash (Work folders, class folders and group folders), the local network (school) and the Internet (using as a source for research or leisure time). They use these networks to collaborate with support using Purple Mash tools such as 2Write and 2Connect. They can use search tools and have an awareness of the need to select sources carefully. They can recognise features online that are risks and those that exist to protect them (lesson 1). Children are aware that their actions online have an impact not only on themselves but on others as well. They know to ask for help if they are worried or distressed by something online. **Expected** Children have a good knowledge of the benefits and risks to working collaboratively. They have no trouble navigating networks within Purple Mash (Work folders, class folders and group folders), the local network (school) and the Internet (using as a source for research or leisure time). They use these networks to collaborate using Purple Mash tools such as 2Write, 2Connect and 2Blog and can use a variety of networked devices such as webcams, online tools, printers, and tablets in a connected way for their educational benefit. Children can use search tools and routinely try to verify the validity and reliability of their sources. They look for corroborating sources for information and enter keywords that help them to choose the best results. Children demonstrate an understanding of their responsibility to others as well as to themselves when communicating and sharing content online. They can identify a variety of risks and benefits of technology (lessons 1 and 3). They feel confident in having strategies to help them promote a positive online image of themselves in their digital footprint. Children can identify location sharing as a risk to online safety in lesson 1 and	Digital footprint Password PEGI Rating Phishing Screen time Spoof website

		responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*	and inappropriate behaviour. • To begin to understand how information online can persist and give away details of those who share or modify it • To understand the importance of balancing game and screen time with other parts of their lives, e.g., explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health. • To identify the positive and negative influences of technology on health and the environment.	responsibility to others when communicating and sharing content online. • Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities. • Children can give reasons for limiting screen time. • Children can talk about the positives and negative aspects of technology and balance these opposing views • Extension: Children have an internalised in-depth understanding of the risks and benefits of an online presence	could relate this to work done on protecting their identifying private information. Children were able to identify the padlock and https as aids to the online safety in lesson 1 and could explain what these means referring to the work that they did on this in previous years' online safety units. Children' work in lesson 1, indicates that they have a clear understanding of terms such as Computer virus, Location sharing, phishing scams, spam email, Malware and Identity theft. In lesson 2, they make sensible contributions to the question of what risks there are when installing an App and the possible risks hidden in the small print. Children's work as digital footprint detectives in lesson 2 demonstrates that they understand the impact of a positive and negative digital footprint and how to take control of their own online virtual image. Most children can balance the positive impact of technology with the reasons for limiting screen time that include the effect on physical and mental health. In lesson 3, they were able to reflect on their own screen time and collective class screen time and begin to make informed decisions about when to limit their own screen time Having studied this aspect in depth in year 5 (lesson 3), children routinely include citations in their research work across subjects. They also take care to credit the artist when using images from the Internet. In lesson 2, as part of the discussion surrounding digital footprints, children explored the existence of metadata to track the source of images. Having studied this aspect in depth in year 5 (lesson 2, step 11+ and lesson 3, step 6+), children take care to credit the artist when using images from the Internet and know how to explore the rights and permissions associated with an image online. They can explain the difference between copyright and privacy and are mindful of both aspects when working with images. Most children can make informed choices when communicating online for example selecting the appropriate form of communication for its purpose and audience. They can discuss the use of instant messaging in social contexts, aware of the pros and cons of using such tools. **Exceeding** Children view their own/school devices as a means to access a wealth and mixture of networked and local resources. They use these in an integrated way; for example, they can take information and images from one	

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					source, compare them to others, include them in their written work alongside their own original images and text to enhance their own understanding and produce high quality comprehensive work. They are implicitly aware of the benefits and risks to working collaboratively. They navigate networks within Purple Mash (Work folders, class folders and group folders), the local network (school) and the Internet and use these networks to collaborate using Purple Mash tools such as 2Write, 2Connect and 2Blog. Children can use search tools effectively, routinely verifying the validity and reliability of their sources. They look for corroborating sources for information and enter keywords that help them to choose the most suitable results. They are aware that search engines are also often money-making ventures for their providers and that this has personal privacy implications. They know where to look to investigate their privacy settings on search engines. Children have an internalised in-depth understanding of the risks and benefits of an online presence (lessons 1 and 3). Their actions demonstrate that they also feel a responsibility to others when communicating and sharing content online. They feel confident in having strategies to help them promote a positive online image of themselves and deal with issues that might arise in the future	
		Unit 6.3 Information Technology Spreadsheets Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that	• To use a spreadsheet to investigate the probability of the results of throwing many dice. • To use a spreadsheet to calculate the discount and final prices in a sale. Create a formula to help work out the prices of items in the sale.	• Children can create a spreadsheet to answer a mathematical question relating to probability. • Children can take copy and paste shortcuts. • Children can problem solve using the count tool. • Children can create a machine to help work out the price of different items in a sale. • Children can use the formula wizard to create formulae.	**Emerging** With support throughout, children can create a simple spreadsheet and collect a limited set of data using 2Calculate that answers a mathematical problem relating to probability (Unit 6.3 Lesson 1). Children can use a spreadsheet to model a real-life situation (Unit 6.3 Lesson 3). Children can represent data in a given format (Unit 6.3 Lesson 1) and turn this data into a graph (Unit 6.3 Lesson 1). **Expected** Children can create a spreadsheet and collect data using 2Calculate that answers a mathematical problem relating to probability (Unit 6.3 Lesson 1). Children can use a spreadsheet to model a real-life situation (Unit 6.3 Lesson 3). Most children will be able to create spreadsheets which contain visual elements such as suitable graphs which represent	Average function Advance mode Copy and paste Columns Cells Charts Count (how many) tool Dice

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		accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To use a spreadsheet to plan how to spend pocket money and the effect of saving money. • To use a spreadsheet to plan a school charity day to maximise the money donated to charity.	• Children can use a spreadsheet to solve a problem. • Children can use a spreadsheet to model a real-life situation and come up with solutions. • Children can make practical use of a spreadsheet to help plan actions. • Children can use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life.	their data (Unit 6.3. Lesson 1). They will select an appropriate graphical representation of their data from the available choice. They can create a computational model which successfully solves a given problem (Unit 6.3. Lesson 2). Their use of tools and features to maximise spreadsheet content is secure such as: 'How many', 'function', 'format' and 'image toolbar' (Unit 6.3). They interrogate and refine data with increasing efficiency. For example, children create a spreadsheet to answer a mathematical question, creating a computational model or to support with planning a school event. They utilise advanced features such as the 'formula wizard' for efficiency and know the best layouts to use to support easier interrogations of data (Unit 6.3). **Exceeding** Children demonstrating greater depth can create a spreadsheet using 2Calculate that demonstrates a systematic and logical approach. They can then use this to successfully collate, select and manipulate this data, allowing them to answer a mathematical problem relating to probability (Unit 6.3 Lesson 1). Children understand the importance of data in real-life situations and can use spreadsheets to successfully model this (Unit 6.3 Lesson 3). Furthermore, they choose the most appropriate way to convert and represent their data and can give their reasons behind this choice (Unit 6.3 Lesson 1)	
	Spring	**Unit 6.4** **Computer Science** Blogging Understand computer networks, including the Internet; how they can provide	• To identify the purpose of writing a blog. • To identify the features of successful blog writing. • To plan the theme and content for a blog.	• Children understand how a blog can be used as an informative text. • Children understand the key features of a blog. • Children can work collaboratively to plan a blog.	**Emerging** Children can identify some of the key features of a blog and share these using 2Write (Unit 6.4 Lesson 1). With limited support, they can create a suitable blog for a purpose and can post comments on an existing class blog (Unit 6.4 Lessons 3 & 4). Children are aware there is an approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying (Unit 6.4 Lessons 3 & 4). Children understand the importance of being respectful on	Audience Blog Blog page Blog post Collaborative Icon

		multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about	• To understand how to write a blog and a blog post. • To consider the effect upon the audience of changing the visual properties of the blog. • To understand how to contribute to an existing blog. • To understand the importance of commenting on blogs. • To peer-assess blogs against the agreed success criteria. • To understand how and why blog posts and comments are approved by the teacher.	• Children can create a blog or blog post with a specific purpose. • Children understand that the way in which information is presented has an impact upon the audience. • Children can post comments and blog posts to an existing class blog. • Children understand the approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying. • Children can assess the effectiveness and impact of a blog. • Children understand that content included in their blog carefully considers the end user.	the Internet. Children understand the basic features of a blog and some of the differences between a blog page and a blog post (Unit 6.4 Lesson 1). Children work collaboratively (Unit 6.4 Lesson 2) and individually (Unit 6.4 Lesson 3) to plan, design and create a simple blog. Children become contributors to a blog, their responses to blog posts may be basic (Unit 6.4 Lesson 4). Most children will be able to create a blog with multimedia content and format it appropriately using 2Blog (Unit 6.4. Lessons 2 & 3). They can post comments and blog posts to existing blogs with a complete awareness of how information is presented has an impact on the audience (Unit 6.4). **Expected** Children can identify the key features of a blog and share these using 2Write (Unit 6.4 Lesson 1). They can create a blog for a specific purpose and can post comments on an existing class blog (Unit 6.4 Lesson 2 & 3). Children recognise the approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying (Unit 6.4 Lesson 4). Children understand the features of a blog and the differences between a blog page and a blog post (Unit 6.4 Lesson 1). Children work collaboratively (Unit 6.4 Lesson 2) and individually (Unit 6.4 Lesson 3) to plan, design and create a blog. Children become active contributors to a blog, carefully considering their responses to blog posts (Unit 6.4 Lesson 4). Children become active contributors to a blog, carefully considering their responses to blog posts to ensure that they are always respectful (Unit 6.4 Lesson 4). Children understand the implications of inappropriate use of the blog. In lesson 1, children create a collaborative file with tips for good blog posts, this should include notes about citing sources. Children should then follow this advice when creating their blogs.	

		content and contact			**Exceeding** Children can critique good examples of blogs share these using 2Write (Unit 6.4 Lesson 1). They can create a range of blogs for a specific purpose and audience and can comment on an existing class blog (Unit 6.4 all lessons). Children understand why there is an approval process for any posts and understand the issues surrounding inappropriate posts and cyberbullying (Unit 6.4 Lesson 4). Children demonstrating greater depth, understand that 2Blog is an introduction to the world of blogging and is a way for the user to become a content creator on the internet. As such the content included in their blog carefully considers the end user (throughout unit). Children demonstrating greater depth, understand that 2Blog is an introduction to the world of blogging and is a way for the user to become a content creator on the internet. As such they understand the implications of inappropriate use of the blog and how this relates to the real world	
		Unit 6.5 Computer Science Text Adventures Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection and	• To find out what a text-based adventure game is and to explore an example made in 2Create a Story. • To use 2Connect to plan a 'Choose your own Adventure' type story. • To use 2Connect plans for a story adventure to make the adventure using 2Create a Story.	• Children can describe what a text adventure is. • Children can map out a story-based text adventure. • Children can use 2Connect to record their ideas. • Extension: Children can turn a simple story with 2 or 3 levels of decision making into a logical design • Children can use the full functionality of 2Create a Story Adventure mode to create, test and debug using their plan.	**Emerging** Children can turn a simple story with at least one decision into a logical design using 2Connect (Unit 6.5 Lesson 1). They might need support when completing the decision tree. Children can create individual pages in 2Create a Story (Unit 6.5 Lesson 2) but will need support to link these parts in a logical way. In (Unit 6.5 Lesson 3), they can design a simple map with a sequence of rooms and one item to collect. In (Unit 6.5 Lesson 4), they will need support to turn their designs into code but can succeed in representing the player navigating to different rooms. They can debug a simple program with support. In (Unit 6.5 Lesson 4), they will need support to relate the examples to their own design, especially when using variables, but will be able to code some of the elements of their own design independently and can write code that take input from the user. Children can relate the example design to the example program and can predict	Text-based adventure Concept map Debug Sprite Function

		repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To introduce an alternative model for a text adventure which has a less sequential narrative. • To use written plans to code a map-based adventure in 2Code	• Children can split their adventuregame design into appropriate sections to facilitate creating it. • Children can map out an existing text adventure. • Children can contrast a map-based game with a sequential story-based game. • Extension: Children can make a comprehensive design map with a sequence of rooms including rooms in which the player needs to make a choice and collect items in a certain order to complete the game. • Children can create their own textbased adventure based upon a map. • Children can use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game. • Children make logical attempts to debug their code when it does not work correctly	what will happen in the program using the design document. In (Unit 6.5 Lesson 4), they can use their design to test whether their program has bugs but will need support to identify where these bugs are in their code and to fix them. **Expected** Children can turn a simple story with 2 or 3 levels of decision making into a logical design using 2Connect (Unit 6.5 Lesson 1). Having seen an example, they can use this to make the story their own. Children can create the pages for the component parts of the design in 2Create a Story (Unit 6.5 Lesson 2) and make good attempts to link these parts in a logical way. They might need support when debugging the linked pages if things do not proceed as expected. In (Unit 6.5 Lesson 3), they can make a design map with a sequence of rooms including rooms in which the player needs to make a choice to complete the game and collect items. In (Unit 6.5 Lesson 4), they can use the example code to turn their own designs into code. Children will debug as they code and might need some support in identifying the cause of some bugs. Children can relate the example design to the example program and can predict what will happen in the program using the design document. In their own program, they can use their design algorithm to debug their adventure story. In (Unit 6.5 Lesson 4), they can use their design to test whether their program has bugs and identify where in their code, their bugs occur. Most children apply their knowledge of coding and the fundamental order of instructions through creating their own story-based adventure game. They can identify errors in their code and specifically errors that could impact on the order of events and specific actions when buttons are pressed (Unit 6.5 Lesson 2). Most children demonstrate how algorithms are useful for representing a solution to a problem e.g. During the creation of their own story-based adventure games within 2Code they can systematically test	

					their code against its intended outcome (Unit 6.5 Lesson 2). Most children can carefully plan before constructing digital content such as a text adventure game. Using 2Connect, children can carefully identify the data and information they need to incorporate within their intended coded games. As they advance onto coding, the children can extract and manipulate bits of data and strings of text for the purpose of their game functionality (Unit 6.5 Lessons 1 & 4). **Exceeding** Children can turn a simple story with 3 or more levels of decision making into a logical design using 2Connect (Unit 6.5 Lesson 1). They can ensure that the design is complete and logical. Children can use 2Create a Story to make the component parts of the design (Unit 6.5 Lesson 2) and link these parts in a logical way. They can then debug in a logical way using their design document if things do not proceed as expected. In (Unit 6.5 Lesson 3), they can make a comprehensive design map with a sequence of rooms including rooms in which the player needs to make a choice and collect items in a certain order to complete the game. In (Unit 6.5 Lesson 4), they can use the example code to turn their own designs into code. Children will debug as they code using their designs and notes as a guide. In (Unit 6.5 Lesson 4), they understand and can adapt the use of variables to their own design and can write code that takes input from the user and gives output to the user. Children can relate the example design to the example program and can predict what will happen in the program using the design document. In their own program, they can use their design algorithm to debug their adventure story and foresee elements that they need to code. In (Unit 6.5 Lesson 4), they can use their design to test whether their program has bugs and identify where in their code, their bugs occur. While coding, they refer to and annotate, their design with	

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					helpful notes and changes to enable them to debug and to enhance their program.	
		Unit 6.6 **Computer Science** Networks Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	• To discover what the children know about the Internet. • To find out what a LAN and WAN are. • To find out how we access the internet in school. • To research and find out about the age of the internet. • To think about what the future might hold	• Children know the difference between the World Wide Web and the internet. • Extension: Children can provide examples of the difference between the World Wide Web and the Internet • Children know about their school network. • Extension: Children can explain the differences between more than two network types such as: LAN, WAN, WLAN and SAN. • Children have researched and found out about Tim Berners-Lee. • Children have considered some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult.	**Emerging** Children are aware there is a difference between the Internet and the World Wide Web and can show all the things they use the internet for using 2Connect (Unit 6.6 Lesson 1). Children know there are different network types such as WAN and LAN and can provide some insight into how they access the internet at school (Unit 6.6 Lesson 2) **Expected** Children can explain the difference between the Internet and the World Wide Web and can show all the things they use the internet for using 2Connect (Unit 6.6 Lesson 1). Children know what a WAN and LAN are and can describe how they access the internet in school (Unit 6.6 Lesson 2). **Exceeded** Children know difference between the Internet and the World Wide Web and can provide examples. They can show the main uses for the internet using 2Connect (Unit 6.6 Lesson 1). Children can explain the differences between more than two network types such as: LAN, WAN, WLAN and SAN. In greater detail, children can describe how they access the internet at school and the hypothetical connections their computing device makes (Unit 6.6 Lesson 2)	Internet World wide web Network Local area network LAN Wide area network WAN Router Network cables Wireless
	Summer	**Unit 6.7** **Information Technology** **Quizzing** Select, use and combine a variety of software (including internet services)	• To create a picture-based quiz for young children.	• Children have used the 2DIY activities to create a picture-based quiz. • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz and responded to feedback.	**Emerging** With support throughout, children can plan, design and create simple quizzes using given software- 2DIY, 2Quiz and 2Investigate. Throughout the unit, children begin to consider their audience, their ability and interests and make decisions based upon this. Children sometimes choose appropriate software for the questions that they want to ask (Unit 6.7 Lesson 2 and 3). Children give and respond to feedback, although this may be at a	Audience Collaboration Concept map Database Quiz

		on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	• To learn how to use the question types within 2Quiz. • To explore the grammar quizzes. • To make a quiz that requires the player to search a database. • To make a quiz to test your teachers or parents.	• Children understand the different question types within 2Quiz. • Children have ideas about what sort of questions are best suited to the different question types. • Children have used 2Quiz to make and share a science quiz (or another subject). • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz with peers. • Children have given and responded to feedback. • Children have tried out the different types of grammar games. • Children have chosen an appropriate tool to make their own grammar game(s) • Children have used a 2Investigate quiz to answer quiz questions. • Children have designed their own quiz based on one of the 2Investigate example databases. • Children have used their knowledge of quiz types to create a quiz show quiz	basic level, and they can make simple edits to their quizzes (Unit 6.7 Lesson 1). **Expected** Children can plan, design and create various quizzes using a variety of software- 2DIY, 2Quiz and 2Investigate. Throughout the unit, children consider their audience, their ability and interests and make decisions based upon this. Children choose appropriate software for the questions that they want to ask (Unit 6.7 Lesson 2 and 3). Children give and respond to feedback; they edit and redesign their quizzes accordingly (Unit 6.7 Lesson 1). Most children can create purposeful online quizzes for an intended audience using the 2DIY suite of applications. With ease, they combine text with images and audio to enhance their quizzes. The question types used are fit for audience and serve to add additional enhancements for the intended user. Extra features such as using the instruction window and time limit are applied aptly (Unit 6.7. Lessons 1 to 3). **Exceeding** Children demonstrating greater depth see the links between the variety of software- 2DIY, 2Quiz and 2Investigate. They select the software based on whether it is appropriate for the task and can give reasons to justify their choice (Unit 6.7 Lesson 2 and 3). Children give and respond to feedback; they edit and redesign their quizzes accordingly (Unit 6.7 Lesson 1)	

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				based on a curriculum area.		