

Mary Tavy and Brentor Primary School

Progression in Computing

Computer Science

EYFS ELG Understanding: children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events. ELG Moving and handling: children show good control and co-ordination in large and small movements. They move confidently in a range of ways, safely negotiating space.

Key Stage 1		Lower Key Stage 2	Upper Key Stage 2
NC Link	Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Design, write & debug programs that accomplish specific goals, including controlling or simulating systems
	Create and debug simple programmes. Use logical behaviour to predict the behaviour of simple programmes.	Jse sequence, selection and repetition in programs; work with ariables 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	Solve problems by decomposing them into smaller parts Use sequence, selection & repetition in programs; work with variables & various forms of input & output
		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 logical reasoning to explain how some simple algorithms work and to detect & correct errors in algorithms Select, use and combine a variety of software on a range of digital devices to design & create a range of programs, systems and content that accomplish given goals.
Knowledge	 Children are able to sort, collate, edit and store simple digital content_ 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 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 can identify the parts of a program that respond to specific events and initiate specific actions 	 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 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. 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. 	 Children may attempt to turn more complex real-life 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 & 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 think about their code structure in terms of the ability to debug & interpret the code later, e.g. use of tabs to organise code & the name variables Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task then decomposing ther in a logical way using their knowledge of possible

Skills	 Children use the data collected to create a pictogram To understand what an algorithm is to design algorithms and then code them containing the repeat command and the timer command To know what debugging is and debug programs. 	 Children make more intuitive attempts to debug their own program. Children's use of timers to achieve repetition effects They understand 'if statements' for selection & attempt to combine these with other coding structures. 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 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. They can trace code and use step through methods to identify errors in code & attempts to correct this. Children can create a design that represents a sequential algorithm Confidently discuss their program Children have a clear idea of how to use a design document to start debugging a program Children can create a code to represent their sketch using variables Children can create a algorithm modelling the sequence of a simple event Children can create an algorithm modelling the sequence of a simple event Children can use the Onion Skin tool to create an animated image Children can use backgrounds and sounds to make more complex and imaginative animation using 	 coding structures and applying skills from previous programs. Children test & debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identif a particular line of code causing issues. 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. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks & the value of functions. Children are able to interpret a program in parts & can make logical attempts to put the separate parts of a algorithm together to explain the programme. Use sketching to design a code Select the relevant features of a situation to incorporate into simulation by using decomposition 8 abstraction Children can include buttons & objects that launch windows to websites and programs To design program and organise the code into tabs; Consider how to include interactivity in programming; To use flowcharts to test and debug a program; To explore how 2Code can be used to make a text-based adventure game. 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
Vocabulary	Pictogram, Data, Collate, Collect and combine Algorithm, Bug , Code block Command ,Debug/Debugging,	Design, Event, Computer simulation Flowchart Bug, Debug/Debugging, Get Input If/Else, Simulation LOGO, Animation, Onion skinning, Stop motion	Algorithm ; Bug, Cosingle, Sequence, Selection Text-based adventure, Concept map, Sprite, Function

Digital Literacy				
EYFS ELG Exploring and using media and materials: children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. ELG Being imaginative: children use what they have learnt about media and materials in original ways, thinking about				
abee and pe	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2	
NC Link	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. Using the internet safely, respectfully and responsibly; Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact; Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Understand computer networks, including the Internet; Use technology safely, respectfully and responsibly; identify a range of ways to report concerns about content and contact. Select, use & combine a variety of software on a range of digital devices to design & create a range of programs, systems & content that accomplish given goals, including collecting, analysing, evaluating & presenting data & info Use technology safely, respectfully and responsibly; ; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked. Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for	
Knowledge	 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. 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. Children can create a table of knowledge /Children demonstrate an ability to organise data and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data. Children are confident when creating, naming, saving and retrieving content. 	 Children demonstrate the importance of having a secure password. Furthermore, children can explain the negative implications of failure to keep 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. 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 reporting inappropriate content and contact. Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. 	 communication and collaboration 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 relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others; Exploring and working with Databases 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. Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety. 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. 	

	 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 and those that do not e.g. a microwave vs. a chair 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. 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 		 Blogging 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.
Skills	 To search Purple Mash to find resources To know how to find saved work To be more familiar with tables and graphs To explore tools and games Reviewing prior use of spreadsheet Using a spreadsheet to add amounts Creating a table and block graph Children learn to identify different types of technology outside of school. 	 To know what makes a good password and why it is important to keep it safe; Children understand age restrictions What is our digital footprint? To identify the risks and benefits of installing software including apps How do present work found online To identify the positive and negative influences of technology on health and the environment 	 Thinking about digital content Positive and negative effects of digital content Citing work found online; Reliable resources; Searching databases, exploring, contributing to and creating databases. What do we know about our digital footprint Can we consider the impact of our digital footprint on our health Children consider the future of the internet What is LAN and WAN Children interact within their blogs
Vocabulary	Log in/ Log out, Username, Purple Mash Columns , Cells , Equals tool, Lock tool Move cell tool, Rows, Spreadsheet Technology Internet, Search, Search Engine	Blog ; Username, Website Cookies, Digital footprint, Malware, Search engine, Spoof website	Online safety, Reputable, Encryption Citations; Sort, Group and Arrange PEGI rating, Phishing – The; Network; Local area network (LAN)- Wide area network (WAN) – Blog, Blog page, Blog post

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Enjoy 🕧
Learn 📀
Succeed 🮯

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Progression in Computing

Information Technology

EYFS ELG People and communities: children talk about past and present events in their own lives and in the lives of family members. They know that other children don't always enjoy the same things and are sensitive to this. They know about similarities and differences between themselves and others, and among families, communities and traditions. ELG Technology: children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
NC Link Use technolog manipulate ar	gy purposefully to create, organise, store, nd retrieve 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 Understand computer networks, including the Internet; how they can provide multiple services Use technology safely, respectfully and responsibly; recognise	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 Information Design - write and debug programs that accomplish specific goals, including controlling or simulating physical systems: solve problems by
		acceptable/unacceptable benaviour	decomposing them into smaller parts.
Knowledge Chil usir and sea Chil Chil sav Creating pictu Creating pictu Chil usir and sea Chil suc 2Se nan Chil suc 2Se nan Chil	ildren demonstrate an ability to organise data ng, for example, a database such as 2Invesitigate d can retrieve specific data for conducting simple arches. ildren are able to edit more complex digital data. ildren are confident when creating, naming, ving and retrieving content ures ildren demonstrate an ability to organise data ng, for example, a database such as 2Invesitigate d can retrieve specific data for conducting simple arches. ildren are able to edit more complex digital data ch as music compositions within equence.Children are confident when creating, ming, saving and retrieving content. ildren use a range of media in their digital content luding photos, text and sound.	 Touch Typing 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. Spreadsheets/writing for different audiences 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. Email 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. 	 Game Creator/3dmodelling 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 Spreadsheet Children can create a database, Children can use formula wizard to create formulae. Children use a spreadsheets to solve a problem. Children use a spreadsheet to model a real-life situation and come up with solutions that can be applied in real life. To use formulae within a spreadsheet, check formula for accuracy Children can search databases for information using symbols Children create their own database To use a spreadsheet to model a real-life problem

		Simulations/Branching data bases	
		They can create purposeful content to attach to	
		emails, e.g. 2Respond.	
		• Children can carry out simple searches to retrieve	
		digital content.	
		• They understand that to do this, they are connecting	
		to the internet and using a search engine such as	
		Purple Mash search or internet-wide search engines.	
		 Children can consider what software is most 	
		appropriate for a given task. They can create	
		purposeful content to attach to emails, e.g.	
		2Respond.	
Skills	 Children produce their own pictogrammes depicting data 	Touch typing	Game Creator
	they have collected from the class	Developing touch typing skills, focus on using two hands.	• Evaluate, design and create computer games.
	Children learn to catagorise objects using yes/no questions	Spreadsheets	Children develop all components of their games
	• Children learn create a binary tree, what is a database and	 Develop confidence using formulas. 	design and program.
	how could we create one?	 Children explore number using tools. 	 Self and peer evaluation.
	 Children use a search tool to find out information. 	Creating graphs. Develop 2Calculate skills.	Spreadsheets
	Creating pictures	Email	Spreadsheets- solving mathematical problems.
	• I can use 2Paint a Picture to create my own impressionist	 Children can open an email, respond and send 	Develop formula wizard skills.
	art	emails.	Using spreadsheets to model real life situations
	 I can use the eCollage function in 2Paint a Picture to create 	Children aware of CC and confident attaching work	Children explore maths formulas in spreadsheets
	my own surrealist art using drawing and clipart	to emails. Writing for different audiences	Children can use the 'how many' tool
		Children have used 2Connect to mind man ideas for	Children can create simple formulae that use
		a community campaign	different variables
		 Children have used these ideas to write a persuasive 	Children can use a spreadsheet to model a real-life
		letter or poster as part of the campaign	situation and come up with solutions that can be
		Simulations/Branching data bases	practically applied
		 Children can explore a simulation & can use a 	BD modelling
		simulation to try out different options & test	Children have explored the different viewpoints in Design and Make whilet designing a huilding
		predictions	Children have explored how to edit the polygon 2D
		Children can begin to evaluate simulations & identify	models to design a 3D model for a purpose
		the rules on which the simulations are based & test	 Children have explored the possibilities of 3D
		predictions	printing
		Children can create a branching database	
		Children know how to use and debug their own	
	Distances Data Calleta Disamatras Austra Database	branching database.	A singulation between the Tecture Demonstration Disarchility
Vocabulary	Pictogram, Data, Collate, Binary Tree, Avatar, Database	Posture , Top row keys, Home row keys , Bottom row keys,	Animation, Interactive, Texture, Perspective, Playability
	Palette, Template	Space Dal Average Columns, Colls Charts Formula Wizard	Advance mode, Count, Equais tool, Timer
		Spreadsheet	$C\Delta D = 3Net = 3D Printing$
		Email , Report to the teacher, Attachment, Address hook, CC	
		Font . Bold. Italic . Underline	
		Simulation, Branching database, Database	