COMPUTING PROGRESSION OF KNOWLEDGE AND SKILLS – NURSERY TO YEAR 2

NURSERY	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
THEME	Ourselves and Autumn	Celebrations	People who help us	Traditional tales and Spring and growing	Wings, tails and shiny scales. The Cow that went Oink, Dear Zoo	Wild and Wonderful The Rainbow Fish The Very Hungry Caterpillar
EYFS FRAMEWORK	At Palfrey Infants, Computing is used in Nursery to support children's development across the seven areas of learning. Computing lessons in Nursery will support children to develop listening skills, problem-solving and thoughtful questioning skills. Computing in EYFS may be centred around play-based, unplugged activities alongside specific work on devices.					
CONTENT	Exploring cause and effect toys and lift the flap books. Using iPads to create simple drawings	Investigate wind-up and friction toys. Use the iPad to create firework pictures. Making biscuits– following recipes.	Using iPads to complete a simple program on Purple Mash. Busy things website games. Bee-Bots and controllable toys – following directions.	Talking about different devices and their uses. Using the iPad camera to take photographs and videos. Navigating simple programs using Purple Mash. Begin to investigate internet search engines (Swiggle) Making gingerbread men – following recipes.	Using Purple Mash program to create an animal face. Interactive globe – pressing buttons and listening to information.	Investigate and make pop-up toys. Continue to use iPads to explore Purple Mash programs.
SKILLS	• Operate technological toys (knobs, pulleys, winders) • Spot simple patterns • Sequence familiar tasks • Recognise technology used at home and in school • Experience simple apps and software • Make choices about the buttons/icons to press, touch or click on when using simple software/ hardware. • Use devices to capture photographs and videos • Understand that technological devices need to be handled with care.					
KEY KNOWLEDGE	Children will know: • That some toys are interactive and that if they do something (e.g. press a button) it will cause something to happen. • That touching different areas of an	Children will know: • That an action with technology will trigger a specific outcome. • That following a sequence of instructions will have an outcome.	Children will know: • That Bee-Bots/ controllable toys work by inputting instructions. • That the Bee-Bots will move differently if you press different buttons.	Children will know: • That different devices have similar and different uses. • That a camera can be used to capture a still image or a video. • What a computer is and that it has different uses (e.g.	Children will know: • That the colour and size of the pen tool can be changed. • That making different choices will achieve different outcomes.	Children will know: • That changes can be made to their pictures in a paint program by using the eraser icon. • That other tools can be used in a paint program to create a picture (e.g. shapes)

	iPad screen will cause something to happen.			find information, play games) • That information can be retrieved from computers/the internet. • That it can be important to follow instructions in the correct order to achieve a given outcome		
NEW VOCAB	on, off, screen, touch, press, twist, push, pull, look, gentle, careful, pen, draw, colour, button, icon, iPad, tablet, program, Purple Mash	wind, flick, tap, hold, change, first, next, then, finally,	control, instruction, forwards, backwards, sideways, turn, order	laptop, camera, mobile phone, photograph, video, stream, search, information, type/typing, online safety	tools, choice, pen size	shape tool, eraser/rubber
KEY INFORMATION FOR TEACHERS/ WHERE TO FIND MORE	Computing at School EYFS A collection of user guides for the tools found on Purple Mash. CPD options in Purple Mash – Teachers – Professional Development					

RECEPTION	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
THEME	Drawing skills	Robots	Technology around us	Photography	Mouse and trackpad skills	Keyboard skills
EYFS FRAMEWORK	Computing is not explicitly mentioned as part of the EYFS curriculum. At Palfrey Infant School we have chosen to follow the Purple Mash *Early Years Computing Skills* guide in Reception to focus on the foundations of computing skills that will give children a sound basis to explore topics using technology and to be ready for progressing through the Computing curriculum. Familiarity with some of these skills will reduce the cognitive load on children in future learning and enable them to make progress more rapidly.					
CONTENT Purple Mash EYFS General Computing Skills	In this unit children will explore mark making using touch or mouse control on a device.	In this unit children will use programmable toys to help develop logical processing skills in terms of following and creating instructions and making predictions.	In this unit children will explore technology that is used at home, technology that is used outdoors and technology that is used in the world around them.	In this unit children will explore key features of photography, including taking and using their own photos on a digital device.	In this unit children will explore activities aimed at supporting them in developing the hand-eye coordination and fine-motor skills required to operate a mouse effectively.	In this unit children will experience simple typing, capital letters and function keys such as 'enter'.
WORKSHOPS		Bee-Bots				
SKILLS	• Select colours • Make purposeful marks on screen • Control pencil width • Use the undo button and the eraser correctly	• Input instructions purposefully to program a Bee-Bot • Input instructions as a sequence of a few steps • Plan a route for a Bee-Bot to follow	• Identify and talk about technology all around us • Use technology purposefully in role-play	• Take photos using devices • Take selfie images using the webcam in Mini Mash • Add saved photos to a template in Purple Mash	• Hold a computer mouse with finger on correct buttons • Move the mouse purposefully • Use click and drag purposefully • Use a trackpad	• Find all the letters of the alphabet on a keyboard • Put spaces between typed words • Type capital, lower case and numbers • Move to the next line when typing
KEY KNOWLEDGE	Children will know: • That tools in a paint program can be chosen and used for a specific purpose. • That most paint programs have an undo and eraser function.	Children will know: • That Bee-Bots can be controlled by inputting a sequence of instructions. • That the outcome of a sequence of instructions can be predicted.	Children will know: • That technology is the use of science to solve problems or make something easier. • That technology is used all around us at home, outdoors and in the wider world. • That technology has changed (advanced) over the years.	Children will know: • That photographs can be taken using different devices. • That photographs can be uploaded on to a computer. • That photos can be opened and used in different projects on Purple Mash.	Children will know: • That you use a mouse to make a cursor move around a computer screen. • That you use a mouse click and drag to move objects on a screen. • That a trackpad is part of a laptop that does the same job as a mouse.	Children will know: • That they can use a keyboard to type uppercase and lowercase letters. • That typed work can be corrected without redoing the work completely. • That different keys have different functions.

RETRIEVAL/ PRIOR LINKS	YN Sum 1: Know that making different choices will achieve different outcomes. YN Sum 2: Know that other tools can be used in a paint program to create	YN Aut 2, Spr 1 and Spr 2: Know that following a sequence of instructions will have an outcome. Know that Bee-Bots/ controllable toys work by inputting instructions. Know that the Bee-Bots will move differently if you press different buttons. Know that it can be important to follow instructions in the correct order to achieve a given outcome		YN Spr 2: Know that different devices have similar and different uses. Know that a camera can be used to capture a still image or a video.		
NEW VOCAB (REMEMBER TO RECALL PREVIOUS VOCAB)	paint program, image, tools	robot, controllable, programmable, route, input, arrow, left turn, right turn	technology	digital, device, uploaded, save, saved, template, webcam, selfie	mouse, track pad, cursor, left click, right click	keyboard, typing, space bar, enter, delete, backspace
KEY INFORMATION FOR TEACHERS/ WHERE TO FIND MORE	A collection of user guides for the tools found on Purple Mash. CPD options in Purple Mash – Teachers – Professional Development					

YEAR 1	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
THEME	1.1 Online Safety and Exploring Purple Mash	1.4 Lego Builders 1.9 Technology Outside School	1.6 Animated Story Books	1.5 Maze Explorers	1.3 Pictograms 1.8 Spreadsheets	1.7 Coding
NC OBJECTIVES COMPUTER SCIENCE INFORMATION TECHNOLOGY DIGITAL LITERACY *most units will cover aspects of each strand	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.	Understand what algorithms are; how they are implemented as programs on digital devices. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. Recognise common uses of information technology beyond school.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Understand what algorithms are; how they are implemented as programs on digital devices. Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Understand what algorithms are; how they are implemented as programs on digital devices. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
CONTENT Purple Mash	In this unit children will develop their confidence to log in to Purple Mash. They will begin to explore the programs and tools that will help them to create work and they will experience saving work and retrieving it at a later date.	(1.4) In this unit children will experience following instructions on and off the computer and begin to develop an understanding of the importance of sequencing instructions correctly. (1.9) In this unit children will explore technology that is used inside and outside school.	In this unit children will have the opportunity to develop the skills to create, organise, store, manipulate and retrieve digital content through the creation of their own animated story book.	In this unit children will be introduced to using direction keys and units of measurements to move an object. They will begin to create a simple sequence of instructions and begin to understand what to do if these instructions don't achieve the desired outcome.	(1.3) In this unit children will be introduced to pictograms and look at how they can be used to represent data. (1.8) In this unit children will be introduced to spreadsheets as a way of representing data. They will begin to learn how to navigate around a spreadsheet	In this unit children will be introduced to coding. They will plan and make a simple computer program.
WORKSHOPS				Bee-Bots		
SKILLS	• Log in and out safely • Save and retrieve work • Search Purple Mash	1.4 • Compare the effects of adhering strictly to the instructions to completing tasks	• Use drawing tools to create a picture on the page • Add text to a page	• Understand the functionality of the direction keys • Create and debug an algorithm	1.3 • Contribute to a class pictogram	• Give and follow instructions • Predict what might happen when

Purple Mash Essential Knowledge	• Add pictures and text to work	without complete instructions • Follow and create simple instructions on the computer 1.9 • Find and record examples of technology	• Add animation to a story • Add sound to a story • Save and retrieve work • Share digital stories with others e.g. on digital display boards	• Change and extend algorithms	• Use a pictogram to record the results of an experiment 1.8 • Enter data into spreadsheet cells. • Use tools to lock, move cells, speak and count	instructions are followed • Use code to make a computer program • Use an event to control an object • Plan and make a computer program
KEY KNOWLEDGE Purple Mash Essential Knowledge	Children will know: • That you need a username and password to login. • That passwords must not be shared (except with trusted adults at this age). • What an avatar is and why we use one.	1.4 Children will know: • That the order of instructions affects the end result for a given instructional task. • That computers need precise instructions to follow. 1.9 Children will know: • That technology is the use of knowledge to invent new devices and tools. • That, throughout history, technology has made people's lives easier. • That technology is used in school and outside of school.	Children will know: • The difference between an e-book and a traditional book. • That 2Create a Story is software that can be used to create interactive stories. • That an animation is an object that moves on screen.	Children will know: • What instructions are and can predict what might happen when they are followed. • That fixing a problem within an algorithm is called debugging.	1.3 Children will know: • That we can collect facts and statistics to give us information and that this is called data. • That a pictogram is a diagram that uses pictures to represent data. • That data, represented as a pictogram, can be used to answer questions. 1.8 Children will know: • That a spreadsheet is a computer program that represents information in a grid of cells. • That a cell is an individual part of a spreadsheet that contains data or calculations.	Children will know: • That objects are part of a computer program that can be controlled or changed. • That actions are commands which make something happen to an object. • That an event is something that causes a block of code to run. • That a code is an algorithm written using symbols and words that a computer can interpret and follow.

RETRIEVAL/ PRIOR LINKS	YR Aut 1: Know that tools in a paint program can be chosen and used for a specific purpose. Know that most paint programs have an undo and eraser function.	YR Aut 2: Know that the outcome of a sequence of instructions can be predicted.	Y1 Aut 1: Know that work can be created and stored electronically. That their *My Work* folder is a private space just for their work.	Y1 Aut 2 (1.4): Know why the order of instructions is important Know that an algorithm is a precise, step-by-step set of instructions.	Y1 Sum 1 (1.3): Know what data is and how we could collect it. Know that data can be represented in different ways.	Y1 Aut 2 (1.4) and Spr 2: Know why the order of instructions is important Know that an algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective. Know that fixing a problem within an algorithm is called debugging.
NEW VOCAB (REMEMBER TO RECALL PREVIOUS VOCAB)	alert, avatar, button, device, file name, filter, home screen, icon, login, log out, menu, my work area, notification, password, private, Purple Mash tools, saving, search, shared folder, textbox, think about box, topic area, tool bar, typing, writing template	(1.4) algorithm, code, computer, instructions, debugging, machine, program, recipe, sequence (1.9) computer, technology	animation, background, category, clip-art gallery, copy, drop-down menu, e-book, edit, eraser, features, font, image, sound, overwrite, paint tools, paste, play mode, redo, save, sound effect, text, undo, voice recording,	challenge, command, delete, direction, instruction, left and right, route, unit	collect data, compare, data, pictogram, record results, title, totals, visual calculations, cell, column, count tool, lock cell, move cell, row, select, speak tool, spreadsheet, value	action, click, code blocks, coding, code view, design view, event, execute/executes, object, output, plan, programr (coder), properties, run, scale, scene, software, when clicked
KEY INFORMATION FOR TEACHERS/ WHERE TO FIND MORE	Teacher videos in Purple Mash – Computing Scheme of Work User guides in Purple Mash - www.purplemash.com/#tab/teachers/guides_and_resources Videos explaining National Curriculum terminology for teachers - www.purplemash.com/#tab/teachers/computing_sow/computing_glossary_videos CPD options in Purple Mash –www.purplemash.com/#tab/teachers[4]					

YEAR 2	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
THEME	2.2 Online Safety 2.5 Effective Searching	2.6 Creating Pictures	2.4 Questioning	2.1 Coding	2.7 Making Music	2.8 Presenting Ideas
NC OBJECTIVES COMPUTER SCIENCE INFORMATION TECHNOLOGY DIGITAL LITERACY *most units will cover aspects of each strand	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 purposefully to create, organise, store, manipulate and retrieve digital content.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Understand what algorithms are; how they are implemented as programs on digital devices. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
CONTENT Purple Mash	(2.2) In this unit children will be learning about and using the search tool. They will begin to explore emails using 2respond and they will be learning about what a digital footprint is. (2.5) In this unit children will develop their understanding of what the internet is. They will gain basic skills to help them search for information more effectively	In this unit children will explore some of the templates and functions of the program 2Paint a Picture. They will do this alongside learning about some artists and art movements.	In this unit children will begin to learn about the importance of phrasing questions and that certain data-handling resources are limited in the answers they can provide.	In this unit children will build on their knowledge of coding from Y1 unit 1.7 following the PRIMM approach (predict, run, investigate, modify, make). Children will be encouraged to solve their own problems when they get stuck, either by reading through their code again or by asking their peers; this models the way that coding work is really done.	In this unit children will gain the knowledge and understanding to create simple and more complex animations using 2Sequence. The children can use 2Sequence to explore harmony and build up musical scores.	In this unit children will explore how stories can be presented in different ways. They will plan and make a quiz, fact file and presentation
WORKSHOPS					Micro:Bit	

SKILLS Purple Mash Essential Knowledge	2.2 • Open and send emails safely • Think critically about the information they leave online • Identify steps that can be taken to keep personal data and hardware secure 2.5 • Identify basic parts of a web search engine search page • Navigate a web search results page • Search the Internet to some degree for answers to a quiz	• Create an image replicating an established style • Use tools and effects purposefully	• Store and retrieve data • Create pictograms to represent data • Run simple searches on their data • Use yes/no questions to separate information • Construct a binary tree to identify items • Use a database to answer more complex search questions	• Predict the outcome of an algorithm • Create a computer program using an algorithm • Create programs using collision detection and timed sequences • Create simple programs using a given design	• Make forms of music (digitally) using software 2Sequence • Edit and combine sounds using 2Sequence • Refine composed music • Upload/import and record sounds beyond the software environment.	• Efficiently store and retrieve their work from their saved area on Purple Mash • Use Purple Mash as a platform for collaboration • Utilise a variety of software to manipulate and present digital content • Add images such as clipart and photos to presentational software • Collect, organise and present data and information in digital format
KEY KNOWLEDGE Purple Mash Essential Knowledge	2.2 Children will know: • That email is a form of digital communication. • That information put online leaves a digital footprint. 2.5 Children will know: • the premise of what effective Internet searching is. • The meaning of key Internet and searching terms. • That searching online contributes to their digital footprint.	Children will know: • Knows the purpose and benefits of painting software tools such as 2Paint a Picture. • That tools in a paint program can be used to manipulate a digital image. • That multiple effects and features can be combined to create their work to replicate the style of William Morris.	Children will know: • That pictograms provide limited information. • That there are other data handling tools that can give more information than pictograms. • That data can be organised using a database. • That a binary tree can be used to sort information and answer questions.	Children will know: • That an algorithm is a precise, step-by-step set of instructions. • That the outcome of an algorithm can be predicted by reading the code blocks. • That objects in their code can have different attributes (functions) that can be changed. • That programs need to be tested and debugged repeatedly.	Children will know: • That music can be created digitally using software such as 2Sequence. • What happens to the tune when sounds are moved.	Children will know: • That digital content can be represented in many forms. • That digital content can be adapted to suit the audience and format. • That data can be structured in tables to make it useful for an audience.

RETRIEVAL/ PRIOR LINKS	Y1 Aut 1 (and ongoing): Know that you need a username and password to login. That passwords must not be shared (except with trusted adults at this age). What an avatar is and why we use one.	Y1 Aut 1: Know that work can be created and stored electronically. That their *My Work* folder is a private space just for their work.	Y1 Sum 1: Know that we can collect facts and statistics to give us information and that this is called data. Know that a pictogram is a diagram that uses pictures to represent data. Know that data, represented as a pictogram, can be used to answer questions.	Y1 Aut 2 (1.4), Spr 2 and Sum 2: Know why the order of instructions is important' Know that an algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective. Know that fixing a problem within an algorithm is called debugging. Know that a code is an algorithm written using symbols and words that a computer can interpret and follow.	Y1 Spr 1: Know how to add sound to an animated story.	Y1 Spr 1: Know the difference between an e-book and a traditional book.
NEW VOCAB (REMEMBER TO RECALL PREVIOUS VOCAB)	(2.2) attachment, digital footprint, display board, email, filter, identifying, personal information, private information, protection, reply, search, secure, sharing (2.5) browser, device, domain, network, search engine, URL, web address, web page, web site, world wide web	diagonal, dilute, eCollage, fill, horizontal, impressionism, palette, parallel, Pointillism, rotated, stamps, style, Surrealism, symmetry, vertical	binary tree, database, field, record, sort	(Recap vocab particularly from Y1 units 1.4, 1.5, 1.7) collision detection, collision detection action, collision detection event, implement, interaction, interval, test, timer, turtle object, when key event, when swiped event	Bars, beat, compose, note, tune, repeat, sound effect, soundtrack, speed, tempo, volume	fact file, fiction, mind map, multiple-choice, node, non-fiction, presentation, quiz
KEY INFORMATION FOR TEACHERS/ WHERE TO FIND MORE	Teacher videos in Purple Mash – Computing Scheme of Work User guides in Purple Mash - www.purplemash.com/#tab/teachers/guides_and_resources Videos explaining National Curriculum terminology for teachers - www.purplemash.com/#tab/teachers/computing_sow/computing_glossary_videos CPD options in Purple Mash –www.purplemash.com/#tab/teachers[4]					