Being a Computer Scientist

Year Group	National Curriculum	Sticky Knowledge	Vocabulary	Skills
EYFS		To use a simple computer programme. To recognise different technology and know what it does and/or how it works. To use a certain piece of technology for a particular purpose.	Technology names Programme Play Stop Go Click Tablet Camera Headphones Beebots Whiteboard Laptop Keyboard Mouse Type E-safety	To question why things work. Coordinate actions to use technology. Eg dialling a telephone number. Be able to click different icons to cause things to happen on a computer programme. To use programmable toys such as computers.
Y1 Purple Mash: Unit 1.4 Unit 1.5 Unit 1.7	**Computer Science** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	**Computer Science** ● I understand what coding means. ● I know why instructions have to be clear.	**Computer Science** Clear Instruction Design mode Code Character Background	**Computer Science** ● I can plan a journey for a programmable toy. ● I can add characters and make them move.

Purple Mash: Unit 1.2 Unit 1.3 Unit 1.6 Unit 1.7 Unit 1.8 Purple Mash: Unit 1.9 Unit 1.1	Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. **Information Technology** Use technology purposefully to create, organise, store, manipulate and retrieve digital content. **Digital Literacy** 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. *(Online Safety – Being a safe Computer User is taught through this strand)*	**Information Technology** ● I know how to record information. ● I know how to create a story on the computer. **Digital Literacy** ● I know where technology is used around us. ● I know how to log in safely. ● I know why it is important to log out.	Code block **Information Technology** Pictogram Data Collate Animation Font File Sound effect **Digital Literacy** technology Log in Username Password Log out Save File	● I know how to use design mode to set up a scene. **Information Technology** ● I can insert images into a pictogram. ● I can add backgrounds, music, sounds and animation to my story. **Digital Literacy** ● I can talk about what technology is and where it is used in my local area. ● I can keep my personal information private.

Y2 Purple Mash: Unit 2.1 Purple Mash: Unit 2.3 Unit 2.4 Unit 2.5 Unit 2.6 Unit 2.7 Unit 2.8 Purple Mash: Unit 2.5* Unit 2.2* (*And in other units when appropriate)	**Computer Science** 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. **Information Technology** Use technology purposefully to create, organise, store, manipulate and retrieve digital content. **Digital Literacy** 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. *(Online Safety – Being a safe Computer User is taught through this strand)*	**Computer Science** ● I understand what an algorithm is. ● I understand why I might need to debug a program. ● To predict what the objects will do in other programs. **Information Technology** ● I know how to create a table and block graph. ● I know how to use a database to answer questions. ● I know how to search on the internet. ● I can make music digitally. **Digital Literacy** ● I know how to share things in school using Purple Mash.(email) ● I understand what I put online leaves a trail.	**Computer Science** Algorithm Bug Debug Code Code block When clicked **Information Technology** Information Chart Copy Paste Internet Search engine Upload **Digital Literacy** Share Online Email Internet Search Search engine	**Computer Science** ● I can design algorithms and then code them. ● I can debug simple programs. ● I can logically discuss how something will work based on my knowledge of the objects' limitations **Information Technology** ● I can use copy and paste ● I can collect data and produce a graph. ● I can use the basic parts of a web search engine. ● I can record and upload sound. **Digital Literacy** ● I can open and send an email. ● I can identify the basic parts of a web search engine. ● I can talk about if something online makes me happy or sad .

Y3 Purple Mash: Unit 3.1 Unit 3.5	**Computer Science** 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. **Information Technology** 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.	**Computer Science** ● I know how to design and write a program (simulation) ● I know why it is important to test and debug a program repeatedly ● I understand and use variables ● I can use email safely. **Information Technology** ● I know how to create a branching database. ● I explore simulations. ● I can enter data into a graph.	**Computer Science** Object Action Output Event Control Variable Email Attachment Respond **Information Technology** Simulation Data Graph Field Share	● **Computer Science** ● I can use a design document to start debugging a program ● I can set/change variables in a program. ● I can use a timer and if command. ● I can send an email. ● I can add an attachment. ● I can open, read and respond to an email. **Information Technology** ● I can use a simulation to try out different options. ● I can begin to evaluate simulations by comparing them with real situations. ● I can set up a graph with a given number of fields. ● I can enter data for a graph.
Purple Mash: Unit 3.4 Unit 3.5 Unit 3.6 Unit 3.7 Unit 3.8				

Purple Mash: Unit 3.2 Unit 3.5	**Digital Literacy** Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact. *(Online Safety – Being a safe Computer User is taught through this strand)*	**Digital Literacy** ● I know what makes a safe password. ● I know methods for keeping passwords safe. ● I understand how the Internet can be used in effective communication. ● I understand how a blog can be used to communicate with a wider audience. ● To consider the truth of the content of websites. ● To learn about the meaning of age restrictions symbols on digital media and devices.	**Digital Literacy** Safety Password Username Concept map Internet blog	● I can produce and share graphs made on the computer. **Digital Literacy** ● I can log in safely. ● I can select sensible passwords and usernames ● I can be safe and sensible online.

Y4 Purple Mash: Unit 4.1 Unit 4.2 Unit 4.5 Unit 4.7 Unit 4.8 Purple Mash: Unit 4.1 Unit 4.3 Unit 4.4 Unit 4.6 Unit 4.7	**Computer Science** 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. **Information Technology** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	**Computer Science** ● I know how to debug a program. ● I know how to control a model. ● I know how to identify and correct an error in a program. **Information technology** ● I know if an information source is true and reliable. ● I know the most effective way to find information.	**Computer Science** Action Alert Bug control command de-bug error input/output repeat variation variable simulation **Information technology** internet World wide web Search engine browser	**Computer Science** ● I can experiment with variables to control models. ● I can give an on-screen robot specific instruction. **Information technology** ● I can analyse the content of a web page for clues about the credibility of the information.

Purple Mash Unit 4.2	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. **Digital Literacy** Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact. ***(Online Safety – Being a safe Computer User is taught through this strand)***	● I know how animations are created by hand and then produced using a computer. **Digital Literacy** ● I know that information put online leaves a digital footprint or trail and that this can aid identity theft. ● I know the risks and benefits of installing apps. ● I know the positive and negative influences of technology on health and the environment. Being a Safe Computer User (online Safety) ● I understand the need to keep personal information and passwords private. ● I understand that if I make personal information available online it may be seen and used by others. ● I recognise that cyber bullying is unacceptable and will be	spoof website website reliable / credible Animation Frame Stop motion Onion skinning Play Sound **Digital Literacy** Virus Cookies Phishing Malware Copyright Digital footprint Identity theft Being a Safe Computer User (online Safety) Safety Ceop Cyber bullying Personal private SMART	● I can structure queries to locate specific information. ● I can create an animation. ● I can add backgrounds and sounds to create more complex and imaginative animations. **Digital Literacy** ● I can identify software that is specifically designed to disrupt, damage, or gain access to a computer. ● I can manage my personal screen time. Being a Safe Computer User (online Safety) ● I know how to report an incident of cyber bullying. ● I can protect my personal information by using an alias. ● I know how to respond if asked for personal information or feel unsafe

		sanctioned in line with the school's policy.		about the content of a message.
Y5 Purple Mash: Unit 5.1 Unit 5.2 Unit 5.5	**Computer Science** 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. **Information Technology** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	**Computer Science** ● I know how to create a program. ● I can create a playable, competitive game. ● I know how to identify and correct an error in a program. **Information Technology** ● I know if an information source is true and reliable.	**Computer Science** Input/output bug/de-bug perspective playability sequence selection code command control algorithm variable **Information Technology** Internet World wide web Search engine	**Computer Science** ● I can make a sketch or storyboard to represent a program design and algorithm. ● I can set/change the variable values appropriately. ● I can create code that conforms to my design. **Information Technology** ● I can analyse the content of a web page for clues about the credibility of the information.

Purple Mash: Reacp Unit 4.7 **Purple Mash:** Unit 5.1 Unit 5.3 Unit 5.4 Unit 5.5 Unit 5.6 Unit 5.7 **Purple Mash:** Unit 5.2	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. **Digital Literacy** Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact. *(Online Safety – Being a safe Computer User is taught through this strand)*	● I know the most effective way to find information. ● I can create a playable, competitive game. ● I know how and why spreadsheets are used and why they can be the most effective tool. ● I know how to present data in a spreadsheet. **Digital Literacy** ● I know what is inappropriate online and the impact of sharing anything online. ● I know that I should not publish other people's pictures or tag them on the internet without permission. ● I recognise why people may publish content that is not accurate and understand the need to be critical evaluators of content. ● I know why it is important to keep my online profile reputable.	browser spoof website website reliable / credible column formula cell row formula wizard spin tool spreadsheet data **Digital Literacy** Reputable Appropriate Shared image CEOP Report SMART	● I can structure queries to locate specific information. ● I can create a formula in a spreadsheet. ● I can use the tools on a spreadsheet . **Digital Literacy** ● I can use the SMART rules as a source of guidance when online. ● I can think critically about what they share online, even when asked by a usually reliable person to share something. ● I can use search techniques to find relevant information and increase reliability.

		● I know how search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information		
Y6 Purple Mash: Unit 6.1 Unit 62 Unit 6.4 Unit 6.5 Unkt 6.6	**Computer Science** 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. **Information Technology**	**Computer Science** ● I know how to make a text-based adventure game. ● I know how to organise code into functions. ● I know how to create a simulation in which devices can be controlled. ● I know the difference between the World Wide Web and the internet and how these work. **Information Technology** ● I understand the importance of balancing game and screen time with other parts of my life.	**Computer Science** Input/output Bug/de-bug Algorithm Sequence Selection Simulation Variable Function Local area network (LAN) Wider area network (WAN) Router Wireless **Information Technology** Digital footprint Secure	**Computer Science** ● I can use variables within a game to keep track of the properties of objects. ● I can explain how I organised code in a program into functions to make it easier to read. ● I can explain the difference between a LAN and a WAN. **Information Technology** ● I can protect my digital footprint.

Purple Mash: Unit 6.2	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	● I know what a secure site is by looking for privacy seals of approval. ● I know how and why people use their information and online presence to create a virtual image of themselves as a user. ● I know how to organise code into functions and Call functions to eliminate surplus code in the program.	HTTPS Padlock Privacy	
Purple Mash: Unit 6.1 Unit 6.3 Unit 6.4 Unit 6.5 Unit 6.7	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.	● I use flowcharts to test and debug a program.I know how to create a spreadsheet for a real-life situation. **Digital Literacy** ● I have a clear idea of appropriate online behaviour and how to protect myself and others from possible online dangers, bullying and inappropriate behaviour. ● I understand how information online can persist and give away details of those who share or modify it. ● I understand how information online can persist	Sequence Selection Output/input Formula Debug Repeat Variable **Digital Literacy** Digital footprint Acceptable Unacceptable Bullying Cyber bullying Safety Respect responsible	● I can follow flowcharts to create and debug code ● I can create a machine to help work out the price of different items in a sale. ● I can use the formula wizard to create formulae. **Digital Literacy**
Purple Mash: Unit 6.2 Unit 6.4	**Digital Literacy** Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour. Identify a range of ways to report concerns about content and contact			

	(Online Safety – Being a safe Computer User is taught through this strand)	● I recognise inappropriate online behaviour and know how and where these concerns should be reported.	