Units of Learning Scheme of Learning: Purple Mash	**EYFS Nursery** **Purple Mash** **Mouse and trackpad skills** **Keyboard skills** **Drawing skills** **Robots** **Sounds** **Photography** **Technology around us** **Hardware** **Safety and privacy** **Quizzes** **Using Purple Mash with an individual login**	**EYFS Foundation Stage** **Purple Mash** **Mouse and trackpad skills** **Keyboard skills** **Drawing skills** **Robots** **Sounds** **Photography** **Technology around us** **Hardware** **Safety and privacy** **Quizzes** **Using Purple Mash with an individual login**	**Year 1** **Purple Mash** **Unit 1:1 - Online Safety & Exploring Purple Mash** **Unit 1:2 - Grouping and sorting** **Unit 1:3 - Pictograms** **Unit 1:4 - Lego Builders** **Unit 1:6 - Animated Story Books** **Unit 1:9 - Technology Outside School**	**Year 2** **Purple Mash** **Unit 2:2 - Online Safety** **Unit 2:3 - Spreadsheets** **Unit 2:1 - Coding** **Unit 2:6 - Creating Pictures**	**Year 3** **Purple Mash** **Unit 3:2 - Online Safety** **Unit 3:4 - Touch Typing** **Unit 3:1 - Coding** **Unit 3:7 - Simulations** **Unit 3:8 - Graphing**	**Year 4** **Purple Mash** **Unit 4:2 - Online Safety** **Unit 4:8 - Hardware Investigators** **Unit 4:1 - Coding** **Unit 4:6 - Animations** **Unit 4:7 - Effective Searching**	**Year 5** **Purple Mash** **Unit 5:2 - Online Safety** **Unit 5:6 - 3-D Modelling** **Unit 5:1 - Coding** **Unit 5:3 - Spreadsheets**	**Year 6** **Purple Mash** **Unit 6:2 - Online Safety** **Unit 4:4 - Blogging** **Unit 6:1 - Coding** **Unit 6.5 - Text Adventures**
Information Technology **Substantive Knowledge**	Use a mouse and trackpad. Use a keyboard. Use technology to draw.	Use a mouse and trackpad. Use a keyboard. Use technology to draw.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 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.
Disciplinary Knowledge	Children are able to hold a computer mouse with their finger on the correct buttons. Use a mouse to make the cursor move around the	Children are able to hold a computer mouse with their finger on the correct buttons. Use a mouse to make the cursor move around the	Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work	Children demonstrate an ability to organise data using, for example, a database such as 2Investigate and can retrieve specific data	Children can carry out simple searches to retrieve digital content. They understand that to do this, they are	Children understand the function, features and layout of a search engine. They can appraise selected webpages for	Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail	Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is

	computer screen where they want it to go. Children can click the correct mouse button to play games on the computer. Children can use a mouse accurately to click and drag objects on the screen. Children can use the mouse roller to scroll up and down a page. Children can use a laptop touchpad. Children can find all the letters of the alphabet on a keyboard. Children can put spaces between words in their typed work. Children know how to correct typed work without re-doing the work entirely using the delete keys. Children can type capital letters and lower case and know how to change between these. Children can type numbers using a keyboard. Children know how to move to the next line down when typing. Children can use the arrow keys to move around the screen. Children can use the different inputs of a computer keyboard. Children can select colours when painting on the computer. Children can draw pictures on the computer to go with their work. Children can use a computer to draw with different widths of	computer screen where they want it to go. Children can click the correct mouse button to play games on the computer. Children can use a mouse accurately to click and drag objects on the screen. Children can use the mouse roller to scroll up and down a page. Children can use a laptop touchpad. Children can find all the letters of the alphabet on a keyboard. Children can put spaces between words in their typed work. Children know how to correct typed work without re-doing the work entirely using the delete keys. Children can type capital letters and lower case and know how to change between these. Children can type numbers using a keyboard. Children know how to move to the next line down when typing. Children can use the arrow keys to move around the screen. Children can use the different inputs of a computer keyboard. Children can select colours when painting on the computer. Children can draw pictures on the computer to go with their work. Children can use a computer to draw with different widths of	and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	for conducting simple searches. Children are able to edit more complex digital data such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.	connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines. Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond.	credibility and information at a basic level. Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.	how credible a webpage is and the information it contains. Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email.	and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication. Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the Internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.

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Key Vocabulary	Program Software Technology	Program Software Technology	Criteria Spreadsheet Data Electronic	Tool Binary Searching Bank	Representation Investigate Posture Database Simulation	Formula Formulae Onion skinning Reliability Processor Motherboard Circuits	Nodes Connections Stage Records Fields Environment Variables	Probability LAN WAN
Digital Literacy/Online Safety **Substantive Knowledge**	Use technology around us. Use technology safely. Use quizzes. Use Purple Mash with an individual login.	Use technology around us. Use technology safely. Use quizzes. Use Purple Mash with an individual login.	Recognise common uses of information technology beyond school. 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.	Recognise common uses of information technology beyond school. 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.	Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.	Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.	Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.	Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.
Disciplinary knowledge	Children can talk about what technology is used at home. Children can talk about what technology is used outdoors. Children can talk about what technology is used in the world around them.	Children can talk about what technology is used at home. Children can talk about what technology is used outdoors. Children can talk about what technology is used in the world around them.	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology	Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g.	Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep	Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of	Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly	Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g.

	Children can explain how their work on the computer belongs to them and other people's work belongs to them. Children can explain what it means for something to be private. Children can talk about how their body feels when they are not comfortable with something. Children know who can help them when they are feeling worried. Children can show that they understand how to be kind to others. Children can choose activities in their free time that help them to be healthy. Children can understand what a quiz is. Children can complete a multiple-choice quiz. Children can complete a sequencing quiz. Children can type answers to quiz questions. Children can complete a cloze quiz. Children can complete a matching quiz. Children can complete a sorting and sequencing quiz. Children can complete quizzes on the computer. Children can play games that ask them questions. Children can get to the Purple Mash page on their device at school and at home. Children can login to Purple Mash \ Mini Mash in	Children can explain how their work on the computer belongs to them and other people's work belongs to them. Children can explain what it means for something to be private. Children can talk about how their body feels when they are not comfortable with something. Children know who can help them when they are feeling worried. Children can show that they understand how to be kind to others. Children can choose activities in their free time that help them to be healthy. Children can understand what a quiz is. Children can complete a multiple-choice quiz. Children can complete a sequencing quiz. Children can type answers to quiz questions. Children can complete a cloze quiz. Children can complete a matching quiz. Children can complete a sorting and sequencing quiz. Children can complete quizzes on the computer. Children can play games that ask them questions. Children can get to the Purple Mash page on their device at school and at home. Children can login to Purple Mash \ Mini Mash in	and those that do not e.g. a microwave vs. a chair. Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.	2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs. Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.	passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.	reporting inappropriate content and contact.	relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.	2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety.

	school using the shortcut icon. Children can login to Purple Mash and Mini Mash using my username and password. Children can save work in their own tray\ folder when they are using Mini\Purple Mash. Children can open work that they have done earlier. Children can find and complete 2Dos that their teacher has set them.	school using the shortcut icon. Children can login to Purple Mash and Mini Mash using my username and password. Children can save work in their own tray\ folder when they are using Mini\Purple Mash. Children can open work that they have done earlier. Children can find and complete 2Dos that their teacher has set them.						
Key Vocabulary	Retrieve Safe	Retrieve Safe	Safe Save Retrieve Find Technology	Search Moderate Digital Footprint Personal Hardware Data	Consequence Communication Restrictions Appropriate Inappropriate Attachments Recipients	Software Applications (Apps) Plagiarism Influence Impact	Responsibilities Altering Citation Collaboration	Broadcasting GPS Witness Bystander
Computer Science **Substantive Knowledge**	Use robots. Use technology to make sound. Use technology to take pictures.	Use robots. Use technology to make sound. Use technology to take pictures.	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.	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.	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.	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.	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.	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.

					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.	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.	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.	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.
Disciplinary Knowledge	Children can talk about where they are moving a toy vehicle whilst they are moving it. Children can describe the route taken by a toy vehicle. Children can follow directions to make a route for a toy vehicle. Children can plan a route for a toy vehicle. Children can follow their own plan for where the toy vehicle should move. Children can make a floor robot move. Children can control the forwards, backwards and rotation of a floor robot one step at a time. Children can program a 3-step route for a floor turtle. can predict where a floor robot will end up when given the instructions for a 2 or 3 step route. Children can plan a route for a floor robot and then carry out these instructions one step at a time. Children can plan a route for a floor robot and then carry out these instructions more than one step at a time.	Children can talk about where they are moving a toy vehicle whilst they are moving it. Children can describe the route taken by a toy vehicle. Children can follow directions to make a route for a toy vehicle. Children can plan a route for a toy vehicle. Children can follow their own plan for where the toy vehicle should move. Children can make a floor robot move. Children can control the forwards, backwards and rotation of a floor robot one step at a time. Children can program a 3-step route for a floor turtle. can predict where a floor robot will end up when given the instructions for a 2 or 3 step route. Children can plan a route for a floor robot and then carry out these instructions one step at a time. Children can plan a route for a floor robot and then carry out these instructions more than one step at a time.	Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand. Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code. When looking at a program, children can read code one	Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. Children's program designs display a growing awareness of the need for logical, programmable steps. Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.	Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it. Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects.	When turning a real-life situation into an algorithm, the 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. Children make more intuitive attempts to debug their own programs. Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value	Children may attempt to turn more complex reallife situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code. Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design. When children code, they are beginning to	Children are 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. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem. Children 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. Coding displays

	Children can make music using a computer. Children can add sound effects to their work. Children can use a device to record themselves speaking and play back the sounds. Children can talk about what photos show. Children can take photos using a digital device. Children can use the webcam in Mini Mash. Children can open photos in Purple Mash. Children can open photos that they have taken, in Purple Mash.	Children can make music using a computer. Children can add sound effects to their work. Children can use a device to record themselves speaking and play back the sounds. Children can talk about what photos show. Children can take photos using a digital device. Children can use the webcam in Mini Mash. Children can open photos in Purple Mash. Children can open photos that they have taken, in Purple Mash.	line at a time and make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.		Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, repetition and use of timers. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately. Children can list a range of ways that the Internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way.	of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately. Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.	think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables. Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards.	an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the Internet in school.
Key Vocabulary	Robot Bee-bot Sequence Navigate	Robot Bee-bot Sequence Navigate	Algorithm Instructions De-bug	Coding Repeat Timer Predict	Simulation Variable Purpose	Decomposition Abstraction If/Else	Loops Statements Launch Permissions	Properties Organisation Functions Surplus